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 | checkl | ists | 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 3.19 | Identification and disposal of surplus stock 174 Managing spare parts inventory 178 | | |
|--------------|---|--|--|
| Suppl | y 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 | | |
| | | | |
| Outso | ourcing tools 256 | | |
| 5.1 | Outsourcing 256 | | |
| 5.2 | To 4PL or not to 4PL 261 | | |

05

04

- 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 6.4 6.5 6.6 6.7 6.8 6.9 6.10 | DMAIC: a process improvement tool 280 Flow charts 282 Gantt charts 285 Mind maps 288 The PDCA tool 291 Radar chart 297 SWOT analysis 300 Team selection – building a successful team, by Belbin 302 | | | |
|----|---|--|--|--|--|
| 07 | Perfo | ormance management tools 306 | | | |
| | 7.1 7.2 7.3 7.4 7.5 7.6 | Performance measures for freight transport 312 Warehouse KPIs 315 | | | |
| 08 | Financial management tools and ratios 328 | | | | |
| | 8.1 8.2 8.3 8.4 | Activity-based costing (ABC) and time-driven activity-based costing (TDABC) 328 Value tree financial model, by Enrico Camerinelli 334 Calculating return on investment and payback period 340 An engineered approach to calculate equipment ROI, by Aaron Lininger 343 Supply chain financial ratios and metrics 348 | | | |
| 09 | Problem-solving tools 352 | | | | |
| | 9.1 9.2 9.3 9.4 | Brainstorming 352 Cause and effect analysis, or fishbone or Ishikawa 355 The 5 Whys 356 The 8-D approach 359 | | | |
| | 1. Us 2. Im | endices 363 eful websites 363 eperial/metric conversions 367 etomatic identification (autoID) 369 | | | |