

Index

A

abduction and retroduction 67, 71, 73
 academic circles 18-19, 22, 28-29, 47
 academic research 1-2, 18-19, 26, 29, 34-35, 40-41, 189, 303, 391
 action research (AR) 46, 49, 60, 78, 80, 150, 153, 159, 222-223, 225-230, 233-237, 239, 243, 247, 252-253, 258, 260, 267, 276, 316, 374, 413, 415, 425
 ad hoc findings 225
 ad-hoc research 222, 238
 analytical dualism 64
 Analytic Hierarchy Process (AHP) 379, 383-384, 386, 388
 Aristotelian logical works 108
 Aristotelian physics 109
 Aristotle 107-109, 111-112, 123
 artificial intelligence 51-53, 55, 57, 83-84, 86-87, 93-94, 98-99, 101, 116, 122, 242
 artificial life 85-87
 artificial phenomena 243
 authentic knowledge 45
 automata studies 85, 105
 autopoiesis theory 85, 91-94, 97
 autopoietic systems 84, 91, 94, 98
 Average Variance Extracted (AVE) 204, 208, 221

B

Baconian method 108, 110
 Bentler-Weeks model 169, 175
 bootstrapping 58, 206, 208, 221
 business process alignment 313, 319
 business process management 147, 319, 386

C

Capability Maturity Model Integrated (CMMI) 267, 269, 300, 318-319

causal loop diagrams (CLD) 340, 342, 345, 348-349, 351-352, 356
 codification 83, 100, 336, 338
 coding mechanism 256, 264
 coefficient of determination 205, 221
 cognitive domains 91, 93-94, 229, 235-236, 246, 254
 cognitive structures 99, 277-278, 280, 282, 294, 297
 coherent theoretical body 126-127
 collaborative shaping 241
 collective experience 2
 Commercial-off-the-Shelf (COTS) 306-307, 309, 313-315, 317, 319
 communication of meaning 321-322, 335, 337-338
 communication studies 321-322
 complex adaptive systems 129, 148, 228
 complexity theory 85
 complex systems 89, 92, 100, 104, 116, 122, 132, 340, 342-343, 345, 347, 350, 356-358
 composite reliability 204, 221
 computer-assisted approach 323
 computer engineering 23, 106
 Computer Science (CS) 41-42, 57, 86, 94, 106-107, 110, 116, 121-124, 225, 229, 236, 242, 245, 254, 267, 298, 317, 344, 386, 403-404, 406, 422, 424-425
 conceptual knowledge 150, 366
 conceptual methods 118, 120, 298
 conceptual reasoning 107, 125
 conceptual transitive dimension 164
 confirmatory factor analysis (CFA) 166, 168-169, 172-173, 175, 180, 183-185, 188-191
 constructivism 82, 84-86, 88-90, 93-95, 104-105, 275-276, 297, 407, 419
 contemporary hermeneutics 68
 contextual data 222, 230
 controlled experiment 276, 378, 380, 383, 388, 413
 convergent validity 204, 208, 211, 221

Council for Scientific and Industrial Research (CSIR) 62, 250
 covariance analysis 166, 185
 covariance-based SEM (CBSEM) 166-171, 173, 180, 183, 185-186, 193-203, 215
 covariance matrix 167, 176, 178, 195
 co-word analysis 322, 324, 335
 creative thinking techniques 287, 295, 297
 critical realism 63-65, 67-74, 76-81, 150, 163, 225, 236, 254, 400, 425
 critical researchers 343, 359
 critical research paradigm 156
 critical success factors 298, 306-307, 309-311, 313, 315, 319, 378, 381, 383, 386-387
 critical theory 44, 68, 80, 275-276, 297
 crowdsourcing 1-2, 4-17, 122
 cultural context 46, 363
 cultural groups 46
 cultural shifts 45-46, 57
 cumulative knowledge 7
 CyberClassroom 242

