Index

A

Analytic Hierarchy Process (AHP) 202, 204, 205, 210, 212, 213, 214, 221, 223, 225
application service providers (ASP) 188
Architecture & Platform (A&P) 320
ATHENA Architecture 321
Autonomous Control Entity (ACE) 204, 207, 208, 209, 210, 211, 212, 215, 216, 217, 221

B

balanced scorecard (BSC) 52, 53, 80, 87, 91
BI 2.0 50
bilateral attributes 269, 271, 272, 273, 275, 279, 280, 281, 285
binary variable restriction 150
bullwhip effect 272
Business Activity Monitoring (BAM) 82, 83
Business Data Catalog (BDC) 59, 77, 78
Business Intelligence (BI) 43, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 62, 63, 67, 69, 70, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 88, 89, 92
Business Process Management (BPM) 59, 77, 87, 89, 91
business process redesign (BPR) 221, 224
Business-to-Business (B2B) 25, 34, 35, 36, 38, 39, 40, 41, 227
Buyer Agent 254, 256, 257
buyer-buyer-supplier 269
Buyer-Buyer-Supplier 250, 253, 256, 261, 262

C

Call For Proposals (CFP) 203, 206, 207, 209, 210, 211, 212, 213, 214, 216, 220, 221
Capacity Offering Agent (COA) 303, 304, 305, 306, 308
collaborative planning, forecasting and replenishment (CPFR) 44, 90
Common Enterprise Modeling Framework’s for Distributed Organizations (CEMFDO) 326
Conceptual barriers 321
Contact Net Protocol (CNP) 209, 210
coopetition 291, 292, 293, 296, 297, 298, 299, 300
coopetitive networks 291, 296, 297, 300, 308, 309, 314
coordination mechanism 270, 271, 272, 285, 286, 290
Coordinator Agent 254, 256, 257, 258, 259, 260, 266, 267, 268
Corporate Information Factory (CIF) 51
cost function 154
Council of Supply Chain Management Professionals (CSCMP) 115, 140
customer relationship management (CRM) 349

D

Data Mining 89, 91, 92
Data Protection Act 49
Data Warehouse 88, 90, 92
decision support systems (DSS) 13, 242
Defense Modeling and Simulation Office (DMSO) 215, 323
Department Of Defense (DOD) 323, 324
discrepancy 269
Index

Discrete Event Simulation 291
Discrete Events system Specification (DEVS) 211, 215, 216, 327, 334, 335, 339, 344, 345
distributed artificial intelligence (DAI) 271
distributed simulation 320, 322, 323, 327, 329, 343, 345
distribution-center 148, 149, 150, 152, 156, 157, 158, 159, 160, 161
distribution echelon 157, 160
distribution of the activated links (DAL) 310, 311
distribution of transactions among plants (DOT) 310, 311, 313, 314
domain-specific models and languages (DSLs) 58, 82
downstream 270, 290
DW 2.0 50, 51, 87
dynamic continuous review 146, 148, 152, 157
Dynamic programming 356
dynamism 3, 4, 5, 12, 14, 15, 17, 18

e-business 24, 25, 26, 28, 29, 30, 31, 33, 35, 36, 37, 38, 40, 41, 42, 242
echelons 250, 265
e-Commerce 25, 31, 39
economic order quantity (EOQ) 227, 229
Electronic Data Interchange (EDI) 13, 16, 28, 29, 34, 36, 40, 42, 169
electronic purchasing consortia (EPC) 33, 35
electronic supply network 347, 351
e-market 24, 25, 34, 35, 36, 37, 38, 39, 226
table information portals (EIP) 53
Enterprise Modeling (EM) 320
Enterprise Portal (EP) 74
Enterprise Resource Planning (ERP) 29, 30, 31, 32, 34, 38, 41, 42, 46, 47, 48, 57, 66, 77, 78, 85, 209
Entity Response to a Call For Proposals launched by a partner (ERCFP) 211
e-procurement 24, 25, 32, 33, 36, 39, 40
E-Supply Chain Management (e-SCM) 188, 189, 192, 348, 349, 351, 352, 354, 356, 359
e-supply network 269, 271, 289
e-supply network coordination (e-SNC) 250, 254
E-Supply Network (e-SN) 250, 251, 252, 253, 255, 265
e-tendering 33
exclusive attributes 269, 271, 272, 273, 275, 277, 278, 279, 285
Extraction, Transformation, and Loading (ETL) 45, 63, 66, 74, 85

