

Quality Management

Reconsidered for the Digital Economy

FIFTH EDITION

John Beckford



Quality Management

Quality Management: Reconsidered for the Digital Economy continues to provide a one-stop-shop for anyone studying the theory and practice of quality management. Exploring the essentials of management theory and the work of the ‘quality gurus’ who have formed the foundation of current practice, this new edition builds upon the previous editions’ unique critical perspective of quality.

Key management practices are considered and extended, including lean thinking, systems methodologies, business process reengineering, organisational learning and intelligent organisations and service quality management. This edition plays particularly close attention throughout to the impact of the 4th Industrial Revolution on quality management, revisiting the meaning of ‘quality’ in an automated and data-driven world. Throughout, case studies have been rewritten including new examples from emerging economies, and practical tools incorporated to enhance learning and application.

Replete with examples, vignettes and diagrams, this comprehensive textbook is ideal for those new to the field of quality management and for students on advanced undergraduate and postgraduate courses in Operations Management.

Online resources include chapter-by-chapter PowerPoint slides and a test bank of questions.

John Beckford is a partner in Beckford Consulting; President of the Cybernetics Society (2020–2022); and Visiting Professor at University College London and Loughborough University, both in the UK. He is also the author of *The Intelligent Organisation* (Routledge, 2020) and *The Intelligent Nation* (Routledge, 2021).



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Fifth edition

John Beckford

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Contents

<i>Preface to Fifth Edition</i>	xii
<i>The Author</i>	xvi
<i>List of Vignettes</i>	xvii
<i>List of Figures</i>	xviii
PART I	
Introducing Quality	1
1 The Quality Imperative	3
<i>Introduction</i>	3
<i>The Economic Imperative</i>	4
<i>The Social Imperative</i>	8
<i>The Environmental Imperative</i>	12
<i>The Digital Imperative</i>	14
<i>The Service Challenge</i>	16
<i>Summary</i>	17
2 Quality: A Strategic Decision?	20
<i>Introduction</i>	20
<i>Operations Management</i>	20
<i>Administrative Management</i>	22
<i>Strategic Management</i>	23
<i>Normative Decisions</i>	28
<i>Summary</i>	29
3 Barriers to Quality	31
<i>Introduction</i>	31
<i>Systems and Procedures</i>	31
<i>Culture</i>	34
<i>Organisation Design</i>	38
<i>Management Perspectives</i>	41
<i>Understanding Costs of Quality</i>	43
<i>Summary</i>	44

4 The Emergence of Management	46
<i>Introduction</i>	46
<i>Classical Theory</i>	46
<i>Critical Review</i>	50
<i>Reiteration</i>	51
<i>Human Relations Theory</i>	52
<i>Critical Review</i>	55
<i>Reiteration</i>	55
<i>Relevance to Quality</i>	56
<i>Summary</i>	58

PART II

The Quality Gurus	59
--------------------------	----

User Guide 59

5 Philip B. Crosby	61
<i>Introduction</i>	61
<i>Philosophy</i>	61
<i>Assumptions</i>	63
<i>Methods</i>	65
<i>Successes, Failures and Contemporary Relevance</i>	68
<i>Critical Review</i>	71
<i>Summary</i>	72

6 W. Edwards Deming	73
<i>Introduction</i>	73
<i>Philosophy</i>	73
<i>Assumptions</i>	78
<i>Methods</i>	80
<i>Successes, Failures and Contemporary Relevance</i>	87
<i>Critical Review</i>	89
<i>Summary</i>	90

7 Armand V. Feigenbaum	92
<i>Introduction</i>	92
<i>Philosophy</i>	92
<i>Assumptions</i>	93
<i>Methods</i>	94
<i>Successes, Failures and Contemporary Relevance</i>	96
<i>Critical Review</i>	97
<i>Summary</i>	98

8 Kaoru Ishikawa	100
<i>Introduction</i>	100
<i>Philosophy</i>	100

<i>Assumptions</i>	102	
<i>Methods</i>	103	
<i>Successes, Failures and Contemporary Relevance</i>	107	
<i>Critical Review</i>	109	
<i>Summary</i>	109	
9 Joseph M. Juran		111
<i>Introduction</i>	111	
<i>Philosophy</i>	111	
<i>Assumptions</i>	113	
<i>Methods</i>	116	
<i>Successes, Failures and Contemporary Relevance</i>	118	
<i>Critical Review</i>	120	
<i>Summary</i>	121	
10 John S. Oakland		123
<i>Introduction</i>	123	
<i>Philosophy</i>	123	
<i>Assumptions</i>	125	
<i>Methods</i>	126	
<i>Successes, Failures and Contemporary Relevance</i>	132	
<i>Critical Review</i>	133	
<i>Summary</i>	134	
11 Taiichi Ohno		135
<i>Introduction</i>	135	
<i>Philosophy</i>	135	
<i>Assumptions</i>	137	
<i>Methods</i>	139	
<i>Successes, Failures and Contemporary Relevance</i>	142	
<i>Critical Review</i>	145	
<i>Summary</i>	146	
12 Shigeo Shingo		147
<i>Introduction</i>	147	
<i>Philosophy</i>	147	
<i>Assumptions</i>	148	
<i>Methods</i>	149	
<i>Successes, Failures and Contemporary Relevance</i>	150	
<i>Critical Review</i>	151	
<i>Summary</i>	152	
13 Genichi Taguchi		153
<i>Introduction</i>	153	
<i>Philosophy</i>	153	
<i>Assumptions</i>	155	

viii Contents

Methods 156
Successes, Failures and Contemporary Relevance 158
Critical Review 159
Summary 160

PART III

Contemporary Thinking 161

User Guide 161

14 Quality Management Systems Standards 163

Introduction 163
ISO9001:2015 Principles 163
ISO9001:2015 Requirements 165
 Scope 165
 Organisation and Context 165
 QMS and Processes 165
 Leadership and Commitment 166
 Policy 166
 Planning 167
 Support 167
 Operation 168
 Performance and Review 168
Reflection 169
ISO14001:2015 and ISO45001 169
ISO8001: Data Quality 171
The EFQM Excellence Model 172
 The Fundamental Concepts of Excellence 172
 The Criteria 173
 The RADAR 175
 Critique 175
Summary 176

15 Organisations as Systems 177

Introduction 177
Contingency Theory 178
Is Quality Contingent? 182
Systems Thinking 183
Systems Thinking and Quality 185
Summary 186

16 Soft and Critical Systems Methodologies 188

Introduction 188
Soft Systems Thinking 188
Tools for Soft Systems 190
Soft Systems and Quality 191
Soft Systems and the Digital Economy 191

<i>Critical Systems Thinking and Quality</i>	192
<i>Total Quality Management (TQM) through Total Systems Intervention (TSI)</i>	195
<i>Assumptions</i>	197
<i>Successes, Failures and Contemporary Relevance</i>	198
<i>Critical Review</i>	200
<i>Summary</i>	200
17 Organisational Cybernetics	202
<i>Introduction</i>	202
<i>Organisations as Cybernetic Systems</i>	202
<i>Tools of Cybernetics</i>	204
<i>Cybernetics and Quality</i>	208
<i>Cybernetics and Quality 4.0</i>	213
<i>Quality 4.0 Critique</i>	215
<i>Summary</i>	215
18 Business Process Re-Engineering	217
<i>Introduction</i>	217
<i>What is BPR?</i>	217
<i>Discontinuity, Chaos and Complexity</i>	218
<i>What Drives BPR?</i>	219
<i>What Does BPR Mean?</i>	220
<i>Business Process Challenge</i>	222
<i>The BPR Process</i>	223
<i>BPR and Quality</i>	224
<i>Six Sigma</i>	224
<i>Summary</i>	226
19 Learning Organisations	227
<i>Introduction</i>	227
<i>Organisational Learning</i>	227
<i>Senge's Learning Organisation</i>	230
<i>The Learning Disabilities</i>	231
<i>The Five Disciplines</i>	232
<i>Quality and Learning</i>	234
<i>Summary</i>	234
20 Service Quality Management	236
<i>Introduction</i>	236
<i>Service Quality: An Emergent Property of Applied Knowledge?</i>	236
<i>A Service Quality Problem</i>	240
<i>A Service Quality Management System (SQMS)</i>	241
<i>The Overall Structure</i>	243
<i>The Model for a Systemic QMS</i>	246
<i>SQM Review</i>	250
<i>Summary</i>	251