D

data capturing 271
 data collection 2-3, 23-24, 42, 147, 153, 224, 226, 228, 230-231, 233, 239, 248, 259-260, 264-265, 273, 286, 304
 decision analysis 377, 387-388
 decision assessment 340, 350, 356
 decision-making 3, 341, 358-359, 379, 409
 decision support systems (DSS) 3, 13, 118, 163, 220, 236, 254, 340-342, 347, 350, 355-356, 359, 374, 401, 423-425
 declarative knowledge 390-391
 deductive approach 323
 descriptive research method 376, 385, 388
 design-based research (DBR) 223, 234, 238-240, 242-243, 246-250, 252-253, 255
 design cycle 405, 413, 415, 417, 420
 design-reflection-design 247
 Design Research in Information Systems (DRIS) 243-244, 253, 422
 design-science research (DSR) 223, 234, 238-240, 242-246, 252, 405, 407, 411
 design science research in information systems (DSRIS) 253, 403-422, 424-425
 development research 60, 223, 234-235, 238-242, 247, 250, 252-254, 316
 digital divide 226, 240, 250
 discriminant validity 204-205, 208, 211, 221

domain processes 223-224
 dynamic theories 129, 131, 146

E

educational inquiry 246-247
 educational software systems 239
 educational technology (ET) 57, 223-224, 227-228, 236, 238-240, 242-243, 246, 248, 252-255, 388
 educational technology research 223, 236, 240, 254-255, 388
 eigenvectors 322
 e-learning applications 236, 240, 245-246, 254
 e-learning systems 223, 229-230, 234, 245-246, 248-249
 e-learning tutorials 229, 235, 245-246, 253
 elicit data 259
 empirical covariance matrix 195
 empirical experimentation 149
 empirical investigation 221, 273
 empirical laws 110
 empirical methods 106-108, 116-122, 125, 152, 159, 298-299, 304-305, 314-315, 394
 enterprise resource planning (ERP) 75, 94-95, 102, 128, 147, 386, 426
 epistemological alternatives 406-407
 epistemological framing 2-4
 epistemological relativism 47, 69, 77-78
 epistemological underpinnings 403, 406
 epistemology 1, 3-4, 8, 10-11, 17, 45, 50, 56, 59, 62, 65, 67, 69, 76, 82-85, 87, 90, 94-98, 102-105, 118, 150, 155-156, 159, 226-227, 230, 241, 243, 247, 257, 365, 405-407, 411, 413-415, 418, 421-422
 epistemology of pragmatism 82
 ethnographic data 224
 existing knowledge 30, 118, 389, 401
 explicit dimension 83
 exponential growth 404
 external validity 145, 204

F

face-to-face (FtF) 4
 factor-analytic approach 322
 feminism 13, 60, 68
 five dimensions of research 1
 focus group 256, 258-259, 261-262, 264-265, 270
 formal method 116, 119, 125
 formal ontology 43-44, 50-57, 60, 62
 functional knowledge 391

G

Galileo 109-110, 113, 122
generalizable knowledge 390, 393, 399
geographical phenomena 248
graph theory 87, 92, 105, 322
grounded theory 6, 56, 60, 155, 159, 222-226, 228,
230-237, 239, 252-253, 256-257, 259-262, 264,
267-270, 303-304, 316, 319

H

hermeneutic approach 323
hierarchical analysis 152
higher-order factors 170
higher-order models 170
human and social phenomena 47
human-computer interaction (HCI) 47, 58, 117-120,
124, 209, 223, 225-226, 231, 235-236, 240,
245-246, 254
hypothetico-deductive method 108-109, 125