F
factors influencing ICT adoption 133, 135
fast-moving consumer good (FMCG) 102
Federated approach 323
Federation Object Model (FOM) 215, 216, 325, 331, 338, 339
Flat Holonic Form 207
forward logistics (FL) 170
fully automated SCI 28
fuzzy 190, 191, 192, 195, 196, 200, 201, fuzzy decision making 147
fuzzy environment 146, 148, 159, 160
fuzzy goal programming 146, 147, 163
fuzzy variable linear programming (FVLP) 190

G
genetic algorithm 269, 271, 283
genetic algorithms (GA) 168, 171, 172, 176, 177, 178, 179, 180, 181, 186

H
HLA Enterprise Federate Agent (HEFA) 336, 339, 340
Holonic Manufacturing Systems (HMS) 207
Holonic Paradigm 205
horizontal coordination 270
### Index

horizontal information exchange 269  
hybrid genetic algorithms and simulated annealing (HGASA) 168, 172, 176, 177, 178, 179, 180, 181  
hybrid meta-heuristics 186  
Hype Cycle 95  
Hypertext Transfer Protocol Secure (HTTPS) 83

#### I

Information and Communication Technology (ICT) 25, 26, 28, 29, 33, 36, 37, 93, 94, 95, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 143  
information exchange 269  
information sharing 269, 270, 271, 285, 286, 289  
Information System Services Layer (ISS) 337  
Information Systems (IS) 320, 325, 331, 332, 334, 335, 336, 337, 338  
Information Technology (IT) 4, 24, 25, 29, 31, 32, 34, 38, 320, 321  
Integrated approach 322  
Integrated Enterprise Modelling (IEM) 326  
i ntegrated production 147, 162, 163  
Intelligent Agent 263, 264, 265, 349, 350, 351, 352, 353, 356, 359  
intelligent agents 269, 271  
INTEROP Network of Excellence 326, 341, 342  
inter-organisational relationships 29  
inter-organisational systems (IOS) 28, 29, 37  
Inter-Organizational Coordination 10, 11, 12, 13, 15, 17  
Intra-Organizational Coordination 11, 15  
inventory policy 146  
Isoarchic Architecture 206  
IT infrastructure 31

#### K

key performance indicators (KPIs) 56, 57, 69, 70, 72, 74, 76, 77, 78, 79, 80, 81, 83, 84, 85  
Knowledge Interchange Format (KIF) 336  
Knowledge Query and Manipulation Language (KQML) 335, 336, 342

#### L

Least Incoming Time Stamp (LITS) 324, 339, 346  
Local Call For Proposals launched by the entity (LCFP) 211  
Local RTI Component Layer (LRC) 324, 325, 337, 346  
Logical Processors 323  
Logistics 168, 169, 182, 183, 184, 185, 186  
Long-Term Suppliers Agreement (LTSA) 260

#### M

maintenance, repair and operating (MRO) 33, 35  
manual SCI 28  
manufacturing resource planning (MRP II) 30  
marketing information networks 296  
material requirements planning (MRP) 30  
Mediator Agent (MA) 303, 305, 306, 308  
membership function 151  
meta-heuristics 171, 172, 181, 185, 186  
mixed integer programming 146, 147, 160  
model-driven development (MDD) 58  
Model Driven Interoperability (MDI) 328, 331, 335, 341, 346  
Modelling and Simulation Environments for Design, Planning and Operation of Globally Distributed Enterprise (MISSION) 326, 343  
Monitor Agent 255, 257  
Multi Agent Coding / Decoding Layer (AICD) 337  
Multi-Agent System (MAS) 206, 291, 300, 301, 302, 308, 318, 328, 329, 333, 334, 346  
Multidimensional Expressions (MDX) 58, 69, 70, 74
multi-echelon 146, 148, 161, 162
multilayer agent 351
multilayer network 356
multi-seller market equilibrium 243

N
Nash-Bertrand equilibrium 228, 234, 235, 245
network agents 269
network of enterprises 330
non-negativity constraints 150
number of activated links (NAL) 310, 311, 312
numerically-controlled machine-tool (NCMT) 209

O
Object Model Template (OMT) 215, 223
On-Line Analytical Processing (OLAP) 45, 55, 58, 63, 67, 69, 70, 72, 76, 77, 78, 79, 80, 81, 85, 92
On-Line Transactional Processing (OLTP) 48, 65, 66, 67, 68, 69
operational planning 147, 163
Order Holon (OH) 208, 212, 216
Organizational barriers 321

