

# INDEX

- Absorptive capacity, 62, 69–70, 311
- Access structure, 196
- Accuracy, 279, 281
- Action propensities, 33
- Active participation by members, 260–261
- Aggregation function, 230, 235
  - allocated tasks, 236–237
  - and competitive heterogeneity, 238
  - task structure, 236
  - timing adaptation, 240–241
  - transformation, 237
- Aggregation method, 279
- Allocated tasks, 236–237
- Allocation of attention, 239–240
- Ambidexterity, 116, 118–119
- Ambidextrous organization, 118
- Ambiguity in performance feedback, 153
- Aspirations, level of, 157–159
- Asymmetric changes to adjustment rates and priors, 46–47
- Authority, 59–60, 68
  - and other devices, 71–72
- Autonomous component innovations, 307
- Autonomous innovations, 301–302
- Average skill levels effects, 265–266
- Balanced control, 14, 116, 118, 125
  - analysis and results, 126–133
  - balancing innovation for superior performance, 117–118
  - as enabler of ambidexterity, 122
  - exploitative and exploratory innovation, 117
  - measurement and validation of constructs, 124–126
  - organizational ambidexterity, 118–121
- Balancing/balanced innovation, 121
  - for superior performance, 117–118
- Bandit model, 166
- Bargaining, 32
- Baseline psychological processes, 150
  - EoC and persistence-enhancing mechanisms, 152–153
  - reinforcement learning and persistence-decreasing mechanisms, 151–152
- Baseline psychological processes, 155–163
- Battle of the Sexes, 32
- Bayesian technique, 6
- Behavior control, 92
- Behavioral
  - biases, 240
  - factors, 235, 239
  - integration, 56
- Behavioral learning, 166–167
  - models of responses to negative feedback, 150
  - perspective, 148
  - theory, 149
- Behavioral realism, 277
- Behavioral theory, 241–242
- Behavioral theory of firm, 157
- Belief revision, interventions shaping process of, 36–38

- Belief, 49
- Best group size determinants, 285–288
- Bilateral broker
  - collaborative community, 259
  - community, 268
- Bilateral dependence, 70
- Bottom-up process, 12
- Brainwashing, 29
- Brokering community, 258
- Building construction, 303–305
- Business ecosystems, 9
  
- Cannibalization, 215
- Carnegie tradition, 276, 278–279
- Centralization
  - centralized management, 311
  - of decision making, 143
- Challenge providers, 256–257
  - exit behavior of challenge solvers and, 260–261
- Challenge solvers, 256–257
  - exit behavior of challenge providers and, 260–261
- Challenge-solving process, 260
- Cheap talk, 42
- Chief Executive Officer (CEO), 103, 104
- Chief Financial Officer (CFO), 103, 104
- Cock and bull sessions, 98
- Coercive bureaucracies, 72
- Cognitive integration, 57
- Coherence, 85
- Coherent theory of organization design, 12
- Collaboration, 27, 256
  - battle of sexes payoff matrix, 32
  - cultural design interventions, 33–34
  - efficacy of cultural design
    - interventions shaping beliefs, 38–47
  - failures, 27
  - using games to representing interdependence structures, 30–32
  - interventions shaping priors, 35–36
  - interventions shaping process of belief revision, 36–38
  - matching payoff matrix, 31
  - modeling culture design as development of beliefs, 34–38
  - public goods payoff matrix, 31
  - stag-hunt payoff matrix, 31
- Collaborative community, 256
  - base scenario, 263–264
  - community adaptation, 268
  - effects of average skill levels, 265–266
  - effects of number of skill types, 268, 269
  - effects of skill heterogeneity, 266–267
  - exit behavior of challenge providers and challenge solvers, 260–261
  - model parameters, 262–263
  - model specification, 259–260
  - recruitment of new agents, 261
- Collective incentives, 61, 70
- Collective socialization efforts, 35–36
- Commitment device, 16
- Communication, 42, 61–62, 69
- Community adaptation, 268, 269
- Competitive dynamics, 220
- Competitive heterogeneity, 238
- Competitive strategy, 207–208, 209–213
- Competitively aggressive behavior, 208
- Competitor analysis, 212
- Complex products, 300
- Complex systems, 7
- Complexity, 305
- Computational models, 29
- Concurrent engineering, 61
- Condorcet's jury theorem, 276
- Condorcetian voting, 276