PART IV

Quality in Practise: A Case Study	253
<i>User Guide</i>	253
21 The Infrastructure Company	255
<i>Introduction</i>	255
<i>Background</i>	255
<i>Initial Reflections</i>	256
<i>Iterative Methodology</i>	259
<i>Summary</i>	261
22 First Intervention	262
<i>Introduction</i>	262
<i>Soft Systems Perspective</i>	262
<i>Soft Systems Methodology</i>	262
<i>Principles and Conception</i>	262
<i>SSM – Methodology</i>	263
<i>Critical Review</i>	264
<i>Viable Systems Perspective</i>	266
<i>Viable Systems Methodology</i>	266
<i>The Viable System Model in Theory</i>	266
<i>VSM – Conception and Construction</i>	267
<i>Critical Review</i>	274
<i>Process Analysis</i>	276
<i>Process Mapping</i>	276
<i>Core Processes</i>	276
<i>Reflections and Next Steps</i>	279
<i>Summary</i>	280
23 Second Intervention	282
<i>Introduction</i>	282
<i>Recap</i>	282
<i>Engaging the Internal Stakeholders</i>	283
<i>Interactive Planning</i>	284
<i>Principles and Conception</i>	284
<i>Methodology</i>	285
<i>Critical Review</i>	287
<i>Quality Circles</i>	288
<i>Improving Processes</i>	290
<i>Process Analysis</i>	290
<i>Method Development</i>	292
<i>Statistical Methods</i>	293
<i>Common Statistical Errors</i>	294
<i>Summary</i>	297
<i>Job Design</i>	297

<i>The Quality Function</i>	300
<i>Reflections and Next Steps</i>	301
<i>Summary</i>	301
24 Final Intervention	302
<i>Introduction</i>	302
<i>Recap</i>	302
<i>Benchmarking</i>	302
<i>What is Benchmarking?</i>	303
<i>How is Benchmarking Done?</i>	304
<i>Critical Review</i>	307
<i>Supplier Development</i>	308
<i>What is Supplier Development?</i>	308
<i>How is Supplier Development Done?</i>	309
<i>Critique of Supplier Development</i>	311
<i>Summary</i>	311
<i>References</i>	313
<i>Index</i>	318

Preface to Fifth Edition

Introduction

It has been 25 years since the first edition of *Quality: A Critical Introduction* was drafted. This fifth edition is being written for a world which, while changed and changing in many ways, on examination still reveals many of the challenges from which arose the origins of the quality movement. These are exacerbated by two significant shifts: first is the substantial movement to service-based economies in the Western world; second is the explosion in the availability and use of data driven by advances in technology.

Many organisations, though by no means all, have addressed the problem of systematic and consistent manufacture of products though as ever that is challenged by the pursuit of the cheapest supplier, often euphemistically, called 'best value'. Many have attempted to apply manufacturing quality techniques to the service environment but with limited success while many service-based organisations whether in the private, third or public sectors still act in ways which seem to be internally focused and self-serving, failing to grasp the meaning of customer focus. This is perhaps because of three factors: an impoverished appreciation of the substantial differences between products and services especially the values-led thinking and human engagement on which services rely; an inadequate realisation of the potential available to organisations from the effective implementation and deployment of digital technologies whether through hardware, software or peopleware; and failure to focus on the outcome for customers or users as the ultimate measure of success. It cannot be enough that 'we followed the process' if in doing so we fail to meet the needs of the user!

Those factors are the drivers of the shifts in emphasis in this fifth edition. The particular differences are captured in the title, the emphasis on management and the focus on the digital economy, hence: *Quality Management: Reconsidered for the Digital Economy*.

The book continues to offer a thoughtful and thought-provoking exploration of how we can interpret the notion of 'quality' through different ways of thinking. It is as always concerned with what those different ways of thinking mean for quality in practice rather more than it is a practitioner's guide on 'how to apply' the tools of quality. It is quite clear for me that the pursuit of quality is only one, critical, dimension of the pursuit of organisational effectiveness and sustainability. The literature within the discipline offers a number of useful and unique insights and its practise has undoubtedly brought benefits to many thousands of organisations. Quality management, however, is not an end in itself but rather a strand of activity that contributes to the achievement of organisational survival; it is necessary but not sufficient to that end.

In Part I, I have sought to take account of the impact of recent developments in managerial thinking. These include the pursuit of sustainability; the climate crisis; recognition of challenges to the common, historic and traditional distribution of political and organisational power and wealth; the continuing trend of mature countries towards service-based economies and the emergence within them of community interest and not-for-profit businesses; and, of course, the 'Fourth Industrial Revolution' driven by technological advancement. Coupled to all of that has been a resurgence of interest in the tools of systems thinking and the cybernetics in and of organisations which will be explored in Part III.

Part II revisits consideration of the gurus' work to explore the relevance of their thinking to the contemporary situation. This takes account of shifts in social mores, employment practices, especially the so called 'gig' economy, and the growth in the use of big data methods and information science for analysing the exponentially growing volume of data available to organisations.

Part III refreshes the ideas on organisational cybernetics, lean thinking and business process re-engineering in the previous edition, while the chapter on organisational learning is now based more substantially on the idea of intelligent organisation. This considers an organisation as a complex adaptive system, a more sophisticated comprehension of organisational learning which embraces and informs much of the more traditional quality management thinking. As I explore in depth in *The Intelligent Organisation* (Beckford, 2020, 2nd Ed), the cybernetics of organisations, rooted in a systemic appreciation of the world offers the most useful approaches and tools for addressing contemporary management challenges. I suggest that those who have not yet comprehended the systemic mindset need to do so; the reductionistic approach will not suffice for the complex challenges with significant interdependency faced by organisations today. The fragmentation of processes and partiality of behaviours demanded by the reductionist approach are, for me, significant inhibitors of organisational effectiveness and viability. It is notable that Ohno's 'Toyota Production System', now widely called 'lean', Senge's 'learning organisation', Hammer and Champy's 'business process re-engineering' and the ISO9000 series of standards all call for the organisation to be dealt with as a system. It would be perverse for me not to treat quality as a systemic challenge and offer thinking accordingly.

The final part of the book, while showing the use of many of the same tools and approaches as previously, is based on a wholly new case study drawing on an infrastructure organisation and allowing the consideration of ownership, behavioural and digital aspects of quality alongside the conventional process-oriented material. Case studies and vignettes have been updated and refreshed throughout the work to emphasise contemporary issues.

I have updated the material throughout to reflect the changes in my own thinking and understanding and to ensure that the interpretation I present has relevance to the needs and challenges of organisations in the 21st century. As with the previous revisions small changes have been made for the sake of clarity and substantial changes introduced to reflect developments in knowledge and thinking since the last edition was written.

I have continued to connect the specific quality literature to the broader canon of management literature. This reflects, and is indeed intended to encourage, the broadening of thinking in the quality field. As it is in many disciplines, so it is in the quality field, that those who become expert in the field rapidly find that the constraints which bound that expertise are too narrowly drawn, too confining, for them to address the challenges

they encounter. Hence, under the banner of quality, they encroach on other areas as others encroach on theirs. Many battles ensue about respective positioning of each body of knowledge . . . meanwhile the organisation is struggling!

