

CONTENTS

List of Tools x
Acknowledgements xiv

Introduction 1

01 Warehouse management tools and guides 4

- 1.1 Warehouse audit 4
- 1.2 5S or 5C, also known as Gemba Kanri 6
- 1.3 Pareto analysis, 80/20 rule, ABC analysis or the vital few analysis 13
- 1.4 Choosing an order-picking strategy 16
- 1.5 Choosing pick technology 22
- 1.6 Cross-docking 27
- 1.7 Slotting or item profiling 29
- 1.8 Resource planning 33
- 1.9 Task interleaving 37
- 1.10 Selecting warehouse storage equipment 39
- 1.11 Warehouse location numbering 41
- 1.12 Selecting warehouse material handling equipment (MHE) 44
- 1.13 Warehouse space calculations 44
- 1.14 Warehouse location 50
- 1.15 Justifying a warehouse management system (WMS) 52
- 1.16 Selecting a warehouse management system (WMS) 56
- 1.17 How to implement a WMS 64
- 1.18 Warehouse maturity scan, by Jeroen van den Berg 71
- 1.19 Warehouse risk assessments 73
- 1.20 How to 'green' your warehouse and save energy 75
- 1.21 Hazardous packaging and labelling 79

02 Transport management tools 83

- 2.1 Transport audit checklists 83
- 2.2 Calculating emissions in freight transport 83
- 2.3 Fuel adjustment factor formula 86
- 2.4 How to improve fuel efficiency 88
- 2.5 Incoterms® 2010 91
- 2.6 Load and pallet configuration 93
- 2.7 ISO containers, weight volume ratios and pallets 96
- 2.8 Calculating road freight transport charges and rates 99
- 2.9 Transport management system (TMS) selection process 103
- 2.10 Transport problems – matching customer demand with supplier capacity 107
- 2.11 Vendor assurance of transport logistics service providers 110
- 2.12 Drivers' hours regulations, EU and United States 113
- 2.13 Transportation of hazardous products 116

03 Inventory management tools 118

- 3.1 Inventory management audit 118
- 3.2 ABC Pareto analysis for inventory management 123
- 3.3 Ballou's inventory-throughput curve 125
- 3.4 Consignment stock 129
- 3.5 Cycle counting or perpetual inventory counting 131
- 3.6 Maister's rule or the square root rule 134
- 3.7 Measuring demand variation 137
- 3.8 Periodic review inventory management system 140
- 3.9 Reorder point inventory management system 143
- 3.10 Replenishment order quantities 146
- 3.11 Economic Order Quantity (EOQ), by Geoff Relph 149
- 3.12 Combining Pareto with EOQ to enhance group analysis, by Geoff Relph 153
- 3.13 K-curve (exchange curve inventory planning), by Geoff Relph 157
- 3.14 Safety stock calculation 161
- 3.15 Stock counting 164
- 3.16 Stock turn 169
- 3.17 Vendor-managed inventory (and co-managed inventory) 171

- 3.18 Identification and disposal of surplus stock 174
- 3.19 Managing spare parts inventory 178

04 Supply chain management tools 184

- 4.1 Supply chain management audit 184
- 4.2 Collaborative, Planning, Forecasting and Replenishment (CPFR®) 189
- 4.3 Demand forecasting 191
- 4.4 Factory gate pricing (FGP) 194
- 4.5 Kanban 197
- 4.6 Kraljic matrix 200
- 4.7 Maturity models 203
- 4.8 Postponement 206
- 4.9 Product Flow Path Design, by Fortna 209
- 4.10 SCOR® 213
- 4.11 Supplier relationships 216
- 4.12 Supply chain risk assessment 218
- 4.13 Supply chain risk mitigation and contingency planning 223
- 4.14 Sustainable sourcing 226
- 4.15 Theory of constraints 228
- 4.16 Time-based process mapping 231
- 4.17 Time compression 233
- 4.18 Calculating ordering cost 235
- 4.19 How to calculate stockholding cost 239
- 4.20 Sales and Operations Planning (S&OP) 242
- 4.21 Omni-channel distribution 245
- 4.22 Strategic procurement 248
- 4.23 Supply Chain Strategy, by Julian Amey 252

05 Outsourcing tools 256

- 5.1 Outsourcing 256
- 5.2 To 4PL or not to 4PL 261
- 5.3 A risk-based approach to logistics outsourcing 265
- 5.4 Supply chain and logistics outsourcing 267

06 General management tools 271

- 6.1 Critical path analysis 271
- 6.2 Decision matrix analysis (DMA) 276

- 6.3 DMAIC: a process improvement tool 280
- 6.4 Flow charts 282
- 6.5 Gantt charts 285
- 6.6 Mind maps 288
- 6.7 The PDCA tool 291
- 6.8 Radar chart 297
- 6.9 SWOT analysis 300
- 6.10 Team selection – building a successful team, by Belbin 302

07 Performance management tools 306

- 7.1 SMART 306
- 7.2 Performance measurement and quality improvement 308
- 7.3 Performance measures for freight transport 312
- 7.4 Warehouse KPIs 315
- 7.5 Balanced Scorecard 317
- 7.6 Benchmarking 321

08 Financial management tools and ratios 328

- 8.1 Activity-based costing (ABC) and time-driven activity-based costing (TDABC) 328
- 8.2 Value tree financial model, by Enrico Camerinelli 334
- 8.3 Calculating return on investment and payback period 340
- 8.4 An engineered approach to calculate equipment ROI, by Aaron Lininger 343
- 8.5 Supply chain financial ratios and metrics 348

09 Problem-solving tools 352

- 9.1 Brainstorming 352
- 9.2 Cause and effect analysis, or fishbone or Ishikawa 355
- 9.3 The 5 Whys 356
- 9.4 The 8-D approach 359

Appendices 363

- 1. *Useful websites* 363
- 2. *Imperial/metric conversions* 367
- 3. *Automatic identification (autoID)* 369

Index 373