# **Index**

## **Symbols**

4D CAD tools 349

#### Α

absorptive capacity 113, 115, 244 accelerated subcontracting and procuring (ASAP) 291 acquisition 230 action research 130 action research project 130 active adoption 241 active server pages (ASP) 293 activity link activity 312 activity link knowledge 312 activity-based knowledge management (ABKM) 299, 303, 307 adaptive functions 209 adaptive management 251, 264 adaptive management action 263 adaptive management framework 253 adaptive management techniques 253 adaptive process 253 advanced electronic information 307 advanced knowledge 228 advertising 41 age of knowledge 54 analysis library 351

analytic network process (ANP) 329
application 4
application in construction 276
application-mature organisations 233
Architectural Services Department
(ASD) 72
artificial intelligence (AI) 276, 286
artificial neural network (ANN) 287
asymmetry of information 36
Australian case studies 97
Australian construction contractors 90
Australian Standards Association 227
authoritarian approach 348

### В

B-Hive project 132
benchmarking 226
bespoke 35
best practice programmes 122
branding 41
British Concrete Association (BCA) 44
building doctors 68
Building Industry Communications
Research Project 204
building maintenance 67, 85
building maintenance knowledge 67
building maintenance knowledge
management system 76

building maintenance projects 70 command processor 283 building organisational competencies commercial environments 350 226 communication 151 building surveyors 67 communication channels 230 business community 20 communities of practice (COPs) 39, business involvement 24 91, 112 business performance 87 company knowledge 300 business process reengineering (BPR) company knowledge managers 1 24 competitive advantage 24, 54, 168, 226 C competitiveness 87 complex adaptive process 252 C-Sand project 328 complex systems 262 CAD systems 140 compound DSS 281 capital 56 computer-based system 285 capital investment 252 computer-supported-cooperative work captured knowledge 12 (CSCW) 286 capturing feedback 9 concept mapping 151 Careers Education and Placement conceptual entity 136 Centre 152 conceptual interrelatedness 153 causal ambiguity 115 concrete information limited (CIL) 38 Cebus Rimon 63 concrete society (CS) 44 central knowledge repository 142 configurable environments central management tool 53 343, 346, 355 change management 226 configurable environments (CE) 343 CIB W78 345 configurable environments architecture client purpose-based knowledge 253 353 client satisfaction 87 configurable environments for knowledge client-specialist groups 251 management 357 coaching 27 configurable environments in practice codification 23 356 codification approach 5 configuration 4, 210 cohesive fragmentation 213 conflict tolerance 187 COLA environment 138 consistency and coherence 218 COLA process 131 construction 213, 301 collaborative framework 253 construction and demolition (C&D) 329 collaborative group interaction 252 construction clients 130 collaborative learning 155, 161 construction consultancy firms 130 collaborative process 253 construction in society 215 collaborative virtual environment 140 construction industry 34, collaborative work 151 70, 130, 150, 276 collective knowledge work space 252 construction industry trade exchange collective responsibility 23 (CITE) 107 collegial support network 104 construction knowledge 70 combination 21 construction management 290 combination of sociology and operaconstruction management decision tional research 214 support system 292

construction operation 300 D construction organisations 20, 70, 91 Danya Cebus 53 construction pollution index (CPI) 332 Danya Cebus Report 60 construction project environment data collection 71 19, 28 data directory 282 construction project organisations 18 data exchange 290 construction project partners 130 data integration 343, 352 construction projects 18, 299, 305 data integration capabilities 343 construction renewal 218 data management subsystem 281 construction space management 343 data protection group 123 constructive conversation 161 data reverse engineering 353 constructivism 153 data visualisation systems 277 constructivist learning environment data warehouse 292 151, 155 data-collection exercise 141 constuction knowledge management data/information needs 234 304 database 282 consulting construction companies database management system 1, 2 282, 291 consulting engineering 3 database-oriented DSS 281 context-specific knowledge 305 day-to-day planning 290 continuance commitment 234 decentralize the decision making 347 contract administration 12 decision making 87 conventional model-based systems 277 decision programming language (DPL) conversion 48 329 COP management tool 113, 118 decision support system technologies COP performance 112 284 core competencies 59 decision support systems (DSSs) core knowledge 228 276, 278, 280, 288, 294 core values 59 decision support systems 276 corporate knowledge assets 142 decision-making approach 232 corporate team member 193 decision-making process 277 cost estimation 290 demand chain 36 craft system 205 departmental meetings 26 creation of the knowledge 255 design 207 creative chaos 232 development arrangements 233 creative thinking 228 dialog mapping 151 creative thinking skills 228 direct participation 67 cross organisational learning approach directive functions 209 (COLA) 131, 132 discursive penetration 213 culture 171 disjointed incrementalism 215 customer capital 57 dissemination 4 customer knowledge 57 distinctive competence 208 customer needs 252 diverse stakeholders 251 customer success 57 document management 140, 290 customer's project purpose 252 dynamic capability 261