As with the previous editions, rather than reinforce unhelpful disciplinary boundaries (which after all were invented by us) I have chosen to ignore or bypass them. This book, ostensibly about ‘quality’, celebrates the insights it offers to other disciplines and that those disciplines offer to it and it does so at three interacting levels of consideration:

- Philosophy: Why are we doing this?
- Strategy: What options and choices do we have?
- Operations: How should we do this?

The traditional literature is still stuck in the ‘how’, it really is time to revisit the why and the what.

Who Should use this Book?

Quality Management: Reconsidered for the Digital Economy provides a substantial and coherent knowledge platform for all those (whether students or managers) wishing to fully understand the theory and practice of quality. It does NOT offer the latest quality-focused ‘miracle’ cure for all organisational ills, rather the book brings together in a single text the plethora of ideas, approaches and methods espoused in the pursuit of quality over many years and including recent developments. It draws on the published writings of many quality experts and incorporates the practical experience of the author and his associates in using these ideas throughout the world.

It features:

- a complete introduction to quality in the context of management thinking;
- in-depth reviews of the contributions of the ‘quality gurus’ and contemporary management authors to quality theory and practice;
- international case-studies drawing on the public and private sectors;
- particular emphasis on the neglected service sector as well as manufacturing industry.

Structure

I have resisted the temptation to restructure the whole book; if I were to do that then it would not be the fifth edition of this book but a wholly new one.

Part I provides a foundation for the book by considering the arguments surrounding the pursuit of quality, the role of quality in the organisation, barriers to its implementation and the developments in management thinking which appear to underpin the quality movement.

Part II provides a critical review of the works of those writers who have made a distinct and valuable contribution to the achievement of quality. These are Philip Crosby, W. Edwards Deming, Armand Feigenbaum, Kaoru Ishikawa, Joseph Juran, John Oakland, Shigeo Shingo and Genichi Taguchi. Of particular note in this section is the introduction of the idea of ‘Quality 4.0’ drawing on new research by John Oakland and considering the implications for the quality movement of the data revolution.

Part III commences with a review of relevant International Organization for Standardization (ISO) standards and the European Foundation for Quality Management (EFQM),

which offer a practical synthesis of the gurus' work, then moves beyond these traditionally based approaches to consider the value to be derived from contemporary management thinking. This part relates to the quality theme ideas ranging from the emergence of contingency theory to the more radical notions of critical systems thinking, re-engineering and organisational learning. Here I connect the work explicitly to the ideas of *The Intelligent Organisation* (Beckford, Routledge, 2020).

Part IV maintains the approach of previous editions by embedding the theory in the 'practice of quality' in the form of an extensive case study through which the theory and application of quality methods, tools and techniques is demonstrated.

How to use this Book

Quality, as with all textbooks, provides a simplified perspective of its topic and of the daily realities of pursuing quality in organisations. The information is presented in what seems to me a logical, systematic order, teasing apart topics which are necessarily closely interrelated.

The clue to successful reading is to recognise that connections exist between the various parts and topics (these connections are regularly made within the text). The chapters then, while presented in one particular order, need not be read in that order. Equally, the chapters can be read in the traditional number order although each is able to stand alone offering a perspective on a particular topic. Hence, some chapters are short, some long.

Each part of the book commences with a user guide to the content and makes suggestions about how to maximise learning from it. These introductions summarise the major points made in the contained chapters.

Practical illustrations and short vignettes will be found in each chapter. These will help consolidate your learning as well as being informative and entertaining and you will find that remembering the story helps you to remember the key points of the associated chapter. These illustrations arise from my own knowledge and practice, or have been contributed by friends and colleagues drawing on their working experience.

Each chapter concludes with a question which might be used as a formal assignment or a discussion topic for classroom or study group work. Attempting to answer these questions will help to reinforce and consolidate learning. If you cannot adequately answer the question, you should revisit the chapter to enhance your knowledge. Working through the book in this way will help you to develop your knowledge in a systematic and critical way.

The Author

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More can be found at www.beckfordconsulting.com and on the site dedicated to this book: www.beckfordonquality.com.

Vignettes

C1: The Obvious is Not Always Obvious	6
C2: Symptoms Are Not Causes	26
C3: Cultural Conformance in the Digital Domain	36
C4: The Website Inconsistency	56
C5: Customer Interest Precedes Business Interest	64
C6: A Doctor Calls: A Treatment for Efficiency	78
C8: Building a Team for Building a Business	105
C9: A Call Centre Experience	114
C10: Key Points from an Interview with John Oakland on Quality 4.0	129
C11: Updating Banking Details: 'We Can't Identify You'	142
C12: Cybernetic Systems	149
C13: Behind the Façade: Check Your Perceptions	155
C16: Power and the Application of Technology	193
C17: Information Science: A Critical Dimension of Quality Management in the Digital Era	211
C18: Business Process Challenge	222
C20: Service Quality is About People and Process	242

Figures

1.1	Core Characteristics of Corporate Social Responsibility	10
2.1	Herzberg's Two-Factor Theory of Motivation	21
2.2	The Homeostat	22
4.1	Principles of Scientific Management	47
4.2	Duties of Managers	48
4.3	Principles of Management	49
4.4	Principles of Bureaucracy	50
4.5	Maslow's Hierarchy of Needs	54
5.1	Five Absolutes of Quality Management (Crosby)	61
5.2	14-Step Quality Programme (Crosby)	66
5.3	Triangle of Interactions (Crosby)	68
6.1	The Plan-Do-Check-Act Cycle (Deming)	75
6.2	The Seven Deadly Sins (Deming)	75
6.3	Sample Control Chart	81
6.4	14 Principles for Transformation (Deming)	82
6.5	The Seven-Point Action Plan (Deming)	86
7.1	Four Steps to Quality (Feigenbaum)	94
8.1	15 Effects of Company-Wide Quality Control (Ishikawa)	104
8.2	Cornerstones to Successful Quality Circles	105
8.3	Seven Tools of Quality Control	106
8.4	The Ishikawa or Fishbone Diagram	107
9.1	The Quality Trilogy (Juran)	112
9.2	The Quality Planning Road Map (Juran)	116
9.3	Ten Steps to Quality Improvement (Juran)	117
10.1	Seven Key Characteristics of TQM (Oakland)	124
10.2	Ten Points for Senior Management (Oakland)	127
10.3	Total Quality Management Model (Oakland)	127
10.4	Quality Function Deployment Activities (Oakland)	131
11.1	Characteristics of a System	140
11.2	Understanding Waste (Ohno)	141
13.1	Three-Stage Prototyping Method (Taguchi)	154
13.2	Organisational Principles (Taguchi)	154
13.3	Eight Stages of Product Development	157
14.1	Quality Management Principles (ISO9001: 2015)	164
15.1	The Contingency Perspective	179
15.2	Functional Imperatives of a System	184