- models, 279–280
- Configuration of control systems, 13–14
- Configurational attributes, 93
- Configurational theorists, 85
- Consensus level, 279
- Constrained fluid participation, 187
- Construction phase, 303–304
- Context of intervention, 28, 29, 47
- Contextual ambidexterity, 14
- Contingency, 6
- Contract integration, 310, 323
- Contract method, 314
- Contractual integration, 302–303
- Control
  - forms, 86
  - mechanisms, 120, 121
  - systems, 13–14, 84
  - targets, 92
  - variables, 126, 314–315
- Corporate hierarchy's role, 3
- Correlation matrix, 126, 140
- Coupled learning, 29
- Craft integration, 310–311, 314, 323
- Craft, 303–304
- Cross-functional communication, 73
- Cross-functional teams, 62
- Cross-subunit participation, 61
- Cross-unit structure, 60–61
- Crowd-based decision making, 277
- Crowdsourcing, 18, 277
- Cultural controls, 103
- Cultural design interventions, 33–34
  - asymmetric changes to adjustment rates and priors, 46–47
  - changing adjustment rates symmetrically, 45–46
  - changing priors symmetrically, 42–45
  - cumulative performance *vs.* adjustment rates, 43–45
  - efficacy shaping beliefs, 38–47
  - final period beliefs, variation and stability, 40–41
  - model parameters for cultural interventions on beliefs, 39
- Cultural integration, 57, 58
- Cultural interventions, 29
- Culture of integration, 74
- Cultures, 12, 27–28
- Decentralization, 116, 120, 181
- Decision makers, 152–153, 239
- Decision opportunities, 186
- Decision structures, 200
- Decision-making
  - authority, 149
  - centralization of, 143
  - degree of decentralized, 120
  - processes, 178–179, 278
- Decomposability, 184, 194–195
  - decreasing decomposability of organizations, 7–9
- Delegation decisions, 211–212
- Departmental overlap, 70
- Dependent variable, 313
- Design for manufacturability, 69
- Design phase, 303–304
- Design-Bid-Build (D-B-B), 304
- Design-Build (D-B), 304
- Differentiation, 4, 181
- Dimensions of control, survey items for, 143–144
- Distributed decision making, 11
- Diversity, 185
  - and overlap, 179–180
- Divide-and-conquer process, 192
- Division of labor, 14–15
- Divisionalization
  - implications and research directions, 219–221
  - organization design and competitive strategy, 209–213
  - and rivalry, 213–219
- Durbin-Wu-Hausman test for endogeneity, 126
- Dynamic division, 192
- Dynamic process, 210
- Ecosystems, 10
- Empty world hypothesis, 8

- Enabling bureaucracies, 72
- Enabling relationships, 73–74
- Energy management systems, 300
- Energy supply contractor (ESCO), 321
- Energy-efficient radiant floor heating system, 301–302
- Energy-efficient technologies, 307
- Entrapment, 170
- Entrepreneurially experienced decision makers, 152
- Entrepreneurship, 162
- Epistemic interdependence, 57
- Epistemic stalemates, 42
- Equilibrium gap, 265
- Escalation behavior, 152, 167–168
- Escalation of commitment (EoC), 148, 150, 152–153, 167–168
- Exit behavior of challenge providers and challenge solvers, 260–261
- Experiential learning, 179
  - heterogeneous knowledge with, 191–194
- Exploitation, 116–118, 124
- Exploitative innovation, 117
- Exploration, 116–118, 124
- Explorative search, 153
- Exploratory innovation, 117
  - projects, 153
- External fits, 14, 65, 74
- External justification, 152
- Feasibility and configuration of integrative devices, 63–74
- Field research, 91
- Financial resource, 210
- Firm
  - age, 126
  - competitive position and objectives, 209
  - facing disruptive technologies, 215–216
  - firm-level heterogeneity, 231–232
  - heterogeneity, 10, 233–238
    - performance, 124
    - realized strategy, 123
    - size, 126
- First-order dependencies, 236
- Flexible adjustments of organization design, 245–246
- Formal behavior control, 100–101, 105
- Formal control, 86
- Formal input control, 94, 101–102, 105
- Formal mechanisms, 92
- Formal organization, 208
- Formal output control, 94, 99, 102, 104
- Formalization, 60, 67, 72–73, 116, 120
- Formalization of processes and goals, 144
- Founding, 88
- Framing, organization design, 241–242
- Free-riding, 57
- Free reports, 90
- Fruit fly-type of settings, 278
- Functional overlap, 70
- Functionally differentiated organizations, 61
- Garbage can model (GCM), 15, 178, 259–260
  - experiential learning,
    - heterogeneous knowledge with, 191–194
    - homogeneous knowledge, 188–189
  - implications for empirical studies, 200
  - interdependence, 194–196, 197
  - knowledge accumulation and application, 182–183
  - knowledge-based view of competitive advantage, 180
  - knowledge-based view of firm, 198–199

