

Index

Symbols

3-D based figurative 385
 3D CAD 385, 393
 3D CAD system 385
 5-dimensional grid 31
 (GRAI) model 256
 ϵ -constraint method 98, 106, 107

A

abstract holistic 233
 accounting information system (AIS) 82
 ACM 503, 511, 512, 515, 517, 550
 act global 291, 293
 Action Workflow 66
 Action Workflow approach 66
 Activity Flow 43, 50, 51
 ad-hoc 38
 ad-hoc user-input 38
 agent-based modeling (ABM) 436, 438
 Aggregated Production Planning (APP) 180
 AMENETIES method 259
 AMENETIES methodology structures 255
 analytic hierarchy process (AHP) 98
 Analytic Network Process-ANP 97
 AndroMDA 222, 229, 516
 ANP Model 103, 104
 anti-spyware tools 297
 APO system 189
 Application Lifecycle Management
 232, 233, 249
 Archimedean Goal Programming (AGP) 107
 architectural planning 1
 architecture 356, 359, 360, 361, 376, 378,
 516, 518, 519, 549

architecture models 234
 Architecture of Integrated Information Systems
 (ARIS) 176
 ARIS 357
 artifacts 215, 218, 219, 220, 221, 225, 228,
 229
 Artificial Neural Network (ANN) 109
 artificial energy 331
 artificial intelligence (AI) 97, 436, 331, 337,
 347
 Artificial Intelligence Based Models 97
 Asset Development Model 45

B

background 416, 419
 BAT 66, 79, 526
 Bertalanffian type 410
 bill of material processing (BOMP) 11
 BIM base 394
 bio-mimicry 330, 331, 338
 BPML model 172
 BPMN 64, 65
 BPR projects 373
 Building Information Modeling (BIM) 394
 business component architecture (BCA) 1, 25
 Business Component Architecture (BCA)
 1, 22
 business enterprises 8
 business mode 115
 business models 81
 Business Process Integration (BPI) 19
 business process modelling (BPM) 173
 business process modelling language (BPML)
 172
 business quality 400

Index

Business-to-Business (B2B) 479
Business-to-Consumer (B2C) 479

C

CADD 19
CAM 6, 12, 19
CAP 19
Capability Maturity Model (CMM) 32, 54, 55
Capacity Planning using Capacity Bills (CPCB) 183
Capacity Planning using Overall Factors (CPOF) 183
Capacity Planning Using Resource Profiles (CPRP) 183
Capacity Requirements Planning (CRP) 184
CAPP 19
Case-based-reasoning (CBR) 97
Case-based-reasoning (CBR) systems 97
CASE tools 263, 270, 541
causal loop modelling (CLM) 352, 365
cautious headway 330
centers of gravity (COG) 439
Central Computer and Telecommunications Agency (CCTA) 47
Chief Information Officers (CIO) 6, 12
CIMOSA 518, 357, 358, 360, 361, 527, 367, 531, 370, 371, 376, 377, 378, 550, 377
CIMOSA modelling framework 173
CIM systems 359, 360
CITI firm 115
cloud computing 1, 2, 4, 8
Cluster Analysis (CA) 96
COBRA 20
coders 40
cognitive approach 137, 153, 154
cognitive revolution 331, 346, 347
collaboration 272, 286, 287
collaborative ecosystem 290, 291, 292, 296
collaborative paradigm 294, 296, 307
Collaborative Work Systems (CWS) 144
COMIS 256, 257, 258, 259, 260, 269
COMIS methodology cycle 257
commercial process models 36, 45
Common Object Request Broker Architecture (CORBA) 177

communications tools 293
Community of Practice (CoP) 86
complex information technology-intensive (CITI) 114, 116
computer-aided design (3D CAD) 385
Computer-aided Publishing 19
computer information systems (CIS) 11
Computer Security Institute (CSI) 296
concentric diagram 343
Concurrent Engineering (CE) 382
Conic Scalarization Method (CSM) 94, 107
conservation of information (COI) 435, 436, 439, 457
Conservation of Information (COI) 436, 457
contextual data 232, 234, 235, 236, 237, 238, 239, 249
Control Design Pattern 242
Control Flow 177
conversation-oriented perspective 63, 64, 65, 66, 68, 75, 78, 79
CRM 477, 479, 480, 481, 521, 528, 490, 491, 530, 492, 531, 495, 535
cultural conditions 332
customer-focused 480
Customer Relationship Management (CRM) 477, 480, 489
Customer-to-Business (C2B) 479
Cybernetics 5, 29, 30, 521, 549
cyberspace 3

