

- Acceptance process, 139
- Accountable project office, 377–378
- Action plan, 176–179
- Actual cost of work performed (ACWP), 336, 337, 338, 340
- Adobe Systems, 212–216
- Advocates, 47
- Aircraft industry, 28–29, 246–247, 376
- Analysis document, 62
- Analysis phase, 77
- Apportioning, 192–193, 194, 195.  
*See also* Fixed-phase scheduling
- Authority:
- clarification of, 15
  - decision-making, 41, 44–45
  - establishing, 43, 58–59, 66, 67
  - managing upward, 48
  - organizational structures and, 29, 30, 66, 67
  - responsibility beyond authority, 349–350
  - responsibility matrix, 42, 57, 67–70
  - types of, 58–59
- Backward pass, 159, 160
- Balancing a project, 20, 221–222, 241
- business case level, 222–223, 235–240
  - case studies, 242–247
  - case study, 294–295
  - enterprise level, 223, 240–241
  - project level, 222, 223–234
- Ballpark estimates, 183–184, 187, 188
- Baselines, 344–346, 403–404, 437–438
- Bids, 142, 153, 185, 204
- Black, Fred, 246–247
- Boeing Company, 28–29, 246–247, 376
- Bossidy, Larry, 6
- Bottom-up estimating, 150, 188, 197–198
- Brainstorming, 100
- Brooks, Fred, 224, 226
- Brooks, Herb, 259
- Brummond, J.C., 242–245
- Budgeted cost of work performed (BCWP), 336, 337, 338, 339, 340
- Budgets, 20, 103–104, 116, 198. *See also* Cost(s)
- Burdened labor rate, 199
- Business-case-level balancing, 222–223, 235–240
- Business management skills, 18–19
- Business requirements, 45–46, 79–80, 396–398
- Business risk, 98

- Capability Maturity Model (SEI), 361
- Case studies. *See* Stellar performers
- Cash flow schedule, 202–203, 205–206
- Center of excellence, 374, 376
- Certified project manager(s), 4, 416.
  - See also* Project Management Professional (PMP) certification
- Chain of command, 66
- Champion(s), 41, 42–43
- Change management:
  - change log, 316, 323, 352–353
  - change request, 316, 322
  - configuration management, 311–313
  - expectations management and, 313
  - process, 56, 307–311
  - requirements management, 403–404
  - thresholds, 309–310, 342
- Charan, Ram, 6
- Charter, project:
  - changes that impact, 59–60
  - content of, 58–59
  - creation of, 23
  - purpose of, 42, 57–60, 81, 350
  - sample form, 84
- Checklists, 139. *See also* Downloadable forms
- Children’s Hospital of Seattle, 32–35
- Closeout activities, 313–314
  - closure report, 313, 316, 323
- Closeout phase, 23, 24
- Collaboration, 414–415
- Collaborative problem solving, 257, 258–259, 278–291
- Communication:
  - breakdowns in, 71, 75
  - control through, 22, 251
  - importance of to success, 8, 297–298, 314–315
  - informal, 76
  - with management and customers, 306–307
  - methods for, 75–76, 304–305
  - organizational structures and, 29–30
  - patterns of, 29
  - with team members, 40–41, 298–306
- Communication plan:
  - development of, 57, 71–73, 428
  - escalation procedures, 73
  - Microsoft Project reports, 439
  - purpose of, 71–72, 81, 306, 350, 354
  - response times, 73, 74
  - sample forms, 73–74, 88
  - status meetings (*see* Status meetings)
  - status reports (*see* Status reports)
- Completion criteria, 138–139, 149, 331–332, 350, 352, 354
- Component construction, 228, 229
- Computer network installation case study, 208–211
- Concurrent tasks, 147, 148, 227–228, 352
- Configuration management, 311–313
- Conflict management, 257, 259, 285–288, 291
- Consensus decisions, 282–283, 285
- Contingency strategies, 99, 110–112, 115–116
- Continuous learning, 257, 259, 288–291
- Continuous Risk Management* (Software Engineering Institute), 119
- Contract labor. *See* Subcontractors
- Contract(s), 60–61, 112–113, 204
- Control documents, 307
- Controlling a project. *See* Project control
- Cooperation, 299–300
- Corrective action, 22
- Cost(s). *See also* Balancing a project; Cost-schedule-quality equilibrium
  - baselines, 344–346, 437–438
  - cash flow schedule, 202–203, 205–206
  - control over, 15
  - cost performance, 333–335
  - earned value reporting, 335–342, 439
  - estimating, 15, 65, 150–153, 198–205, 430
  - overruns, 191
- Cost-benefit analysis, 78–79
- Cost performance index (CPI), 337, 341–342