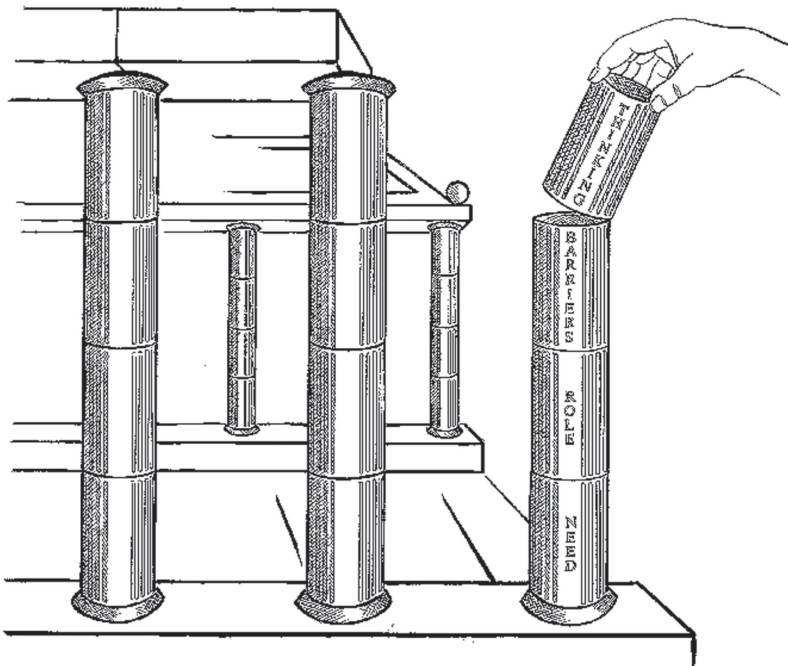
15.3	The Organisation as a System	184
16.1	Four Phases of Strategic Assumption Surfacing and Testing (SAST)	190
16.2	Ten Principles of TQM (Flood)	195
16.3	Continual and Continuous Improvement	197
17.1	Characteristics of Cybernetic Systems	204
17.2	Tools of Cybernetics	205
17.3	The Black Box Technique	205
17.4	A Closed-Loop First Order Feedback System	206
17.5	Design Criteria for Feedback Systems	207
17.6	Variety Reduction and Amplification Techniques	208
17.7	Recursions of a System	208
17.8	A Closed-Loop Quality Feedback System	210
18.1	Business Process Re-Engineering: Key Words	221
18.2	The Business System Diamond	223
19.1	A Model of Learning	229
19.2	The Learning Organisation: Key Words and Phrases (Senge)	230
19.3	The Learning Disabilities (Senge)	231
19.4	The Five Disciplines (Senge)	232
20.1	Soft Systems Methodology	237
20.2	The Viable System Model	238
20.3	The Skills-Based Quality Management System	241
20.4	Basic Process	245
20.5	Error Rectification through Applied Knowledge	245
20.6	Self-Regulating Process Model	246
20.7	Routine Performance Management Model	248
20.8	Direct Error Correction Model	248
20.9	Skills and Education Comparison Model	249
21.1	TQM Within TSI Within TQM (Flood)	258
21.2	Tools for the First Intervention	258
21.3	Synthesising the Diagnosis	259
21.4	Developing a Shared Model	260
21.5	Iterative Framework for Action	260
22.1	Seven Stages of Soft Systems Methodology	263
22.2	Six Principal Elements of a System	263
22.3	Six Questions for Refining 'Root Definitions'	264
22.4	The Organisation in its Environment	267
22.5	The Environment, Operations and Management Separated	268
22.6	A Chain of Recursively Embedded Systems	269
22.7	A Set of Implementation Elements	270
22.8	Operational Elements with Coordination and Interaction	271
22.9	The Self-Regulating Organisation	272
22.10	The Ultrastable Organisation	273
22.11	Nested or Recursive Process Levels	277
22.12	Order to Pay: Diagnosis	278
23.1	Tools for the Second Intervention	283
23.2	Organisational Design for Interactive Planning	285
23.3	Five Steps of Interactive Planning	286
23.4	Three Methods of Formulating the Mess	286

xx *Figures*

23.5	Aims of Quality Circles	288
23.6	Critical Examination	291
23.7	Natural Work Units	298
23.8	Requirements for Vertical Loading	299
23.9	Task Feedback Information	300
24.1	Tools for Final Intervention	303
24.2	Five Steps in Benchmarking	305
24.3	Seven Stages of Supplier Development	309

Part I

Introducing Quality



User Guide

Part 1 introduces the whole quality debate. Chapter 1, which has been revised and refreshed from the previous editions, examines the arguments for and against the pursuit of quality considering both the needs and the opportunities. It examines the economic, social, environmental and governance imperatives. It includes the requirements of corporate social responsibility and corporate governance and how they relate to quality issues. As a particular change the book addresses the impact of wholly digital and digitally enabled businesses in what is coming to be called Industry 4.0. Chapter 2 considers the role of quality in the organisation considering the strategic and operational aspects of quality and the debate as to its fit to the organisation. Chapter 3 focuses on barriers to the pursuit of quality, highlighting how the established cultures, systems and processes of organisations continue to inhibit quality initiatives. In Chapter 4, the 'classical' and 'human

2 *Introducing Quality*

relations' schools of management thinking are introduced and their apparent influence on the thinking of the quality gurus is elaborated.

This part of the book provides the necessary foundation for a study of quality by examining the four key dimensions:

- the opportunity and need for quality;
- the role of quality;
- the barriers to its achievement;
- the thinking which underpins the dominant approaches to management.

1 The Quality Imperative

Introduction

The pursuit of quality as a distinct theoretical and practical organisational discipline has been a dominant concern of management practitioners and academics since the 1940s yet the need to comprehend, develop and sustain service and product quality has never been greater. A new focus began to emerge in the 1980s on quality in services, especially for the post-industrial countries and as information-based economies began to emerge. Despite that early start it continues to be the case that most organisations employ thinking about quality rooted in a manufacturing-oriented, physical product-focused approach to quality and seem to consider service quality as being about process and compliance rather than about people and behaviour. Hence authentic service quality, a customer satisfying experience which delivers the desired outcome, continues to be elusive for many. It is not enough to say ‘we followed process’.

Meanwhile, the changes enabled and driven by the Fourth Industrial Revolution or Industry 4.0 (Brynjolfsson and McAfee, 2014, 2017), with the emergence of digital capability to capture, store, process, transmit and act on data, has introduced another transformation. This transformation has already had a profound impact on retail operations (with a shift to online shopping accelerated by the COVID-19 pandemic), on the production, distribution and consumption of artefacts such as books, games and music and has underpinned the notion of ‘gig’ based employment adopted by some organisations – a model already being challenged in the courts. While these changes create new job opportunities, the impact is to increase uncertainty of employment (perhaps especially for lesser skilled workers), to casualise the relationship between employer and employee and to reduce to a mere transaction the relationship between provider and consumer. While this may lead to some short-term cost reduction for the consumer it does little for longevity of relationships, reducing them to a series of discrete ‘purchases’ by customers and ‘shifts’ for employees; loyalty lasts until the product is delivered or the shift completed. Some organisations have taken such advantage of the technical and geographic distance between themselves and their customers and staff as to become apparently dismissive, for example, making it difficult by design to ‘log out’ of an application, by embedding one product in another (e.g., such things as so called digital assistants), in effect reducing real choice about product use and making it difficult to cancel an online account or to talk to a person about a product fault or service problem and get it resolved. Tilting the deck even further in their own favour, such organisations are commonly capturing data not just about actual purchases but also about the individual purchaser including locations, other interests, lifestyle choices and so on, which are then used as the basis of further

4 *Introducing Quality*

marketing activity and/or sold on to third parties. All the while many customers are unaware of this activity.

Quality, in any context, must be about the achievement of the outcome desired by the customer not simply the standardisation of the output, whether product or service. That customer outcome will not be achieved in a system which reduces every relationship to a transaction basis or in which there is bias or distortion in the power relationships.

Initial ideas in the quality movement arose from American theorists and practitioners while early commercial applications were adopted by Japanese companies. Since the mid-1980s, when the success of Japanese companies began to impact seriously on Western markets, commercial organisations throughout the world have embraced, at varying levels of commitment and understanding, the theories and practices of the quality movement. National governments continue to lag commercial organisations in the pursuit of quality initiatives, perhaps driven by aspirations for cost reduction as much as service improvement, though they could have both if a more thoughtful approach were adopted.

In 2021, still attempting to address the issues emerging from the COVID-19 pandemic, many governments fall short of the service levels of the best private organisations. Sometimes in conjunction with private finance, privatisation or the creation of arm's length executive agencies they have sought to modernise their offers but often with only partial success, perhaps because they have sought to improve current processes rather than reconsider the purpose of services themselves and invest adequately in their realisation.

