Index

A
active tags 139
activity based cost estimation 16, 20, 85
activity based costing (ABC) 18, 81, 82, 83, 84
advanced shipment notifications (ASN) 144
analysis of variance (ANOVA) 27, 42, 44, 45, 50, 51
analytical framework 298, 304
analytic hierarchy process (AHP) 152
analytic models 2
apparel exports 204, 205, 208, 209, 210, 21
availability management 1, 2, 3, 4, 5, 6, 9, 11, 12, 13
availability management process (AMP) 1, 2
availability outlook 2, 4, 5, 6, 8, 9, 10, 11, 12
available to promise (ATP) 1, 2, 3, 4, 5, 6,
7, 9, 10, 166, 168, 169
average variance extracted (AVE) 255, 257

B
balancing technique 63, 65, 73, 74
Bayesian-Nash equilibrium 264
bill of material (BOM) 249
binomial distribution 112
bivariate normal distribution 266
bottleneck analysis 20, 62, 65
bottleneck machine 65, 66
bottom-up 17, 21, 88
bullwhip effect 322, 325, 343
business continuity planning (BCP) 339
business process management (BPM) 309
business-to-consumer (B2C) 263

C
C++ 345, 348, 350, 353
camera tracking 125, 126, 127, 128, 129
capacitated deterministic 45
capacitated stochastic 45
capacity bills 59
capacity planning 16, 17, 19, 59, 83
capacity planning using overall factors (CPOF) 59
coefficient of variation (CV) 20, 54, 55, 56, 85
collaborative planning, forecasting, and replenishment (CPFR) 145, 157, 315, 336
commercial subcontracting 302
communication imperative 338
competitive advantage 159, 160, 161, 162, 165, 172, 173, 174
competitive-edge equalizer 318
complementary relationship matrix 167, 168, 170, 172
complementary resources 159, 160, 161, 162, 163, 164, 167, 168, 169, 171, 172, 173
complexity diversity 19
computer anxiety 248, 250, 252, 257, 258, 259, 260
computer self-efficacy 248, 250, 252, 253, 257, 259, 260, 261
Index

confidence interval 112
configured-to-order (CTO) 2, 5, 6
construct validity 255
consumer packaged goods (CPG) 93, 104, 118, 311
container depot management support system (CDMSS) 150
contractual arrangements 298, 300, 323
co-ownership dealer shop (COD) 168, 169, 170, 171
core competencies 216, 219, 220, 224, 225, 226, 228, 229, 230, 231, 232, 233, 234
cost estimation 16, 17, 19, 20, 29, 32, 41, 45, 46, 47, 48, 51, 52, 53, 55, 57, 58, 62, 64, 70, 71, 72, 73, 75, 76, 77, 78, 79, 82, 83, 84, 85, 86, 87, 88
cost of goods sold (COGS) 184, 202
cost ratio 43, 44, 46, 47, 48, 52, 53, 82, 83, 93
co-variance matrix 266
customer adapter 223
customer developer 223, 226, 232
customer orientation 180, 192, 216
customer relationship management (CRM) 168, 169, 172, 309
customer traffic data 126, 136, 138

d

data array 6
data explosion 149, 150, 155
data fusion 130
data handling 130
data integration 130, 145, 147, 153, 154, 155
data mining 147, 150, 154, 155
data normalization 144
data overload 142
data preprocessing 147
data processing 126
data refresh event 8, 10
data retrieval 146
data security 142, 155
data transformation 145, 146
decision making 126, 129, 146, 150, 157, 263, 293
decision trees (DT) 150, 154
decision variables 26, 34
degree of customer adaptation (DOCA) 223
delivery service differentiation 169
Delphi method 163
demand event 8, 9
demand index 43, 45, 47
demand management 181, 183, 184, 185, 186, 188
demand planning 177
design structure matrix (DSM) 172
deterministic environment 33, 47, 84
deterministic systems 281
discrete event dynamic system (DEDS) 280
discriminant analysis (DA) 150
dispatching rule 32, 38, 42, 43, 44, 45, 50, 59, 73, 82
distribution variance 43, 45, 47, 51, 52, 53
do-it-yourself (DIY) 125, 126, 129, 130, 136, 138, 139, 166
downstream 176, 177, 181, 190, 217
dyadic exchange 305
dynamic view 10
dynamic workloads 17