P
perceptions of the role of ICT 135
Performance Monitoring 92
performance vector 146
Petri Nets (PN) 333, 334
plant echelon 146, 148, 152, 154, 155, 157, 161
plant production capacity 149
price discount sharing (PDS) 230
Process Specification Language (PSL) 323
Product Holon (PH) 208, 212, 216
production distribution 147
Production Model Editor (LSIS_PME) 327
production transportation planning decision (PTPD) 147
profit distribution index (PDI) 310, 311
publish and subscribe (PS) 338, 339

Q
quantitative models 270
quick response (QR) 12

R
raw material availability 149
raw material supply 149
reputational networks 296, 297
request for information (RFI) 33
request for proposal (RFP) 33
request for quotation (RFQ) 33, 254
Requiring Capacity Agent (RCA) 303, 304, 305, 306, 308
Resource Holon (RH) 209, 212
Response to a Local Call For Proposals (RL-CFP) 211
Response to Call For Proposals (RCFP) 211, 221
return of investment (ROI) 44, 45
reverse logistics network design (RLND) 168, 171, 172, 181
Reverse Logistics (RL) 169, 170, 171, 186
RL network (RLN) 169, 170, 171, 181
Run Time Infrastructure (RTI) 215, 216, 221, 324, 325, 327, 329, 331, 337, 339, 340, 345, 346

S
Sarbanes-Oxley Act 49
Secured Socket Layers (SSLs) 83
semi-automated SCI 28
service customization 121, 125, 132, 133
service oriented architecture (SOA) 14, 48, 50, 58, 59
silodeffect 33
Simulated Annealing (SA) 171, 172, 176, 177, 180, 181, 186
Simulation Object Model (SOM) 215
Single-Sign-On (SSO) 77
social networks 295, 296
Software Factories (SF) 58, 82, 92
standard deviation 154, 156, 158
standard language (SQL) 58, 63, 74, 86, 88, 91
strategic model 146
Supplier Agent 254, 256, 257, 258, 259, 260
supplier echelon 146, 148, 152, 153, 154
supply chain 146, 147, 148, 149, 151, 152, 159, 160, 161, 162, 163
Supply Chain Coordination 3, 9, 10, 13, 15, 113, 136
supply chain cost 147, 148, 149, 151, 160, 162
supply chain environment 118, 136
supply chain intelligence (SCI) 43, 46, 47, 54, 55, 57, 58, 59, 60, 63, 74, 78, 80, 81, 82, 83, 84, 85
Supply Chain Management (SCM) 2, 9, 24, 25, 26, 27, 28, 29, 31, 32, 35, 36, 37, 38, 41, 44, 45, 46, 47, 48, 51, 63, 70, 82, 84, 85, 89, 113, 115, 116, 117, 120, 169, 188, 189, 192, 347, 348, 349, 351, 352, 354, 356, 359
supply chain management system (SCMS) 188, 189
supply chain modeling 146, 148, 162
Supply Chain Monitoring (SCMo) 60
supply chain networks 203
Supply Chain (SC) 2, 9, 11, 13, 14, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 51, 52, 54, 55, 56, 58, 60, 61, 62, 63, 64, 66, 74, 78, 82, 84, 85, 143, 144, 203, 204, 205, 207, 214, 219, 220, 221, 222, 223, 224, 338, 342, 343, 344, 347, 348, 349, 350, 357, 358, 360, 361
Supply Chains Distributed Simulation 326
supply network 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 25, 44, 45, 46, 47, 48, 50, 79, 80, 81, 82, 83, 84, 85, 87, 88, 92, 168, 171, 183, 185, 250, 251, 253, 254, 261, 265
supply network coordination (SNC) 250, 251, 254
Supply Network Decision Matrix (SNDM) 266, 267
Supply Network Management (SNM) 19, 94, 95
Supply Network Planning 92
supply networks 269, 288, 289

T
tabu search (TS) 171
tactical level 146, 152, 159, 160, 161
tactical model 146
Technological barriers 321
third-party logistics service providers (3PLs) 113, 114, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140
total cost of ownership (TCO) 34
total unsatisfied demand (TUD) 310, 312, 313
transactions value (TV) 310, 311
transferable utility (TU-game) 306
Transportation Management Systems (TMS) 122, 134, 135

U
Unified approach 322
Unified Dimensional Model (UDM) 66, 67, 68, 69, 79
Unified Enterprise Modeling Language (UEML) 323, 326, 331, 344
upstream 270, 290

V
vendor managed inventory (VMI) 10
vertical coordination 270
volume flexibility 148, 149, 151, 160

W
Web 2.0 50, 51, 82, 83
Workflow Model Editor (LSIS_WME) 327