D

Data Envelopment Analysis (DEA) 96
data flow diagrams 35, 40
DC3 Algorithm 242, 243
DEA method 96
delivery structure 219
DEMO 66
DEMO approach 66
dendrogram 239, 240, 241, 242
Department of Defense (DOD) 7
Department of Energy (DOE) 435
DERN project 459, 472
design diagrams 220, 225
designers 40
design phase 259
development process 32, 33, 39, 41, 43, 46, 47, 48, 50, 53, 55, 56

Dialectical System Theory (DST) 401
 Digital Enterprise Research Network 459
 discrete event simulation (DES) 363, 364
 Disjunctive and Lexicographical Screening 96
 distributed hash table (DHT) 248
 DOE 435, 440
 Domain Knowledge 138
 domain processes (DPs) 360, 362
 Domain-specific Languages (DSL) 220
 DOS 298, 299
 Double-Loop Learning 287
 DST 401, 402, 404, 405, 409

E

Eclipse platform 222
 Eclipse Process Framework (EPF) 215
 economic nature 128
 ecosystem 289, 290, 291, 292, 294, 296, 297, 298, 299, 526, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310
 e-CRM 157, 158, 159, 160, 161, 162, 163, 164, 165, 167, 168, 169, 170
 e-governance 298
 EIS 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 428, 429, 430, 431, 434, 435, 436, 437, 438, 439, 440, 441, 442, 444, 445, 446, 447, 448, 451, 457
 EIS metrics 435, 438
 EIS system 315, 435, 436, 442, 445, 457
 enterprise 415, 416, 418, 419, 420, 422, 423, 424, 526, 428, 429, 430, 431
 Enterprise Application Integration (EAI) 19, 25
 Enterprise Architecture 6, 7, 8
 Enterprise Engineering context 240
 enterprise engineering (EE) 355
 enterprise functional architecture (EFA) 1, 16
 enterprise information architecture (EIA) 1, 19
 enterprise information infrastructure (EII) 1, 13, 27
 enterprise information system (EIS) 108, 273, 283, 313, 415
 Enterprise Integration Ontologies 238
 enterprise model 356, 357

enterprise modelling (EM) 352, 365
 Enterprise Network Architecture (ENA) 1, 20
 Enterprise Organization Architecture (EOA) 1
 Enterprise Platforms 232, 233, 235, 236, 237, 239, 249
 Enterprise Processive Architecture (EPA) 1
 Enterprise Resource Planning systems (ERP) 6, 145
 enterprise service architecture (ESA) 1
 enterprise software 232, 233, 234, 235, 237, 247, 248, 249, 250
 Enterprise Software Industry 233
 enterprise systems 1, 2, 4, 5, 6, 8, 9, 12, 13, 14, 22, 28
 enterprise systems (ES) 8
 enterprise systems portfolio 2
 Enterprise Tomograph 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 245, 246, 247, 248, 249, 250
 Enterprise Tomograph Delta Operator 240, 241
 Enterprise Tomography 232, 233, 235, 236, 237, 238, 241, 249, 250
 ERP 386, 388, 477, 479, 480, 528, 489, 490, 494, 533, 495, 538, 539, 540, 543, 547
 ERP legacy system 90
 ERP systems 200
 ES architect 10, 11, 16
 ES architecture 1, 8, 9, 13
 European culture 331
 EVA system 189
 Event-driven Architecture (EDA) 22
 EWF-net 176
 Executive Information Systems (EIS) 478
 EXINUS 264, 265, 266, 267
 Extended Workflow Nets (EWF) 176

F

Facebook 290, 307

G

Genetic Algorithms (GA) 109
 German V-Modell 47
 GET 288
 Getting Things done-method (GTD) 222

Index

GIM methodology 359
global competitiveness 308
global economy 81, 82
global environment 13
global/no-global dilemma 332
goal programming (GP) 93, 94
governance structure 388
GRAI approach 359
GRAI/GIM. 357
GRAI modelling framework 359
graphical capture 361
graphical interface 63
Greco-military principles 117
gross requirements (GR) 182