E

e-commerce 1, 3
economies of scale 216, 219, 220, 224, 225, 226, 227, 228, 229, 230, 231, 232, 234, 235, 236
electronically-enabled supply chains (ESC) 180
electronic data interchange (EDI) 181, 183, 184, 185, 186, 188, 281, 310, 314, 317, 319, 320, 326
electronic linkages 311, 314, 315, 316, 317, 318, 320, 321, 322, 323
electronic product code (EPC) 90, 93, 102, 118, 119, 120, 144, 150, 151, 153, 157, 158
e-network integration 308, 309, 310, 313, 314, 315, 319, 320
e-network management 309
enterprise resource planning (ERP) 2, 3, 90, 145, 152, 309, 315, 317, 318, 320, 323, 326, 333, 344
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-retailer 262, 263, 264, 265, 267, 268,</td>
</tr>
<tr>
<td>269, 270, 271, 272, 273, 276, 277</td>
</tr>
<tr>
<td>Euclidean distance 17</td>
</tr>
<tr>
<td>EuP 239</td>
</tr>
<tr>
<td>evaluation framework 219, 220, 230, 231,</td>
</tr>
<tr>
<td>232, 233, 234</td>
</tr>
<tr>
<td>extended supply networks 216</td>
</tr>
<tr>
<td>extensible markup language (XML) 145, 322</td>
</tr>
<tr>
<td>external barriers 171</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>false read 142, 148, 149, 153, 155</td>
</tr>
<tr>
<td>finite loading (FL) 60, 74</td>
</tr>
<tr>
<td>forced idle time 20, 31, 32, 34, 64, 65,</td>
</tr>
<tr>
<td>66, 67, 68, 69, 78, 85</td>
</tr>
<tr>
<td>forecasting accuracy 270, 272, 273</td>
</tr>
<tr>
<td>free capacity 27</td>
</tr>
<tr>
<td>frequency and time-division-multiple-access</td>
</tr>
<tr>
<td>(FTDMA) 149</td>
</tr>
<tr>
<td>full factorial design 42, 43, 50</td>
</tr>
<tr>
<td>fuzzy logic 17, 87</td>
</tr>
<tr>
<td>G</td>
</tr>
<tr>
<td>game theory 267, 279, 280, 282, 283, 284,</td>
</tr>
<tr>
<td>285, 294</td>
</tr>
<tr>
<td>Gantt chart 30, 31, 32, 38, 39, 40, 41, 60</td>
</tr>
<tr>
<td>61, 64, 65, 71</td>
</tr>
<tr>
<td>generalized stochastic Petri net (GSPN) 284</td>
</tr>
<tr>
<td>general problem solving capability (GPSC)</td>
</tr>
<tr>
<td>223</td>
</tr>
<tr>
<td>genetic algorithms (GA) 347</td>
</tr>
<tr>
<td>geographical information systems (GIS) 126</td>
</tr>
<tr>
<td>133, 137, 139</td>
</tr>
<tr>
<td>globalization 206, 216, 217, 221</td>
</tr>
<tr>
<td>global supply chain 216, 219, 222, 224, 234</td>
</tr>
<tr>
<td>gravity trading model 211, 213</td>
</tr>
<tr>
<td>greenfield plants 301, 302, 304</td>
</tr>
<tr>
<td>green supply chain management (GSCM) 242,</td>
</tr>
<tr>
<td>243, 244, 245, 246, 247, 248–261</td>
</tr>
<tr>
<td>group technology 17</td>
</tr>
<tr>
<td>H</td>
</tr>
<tr>
<td>heuristic 19, 27, 28, 35, 36</td>
</tr>
<tr>
<td>heuristic algorithm 19</td>
</tr>
<tr>
<td>hybrid cost estimation 17</td>
</tr>
<tr>
<td>hybrid e-network 311, 322</td>
</tr>
<tr>
<td>I</td>
</tr>
<tr>
<td>idle time 20, 31, 32, 34, 35, 36, 37, 39,</td>
</tr>
<tr>
<td>40, 64, 65, 66, 67, 68, 69, 78, 85</td>
</tr>
<tr>
<td>information sharing 262, 263, 264, 267,</td>
</tr>
<tr>
<td>268, 269, 270, 271, 272, 273, 274, 276,</td>
</tr>
<tr>
<td>277, 282, 283, 284, 294</td>
</tr>
<tr>
<td>in-store observation 125, 126, 128, 129</td>
</tr>
<tr>
<td>intangible assets 161</td>
</tr>
<tr>
<td>integer programming (IP) 18</td>
</tr>
<tr>
<td>integer programming model 23, 61</td>
</tr>
<tr>
<td>integrated inventory management 143</td>
</tr>
<tr>
<td>integrated logistics 216, 218, 219, 222, 223</td>
</tr>
<tr>
<td>226, 228, 229, 234, 238</td>
</tr>
<tr>
<td>internal barriers 171</td>
</tr>
<tr>
<td>internal improvisation 339</td>
</tr>
<tr>
<td>international outsourcing of service (IOS)</td>
</tr>
<tr>
<td>223, 226, 233</td>
</tr>
<tr>
<td>inter-organizational 171, 172, 175</td>
</tr>
<tr>
<td>inter-organizational information system (IOS)</td>
</tr>
<tr>
<td>inventory accuracy 3, 4</td>
</tr>
<tr>
<td>inventory shrinkage 3</td>
</tr>
<tr>
<td>isolating mechanisms 161</td>
</tr>
<tr>
<td>IT costs 1, 3, 6, 12, 13, 14</td>
</tr>
<tr>
<td>J</td>
</tr>
<tr>
<td>joint doing 241, 242, 243, 246</td>
</tr>
<tr>
<td>joint monitoring 241, 242, 243, 246</td>
</tr>
<tr>
<td>joint planning 241, 242, 243, 244, 246</td>
</tr>
<tr>
<td>joint reviewing 241, 242, 243, 246</td>
</tr>
<tr>
<td>just-in-time (JIT) 18, 328, 329, 330, 331</td>
</tr>
<tr>
<td>332, 333, 335, 336, 337, 339, 340, 341,</td>
</tr>
<tr>
<td>342, 343, 346</td>
</tr>
<tr>
<td>K</td>
</tr>
<tr>
<td>key-informant bias 165</td>
</tr>
<tr>
<td>K-means clustering 154</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>lead-time reduction 216</td>
</tr>
<tr>
<td>Levenberg-Marquardt algorithm 56</td>
</tr>
<tr>
<td>library resources management 143</td>
</tr>
</tbody>
</table>
Index