This chapter is concerned with 'why' quality has achieved its apparent pre-eminence amongst the concerns of so many managers. It presents four arguments for the pursuit of quality, the economic, the social, the environmental and the digital, embracing the challenge of services in each part. Finally, the chapter considers the problems generated in organisations by the use of the word 'quality' itself. Each of these is pursued through a systemic perspective on management and achievement of quality.

The Economic Imperative

After World War II, consumer demand grew to such an extent that the manufacturing focus in the Western world was on productivity with increases in product volume and the efficiency of both production equipment and the labour force. Effectively, growing markets were starved of products and with rapidly increasing economic prosperity, everything that could be produced could be sold. Unfulfilled demand meant that organisations were under no pressure to focus on the quality of product and perhaps perceived that they had already achieved the ultimate standards. Coupled to this, consumer expectations of product longevity and reliability, especially for novel technologies, were relatively low as was the technology of both the products and the manufacturing processes.

As markets matured and growth flattened, organisations faced with increasing costs, particularly labour, waste and energy, began to challenge their established ways of working. Some organisations further increased the pressure on workers for productivity gains while pursuing cost reductions in their supply chain and through research and development. Others relied on emerging automation, robotics and electronic data processing. Most adopted a mix of these approaches. Some organisations followed a more conventional approach of exporting work to lower-cost manufacturing centres, reducing costs through the use of lower-cost labour. This practice continues with transfer of manufacturing to a variety of low labour cost economies in Eastern Europe and throughout Asia. More recently, organisations began exporting service-based jobs through the creation of overseas contact centres and shared-service centres. Increasingly jobs based on knowledge

(such as software development) have followed the same route, capitalising on the high levels of education in some countries. The business model is to sell services in high price economies while maintaining the primary cost base in a low wage economy, exploiting technology to deliver the material service. This is an exercise in economic arbitrage rather than an improvement in efficiency.

In 2022, there is some evidence of a reversal in this process for products as the economic and environmental cost of transportation of goods has become more apparent. Many Asia-based companies have partially relocated manufacturing operations to their major markets as labour is relatively cheaper than before, the workforce has the skills required for high quality manufacturing operations and the cost of transporting finished goods is substantially reduced. Local manufacturing also helps to overcome import tariffs and other trade defence actions.

It seems relatively clear that where technology and total costs enable it, employment opportunities are drawn to low-cost labour. It was at one time easy to observe relative growth in the wealth of emerging economies and decline in those which were mature, but the overall impact now seems to be one of equalisation supported by free movement of capital but also, significantly, propelled by exploitation of weaknesses in tax regimes and of course changes in both tariff and non-tariff import and export controls. The consequence of the United Kingdom leaving the European Union will not be clear for either party for some years. Much of what is happening with digital services appears to be driven by the cost of funding and financing and the opportunities for tax minimisation, all of which act to drive behaviour in the global market. There may be profits for the 'home' economy to repatriate (after tax!) but the jobs and much of the wealth remain in the host economy as that is where the workers spend their wages.

The shift of economic effort from production to not just service-based activity but finance-based activity since around 2000 has been significant, with much capital flowing through financial services products which might once have been directly invested in plant and machinery. This shift introduces a layer of complexity but also a layer of cost to the more traditional sectors, together with a shift in risk profiling. When the demand for return on capital increases and a greater proportion of the capital employed is borrowed (in one way or another) rather than invested then users of that capital may seek to de-risk their businesses. They will do so by refining that which they already do, perhaps reducing longer term research and development activity. Pursuing efficiency, they may seek ways to reduce the cost of producing established goods and services while, in some sectors at least, being unwilling or unable to invest in new products. It is notable that the leading technology companies are investing huge sums in absolute terms but tiny sums relative to their total income in new products and services, but even so much of what they are working on is enhancement or extension of an existing product or service rather than something fundamentally new.

It still seems to be the case that work continues to follow low total costs – of which direct production cost is only one element. If the observed cycle continues it is apparent that long-term rebalancing of the relative power of national economies and some technology companies will continue. Mature economies will decline as emergent economies develop the knowledge, skills and abilities to absorb a greater proportion of both manufacturing and service sector jobs while emerging digital products may, in some cases, eradicate the work itself.

In parallel with this phenomenon and notwithstanding the substantial apparent progress in products, services and information technology in recent years, it also appears that for many products, with the exception of certain emerging products and services such as computer games and leisure facilities, demand is in effect satisfied. Consumers

6 *Introducing Quality*

are often operating in a replacement cycle for established products such as cars, domestic appliances, home entertainment equipment, personal computers and mobile phones, albeit new features and functionality (including a lack of continuing compatibility) drive a degree of obsolescence in some products. While consumers are often seeking greater reliability and longevity from their purchases and these characteristics can be significant in their decisions, alternative financing strategies and fashion can drive more frequent replacement. Here, it is still worth noting the work of Stewart (2009) in which he suggests that some organisations may be using their market power to hold back innovation and protect their competitive position. Others, as shown in this story, are demonstrating the weakness of their concern for customers.

The Obvious is Not Always Obvious

I received this from a friend and thought it worth sharing:

My mobile phone bills keep getting sent to my old address, forwarded by the post office service we have in place.

I have told the mobile provider that I have moved and given them the new address, however the bills keep going to the old address.

I rang the provider, a mission in its own right. Asked them why bills were sent to the old address.

They looked on their system and said:

'You have two addresses on your account, the old and the new'.

'Yes', I said, 'I have moved and the bills should be coming to the new address, I no longer live at the old address'.

'That is correct' they replied.

'Then why do the bills keep going to the old address?'

'Have you asked for the old address to be removed from the system?' they replied.

'No', I said, 'I just told you I had moved and gave you the new address'.

'That's the problem' they replied.

'You have given us your new address but have not asked for the correspondence to be sent to it or for the old address to be deleted'.

Intelligent Organisation. . . . How stupid am I?

Digital systems exhibit only the inevitable simplifications of their designers lacking nuance and subtlety of realisation in their yes/no, on/off, in/out bifurcations of the world.

As organisations increasingly develop digital systems to reduce the cost and increase the availability of their products and services, they need to invest equally in developing the common sense of their staff in their design and operation.

In service provision in particular, no matter how long you make the procedure chart you never quite reach the customer – only skilled and thoughtful people can close the gap.

So much for private industry, but what of the public sector, does the economic imperative apply? Simply, yes. Governments seem unsatisfied with the cost and effectiveness of the services which they provide or fund as evidenced by attempts at performance improvement and cost control through privatisation, commercialisation and executive agencies. These imply apparent acceptance by government that it cannot deliver improvements itself and that placing the organisation under different control changes the rules. States often seek to impose on such bodies what they perceive as the commercial constraints

and disciplines faced by private sector organisations. The share of gross domestic product (GDP) absorbed by governments is unacceptable to many voters and perceived as potentially damaging to economies, although very contemporary thinking is encouraging state intervention and state capitalism. As this is written at the beginning of the second year of the COVID-19 pandemic, it is clear that states have been obliged to engage in spending well beyond their expectations in order to address it and, somehow, that this spending must revert to a sustainable level although Mazzucato (2018a) may be seen to argue this as unnecessary. The pursuit of some notion of efficiency will continue regardless of the political leanings of the ruling party. While one party may pursue the idea of a smaller state as a matter of political belief and another may wish to increase the size and reach of the state, all of it is subject to the compliance of the electorate (at least in a democracy); long-term organisations can only consistently spend more than they generate if they control the issuing of currency (Kelton, 2020).

I make no claim as to whether these actions are good or bad. What they do is change the circumstances under which public services aspire to service quality. Governments appear to be clinging to the right to hold the provider to account for service provision, although that accountability is concerned with the output (was it done?) not the outcome (did it work?). This is a challenge to the achievement of consistent service quality since reducing costs will often be achieved through narrowing the scope of a service, outsourcing the work to the customer (the basis of self-service), redesigning its delivery or simply failing to provide it.