I

idea generation 289, 292-294, 297
incident tracking support system (ITSS) 129
information and communication technology (ICT)
43, 46, 75, 248, 404
Information Systems (IS) 7-8, 12-23, 39-44, 47,
50-52, 57-64, 68, 78-80, 82, 84, 95-96, 102,
118, 122-127, 133, 137, 144, 146-148, 151,
162-163, 166-167, 176, 185, 187-188, 190-191,
193-194, 212, 214-220, 222-226, 228, 232,
234-240, 242-244, 252-256, 260, 267-269,
295-297, 299, 315-318, 340-342, 348, 357-362,
364, 366, 373-375, 385, 387, 400-401, 403-
404, 406-408, 410-412, 415-417, 419-426
infra process theories 129
interactive communications technologies (ICT) 4
interactive e-learning 235-236, 245-246, 254
International Federation for Information Processing
(IFIP) 18, 147, 236
interpretative research paradigm 155
interpretive research 3, 48, 60, 222-223, 226, 234-
235, 238-239, 243, 252-253, 316, 407
interpretive research designs 222, 234, 238
interpretivism 20, 43-44, 47-50, 56, 61-62, 68, 222,
224, 234, 237, 239, 243, 255, 275-276, 297,
359, 403, 406-407, 413-414, 418, 426
interpretivist paradigm 24, 43, 48
interpretivist research 20, 47-48, 50, 52, 56-57, 223,
225

iron triangle 307, 319

IS academic research 18, 41

IS research process model 18-19, 32, 34-39, 42

IS research rigor and relevance quadrants 26, 28, 33,
38, 42

IS research triangulation 19, 32-35, 38-39, 42

IT alignment 307, 309, 319

IT governance 306, 308, 310-313, 315, 319

J

Johnstone El-Bana Model 272, 277

K

Key Performance Indicators (KPI) 319

know-how 86-87

knowledge-based society 85

knowledge creation 22, 30, 32, 48, 89, 94-95, 102-
103, 105, 263

knowledge domains 19, 22-23, 30-34, 37-38, 42

knowledge management 20, 22-23, 30-31, 37-38,
40-42, 57, 59, 82-83, 94-95, 100, 102, 105,
118, 262-263, 267, 269-270, 279

knowledge management systems 82-83, 94, 100,
105, 118

knowledge sharing 2, 349, 358

know-what 86-88

know-why 86-88

L

linguistic approach 323

logical structure 43

logical types 85, 103, 105

longitudinal studies 222

M

Management Information Systems (MIS) 12-16, 19,
23, 39-41, 58-62, 79-80, 123, 134, 146-148,
162-163, 166, 168, 188, 190-191, 197, 216-
220, 225, 236, 254, 269, 295-296, 316, 340-
342, 349-350, 356-358, 401, 421-423, 425

manual holistic approach 323

market research 2, 133, 139-140, 143

maximum-likelihood estimation 196

measurement model 167-169, 172-173, 181, 190,
193-194, 197, 199, 202-203, 205-209, 214,
218, 221

measurement of meaning 321, 335, 338

meta-methodical task 107

meta-research study 222-223, 239

methodological constraints 3
 methodological development 63, 67, 74, 77
 methodological pluralism 1, 96-97
 methodological tools 1-2, 11, 94
 micropolitical alliances 44
 multi-dimensional scaling (MDS) 322, 338
 multi-perspective discipline 224

N

naïve realism 11, 68
 natural/behavioral dimension 158, 164
 negative variances 196
 network of relations 321
 network space 321, 335
 new knowledge 11, 22, 33, 35, 37, 72, 247, 272-273, 289, 343, 389, 391, 395, 398-399, 401, 409
 new product development (NPD) 127, 147-148
 new product innovation 2
 nomological validity 205
 non-empirical methods 118, 152
 non-matrix based syntax 168

O

open innovation 4-6, 12-13, 16
 optimal development processes 241
 organisational phenomena 256
 organizational cultures 4-5, 15, 145
 organizational inertias 5
 organizational knowledge 82-85, 95-97, 100, 102-103, 105, 263
 organizational readiness 128
 organizational systems 341, 343
 organizational theory 406