- Cost-plus contract, 112–113, 204
- Cost-schedule-quality equilibrium.
  - See also* Balancing a project balance between variables, 20, 221–222
  - baselines, 344–346, 437–438
  - estimating and, 192
  - expectations about project and, 8, 20–21, 221–222, 353
  - float and, 164, 176
  - project planning and, 22, 146
  - project success and, 19–20
  - rebalancing, 241
- Cost/schedule trade-off table, 232, 233
- Cost variance (CV), 336–338, 340
- Course correction. *See* Balancing a project
- Covey, Stephen, 139
- Crash table, 232, 233
- Critical path:
  - concept of, 161, 162
  - crashing the schedule and, 232, 233
  - keeping on schedule and, 161, 162, 164, 224, 225, 342, 413, 430–431
- Critical path method (CPM), 16
- Crosby, Philip, 20, 234, 239
- Crosswind Project Management, Inc., 422
- Curriculum development, 44
- Customers:
  - communication with, 306–307
  - delays caused by, 352–353
  - expectations of, 313
  - identification of, 45–46
  - requirements of, 45–46, 79–80, 396–399
  - shifting work to, 241
  - as stakeholders, 45–47
  - as team members, 40
- Cusumano, Michael, 137
  
- Decision-making authority, 41, 44–45
- Decision modes, 257, 259, 282–285, 291
- Definition checklist, 81, 89–90
- Deliverables:
  - defining, 64–65
  - for project life cycle, 366–367, 368
  - WBS development, 129–131, 140–142
- DeMarco, Tom, 232–233
- Detailed estimates, 188
- Diminishing marginal returns, law of, 226, 243
- Disaster recovery, 350–351
- Doing it twice. *See* Rework
- Downloadable forms, 9
  - action plan, 178–179
  - change log, 323
  - change request, 322
  - closure report, 323
  - communication plan, 88
  - control checklist, 325–326
  - issues log, 318
  - kickoff checklist, 321
  - meeting agenda, 319
  - planning checklist, 217–218
  - project charter, 84
  - project proposal, 82–83
  - responsibility matrix, 87
  - risk analysis, 121
  - risk log, 122
  - stakeholder analysis, 50–52
  - statement of work, 85–86
  - status report, 320
  - task assignment, 317
- Drucker, Peter, 355
- Duration:
  - labor availability and, 153–154
  - Microsoft Project functions, 430–432
  - productivity and, 157
  - reducing, 224, 225, 232, 233
- Early start schedule, 174
- Earned value reporting, 335–342, 439
- 8/80 Rule, 135
- Elicitation, 401
- Enterprise-level balancing, 223, 240–241
- Enterprise project management (EPM):
  - applications for, 362
  - components of, 360, 361, 362, 365, 382
  - defined, 361–362, 381–382

- Enterprise project management (EPM) (*Continued*):
  - development of, 359–360, 361, 382
  - Microsoft Project functions, 439–440
  - model for, 360
  - people, 360, 362, 373–374, 382
  - processes, 360, 362, 366–369, 382
  - project management office, 360, 362, 374–381, 382
  - shift to, 362
  - technology, 360, 362, 369–372, 382
  - tiers of, 360, 361–365, 382
- Enterprise requirements. *See* Business requirements
- Equipment estimates, 150–151, 199–204
- Escalation procedures, 73
- Escalation thresholds, 342–344
- Estimates and estimating:
  - accuracy of, 182–188, 206
  - bids compared to, 185
  - budgets, 198
  - case studies, 208–216
  - cash flow schedule, 202–203, 205–206
  - challenges of, 15
  - costs, 15, 65, 150–153, 198–205, 430
  - labor, 150, 198–199, 200, 203
  - materials, 151–153, 204–205
  - negotiating, 187
  - padding, 185, 186
  - planning checklist, 218
  - probability theory and, 105–109
  - reestimating, 223
  - rules for, 185–187
  - schedules, 65, 150–157
  - techniques for, 188–198, 208–210
  - work packages, 150–157, 175, 205, 351
- Execute phase, 23, 24
- Expert authority, 58
- External constraints
  - representatives, 47
- External tasks, 412–413
  