Executive agencies, privatised (or partly privatised) services and trusts are now well established, although as this is written the idea of commissioning is under threat in both health and transport. Such organisations, notionally at arms-length from the government, manage their own finances while remaining dependent on that government for the bulk of their income. These changes occur where the public service is perceived by government to be failing to meet service user's needs, where they believe costs are high (or out of control) or where industrial relations challenges may cause political fallout. Perhaps the longest established example of this in the UK is the franchising of rail services and the placing of the rail infrastructure network provider into a not-for-profit status (albeit owned by the government). At the time of writing the government is considering an alternative integrated model as the private and public sector models have not worked well.

Public services that do not address the needs of their users must eventually fall into disrepair and desuetude, either collapsing altogether through lack of public support or offering a lower standard of service to those members of the society who cannot avoid them, increasing the unit cost of such provision. The pursuit of quality in their products and services offers these institutions the opportunity to provide comparable services to those available in the private sector. There is nothing inherently better or worse about a privately owned service than a public one, although the economic imperative for survival is greater in the private sector.

The economic imperative for quality is essentially quite simple, it is survival for an organisation, industry and the local, national and global economies. The gurus promise that pursuing quality will reduce costs and improve productivity and many of the approaches can lead to those things. As consumers become more selective in their choices, quality is not an optional extra but essential for any organisation in a saturated market. Only the strongest will survive and will do so by scavenging customers from lesser organisations. This phenomenon can be observed in the motor industry where the premium manufacturers are stretching their product down into the mid-market while the

mass-market are stretching their product up and both are adopting rentier-style financing – very soon there will be no mid-market!

From the perspective of the total economy of a nation, it must be more cost effective to invest in addressing quality problems than it is to export jobs or lose them to alternative or overseas suppliers. At the same time in economies increasingly focused on services rather than product provision, long-term success and survival will go to those organisations that enable their customers to achieve the outcomes they desire while capitalising on digital technologies.

The Social Imperative

In parallel with the developments in technology over the last fifty years or so has been massive development in our understanding of humankind. Through the works of management writers and practitioners such as Barnard's *Executive Functions* (1938), psychology with Mayo (1949), Herzberg (1959) and McGregor (1960), Beer's organisational cybernetics (1959, 1979, 1981, 1985) and the soft systems approach of both Ackoff (1981) and Checkland (1981), management theorists and scientists have become aware of many alternative ways of designing and managing jobs and organisations. Again, reference to Stewart (2009) is worthwhile here, suggesting that the work of these 'experts' does not have the predictive power that good science would suggest is necessary – so tinge your thinking with caution. However, with the short-term arrogance of 'If it ain't broke, don't fix it', coupled to a level of complacency and/or fear of change – 'we've always done it like that' – managers and academics have collectively failed to embrace the many possibilities that such developments in thinking make available to us. Many academics (though by no means all) and management training programmes continue to teach conventional approaches rooted in scientific management and bureaucratic control. Expansion of Higher Education opportunities coupled to significant changes in funding mechanisms as well as the evaluation of and reward for research outputs has led to a situation where not all academics can be active and truly original researchers in the disciplines which they teach. With increasing teaching loads and continued growth in Internet-enabled information availability, it is simply not possible to keep fully up to date with emerging ideas. By way of example, a simple web search revealed that 304,000 books were published in the USA in 2020 with a further 100,000 plus in the UK and over 400,000 in China (<https://www.theifod.com/how-many-new-books-are-published-each-year-and-other-related-books-facts/>) (24th August 2021); even if only 0.001% of these million plus books were both published in English AND on management the reader would need to consume three books per day just to be aware! Of course, all those academics are also supposed to be producing more papers and more books, writing is more time consuming than reading.

Practically for managers it is often easier in the short term to keep things as they are, particularly when the focus is forced onto the short-term financial performance measures by higher management and external demands. Managers in organisations often pursue short-term, incremental gain rooted in the established norms of their situation, doing the same thing better, rather than more ambitiously pursuing the true potential of their organisation. Commonly, managers know only the functional budget, unaware of what *could* be achieved if constraints were overthrown and they truly realised the potential of the human, mechanical and informational resources they have at their disposal.

To bring about change in the established order of anything always involves the expenditure of energy; to overcome the initial resistance, to persist with the change programme

through the painful times, and to provide the changed infrastructure to support the new order. As Machiavelli suggested in 'The Prince' (1513):

It must be considered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order, this lukewarmness arising partly from fear of their adversaries, who have the laws in their favour; and partly from the incredulity of mankind, who do not truly believe in anything new until they have had the actual experience of it.

Machiavelli, *The Prince*, (trans. Bull, 1961)

Any change or improvement programme at least in the short term may reduce the ability of the organisation to acquire fresh supplies of energy. This energy, for most organisations, is expressed in the form of money. Where the money is not made available, for example in the public sector or in low-margin industries (commodity manufacturing and distribution) or where the demand for high investment returns restricts the available cash, then the change programmes will often fail.

An equivalent energy is required from senior management in commitment to supporting the change. Whilst most frequently expressed in financial terms, failure of support very often rests in the desire of managers to work with what they believe they understand; to deliver what has worked in the past and seek to preserve their power and position. It is a rare manager who will voluntarily relinquish their position for the good of the organisation. Observing change programmes is like watching a corrupt game of musical chairs at the senior level; when the music stops everybody is sitting in a different place but the total number of chairs has often not changed! Consequently, the ways in which we run organisations and manage people are often extremely wasteful of the human capabilities and talent of the majority. In *The Intelligent Organisation* (Beckford, 2020) I challenge this suggesting that the capability for change needs to be embedded throughout the organisation so that it can change itself.

The social imperative for achieving quality is further enhanced by the continuing emergence and importance of the idea of 'corporate social responsibility' (CSR). This is challenging managers in new ways. CSR is concerned with the wider impact of the organisation on its stakeholders. CSR is defined in a wide variety of ways with no universal agreement. However, Crane et al. (2008) have explained it as follows:

The [six] core characteristics of CSR are the essential features that tend to be reproduced in some way in academic or practitioner definitions.

Their six core characteristics are shown in Figure 1.1.

More recently, Raworth (2018) has taken a more robust approach to this challenge with 'Doughnut Economics' which proposes that an organisation – whether a corporate or a state (and its enveloping economy) – should be managed within two boundaries, a ceiling which limits damage to the environment, Critical Planetary Degradation, with a floor that limits damage to human kind, Critical Human Deprivation. Between these is the 'Just and Safe Space for Humanity'. Tying in with the United Nations (UN) Goals on Sustainability, (Beckford, 2021) it is essential that in thinking about quality we embrace the notions of global social justice suggested.

Voluntary	Acceptance of responsibility for actions that goes beyond that prescribed by law.
Internalising and Managing Externalities	Recognising impacts beyond the organisation and accepting them as belonging to it.
Stakeholders	Recognising responsibility beyond shareholders and customers to embrace the wider society.
Alignment	Understanding that there is no necessary conflict between CSR and profitability. Addressing the alignment of corporate and social interests.
Practices and Values	Not simply about the adoption of good practice as avoiding a negative by about an internal belief system that recognises CSR as a good thing in its own right.
Beyond Philanthropy	Assumption that CSR is a mainstream way of doing business, not an addition that keeps society happy.

Figure 1.1 Core Characteristics of Corporate Social Responsibility

Ohno, founder of the Toyota Manufacturing method (Ohno, 1988) takes as his theme the elimination of waste, ‘muda’, as the basis of effectiveness in organisations. This systematic approach, discussed at length in Chapter 11, recognises that waste can encompass people, systems, production machines and society and it is this societal dimension that is dealt with here. From origination to consumption to disposal or recycling, every action by an organisation and its human actors imparts both positive and negative impacts to society. CSR argues that there is a collective responsibility to minimise the negative impacts and follows this into practical activities such as enhanced driver training to reduce accidents and improve economy, support for community activities, and involvement of local communities in the development of long-term plans. Each of these is intended to reduce any negative impact of the organisation on its social environment and encourage it to be a good corporate citizen. This might be the impact of Taguchi’s (1987) ‘quadratic loss function’ which attempts to calculate the ‘loss imparted to society from the time the product is shipped’.