H

hardware function 307
HERMES method 45
hierarchical production planning
174, 184, 187, 191, 192, 535
holism 401, 402, 519, 407, 409, 410, 411,
412, 413, 537
holistic production management 340
Holsapple & Joshi model 142
hospital departments 323
human activity systems (HAS) 283
Human-Computer- Interface 46
human intervention 380, 388, 392
human resources 290, 308
hypertext transfer protocol (HTTP) 288

I

ICT 379, 380, 381, 382, 383, 386, 387,
388, 391, 392, 393, 395
ICT system 275
IDEF0 357, 358, 359
IIDP 401, 402, 403, 404, 406, 407, 409,
411, 412
indexing techniques 232
industrialism 329, 330, 331, 332, 345, 346
industrial revolution 331, 332, 333, 340,
343, 345, 346
industry economics 338
Inference Knowledge 138
information and communication technologies
(ICTs) 81, 380

information and communication technology
(ICT) 275
Information and Communication Technology
(ICT) 31
information ecosystem 291, 292, 296, 297,
298, 300, 301, 303, 306, 307
information-flow model 283
information security 291, 292, 296, 297,
298, 300, 302, 303, 307, 308
information system architecture 359
information system (IS) 252, 273
information system planning model 309
Information Systems (IS) equipment 446
information systems planning models
290, 291, 308
information systems solutions 290
information technology-centric new economy
113
Information Technology (IT) 415
Information Technology Services (ITS) 447
input, control, output & mechanism (ICOM)
358
Institute for Enterprise Architecture Develop-
ments (IFEAD) 7
intangible assets 459, 462, 469, 470
intangible-based view 462, 463
integration context 242
Integration ontology mining algorithms 242
Interaction computer-human 264
Interactive Weighted Tchebycheff Procedure
(IWTP) 105
Inter-Delta Operator 247
inter-organizational framework 66
inter-organizational knowledge environments
273
interpersonal communication 379, 380, 382,
383, 387, 395, 398, 548
intra-enterprise training 459
invention-innovation-diffusion 400, 401
invention-innovation-diffusion process (IIDP)
401
IT 113, 114, 115, 116, 117, 119, 120, 121
, 122, 123, 124, 125, 127, 128, 129,
130, 131
IT-driven enterprise 2, 28
IT-enabled customer 160

IT-infrastructure 217

IT solutions 2, 28

IT systems 2

K

knowledge assets 462, 467, 469

Knowledge Based Systems (KBS) 137, 144

knowledge-based theory 462

knowledge-based view 462

Knowledge Management (KM) 134, 135, 136,
137, 138, 139, 140, 141, 142, 143,
145, 146, 147, 148, 150, 153, 154