- Fast-tracking, 237–238, 242–245
- Feedback, 22
- Fifth Discipline, The* (Senge), 291
- Fifth Discipline Fieldbook, The* (Senge), 291
- Finish-to-finish relationships, 150, 151
- Finish-to-start relationships, 150, 151
- Fish see water last, 415
- Fixed-phase scheduling, 236–237, 351–352
- Fixed-price bids, 153, 204
- Fixed-price contract, 112
- Float:
  - calculating, 159, 160–161, 430–431
  - defined, 160
  - managing, 163, 175, 224, 225
  - negative, 161, 164, 165
- Forward pass, 158, 160
- Functionality, 20, 234, 235
- Functional management, 41–45
- Functional manager(s), 5, 27–28, 30, 41, 43–44
- Functional requirements, 397, 398–399
- Function-driven organizations, 26–27, 29, 30
- Funding, 46–47
  
- Gantt charts, 164, 166–167
- Goal setting, 7, 8, 21–23, 77, 80, 365. *See also* Requirements engineering
  
- Habitat for Humanity International, 294–295
- Hanes, 410
- Hospital case study, 32–35
  
- “If it’s useful” rule, 136–137
- Information technology requirements, 394–407
- Initiation phase, 23–24
- Insurance industry, 96
- Integrated product teams (IPTs), 226–227, 246–247
- Integration testing, 228, 229
- Internal tasks, 412–413
- International Institute for Business Analysis (IIBA), 396
- Interviewing, 101

- Inventory management solution case study, 12
- Issues log, 306, 316, 318
- Iterative development, 399, 401, 403
  
- Job satisfaction, 292
- Johnson, Tony, 416–422
- Juran, Joseph, 20
  
- Kaizen, 414–415
- Kickoff checklist, 306, 315, 321
- Kickoff meeting, 302
- Kliem, Ralph, 383–393
- Known unknowns, 96, 115–116
  
- Labor estimates, 150, 198–199, 200–203
- Labor hours, reporting, 334
- Landscape project plan, 441–449
- Law of diminishing marginal returns, 226, 243
- Leadership:
  - art of, 6–9
  - control checklist, 326
  - management of, 8
  - project management role of, 4–5
  - project manager's responsibility for, 30–31, 48
  - of teams, 257, 259, 260–264, 292–293
- Leadership style, 262–264, 284, 299–300, 315, 326, 355
- Lean methods:
  - applications for, 415
  - concept of, 409
  - development of, 408–409
  - principles of, 409–412
  - techniques for, 412–415
- Lean Thinking* (Womack), 409
- Learning, continuous, 257, 259, 288–291
- Learning to See* (Rother & Shook), 410
- Legitimate authority, 58–59
- Level of effort (LOE) tasks, 340–341
- Line management, 41–45
- Listening skills, 257, 258, 270–274
- Lister, Timothy, 232–233
  
- Machine That Changed the World, The* (Womack), 409
  
- Management:
  - communication with, 306–307
  - by exception, 332
  - as stakeholders, 41–45
  - support from, 8
  - upward management, 8, 48
- Management style. *See* Leadership style
- Manufacturing organizations, 137
- Materials estimates, 151–153, 204–205
- Matrix organizations, 27–28, 30
- McConnell, Steve, 138
- Meeting(s):
  - agenda template, 315, 319
  - kickoff, 302
  - management, 257, 258, 274–276
  - status (*see* Status meetings)
- Michelangelo, 17
- Microsoft Project:
  - benefits of using, 423–424
  - combination views, 425, 426
  - design of, 424–425, 426
  - enterprise project management functions, 439–440
  - managing a project, 10, 437–439
  - popularity of, 10, 423
  - report functions, 439
  - setting up a project, 10, 425, 427–436
  - tutorials for, 10, 423
- Microsoft Project Professional, 439, 440
- Microsoft Project Server, 439–440
- Microsoft Project Web Access, 439–440
- Milestones, 149
- Mini-analysis phase, 77
- Mission requirements. *See* Business requirements
- Modeling techniques, 402
- Multiple-developer model, 214–215
- Mythical Man-Month, The* (Brooks), 224
  
- Negative float, 161, 164, 165
- Network diagram, 147–148, 350, 352, 428, 430
- Network installation case study, 208–211

- Objectives, 65–66
- Ongoing operations, 3, 13, 14–15, 16
- Open task report (OTR), 303–304, 350
- Opponents, 47
- Opportunity management, 117
- Opportunity statement, 77–78
- Order-of-magnitude estimates, 187–188
- Organizational Project Management Maturity Model (PMI), 361
- Organizational structures, 26–30
- OrthoSpot, 12
- Outsourcing, 231–232, 241
- Overtime, 232–234, 242–243
  