Both CSR and the Toyota method rest on an understanding that people affected by inefficient, ineffective systems know both that it is ineffective and how to fix it. Ineffective systems are wasteful, demoralising and destructive to the talents of their members and users. Most often, those responsible for a job can identify an enhancement which enables it to be completed on time and within specification, whereas the organisation of the system itself would drive towards one or both of these important parameters being missed.

One effect of the failure of organisations to fully utilise talented people they employ is that they lose them! Recent years have seen a huge rise in the number of new small professional service organisations whose proprietors and directors, disenchanted with the limitations of life in large organisations, have the confidence and ability to build their own, independent organisations. The joke on the large organisations is that they then, very often, hire back at much greater expense the very set of talents and skills which they previously failed to exploit! The large organisation loses in two ways – it has to actively compete to obtain the particular skills it needs at higher cost and the career model provided to young employees features the organisation as victim rather than predator. The underlying message to talented young staff is that they will not be able to exploit their talents within the organisation.

Many organisations have failed to respond to changes in our understanding of human behaviour and in levels of education. They continue to manage their staff through a Taylorist (Taylor 1911) mental model, imposing Weberian (Weber 1924) bureaucracy and regulation and insisting on thoughtless adherence to 'the procedure'. While there are circumstances in which adherence to the procedure is essential for safety or consistency, there are similarly many circumstances where 'the procedure' inhibits rather than enhances quality. This particularly applies to the service sector and will be explored later in the chapter. However, even in manufacturing, the regulatory and policing burden imposed by a heavily proceduralised organisation can often be substantially reduced by a greater investment in training and development which can release the talents of those employed. Similarly, contemporary information systems have the inherent capability to release individuals from the drudgery of data capture and reporting. However, many such systems are poorly designed and executed, often replacing manual bureaucracy with its electronic equivalent and allowing the same mistakes to be made faster and at greater cost. The benefit to be obtained from enhanced people development and effective information systems investment would dramatically outweigh the cost of providing it. A member of staff who understands WHY something should be done in a particular way will do so willingly, reducing the cost of supervision. Perhaps more importantly they will be able to appreciate when the procedure has become inappropriate and, if not free to change it, will at least be able to bring it to the attention of those who have that authority. Relatively well-educated staff in a relatively wealthy, high-employment economy have choices, and if they are not treated appropriately, they will exercise them! As Drucker (1969) noted:

'with every pair of hands you hire you get a free brain.'

If individuals have the capacity to perform more complex tasks to higher standards or in greater volume than the system permits then managers are wasting resources. This is in itself sufficient evidence of the need for change quite apart from the potential benefit to human spirit. From the perspective of social cohesion, it must be the responsibility of every manager to maximise the opportunity for development for each of his or her fellow workers. This will surely lead to a more satisfied workforce, a commitment to the organisation and a society more at ease with itself.

The negative risk of minimising apparent waste of human resources is that if quality is achieved, and markets do not grow to absorb increased higher volume outputs, there may be a substantial increase in unemployment. This will arise because organisations will find it unnecessary and costly, since there are indirect additional costs involved in employing extra staff, to retain employees. The 'social contract' between employer and employee varies from country to country but it must be considered, consistent with Raworth (2018), that employers have a moral obligation to those they employ and they must take account of that in business planning and decision if they are to be sustainable themselves.

As has been seen in many places globally, high levels of unemployment create conditions of social isolation, of hopelessness and unease, often leading to unrest and anti-social behaviour such as drug and alcohol abuse or increasing crime rates. It cannot be regarded as acceptable that by achieving quality we also achieve social destruction. Neither can it be regarded as sustainable to produce poor quality outputs in order to maintain employment in the short term; ultimately, consumer markets will not allow this.

The second imperative for quality then stems from the responsibility of all managers to minimise waste of costly human resources and maximise satisfaction through work for their colleagues in order to support social cohesion within their own sphere of influence.

The Environmental Imperative

The third imperative for quality is environmental and is more important today than previously. The scale of the global challenge is better understood and, while countries such as the UK have made substantial reductions in emissions and governmental commitments to a zero-carbon economy such commitments are neither universal nor easy to fulfil. Driven by the experiments and perspectives of writers such as Lovelock (1979, 1988, 1991, 2001, 2006, 2009, 2019) and the increasingly recognised importance of addressing climate change it is clear that the world has finite natural resources and that the use of these appears damaging to the total ecology of the planet (<https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/> reviewed 24th August 2021). Renewable energy sources, such as solar power, wind energy or wave energy, are increasingly available and have improved dramatically in both cost and performance over recent years. While Lovelock in *Homage to Gaia* (2001) has presented an argument for the adoption of nuclear power as an available alternative to fossil fuels, this is a hard sell in a world with a massive established investment in fossil fuel technologies and a limited understanding of nuclear technology. Recent years have seen a much more rapid adoption of wind, solar, hydro and tidal energy conversion globally and, in 2021, there is an additional move towards the exploitation of hydrogen gas including as a means of storing renewable energy, for consumption in domestic boilers and fuel cell vehicles. An abundant resource, hydrogen can be exploited while imparting reduced damage to the environment.

Governments of many mature economies are making substantial commitments to reduction in carbon dioxide emissions. Although there is continuing scepticism on the impact of such emissions, there is substantial agreement that they should be reduced.

Other international accords are being actively pursued to reduce fossil fuel emissions and the 'Kyoto Agreement', which demands substantial reductions in harmful emissions led to the establishment of a not always successful market in which the right to produce emissions can be bought and sold. This provides an economic incentive for organisations to pursue the environmental imperative.

ISO14000 (2015), is the Environmental Management Standard and is becoming more widely accepted and adopted in the major economies and, like the early versions of ISO9000, is becoming seen as the minimum acceptable standard with which companies should seek to conform.

While a narrow focus on environmental sustainability might detract from the broader arguments about the overall sustainability of organisations, international accords on environmental protection and emissions reductions show that organisations can no longer pay only lip service to this subject. The European Union, in a move which has impact for both EU members and non-members, has passed legislation to substantially reduce tailpipe emissions from new cars with lower acceptable levels of pollution being set for every manufacturer, expectations increased for the recycling of the components of vehicles and individual governments setting tax incentives for less polluting vehicles. The UK has committed in law to ban the sale of new vehicles with internal combustion engines by 2030. Meanwhile numerous cities are introducing low emissions zones and some have introduced zero emissions zones. Legislation will force the hands of organisations if they do not address these changes for themselves. Experience suggests that a commercially led innovation will be more effective than one which is legislated into existence, although Mazzucato (2018b) presents an alternative argument about this.

Operating without a sharp focus on quality is wasteful of finite resources. Quality products, processes, systems and services can minimise the use of the factors of production (human,

material, land and money) and maximise the reliability and longevity of products, thereby minimising harm to the environment. For example, a process which achieves Crosby's 'Zero Defects' (1979), Shingo's 'Poka-Yoke' (1987) or Ohno's (1988) 'muda' standard involves no rework or rectification. Such processes minimise use of all resources and consequent damage in achieving output compared with any process producing a number of defective outputs.

No one individual or organisation can 'save the world'. However, each collective action can contribute to this at the appropriate level: individual, organisation, stakeholders, local community, nation and international community.

Each of us has responsibility to minimise use of resources in the completion of our work and that work must be enabled by organisations which seek to minimise waste. This means ensuring that tools are properly functional, that sufficient time is allowed for the task to be properly carried out and that employees are appropriately skilled.