knowledge networks 272, 275, 277, 281, 284

Knowledge resources 275

knowledge sharing 272, 273, 275, 276, 277,
278, 281

L

Learning Organization 274, 288

legacy system 90

life cycle 42, 45, 46, 57, 59, 60, 145, 146,
153, 529

life-cycle 84

linear programming (LP) 93, 94

LMS systems 469

Local Area Networks (LANs) 166

local government 421

lock mechanism 246

M

majority rules (MR) 440

Management Information Systems (MIS) 478

Mandarin language 336

manufacturing enterprises (MEs) 352

Market of Resources 194, 195, 199, 201, 52
3, 202, 203, 204, 206, 207, 209

Marx vision 82

Master Production Scheduling (MPS) 180

materials requirements planning (MRP) 181

Mathematical Programming Models 97

MDRC 434, 439, 440, 441, 442, 443, 449,
450, 451, 453

MDRCs (Medical Department Research Train-
ing Center) 439

medical department research centers (MDRC)
434

Meta-CASE tool based 254

meta-institution 201

metamodel-based process 35, 51

metamodel-based process models 51

metamodels 35, 53

method-based OD&C 355

Method knowledge 138

methodology 134, 136, 141, 146, 153,
154, 404, 407, 409, 410, 413, 537

metric-based scalarizing programs 108

Microsoft 87, 88

Microsoft Dynamics 20

Microsoft Excel-sheets 222

Microsoft Outlook 222

Microsoft Project 222

Microsoft SharePoint Server 222

Microsoft Solutions Framework (MSF) 215

Microsoft Visual Studio 218, 224, 226

military large-scale systems 5

mining algorithm 242, 243

Mintzberg's dynamic organigram framework
121

mixed integer non-linear programming (MIN-
LP) 93, 94

mixed integer programming (MIP) 93, 94

model a system 358

model exchange, 222

Modeling tools 220

modern large-scale organisations 415

MPI Expertise 503

MRP technique 182, 190

MS Dynamics 4, 20

multi-criteria 93, 94, 95, 97, 98, 112

multi-phase process 31

multi-product environments 100, 104

MySpace 298, 307

N

net requirements (NR) 182

networked economy 82, 84

Networking 194, 196, 198, 209, 522

non-linear programming (NLP), 93, 94

NP-complete 243

O

Object Management Group (OMG) 222

Index

OD&C 353, 354, 355, 363, 364, 373,
374, 375
OD&C practice 355
ODT 225
OMIS 272, 273, 274, 277, 278, 279, 283,
287, 288
OMIS environment 272
Online Analytical Processing (OLAP) 481
Ontology Mining Algorithms 242
OPEN Process Framework (OPF) 214
open-source software 290
operational environment (OE) 11, 12
Operation Iraqi Freedom (OIF) 439
orchestration-oriented perspective
64, 65, 73, 75, 78
organizational hierarchy 478
organizational memory information system
(OMIS) 272, 274, 278
organizational memory (OM) 273, 278
organizational structure 219
Organizational Theory and COI 438
organization ecosystem
289, 298, 300, 304, 308, 309
Original Equipment Manufacturers (OEM's)
200

P

P2P network 247, 248
paper-based process 82
paradigm 290, 291, 292, 294, 296, 299,
302, 306, 307, 309
parsimony 329, 330
PAT Array 235, 241, 242, 243, 245, 246
peer-to-peer manner 200
People-Oriented Business Process Notation
63, 64
PERA 357, 358, 359
period model 98
Personal Software Process (PSP) 222
physical model 259
planned orders (PO) 182
planning model
291, 292, 301, 302, 304, 309
PPC process 188
pragmatic vantage point 115
PRBP 68, 69, 70, 72, 73, 75, 76, 77
preemptive goal programming (PGP) 98

Process-AHP 97
Process-aware tools 217, 218, 221, 222
process model 31, 32, 33, 34, 35, 36, 37,
38, 41, 42, 46, 47, 532, 48, 49, 51,
52, 53, 54, 55, 56, 57, 60, 61, 62,
546, 215, 217, 219, 221, 225, 226,
230, 60
process model metadata 226
Product Development Model 45
Product information Systems (PIS) 19
production-consumption dichotomy 117
Production planning 179, 188, 189, 191
production planning and control (PPC) 172
Product Management systems (PM) 145
project management method 222
Prominent Process Models 32
public organisations 418, 421
purchase requisition (PR) 64

R

RAND Corporation 5
Rational Unified Process (RUP) 38, 47, 215
R&D 82
real-life supplier 94, 105
reconfiguration dynamics 194, 195, 196,
197, 198, 207, 208
reengineering 252, 253, 254, 260, 261,
264, 266, 268, 271, 549
Relational Databases (RDBs) 143
remote procedure calls (RPC) 219
resource systems 353, 354, 357, 360, 361,
364, 365, 366, 367, 370, 373, 374
reverse engineering techniques 253, 264
RIA 298, 299
RLTP 94, 105, 106, 107, 108, 109
RLTP methods 106
Ronald Coase 113, 115
root node 240, 246
RTF 225
RUP 215, 218, 226, 228
RUP collapses Specification and Design 41