linear programming (LP) 35, 99, 112, 113, 117
logistics management 148
logistics performance 204, 206, 207, 208, 209, 210, 213
logistics performance index (LPI) 207, 208, 209, 210, 211, 213
logistics service 311
lot-sizing 20

M
machine loading 16, 19, 84
machine variety 42, 45, 46, 49, 52, 53
make-to-order (MTO) 5, 6, 168, 169, 172
make-to-stock (MTS) 5
manufacturing execution system (MES) 145
marginal analysis 19
marginal cost 23, 41
master production schedule (MPS) 4, 5
material diversity 19
MATLAB 55
merchandise tracking 148
meta-heuristic 354
middleware 144, 145, 146
mixed-integer programming (MIP) 3
most work remaining (MWKR) 37, 42, 43, 44, 45, 50, 73, 74
MSUS survey 244, 246, 247
multicollinearity 257
multi-echelon distribution inventory model (MEDIM) 348
multinational enterprise (MNE) 297, 299, 304
multivariate regression analysis 257

N
Nelder and Mead methodology 345, 348, 349
net present value (NPV) 94, 95, 99, 112, 113, 117
network complexity 331
network density 331
network theory (NT) 220, 221
neural networks 17, 87, 88, 150, 154, 155
normal distribution 112

O
objective function adjustment 81
object naming service (ONS) 90
object tracking 145, 146, 148, 154, 156
online analytical processing (OLAP) 150
online purchasing 181, 183, 184, 185, 186, 188
online selling 181, 183, 184, 185, 186, 188
operation splitting 33, 85
optimal distribution 162
optimization model 2, 3, 27, 35, 37, 39, 43, 47, 49, 50, 81, 84
optimization software 26, 44, 76, 83
order fulfillment 1, 2, 3, 10
order scheduling 1, 5, 7, 9, 10
outsourcing 16, 17, 19, 21, 22, 23, 24, 25, 27, 33, 84, 85
overhead costs 177, 181, 182, 187, 188, 190
overseas subcontractor 301, 303

P
parametric cost estimation 17
Pareto analysis 18
PDCA cycle 242, 246
perceived ease of use 248, 250, 251, 257, 258, 260
perceived usefulness 250, 251, 257, 258, 261
periodic review 284, 290
Petri nets 279, 283, 284, 289, 294, 295, 296
phase-jitter-modulation (PJM) 149
physical availability 2, 5, 10
physical markup language (PML) 145
planning horizon 4, 20, 22, 25, 26, 27, 29, 32, 34, 35, 37, 38, 40, 43, 50, 88, 59, 60, 61, 63, 64, 65, 67, 68, 69, 75, 76, 78, 81, 82, 84, 98, 162
Poisson process 6, 9
predictive model 20, 54, 55, 56, 82, 83, 85
principal-agent theory (PAT) 220, 221
principal component analysis 208
product focus 168, 169
product identification 3
production plan 25, 37, 42, 44, 47, 48, 54, 55, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 70, 71, 82
production volume diversity 19
product lifecycle management (PLM) 143, 309
product markup service (PMS) 90
product variety 42, 44, 45, 46, 47, 48
product yields 16, 47, 54, 59, 83, 84
promised ship date 1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13
pull-side 2, 3, 5, 7, 9
purchase order (PO) 144
push-side 2, 3, 4, 5, 6, 9