Those in management have the responsibility of considering the total effectiveness of the organisation in respect of resource use and environmental impact. This requires investment to reduce environmental damage which must be supported by the other stakeholders in the enterprise. The shareholders must accept responsibility for the actions of the organisation and accept the returns generated by an organisation which fully accepts its responsibilities, even if lower than competing, non-compliant, investments. This thinking links back to the notion of corporate social responsibility outlined in the previous section.

A substantial challenge will arise for some companies with regard to additional investment. In some industries, economic reality is that simply to keep pace with their competitors organisations must reduce costs, year on year, just to stand still. In an industry dominated by high-volume manufacturers of predominately low-margin, commodity products, this is hard work, especially for smaller companies. When coupled to increases in the regulatory governance of organisations and the testing, storage and use of their products the target becomes harder. In service industries the cost of sustaining cyber-secure, reliable information systems can be hard, especially for remote working. To achieve sustainable improvements in quality to enhance the skill set of the employees and to ensure the long-term viability of the organisation against a background of falling margins is harder still. It may well be that the only truly sustainable business strategy (as far as the capital held by the organisation is concerned) is to leave a sector! The ultimate challenge is not simply to improve quality and reduce costs to remain competitive but to achieve a position which satisfies competing ethical demands – the imperatives to preserve jobs for society, to improve quality of product, to minimise damage to the environment, not to imperil the local (or wider) community and to satisfy shareholder expectations.

The community in which any organisation exists must hold and impose expectations on its behaviour regarding environmental matters whilst at the same time accepting its own responsibilities. For example, if it wishes to continue purchasing the relevant product, the community must impose expectations about the processing or recycling of waste but must also provide an appropriate mechanism for that process. To achieve necessary economic scale, some facilities may need to be provided at the community level, for example, incinerators and recycling plants. It is the responsibility of the community, through local government, to ensure that these are available.

At a national level, the same considerations apply. The nation has a responsibility to itself, its citizens and the international community. This responsibility includes setting, maintaining and enforcing environmental standards and expectations and creating conditions (perhaps through the use of taxes and duties) which reinforce those expectations.

At the international level, the responsibilities are similar. Creation and enforcement of environmental standards must be undertaken by the international community. While other

aspects of organisational life may be very different, for example wage rates, organisational culture and so on, the international community must demand common environmental standards from all those wishing to be part of that community.

At every level there is a need and a responsibility to educate and inform on environmental matters and to understand the needs from a total rather than partial perspective. Thus, the third imperative for quality is to address the rising desire for reductions in environmental damage, helping to ensure the survival of all species – a responsibility which pertains at every level of the world community.

The Digital Imperative

While neither universally welcomed nor universally successful, one of the remarkable phenomena to emerge since the 2008 financial crisis has been a substantial further rise in the number of micro-businesses. These have covered all sectors and all parts of the market and have shown how individuals will, when the need or the opportunity arises, address the unemployment challenge by finding different and new ways in which to add value to their fellow man. Much of this growth has been enabled, perhaps inspired, by information technologies and the many opportunities for new goods and services that have emerged in the beginning of ‘The Second Machine Age’ (Brynjolfsson & McAfee, 2014) further explored in *Machine, Platform, Crowd* (Brynjolfsson & McAfee, 2017).

Further work is required to address this. It may be argued that by succeeding in the pursuit of quality, any particular country will act as an attractor of industries leading to economic success for that country. Inevitably this would have international consequences which are beyond the capacity of any individual or normal organisation to address. In the meanwhile, the markets will not wait and action must be taken to preserve, maintain and develop all industries.

In the present, it is vital to make a distinction between two types of digital activity, those which are inherently digital and those which are digitally enabled. Examples of the first are web-searching, music and video streaming and banking services. Examples of the second are where, behind the digital engagement there is a physical product or service to be delivered to the customer either directly or indirectly such as online retail, transport services or food delivery. These two different models of digital activity will have different implications and will have different characteristics which define their ‘quality’ – for providers and users.

Providers of inherently digital services must deal with the question of the complex nature of what they provide – is the ‘product’ the provision of the service and if so, what are its essential qualities? What is that defining ‘rightness’ in its provision and in the hands of the consumer? Is it availability, measured by the extent to which the technology is functional – complex because so many technologies and providers are blended and integrated? Is it the speed of the response? Is it the accuracy (closeness to established truth – however that truth is established) or is it the utility of the answer in the hands and mind of the recipient? It is well known that any web search can generate a vast array of not very right answers to often uncertainly asked or poorly phrased questions; with whom does accountability lie for the veracity or utility of the response? Importantly, if decisions are made on the basis of the information provided and the information is wrong, then who is accountable for the consequences. Is a platform for the provision of a service also a publisher of the material, with the rights obligations and responsibilities that go with that role or are they, as is often claimed, ‘merely’ an intermediary with no responsibility (though possibly a stranglehold on access!).

Meanwhile consumers of inherently digital services such as music, podcasts, books and video streaming, are simply that, consumers. Arguably whether they like the music, film

or video they download or not is unimportant, perhaps what matters is that the service is provided, much as is the case in the traditional model. There is though a specific challenge here in that many of such services are acquired through subscription so, while the provider is necessarily somewhat responsive to the consumer in providing the material that is requested, the subscriber is never more than that, they never become owner of the digital material they consume – rendering them vulnerable in two dimensions, first to the continuation of their own ability to pay, second to the continued willingness and availability of the provider. They do not buy a product, they subscribe to a permission to use. That is a more profound change in the nature of the buyer-supplier relationship than is being understood.

There is a further challenge in this case and that is for the originator of the material shared, the owner of the copyright. How can they be appropriately rewarded and remunerated for their work in a system where the service provider acts as a monopolistic intermediary? Where the intermediary is setting the price for both supplier and consumer and where there may be no suitable alternative access for either. Again, a profound contractual change is occurring and the ‘quality’ challenge within that is little comprehended.

Where digitisation starts to take over other industries (e.g., autonomous or semi-autonomous vehicles) as in media, music etc., for example, but even the hard stuff gets digital inside (warehousing, cars, planes, medicine/healthcare – especially medicine/healthcare) and there are additional concerns. In such industries the value chain is adjusted (and the profit pool moves) so that potentially the digital components become central to the whole. For example, if artificial intelligence (AI) is used in cancer diagnosis, then having the best – however defined, whether it be fastest, most accurate, earliest stage recognition – system becomes a differentiator and key to quality. Hence, we can maybe get to a state where if there are two systems for diagnosing cancer and one is better than the other it is more important to have ‘the best’ digital system inside a hospital whilst other attributes (e.g., capabilities of nurses, doctors) may become if not standard and undifferentiated then perhaps less critical.

One thing is clear, if we ever get to truly autonomous vehicles, parents will be reluctant to send their children to school in an autonomous taxi run by the fifth or fourth safest AI (*‘what kind of parents are they?’*). This is one of the reasons why we are likely to see very few ‘winners’ in the market.

The biggest systems will get better faster than the smaller systems because they will have more training data, with only a few winners likely. Continuous improvement may become an attribute of the system rather than the people who operate the system, the challenge will be to ensure that, as with any improvement programme, the focus is on doing the right thing right not the wrong thing better! Autonomous systems develop apparent biases, perhaps reflecting those of their designers, perhaps reflecting biases in the way they handle data, perhaps reflecting actual variation in the data they receive and process. It is important that the differences between these three sources of bias are understood.

Providers of digitally enabled services face different challenges because they are making an offer to the market whose complexity has arguably increased. They are now offering a hybrid ‘product-service’ which has, perhaps, substituted the conventional shop and shop window with a digital version (the website or e-commerce platform) but combined that with the physical challenge of delivering the product. Of course, all that has been going on for many years, the real challenge is the vast increase in the volume of transactions, especially accelerated by the COVID-19 pandemic, and the extension of such services to lower margin, higher volume products. In these cases where both physical quality issues are more likely to exist in the product itself AND quality issues may be introduced by the delivery process, customer satisfaction will be harder to sustain. That also needs to be