S

SADT 358
Schekkerman Model of Enterprise Architecture

- SCM 6, 13, 19, 22
 - SCRUM teams 233, 237, 238, 239
 - semantic context 88, 89
 - semi-automatic environment 233
 - semi-structured information 135
 - service-oriented architecture (SOA) 1, 20
 - signal detection theory (SDT) 436, 457
 - simple information technology-intensive (SITI) 116
 - simulated annealing (SA) 109
 - simulation modelling (SM) 352, 365
 - Single European Electronic Market (SEEM) 200
 - small and medium enterprises (SME) 213
 - SMEs 232
 - social dynamics in sociology 5
 - social entrepreneurship 131
 - social network 275
 - society 82, 90
 - socio-economic 118, 119, 128
 - software 81, 82, 83, 518, 84, 85, 87, 523, 90, 91, 292, 294, 298, 299, 300, 301, 305, 307, 533, 310
 - software artifact 31
 - software components 90
 - software development 213, 214, 217, 218, 219, 220, 229, 230, 231, 521, 522, 542, 544
 - Software development 213, 216, 217
 - software development project 33, 39
 - Software Engineering 234, 250, 528
 - Software Engineering Environment 45, 53
 - software engineering environments (SEE) 213
 - software fragments 234, 236, 237, 240
 - software landscape 240
 - Software Process Engineering Meta-Model (SPEM) 215
 - Software Process Models 35, 51
 - Software Project Control Centers (SPCC) 221
 - Solution Assessment (SA) 8
 - Solution logic (SL) 8, 11
 - SPEM 35, 47, 52, 53
 - state of the art (SR) 11
 - Statistical Models 97
 - Stock Management 186
 - structure 214, 217, 218, 219, 225, 227, 229
 - submodel 41, 42, 44, 53
 - sub-processes 216
 - subsystems 37
 - sub-tree 239, 241
 - Supply Chain Management systems (SCM) 145
 - supporting process models 213
 - Sustainable enterprise 4, 27
 - sustainable growth 331, 346
 - SWOT analysis 148, 151, 152
 - system engineering 5
 - Systemic/holistic 410
 - System participation model 72, 73, 76
 - systems engineering 353
- ## T
- table tops (TT) 373
 - tabu search (TS) 109
 - Task knowledge 138
 - Tchebycheff Metric-based Scalarizing Methods 94
 - teamwork process 276
 - technical orientation (TO) 9, 11
 - technological knowledge management 134, 135, 136, 147, 148, 151, 154
 - Technological solutions 297
 - technological strategy 135, 146, 154
 - Test Driven Development (TDD) 236
 - Test Driven Development (TDD) software 236
 - textual representation 238
 - thinking/behavior 410
 - thrifty society 329
 - TKM Objectives 151
 - TKM Project 151
 - TKM Strategies 151
 - TKM strategy 151
 - Tomograph 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 245, 246, 247, 248, 249, 250
 - Tool infrastructure 216
 - top-level process model 74, 78
 - total value of purchasing (TVP) 98
 - traditional hierarchical bureaucracy 121
 - tree based formats 237
- ## U
- UI Objects 237

Index

UI software engineers 236
UML 35, 40, 45, 57, 61, 520
UML modeling 222
UML-profile 35
under frames (UDF) 373
unified modelling language (UML) 173
unsystematic 117
user's operational environment 41
USOMID 404, 405, 406, 407, 409, 412, 413, 537

V

value-creation enterprise 4
value shop model 273
VE Design 201, 202, 204, 205, 207
VE dynamic integration 201
VE model 195, 196, 197, 199, 200, 205, 206
Very Large Business Applications (VLBA) 232
virtual engineering (VE) 355
virtual enterprise 84, 85
Virtual Enterprise model 194
virtual enterprises 3
Virtual Enterprise (VE) 3, 194, 196
Virtual Industry Cluster (VIC) 200
virtualization 1, 3
Virtual Organization (VO) 3
Visual Studio 218, 223, 224, 226, 227
VLBA 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 246, 249, 250
VLBA data universe 240, 242, 246
VLBA locations 241
VLBA software 234, 236, 238, 239, 240, 249
V-Model-97 45

V-Modell XT 214, 218, 219, 224, 225, 226, 230, 531

W

WEB 1.0 290, 293, 294
Web 2.0 232, 236, 240, 289, 290, 293, 298, 310, 311, 519, 521, 527, 542, 54
web-based enterprise control 436
web-based system 441
web services 84, 88, 90
Wiki-based systems 218
wikinomics society 293
Wiki Technology 279, 288
Work Breakdown Structures (WBS) 149
workflow 252, 253, 254, 256, 520, 257, 258, 260, 261, 262, 263, 264, 266, 267, 268, 269, 270, 533, 271, 549
workflow and the systems of management workflow (WFMS) 253
workflow management system (WfMS) 252
workflow maps 256
workflow modelling (WFM) 365
workflows 253, 254, 257, 261, 263, 264, 266, 267, 269
work in process (WIP) 188
Work Product Dependency 43, 50

X

XML Metadata Interchange (XMI) 223

Y

YAWL language 176