P

paradigmatic alternatives 20
 paradigm shift 46, 54
 Partial Least Squares (PLS) 167, 170-171, 173, 181-182, 188, 193-207, 214-221
 path coefficient 206, 221
 perspective of knowledge 82
 philosophical assumptions 47, 150, 161, 163, 257
 philosophical commitment 65
 philosophical framing 1-2, 8, 10-11
 philosophical notions/stances 297
 philosophy of science 45, 56, 61-62, 64, 101, 111-112, 125, 163, 374, 425
 pluralistic admixture of styles 44

positivism 10, 20, 40, 45, 47-50, 61-62, 68, 101, 104, 150, 156, 222-224, 234, 239, 247, 254, 275, 297, 359, 403, 406-408, 413-414, 418, 426
 positivist analysis 3
 positivist and interpretivist 223, 225
 positivist approaches 1, 68
 positivist paradigm 223, 239
 positivist research 9, 11, 155, 220, 223, 225, 407, 417
 positivist research paradigm 155
 postgraduate studies 222, 226, 238, 240
 postmodernism 43-50, 53-62
 postmodern paradigm shift 46
 post-modern research paradigm 156
 postmodern research philosophy 43, 47
 pragmatism 82, 89-90, 101, 103-105, 275-276, 296-297, 365, 403, 407-408, 410, 415, 417-419, 422, 426
 pragmatist epistemology 85, 87, 94, 97, 415
 procedural knowledge 391
 process or dynamic theories 129
 proposal development 298-299, 301, 303, 307
 prototyping model 380, 387-388
 publication gatekeepers 1-2
 publication venues 3
 purposeful artificial/social design dimension 158, 164

Q

qualitative data collection 224
 qualitative hypothesis-generation 20
 qualitative reasoning 118-121, 125
 qualitative relationships 151
 qualitative research 3, 15, 40-41, 59, 62, 123, 163, 224, 236-237, 239, 254, 257, 260, 267-270, 273, 296, 317, 319, 358, 424, 426
 quantitative hypothesis-testing 20
 quantitative research 3, 62, 197, 222-223, 239, 273, 305
 quantitative studies 97, 224, 239, 248-249

R

radical juxtaposition 84
 rational explanation 107, 111
 real intransitive dimension 158, 164
 real-world settings 1-2, 247, 249-250
 relevance cycle 405, 413-414, 417, 420
 relevance quadrants 18-19, 26, 28-29, 33, 37-38, 42
 research landscape 149

Index

research methodology 19-20, 22-23, 25, 29, 31-34, 37-38, 41-42, 58, 149, 151, 153, 161-162, 164, 215-216, 223, 227, 240, 257, 260, 268, 271-277, 279, 282-285, 288, 294-298, 318-319, 331, 340-342, 389, 392, 399-400, 404, 423
research paradigm 20, 149-150, 155-156, 159, 161, 164
research planning 284, 298-299, 301-302, 306, 309
research triangulation 19, 32-35, 38-39, 42
research validation 284, 288, 298-299, 302, 304-305, 312, 403
review of literature 1, 304
rigor and relevance 1-2, 10, 18-21, 23, 25-35, 37-42, 117, 159, 406-407, 415, 417
rigor and relevance quadrants model 18-19, 26, 28, 38
rigor cycle 405, 414, 417-418, 420
rigor-relevance 1, 11

S

scholarly research 126-127, 225, 228
scholastic thinkers 108
scientific knowledge 2, 90, 108, 113, 116, 124, 150-151, 158, 161, 164, 274, 276, 283-284, 287, 297, 336, 397-398
scientific method 46, 72, 106-107, 109-113, 115-116, 119, 121-122, 125, 145, 149, 162, 223, 225, 239, 272, 289, 359, 393-394, 396, 401, 404
scientific reasoning 108
Second Life 335
second-order cybernetics 85, 90, 105
self-organizing cognitive systems 85
semantic analysis 321-322, 336
semantic map 321, 324, 327, 338
semantic pendant 322
SEM software applications 166-167, 179
simulation based decision support systems 350, 359
single value decomposition (SVD) 322
sitz im leben (situation in life) 398, 402
small and medium-sized enterprises (SME) 341
social alienation relationships 156
social arena 64
social context 49, 64, 88, 257
social investigation 64
social media 1-2, 11, 17
social network analysis 85, 91-92, 103-104, 321-322, 324, 334-336
social phenomena 47, 67, 90, 224