- learning, heterogeneous knowledge
  - without, 189–191
- learning rate, 194
- limitations and future research, 200–201
- of organizational learning, 184–187
- organizational structure and learning, 180–182
- participation rights *vs.* participation restrictions, 199–200
- untapped potential, 183–184
- General Motors (GM), 214, 242
- Generalists, 62, 192
- Goal ambiguity, 159–160
- Goal frames, 155–157
- Goal framing theory, 34, 154
- Gray water reuse systems, 300
- Green buildings
  - construction, 302
  - as research setting, 303–305
- Group performance, 282
  
- Handmaiden's role vis-à-vis strategy, 230
- Heterogeneity, 231
  - allocation of attention to organization design task, 239–240
  - firm, 233–235
  - individual-level, 234
  - input, 233–234
  - menu costs, 240–241
  - motivation to change, 241–242
  - organization design and, 243–246
  - performance, 233
  - and persistence of organization design, 238
  - persistent, 234–235
  - relational contracts, 242–243
- Heterogeneous knowledge
  - with experiential learning, 191–194
  - without learning, 189–191
- Heuristics for research, 243
  - flexible adjustments of organization design, 245–246
  - homogenous organizational members, 243–244
  - organizations adopt similar designs, 245
  - organizations as unitary decision makers, 244–245
- Hierarchic access structure, 196
- Hierarchic structure, 185–186
- Hierarchical participation restriction, 191, 199
- Hierarchy, 71
  - elements, 86–87
  - levels, 126
- High integration, 314
- Hockey stick dynamic, 265
- Hockey stick effect, 269–270
- Holism, 85
- Holistic forms of control, 86–87
- Holocracies, 8
- Homogeneity–heterogeneity proposition, 266
- Homogeneous knowledge, 188–189
- Homogenizing assumptions, 235
- Homogenous organizational members, 243–244
- Homophily, 72
- Hot stove
  - effect, 148, 151, 166
  - mechanism, 156
- Human capital, 233–234
- Human-resource intensive activities, 200
- Hybrid team process, 277
- Hypothetical efficiency, 233–234
  
- Ideal-type control typologies, 107–109
  - assembling control elements into control configurations, 107–108
  - conceptualizations of control configurations, 108–109