Q
qualitative methodology 164
quasi-integration 298
query layer 146

R
radio frequency identification (RFID) 89, 125, 126, 142, 155, 156, 157, 158
REACH 239
real-time acquisition 142, 148, 155
real-time food traceability 143
Real Time Location System (RTLS) 148
regression analysis 17, 88
research and development (R&D) 18, 87
resource-based theory 160, 161, 174
resource-based view (RBV) 220, 221, 228, 230, 298
resource relatedness score (RRS) 171, 172
retail management 140, 143
return on investment (ROI) 93, 94, 98, 99, 100, 107, 108, 109, 110, 111, 112, 115, 117, 118
risk-averse 179
risk mitigation 331, 333, 336, 340
risk neutral 264
RoHS 239, 240, 241, 249, 258, 259, 260
roll-forward event 8, 10
rough-cut capacity planning (RCCP) 20, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 75, 76, 77, 78, 79, 80, 81, 85
rough-cut cost estimation 16, 19, 20, 62, 71, 72, 73, 75, 76, 86
routing length 42, 46, 47, 48, 49, 52, 53

S
SC Net Optimizer 279, 290, 291, 294
secondary data 159, 160, 162, 164
semantic data 144, 146
semantic data filtering 144, 146
service developer 223, 232
setup diversity 19
shortest processing time (SPT) 32, 37, 38, 42, 59, 73, 74
short order lead-time 169
simulated annealing (SA) 347
simulation horizon 291
simulation model 1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 47, 48, 75, 76
simulation software 37, 44, 76, 83
smart card 142, 155
smart item infrastructure (SII) 153
smoothed station 20, 62, 67, 75, 76, 79
Snapshot principle 20, 32, 62, 64, 65, 66
space management 125, 126
spatial data 130, 139, 141
SPSS 133
Stackelberg solution 283
stochastic environment 33, 34, 42, 64, 83, 84, 85, 86
stochastic Petri net (SPN) 279, 284, 289
stochastic process 16, 19, 20
stochastic systems 281
stock keeping units (SKU) 143, 150
stoppages 21
subcontracting 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307
subcontractors 21, 96
supplier relationship management (SRM) 309
supplier support 240, 241, 242, 246
supply chain execution (SCE) 309
supply chain planning (SCP) 309
supply chain visibility 91
supply event 8, 9
Index

synchronization 3, 5, 10
synchronous sampling 130
systematic management 242, 243
system availability 2, 5, 8, 10

T

tabu search (TS) 347
tacit knowledge 161
tangible assets 161
technology acceptance model (TAM) 251, 258
time between failures (TBF) 51, 52, 54
time-division-multiple-access (TDMA) 149
time to repair (TTR) 51, 52, 54
time unit cost 63, 75, 79, 85
tracking system 127, 130, 148, 154
traditional cost estimation 16, 71, 72, 75
transaction agent (TA) 284
transactional errors 3
transaction cost analysis (TCA) 220, 221
transaction cost economics (TCE) 298
transportation management systems (TMS) 145

U

unit profit to tag price (UPTP) 97, 98, 100, 107, 108, 109, 115, 116, 122, 123
unplanned buying 126
upstream 176, 177, 179, 181, 191, 217

V

Verichip 143
vertical alliance 222, 224
virtual supply chain 309, 324
volume based cost systems (VBC) 18

W

waiting time 34, 35, 37, 38, 39, 40
warehouse management system (WMS) 145
web-based applications 159, 160, 161, 162, 165, 166, 167, 168, 171, 172, 173
web-based customer order system (WCOS) 166, 168, 169, 170, 171
web-based dealer order system (WDOS) 166, 169, 170, 171
web-based procurement system (WPS) 166, 169, 170, 171
web-enabled supply chain 164
wireless local area network (WLAN) 125, 126, 127, 128, 129, 130, 137, 139, 140
wireless manufacturing (WM) 148
work-in-process (WIP) 5