social sciences 45, 61-62, 64, 68, 78, 86, 91, 94, 101, 115-116, 120, 123, 166, 195-196, 216, 222-223, 226, 239, 273, 319, 335, 337-338
social-science statistics 323
social systems theory 321, 336
socio-cultural activities 260
sociocybernetics 98, 321, 338
socio-cybernetics 322
socio-technical methods 125
socio-technical systems 19, 362
soft system methodology (SSM) 300, 316, 360-363, 369-373
soft systems thinking 300, 374
software development 43, 50, 57, 61, 117, 119, 137, 139, 142, 256, 260-264, 266, 269, 298-299, 305-306, 349, 359-362, 365-367, 369-374, 386-387
software engineering 19, 61, 106-107, 115-117, 119-123, 149, 162-163, 225, 238, 240, 248, 268-269, 298, 300, 302, 315-318, 361, 365, 374-375, 379, 386-387, 416, 425
software engineering research 106-107, 115, 120, 163, 298, 425
software process 119, 256, 261-263, 266-267, 269-270, 299, 319, 359, 367, 386-387
software process improvement 262-263, 266-267, 269-270, 319
speculative reasoning 118, 125
spiral model 380, 386-388
sructuration theory 68
stakeholder perspective 1, 8-9
standardized loadings 196, 203, 208, 221
Structural Equation Modeling (SEM) 128-129, 166-173, 175-180, 183, 185-196, 199-203, 215-220
structural equations 131, 187-188, 191, 195, 219
structural model 168-169, 172-173, 181, 193-194, 197, 202, 205-210, 212-215, 217, 221
supra process theories 129
symbolic interactionism 99, 259
symmetric distributions 197
system approach (SA) 11, 59, 61, 63-64, 79-80, 150, 156, 298-300, 304-306, 317, 340-341, 345, 349-350, 356, 358, 361-362, 368, 374, 401
system dynamics (SD) 340, 342, 344, 346-347, 349-353, 356-359
systemic integration 298-299, 305, 314-315
systemic research approach 150-151, 153, 161, 164
system of systems methodologies (SOSM) 360-361, 366-367, 369-372, 374
systems analysis and design (SA&D) 361, 365, 368-369, 373, 424

systems development 19, 40, 42, 47, 80, 102, 163, 236, 238, 240, 254, 267-269, 318, 360, 362, 372-373, 380, 382, 385, 387-388, 404, 414, 420, 423-424

systems engineering (SE) 39, 41, 63-64, 79, 299-300, 316, 318, 357, 361, 376, 379-380, 382, 386, 400-401

systems thinking 63-64, 78-79, 162, 260, 299-300, 309, 318, 359-361, 370, 372-374

T

tacit dimension 83

taxonomy 51, 56, 62, 126-127, 133, 139, 141, 146-147, 151-152, 156, 158, 161, 170, 189, 278-279

technical artifacts 57, 362

technology acceptance model (TAM) 5, 13, 142, 184, 207, 209, 219-220, 341, 347-349, 359, 413, 415-416, 421, 423

textual analysis 224

theoretical contribution 125, 372, 403, 405, 410, 412, 416-418

theoretical frameworks 127, 150-152, 164, 223, 225, 233, 252, 394

theoretical framing 5-6

theoretical legacy 126-127

theoretical research 127, 238, 300

theories for explaining 128

theories for understanding 128

theory building 147, 158-159, 195, 201, 240, 259, 269, 274, 412

theory construction 126, 145, 147, 422

theory generation 257, 259

theory of autopoiesis 82, 90-91, 93-94, 97

traditional process theories 129

transcendental realism research paradigm 156

transdisciplinary methodologies 342

triangulation model 18-19, 32-35, 38-39, 42

U

Unified Modeling Language (UML) 362, 366, 375

user-centered educational software systems 239

user-centricity and usability 223

V

variance-based SEM 193-195, 199, 202, 215

variance or static theories 129

vector space 321-322, 335, 338

vee model 380, 388

verbal data 224

virtual team 260, 269

W

waterfall model 380, 387-388

Web-based learning environments 242

what if scenarios 297

word/document occurrences matrix 325

work system method (WSM)) 360-361, 364, 372-373, 375