dynamic conservatism 216 expert systems (ESs) 277, 287 dynamic profiling 120 explicit knowledge 5, 20, 21, 142, 232, 299, 305 F explicit-explicit interaction 5 explicit-tacit transfer 5 E+ 328 exploitation 59 E+ system (software environment) 330 eXtensible Markup Language (XML) 291 e-commerce 291 external environment 228 e-commerce facilities 290 external provision 36 E-library 27 external provision of KM 39 e-mail 140 external provision of learning 35 e-mail system 290 external sources 170 effective communication structures 19 externalisation 5, 21, 232 effective knowledge creation 156 effective management of knowledge effective management principles 252 face recognition 115 effective training 29 face-to-face interactions 26 effective training and development face-to-face interviews 175 systems 29 face-to-face training 27 fast track management programme 123 electronic data management 123 electronic information exchange stan-FIATECH 345 dards 291 FIATECH technology roadmap 356 emergent purposes 262 filtering 4 empirical study 173 financial balance sheet 54 financial capital 55 engineering consultancy 2 engineering consulting business 5 financial management 170 enterprise information systems (EISs) financial reports 54 flexible modular construction 63 enterprise resource-planning (ERP) fluid mix 4 fuzzy logic 284 285, 294 environmental decision support system G (EDSS) 350 environmental impacts assessment gatekeepers 34, 35, 38, 42 (EIA) 324 general theory 218 environmental management (EM) 323 generalised maturity model 226 environmental management system global construction 227 (EMS) 325 global network 92 environmental-conscious construction graphical user interface (GUI) 354 323 group collaboration 252 evaluative capabilities 343 group commitment 259 executive and enterprise information group creation process 252 systems 285 group decision support system (GDSS) executive information systems (EISs) 286 277, 285 group emphasis 187 executive support systems (ESSs) 285 group knowledge 252 expert consultancy 213 group knowledge-sharing processes 28

group support systems (GSSs) 277, information system 138 information systems and technology groupware ICT applications 91 140 groupware technologies 285 information technology 6, 276 guided keywords 10 information technology development 343 н information tunnels 344, 348 infrastructure 232 harvesting 4 initiation 116 high-tech enterprise 60 innovation 59 higher education 150, 151 innovation diffusion 226 holistic management of knowledge 226 innovative knowledge 228 holistic strategic approach 225 institutional network 103 Hong Kong 18, 24 instructional goals 153 Housing Department (HD) 72 insufficient time 255 HRM 19 intangible assets 54 HRM mechanisms 22, 24 integrated prescription 218 HRM strategies 18 integration 116 human capital 55 integrative knowledge management human resource management (HRM) prototype 323 policy 19 integrative knowledge management ı system 323 integrative methodology of KMS 324 ICT diffusion 94 intellectual assets 54, 69 ICT infrastructure 233 intellectual capital (IC) 53, 55 ICT innovation 92 intellectual capital (IC) report 53 ICT innovation diffusion 94 intellectual capital report 53 ICT knowledge 104 intelligent agent (IA) 284, 287 implementation 116 intelligent decision support systems improvisation 205 286 inadequate consideration 255 inter-project learning 24 inadequate involvement 255 internal distance 41 inadequate management 255 internal generation 34 incentive reward program (IRP) 329, internalisation 21, 232 333 Internet-based decision support sysindustry foundation classes 352 tems 288 informal knowledge workshops 26 interoperability 345 informal networks 123 interpretative knowledge 141 information 35 interrelationships 334 information and communication techintranet 27 nologies (ICT) 19, 90, 225 intranet discussion groups 26 information delivery 119 intranet-based knowledge repository 18 information processing 343 intranet-based project management information sharing 142 291 information society 152 intrinsic motivation 228 information standards 345 Israeli construction company 53