- incomplete *vs.* complete configurations, 109
- Idiosyncrasy, 61
- Imperfect recruiting effect, 288–290
- in extant research, 231–232
- In-group bias, 72
- Incentives, 73, 161
- Independent variables, 313–314
- Individual accuracy, 280
- Individual-level heterogeneity, 234, 241
- Inducements, 61
- Industry/industries, 301
  - facing disruptive technologies, 215–216
  - industry-wide shared knowledge, 320
  - standards, 304
- Informal behavior control, 95, 98, 105
- Informal control, 86
- Informal input control, 97–98, 105
- Informal mechanisms, 92
- Informal output control, 94, 99, 105
- Innovation (*see also* Systemic innovation)
  - autonomous component, 307
  - balanced, 121
  - exploitative and exploratory, 117
  - management, 162
  - stage-gate model of, 72
  - systemic component, 302, 307
  - types in complex, 306–307
  - value-creating, 217
- Innovation balance, 124–125, 128, 133
  - modeling choice and regressions on, 140–142
- Innovative components, 300
- Innovativeness, 306
- Input control, 92
- Institutional knowledge, 304
- Institutionalized knowledge, 307
- Instrumental variables (IV), 140
- Integrated form of agreement (IFOA), 323–324
- Integrated Project Delivery (IPD), 323
- Integrated system, 232
- Integration, 2, 4, 181
  - principles of, 13
- Integrative devices, 54
  - authority, 59–60, 71–72
  - collective incentives, 61
  - communication, 61–62
  - comprehensive typology, 59–63
  - cross-unit structure, 60–61
  - enabling relationships, 73–74
  - formalization, 60
  - formalization and socialization, 72–73
  - and internal and external fits, 74
  - multi-skilling, 62
  - socialization, 62–63
  - structures and incentives, 73
- Intel, 60
- Intended strategy, 123
- Intensity, 185
  - of rivalry, 211–213
- Interdependence, 9, 54, 64, 183, 194–196
  - problem-solving efficiency, 197
  - typology, 63
- Interdependent processes, 209
- Internal fits, 14, 65, 74
- Interpersonal agreements, 100
- Intra-organizational competition, constructive, 222
- Intra-organizational structures, 209
- Iowa Gambling experiment, 166
- Job/task design, 6
- Joint myopia, 11
- Joint problem solving, 186–187
- Joint production, 69
- Knowledge, 126
  - accumulation and application, 182–183
  - accumulation process, 191
  - application process, 191
  - efficiency and flexibility of knowledge hierarchy, 198–199

- exchange platform, 257
- heterogeneity, 179, 188
- homogeneity, 179
- Knowledge-based view
  - of competitive advantage, 180
  - of firm, 198–199
- Knowledge-intensive industries, 256
- Large corporations, 116
- Latent Dirichlet allocation (LDA), 6
- Lateral structural devices, 61
- Lateral structures, 60, 73
- Leadership in Energy and Environmental Design (LEED), 302, 311–312
- Leaner structures, 208
- Learning, 187
  - opportunities, 179, 191
  - processes, 178
  - rate, 194
- Long-term incentives, 171
- Loss aversion, 241–242
- Loss prevention, 210
- Loss-avoidance, 149, 153
- Low integration, 314
- Low-frequency words, 6
- M-form organization, 16
- Majority voting, 276, 294
- Management and Organizational Practices (MOPS), 245
- Matching
  - game, 30–31
  - process, 18
- Mature industries, 303
- Mechanical, Electrical, and Plumbing systems (MEP systems), 304
- Median cutoff criterion, 125
- Medium integration, 314
- Menu costs, 240–241
- Meta-organizations, 231
- Micro-level processes, 181, 184
- Mirroring hypothesis, 302–303, 308
- Modern knowledge economy, 178
- Modular designs, 33
- Modularity, 33, 181, 184
- Monetary incentives, 61
- Motivational factors, 235
- MoveCo, 88–90, 92–107, 111
  - bureaucratic control, 101
  - control use at, 106–107
  - day-to-day activities, 105
- Movers, 103
- Multi-disciplinary nature of
  - organizational control research, 109–110
- Multi-skilling, 62, 69
- Mutual adjustments, 10, 37
- Narrow framing, 84
- Near-optimal performance, 285
- Negative feedback, 148, 149
  - avoidance mechanism, 152
  - organizational responses to, 168–169
- Noisy feedback, 153
- Non-collaborative actions, 45
- Non-financial resource, 210
- Number effects of skill types, 268
- Object of intervention, 28
- Oligopolistic industries, 208
- On-site formal interviews, 110
- One-off products, 305–307
- Openness, 126
- Operating earnings, 124
- Operations management researchers, 54
- Operations manager (OM), 101
- Opportunity cost information, 167–168
- Organization(al)
  - adopt similar designs, 245
  - authority, 59
  - behavior, 110
  - challenges of developing complex one-off products, 306
  - culture, 27, 62–63
  - decision processes, 183
  - design implications, 291–292

