

Contents

List of figures	ix
List of case studies	xiii
Preface	xv
About the authors	xix
How to use each chapter	xx
Acknowledgements	xxii

Part one – Introduction 1

1 Managing Operations 1

Introduction 3

What does operations management do? 3

How operations management fits into an organization 5

The role of operations management 6

Inputs and outputs 13

The mix of sectors in different economies 17

Variations in the operations management role 19

Variation in complexity 19

Variation in output – services versus products 20

Critical reflections 25

Summary 26

Study activities 26

Exploring further 27

Notes and references 27

2 Operations Strategy 31

Introduction 33

What is strategy? 33

The evolution of strategy within a business 33

Levels of strategy 34

Developing a strategy 41

Understanding customer requirements 41

Understanding markets 44

The process of strategy development 48

Implementing an operations strategy 54

Critical reflections 59

Summary 60

Study activities 61

Exploring further 62

Notes and references 63

Part two – Designing and delivering services and products	67
3 Designing Services and Products	67
Introduction	69
Designing and developing services and products	69
The research and development process	69
The design and development process	73
Reviewing the service and product mix	78
Developing a specification	82
Techniques for improving design	84
Critical reflections	97
Summary	99
Study activities	100
Exploring further	101
Notes and references	101
4 Delivering Services	105
Introduction	107
Factors affecting service delivery system design	107
Characteristics of service operations	108
Understanding how services differ	112
Designing the service delivery system	114
Phase 1 – the point of customer interface: back office or front office?	118
Phase 2 – the delivery system	119
IT-based service delivery system designs	126
Further aspects of service delivery	129
Critical reflections	133
Summary	134
Study activities	134
Exploring further	135
Notes and references	135
5 Making Products	139
Introduction	141
Factors affecting the design of the manufacturing process	141
Categories of product	141
Types of manufacturing process	142
Designing the manufacturing process	148
Implications of process design	152
Hybrid processes	155
Cells	155
Critical reflections	160
Summary	160
Study activities	160
Exploring further	161

6 Location and Layout	165
Introduction	167
Choosing a location	167
Levels of decision	168
Background factors influencing location decisions	169
Site location techniques	177
Choosing a layout	181
Factors influencing layout	181
Basic types of layout	182
Detailed layout design	192
Critical reflections	199
Summary	199
Study activities	199
Exploring further	202
Notes and references	203
Part three – Managing operations	207
7 Managing Capacity	207
Introduction	209
An overview of managing capacity	209
Defining and measuring capacity	210
Factors affecting capacity management	220
How do the service delivery system and manufacturing process design affect capacity?	220
Determining the level of capacity	226
Planning and managing capacity	228
Types of capacity plan	233
Managing demand and capacity	236
Critical reflections	240
Summary	241
Study activities	242
Exploring further	243
Notes and references	243
8 Scheduling and Executing Operations	247
Introduction	249
What is operations scheduling?	249
The role of scheduling in managing operations	249
Operations scheduling systems	250
Project management	251
Informal scheduling systems	251
Scheduling systems for complex services or products	255
Scheduling systems for repeat services and products	260
Critical reflections	281
Summary	282

Study activities	283
Exploring further	284
Notes and references	285
9 Managing Inventory	289
Introduction	291
What is inventory?	291
Functions of inventory	293
Models and approaches for managing inventory	301
Background issues and approaches	301
Key inventory decisions – what to stock and when to order	307
Inventory control systems and analysis	314
Inventory control systems	315
Inventory analysis	316
Critical reflections	319
Summary	319
Study activities	320
Exploring further	321
Notes and references	322
10 Managing Quality	327
Introduction	329
Defining quality and its role	329
Quality philosophies: the work of Deming, Juran and Crosby	330
The steps to effectively managing quality	334
Tools and techniques	336
Approaches to managing quality	348
Total quality management	348
Quality management frameworks: ISO 9000, Baldrige Award and EFQM Excellence Award	352
Critical reflections	355
Summary	355
Study activities	358
Exploring further	361
Notes and references	361
11 Managing the Supply Chain	365
Introduction	367
What is a supply chain?	367
Designing the supply chain	368
Deciding whether to make or buy	369
Managing supply chains	380
Types of supplier relationship	380
Digital supply	383

Developing supply chains	384
Stages of development	386
Tools and techniques for developing supply chains	390
The benefits of improving supply chains	398
Critical reflections	401
Summary	401
Study activities	403
Exploring further	404
Notes and references	405
Part four – Improving operations	409
12 Improving Operations	409
Introduction	411
Why improve operations?	411
Releasing cash	411
Improving market support	412
Reducing costs	416
The process of improving operations	416
Approaches to improving operations	420
Improvement tools and techniques	428
Making improvements	435
Critical reflections	446
Summary	446
Study activities	447
Exploring further	447
Index	453