226, 252, 299, 303, 323, 345,

#### K-Adv concept 228 knowledge management challenges 24 K-Adv deployment 234, 242 knowledge management competencies K-Adv model 229 151 K-Adv vision 242 knowledge management market 37 key management 253 knowledge management mechanisms KM packages 40 170 KM strategy 19, 30 knowledge management portal 299 KM will 328 knowledge management portal system knowledge 2, 19, 54, 67, 115, 299 130, 134, 225 knowledge management problem 3, 8 knowledge acquisition 151, 304 knowledge management services knowledge acquisition phase 304 35, 36 knowledge advantage (K-Adv) 225, 227 knowledge management strategy 5, knowledge and experience management knowledge management system (KMS) knowledge and innovation network 122 1, 155, 284, 325 knowledge assets 230 knowledge management theory 4 knowledge attribute 309 knowledge map 299, 308 knowledge attribute phase 310 knowledge networks 232 knowledge bank 308 knowledge perspective 226 knowledge base 6, 351 knowledge production 39 Knowledge Café 61 knowledge sharing 3, knowledge centre 122 18, 22, 28, 156, 178, 232, 305 knowledge content 305 knowledge sharing culture 23 knowledge creation 232 knowledge sharing phase 305, 319 knowledge creation 21, 151, 252 knowledge society 150, 151 knowledge depositories 234 knowledge source 44 knowledge determination phase 310 knowledge sources 170 knowledge diagram 308 knowledge stickiness 117 knowledge emergence 251 knowledge storage 178, 304 knowledge exchange 26, 114 knowledge storage phase 305, 318 knowledge exchange seminars 26 knowledge transfer 117, 142 knowledge extraction 304 knowledge transfer partnerships 44 knowledge extraction phase knowledge update 304 304, 310, 317 knowledge update phase 305, 319 knowledge forum 122 knowledge validation phase 312 knowledge hoarding 3 knowledge vision 227, 229, 230 knowledge holders 9 knowledge vision options 230 knowledge leadership 227 knowledge warehouse (KW) 325 knowledge link knowledge 312 knowledge work 2 knowledge linking phase 312 knowledge worker 36, 234 knowledge management 3, 19, 37, knowledge-at-large 6 40, 68, 87, 95, 115, 130, 138, knowledge-based economy 87 150, 170, 186, 203, 213, 217, knowledge-based management subsystem 283

K

knowledge-based systems 277
knowledge-deployment 177
knowledge-enterprising culture 21
knowledge-hoarding culture 77
knowledge-intensive organisational
environment 303
knowledge-relationship-gatekeeper
management 50
knowledge-sharing barriers 19
knowledge-sharing environment 21
knowledge-sharing junctions 61
knowledge-sharing process 233
knowledge-transfer opportunities 28
knowledge-transfer techniques 26

#### L

large construction company 130 learning capability 167 learning culture 189, 196 learning disabilities 169 learning environment 156 learning from others index 177 learning histories 185, 200 learning history 185 learning index (LI) 173 learning mechanisms 166 learning organisation 137, 167 learning process 189, 200 learning sources 170 learning sources 166 learning styles 190 legacy systems 234 legal requirements 70 leisure services provider 130 life-cycle assessment (LCA) 329 lifelong learning 150 local area network (LAN) 27

#### M

management 278
management of project changes 139
management steering 253
management strategies 24
management system 2, 231, 253
market reconfiguration 45
market value 53, 54, 60

marketing 34, 40 marketing mix 41 MATLAB® 350 maturity level assessment 244 maturity level development 119 maximum return 142 means-ends orientation 187 mediation 353 member identity 187 mentoring 27, 233 meticulous quality in construction 62 Microsoft Access database 141 minimum charge service 47 model base management system (MBMS) 283 model directory 283 model execution 282, 283 model management subsystem 282 multi-organisational 216 multimedia 140 mutual behavioural change 136 mutual learning 136 myth of certainty 209

#### N

nature of knowledge 74 negotiated order 213 neural network 287 New Zealand 1 normative (ought to) commitment 234

#### 0

object-oriented CAD 348
OL competency 171
OL strategy 171
on-line analysis processing (OLAP)
292
online business process models 290
online database 10
open communications 28
open dialogue 96
open process transparency 259
open-system focus 187
organic learning style 186, 198
organisation 300
organisation development 216

organisation knowledge base 7 personalisation 23 organisational activity 35 personalization approach 5 organisational conservatism 215 policy framework 19 organisational culture 21, 186, 189 poor communication 25, 255 organisational decision support syspost-project evaluation 175 tems 277 post-review event 141 organisational hub 40 pre-project workshop 193 organisational knowledge pre-review event 141 138, 169, 170 pre-review event information 141 organisational knowledge acquisition prescriptive teaching 136 problem solving 35, 37, 39 organisational knowledge-sharing problem structuring methods 139 practices 26 problem-based learning 153 organisational learning (OL) 40, 130, problem-solving environments 350 138, 167, 175, 188 problem-solving group 253 organisational learning ability 166 problem-solving steering 268 organisational learning competency process capital 56 process innovation 92 organisational learning framework 170 product 37 organisational learning process 169 production information 39 organisational performance 197 professional building surveyors 72 organisational setting 170 professional competency 301 organisational structure 29, 171 professional development 150 organisational sustainability 226 professional development 150 organisations 278 professionalism in customer service 62 organisation's learning culture programmed internal training 233 185, 197 project award scheme 27 organizational learning 135 Project Constraints 258 over-the-counter (OTC) retailing market project database 290 project definition 251, 252 41 project definition activity 252 P project definition group 253, 265 project delivery 87 packages 38 project Eagle 123 peer assessment 162 project end user 42 peer learning 153 project environment 40 people focus 187 project generated knowledge 1 people infrastructure 232 project information technologies 343 performance 40, 173 project knowledge retention 87 performance driver 166 project learning 170 performance measurement 173 project life cycle 7, 87 performance measurement systems project management 7, 12, 290, 325 176 project management knowledge base 7 performance rating 174, 175 project manager 192 personal assistance 233 project manager/engineer and collegial personal communication 104 support net 104 personal experience 76