- designers, 29, 43, 158, 160, 162
- economics, 232
- efficiency, 181
- forms, 9, 308
- increasing difficulty of
  - organizational adaptation, 10–11
- knowledge, 199
- learning, 180–182
- management, 3
- members, 56, 179
- mitosis, 215, 221–222
- organization-level aspirations, 158
- responses to negative feedback, 168–169
- roles, 15, 149, 153–157
- structures, 11, 178, 180–182
- as unitary decision makers, 244–245
- Organizational ambidexterity, 118
  - through balanced control, 119–121
  - known pathways to, 118–119
- Organizational contexts, 169
  - variables, 169
- Organizational control, 85
  - configurational attributes, 93
  - elements of control, 85–86
  - emphasis of control mechanism use
    - across time periods, 96
  - holistic forms of control, 86–87
  - ideal-type control typologies to
    - explanatory control configurations, 107–109
  - multi-disciplinary nature of
    - organizational control research, 109–110
  - research on, 85–87
- Organizational design, 1, 119, 148–149, 165–166, 207–209, 230
  - aggregation function approach, 235–238
  - central problems, 1
  - configuration and control, 13–14
  - decreasing decomposability of
    - organizations, 7–9
  - division of labor and
    - organizational learning, 14–15
  - dynamic process, 210
  - elements, 302
  - fit and coordination, 12–13
  - frequencies, 7
  - and heterogeneity, 243–246
  - heterogeneity and persistence, 238–243
  - implications for theory, 163–169
  - increasing difficulty of
    - organizational adaptation, learning, and problem solving, 10–11
  - increasing relevance of alternative
    - units of analysis, 9–10
  - and intensity of rivalry, 211–213
  - new organizational forms and
    - problem solving, 17–19
  - organizational roles, goal frames, and
    - baseline psychological processes, 155–157
  - percentage growth in articles, 8
  - perspective, 150
  - renewing foundations, 11–19
  - reviewing foundations, 3–5
  - revisiting foundations, 5–11
  - reward systems and baseline
    - psychological processes, 157–163
  - of roles and reward systems, 153–163
  - sources of change in, 6–11
  - in strategy, 231–235
  - structure and strategy, 15–17
- Organizational integration, 54, 62
  - comprehensive typology of
    - integrative devices, 59–63
  - feasibility and configuration, 63–74
  - key concepts and definitions, 56–58
- Organizational learning, 14–15



- GCM of, 184
- increasing difficulty of, 10–11
- joint problem solving, 186–187
- learning and specialization, 187
- organizational structure, 185–186
- task environment and organization, 185
- Output control, 92
- Paces, the, 97
- Participation, 182–183
  - restrictions, 199–200
  - rights, 199–200
- Participatory decision making, 120
- Payoffs, 166
- Performance
  - determinants, 282–285
  - feedback, 166
  - heterogeneity, 17, 233
- Perreault and Leigh's index, 93
- Persistent/persistence
  - heterogeneity, 234–235
  - limiting biased belief updating, 156
  - persistence-decreasing mechanisms, 151–152
  - persistence-enhancing mechanisms, 152–153
  - persistence-enhancing psychological processes, 156
  - in presence of negative feedback, 150
- Plug-and play fashion, 306
- Pooled interdependence, 54, 63, 65–67
- Population, 280–281
- Portfolio manager role, 155, 156
- Power law of practice, 36
- Primary integrative devices, 56
- Priors, 33
  - asymmetric changes to adjustment rates and, 46–47
  - interventions shaping, 35–36
- Prisoner's Dilemma, 30
- Problem allocation, 15
- Problem solving, 17–19
  - efficiency, 201
  - increasing difficulty of, 10–11
  - process, 184
- Process-oriented organization
  - theorists, 54
- Product development, 300
- Production managers, 125
- Professional Operations Manager (POM), 105
- Program Coordinators, 71
- Project integration, 314
  - as solution to developing innovative products, 309–310
  - as strategic tool, 320–323
- Project manager role, 155, 156
- Project-level aspirations, 158
- Psychological environment, 28
- Psychological processes, 148, 154, 168
- Public Goods game, 30
- Purging process, 265
- Reciprocal interdependence, 54, 64, 69–70
- Reinforcement learning, 36, 150–152
- Replicable configurations, 88
- Resource dependence/stakeholders, 6
- Rewards, 61
  - systems, 153–154, 157–163
- Risk aversion, 241–242
- Rivalry, 213
  - divisionalization revisited, 213–214
  - intensity, 211–213
  - stock, 218–219
  - structural cannibalization, 214–218
- Role descriptions, 200
- Sampling bias in reinforcement learning, 151
- Search behavior, 125
- Self-identity, 152
- Self-justification, 149, 150
  - explanations of persistence, 152
  - mechanism, 153