project needs 251 project organisation 34 project planning 290 project purpose 252 project stakeholders 251 project structure 192 project working environment 37 project-driven environment 6 project-generated feedback 10 project-generated knowledge 1, 2 project-generated knowledge management systems 1 project-specific drawings 9 project-specific knowledge 37 project-specific knowledge base 7 proliferating boundaries 217 proposed process improvement 192 psycho-social system 209

#### Q

qualitative competitive advantage 93 quality of living 63 query facility 282 questionnaire 166, 175 questionnaire survey 67, 71

#### R

ramp-up 116 real-world environments 153 real-world problems 153 reciprocity 22 recursive-ness 205 reflection 130 reflective improvement 193 reflective practice 137, 212 reflexivity 205 relationship marketing 41 remote login 290 renewal and development capital 57 repository 39 resource controllers 208 resource-based view 169 resources 34 response rate 72 reuse of knowledge 67, 73 reusing Knowledge 68

review event 141 reward mechanisms 176 rich pictures 230 risk tolerance 187 routine meetings 26 rule-oriented DSS 281

### S

safety 62 sampling 72 search engine 290 self-actualisation 228 self-learning 152 senior management team member 192 senior managers 1 shared 3D model 290 shared vision 22 sharing of knowledge 130 Sigma Connect 117 site space management PSE 351 site visit programme 27 site visits 27 site-based problems 39 Skandia market value scheme 58 Skandia model 55 smart construction 53 smart construction techniques 61 social interactions 235 social network 26 socialisation 5, 21 socialisation of tacit knowledge 232 society in construction 215 socio-technical perspective 67 socio-technical solution 37 socio-technical systems 261 sociology of values 210 soft systems methodology (SSM) 226, 230, 235 software management 112 solution strategy 241 solver-oriented DSS 281 sophisticated mold-based construction space management 346 spatio-temporal fragmentation 218 speciality knowledge 25

speeding access 142 spreadsheet-oriented DSS 281 spreadsheets 140 stability 203 stakeholder environment 241 stakeholder identification 235 stakeholder interests 251 stakeholder K-value 230, 241 stakeholder knowledge 230 stakeholder needs 252 stakeholder values 254 standards-based approaches 352 state-of-the-art technology 63 steering 265 sticky knowledge 113 stock fluctuation 53 strategic options development and analysis (SODA) 139 strategic planning 241 structural capital 5 structured/unstructured fields 119 student-centred learning 155 studio space 154 subjective reporting approach 174 summary reports 27 superintendents 344 supply chain 285 supportive culture 19, 21 survey findings 73 surveying studio 153 system development life cycle (SDLC) systematic examination 53

#### Т

tacit knowledge 5, 20, 21, 113, 299
tacit knowledge explicit 5
tacit knowledge sharing 20
tacit order 213
tacit-explicit interaction 5
tacit-tacit interaction 5
Tasmanian State Public Health Sector 186
Tavistock (TIHR) studies of mining 204
Tavistock Institute of Human Relations (TIHR) 204

tacit coordination 213

Tavistock research and social thought taxonomy 119 teaching company scheme 44 teamwork 23 technical support network 104 technology fusion 215 Tel Aviv Stock Exchange 60 text-oriented DSS 280 theory of construction 206 total customer service 57 total information transfer system 290 total quality management (TQM) 168 traditional working class community of practice 204 transaction costs 36, 40 transfer of knowledge 137 transformation-flow-value theory 254 transmission model of learning 153 Turkish construction companies 175 Turkish construction industry 174 Turkish Contractors Association (TCA) 174

#### U

UK coal mining 203
unit integration 187
unit manager 192
usability 119
user authentication 119
user interface subsystem 283
user modeling 351
user models 343

#### V

valuable knowledge 300
value chain 235
value delivery 254
value identification 254, 262
value proposition 230, 241, 254
video cam 290
virtual knowledge marketplaces 6
virtual teams 231
virtually linked sub-organisations 91
vision realisation 229
visualization 343

#### W

Web-based commercial systems 290 Web-based cost control system 291 Web-based knowledge management system 85 Web-based prototype system 67, 71 Web-based tools 290 Webfill approach 333 white boarding chat 290 wisdom 54 word processors 140 work content 29 working model 255 workplace planning 264 workplace planning management system 264 workplace planning project 268 workplace planning system 252 workshop-based approach 130 workspace planning 253