- psychological process of, 156
- Sense making, 29, 37
- Sequential interdependence, 54, 63, 67–68
- Shaping
  - beliefs, 33–34
  - payoffs, 33–34
- Skill heterogeneity effects, 266–267
- Skill types, number effects of, 268
- Social bonds, 73
- Social relationships, 239
- Socialization, 29, 35, 49, 62–63, 68, 72–73
- Solvency ratio, 126
- Sorting, 29, 34
- Span of control, 126
- Specialization, 14, 181, 187
- Specialized structure, 185–186
- Specific organizational context, 239
- Stability, 65–66, 72, 157, 240
- Stable organization, 65
- Stag-Hunt game, 30–32, 34
- Stage-Gate Model
  - of innovation, 72
  - of new product development, 68
- Standard
  - and institutional knowledge, 320
- Stock of accumulated effort, 187
- Stock–Wright least mean square statistic, 142
- Strategic/strategy, 15–17
  - decision making, 60
  - management, 230
  - organization design in, 231–235
  - project integration as strategic tool, 320–323
- Strategy–structure–performance paradigm, 17
- Structural/structure, 15–17, 73
  - ambidexterity, 14
  - cannibalization, 214–218
  - complexity, 220
  - conditions, 150
  - contingency theory, 59
  - devices, 60
  - differentiation with fluid participation, 196
- Subjective payoffs, 33
- Subunit interdependencies, 55
- Supra-organizational unit of analysis, 9
- Survey items for dimensions of control, 143–144
- Systemic component innovations, 302, 307
- Systemic innovation, 301–302
  - building construction and green buildings as research setting, 303–305
  - complex, one-off products, 305–306
  - descriptive statistics and correlations, 316
  - effect sizes, 319
  - GEE logistic analysis, 317, 318
  - hypotheses, 308–311
  - inclusion of autonomous and systemic component innovations, 319
  - limits of standards and institutional knowledge, 320
  - organizational challenges of developing complex one-off products, 306
  - project integration as strategic tool, 320–323
  - standard product development model, 319
  - types of innovation in complex, one-off products, 306–307
- Task
  - allocation process, 18–19
  - environment, 63, 185
  - interdependence, 65
  - organization, 185
  - specifications, 200
  - structure, 236
- Technology inclusion, 313
- Term-smoothing parameter, 6

- Theoretical and intellectual specialization, 54
- Theory of bureaucracy (Weber), 86
- Theory of means-ends contingencies, 86
- Thorndike's Law of effect, 36
- Three-stage least-squares modeling
  - approach (3SLS)
  - modeling approach, 126, 129–130
  - regression analyses, 140, 141
- Tight-loose
  - aspect, 116, 121
  - mode of decision making, 14
- Tightly coupled systems, 10
- Time horizon of incentives and performance evaluation, 161–162
- Time to market, 70
- Timing Adaptation of aggregation functions, 240–241
- Tolerance for failure, 162–163
- Top-down process, 12
- Topic models, 5–6
- Topic-smoothing parameter, 6
- Total Quality Management
  - movement, 71
- Trade-offs, 118
- Transition function, 243–244
- Turbulence, 185
- Two-stage-least-squares regression analyses (2SLS regression analyses), 140
- Uncertainty, 65
- Unitary decision makers,
  - organizations as, 244–245
- Unsegmented structure, 185–186,
  - 188–192, 198
- Untapped potential of GCM, 183–184
- US Green Building Council, 311–312
- Valuable knowledge, 183
- Value-creating
  - innovation, 217
  - resources, 180
- Variation in structure, 15
- Watson's Law of recency, 37
- Wisdom of crowd in idea selection,
  - 275–276
  - determinants of best group size, 285–288
  - determinants of performance, 282–285
  - group, 281–282
  - effect of imperfect recruiting, 288–290
  - organization design implications, 291–292
  - population, 280–281
  - relationship to Carnegie tradition, 278–279
  - relationship to Condorcetian voting models, 279–280
  - theoretical motivation, 277
- Workflow, 70
- World Management Survey (WMS), 116, 245