- Parallel tasks, 413
- Parametric estimating, 193, 195–197, 210
- Patient management systems case study, 32–35
- Peer reviews, 139
- Peopleware* (DeMarco & Lister), 232–233
- Perfection, 411–412
- Performance, product, 20, 234
- Personal contact, 299–300
- Phased estimating, 189–192, 208–210. *See also* Fixed-phase scheduling
- Phased product delivery, 238–239, 241
- Phase gate development, 189–190, 388
- Pipinich, Rod, 408–415
- Plan(s) and planning:
  - activities and techniques for, 22–23, 94, 146, 176
  - checklist, 207, 217–218
  - importance of to success, 7–8, 93–94
  - life cycle of project, 23–24
  - model for, 441–449
  - organizing a project through, 93–94, 350–351, 352, 353, 354
  - risk planning, 97–98
  - sponsor's role in, 43
- Predecessor table, 147, 148
- Preventive maintenance, 137
  
- Probability theory, 105–109
- Problem-resolution thresholds, 342–344
- Problem solving, 347–348
  - customer-caused delays, 352–353
  - disaster recovery, 350–351
  - fighting fires, 354
  - impossible dream, 353
  - problem analysis, 257, 279–282, 291
  - reducing time to market, 351–352
  - responsibility beyond authority, 349–350
  - skills for, 257, 258–259, 278–291
  - volunteers, managing, 354–355
- Problem statement, 77–78
- Process improvement techniques, 241
- Process variation, 413–414
- Product development. *See also* Requirements engineering; Scope, product
  - completion criteria, 138–139
  - life cycle of, 24–25, 367, 399–401, 405
  - project life cycle vs., 25–26
  - reducing time to market, 351–352
- Product failures, 234
- Productivity:
  - duration and, 157
  - job satisfaction and, 292
  - tools and techniques, 241
  - using experts and, 228, 230–231
- Product-oriented organizations, 29
- Profit margins, 185, 240
- Program(s), 28–29, 376–377
- Program evaluation and review technique (PERT), 16
- Program management, 360, 362, 363–364
- Program management office, 376–377
- Progress measurement:
  - control checklist, 325–326
  - controlling a project with, 22, 251
  - cost and schedule baselines, 344–346
  - cost performance, 333–335
  - earned value reporting, 335–342, 439
  - escalation thresholds, 342–344

- milestones, 149
- schedule performance, 329–333
- Project(s). *See also* Successful
  - project(s)
    - approval of, 30, 42–43, 47, 56, 70, 218, 366–367
    - change and innovation through, 1, 2, 5–6, 16, 383
    - definition, 3, 11, 13–14, 96
    - definition checklist, 81, 89–90
    - expectations about, 8, 20–21, 221–222, 353
    - failure of, 395–396
    - life cycle of, 23–24, 25–26, 366–367, 368
    - organizational structures and, 26–30
    - priority of, 30, 43, 78, 240
  - Project charter. *See* Charter, project
  - Project control:
    - activities included in, 22–23
    - challenges of, 15
    - checklist for, 316, 325–326
    - finishing on time, 329
    - progress measurement and, 251
    - team members' role, 251
  - Project definition:
    - activities included in, 21–23
    - communication, 8
    - importance of to success, 7
    - life cycle of project, 23–24
  - Projectized organizations. *See* Project-oriented organizations
  - Project-level balancing, 222, 223–234
  - Project management:
    - challenges of, 15–16, 356
    - functions of, 21–23, 354
    - history of, 3, 16–17, 359
    - industry independence of, 17–19
    - leadership involvement in, 4–5
    - overview, 1–11
    - project-specific requirements for, 367, 369
    - science of, 6–9, 355–356
    - skills for, 3–4, 6–9, 17–19
    - strategic strength of, 5–6
    - techniques and theories for, 3–4, 16–17
    - WBS development, 137–138
  - Project Management Institute (PMI), 3, 337, 361, 418–422
  - Project management office (PMO), 5, 360, 362, 374–381, 382
  - Project Management Professional (PMP) certification:
    - exam questions, 10, 36, 53–54, 91–92, 123–124, 143–144, 180–181, 219–220, 248–249, 296, 327–328, 347–348
    - exam study tips, 418–422
    - growth in, 4, 416
    - requirements to earn, 417
  - Project manager(s):
    - credentials and certification for, 4, 416
    - demand for, 4
    - growth in number of, 4, 416
    - leadership role of, 30–31, 48
    - leadership style, 262–264, 284, 299–300, 315, 326, 355
    - skills for, 3–4, 6–9, 17–19
    - as stakeholders, 39–40
  - Project-oriented organizations, 27, 28–29, 30
  - Project portfolio management:
    - benefits of, 384
    - building the portfolio, 389–393
    - changes to portfolio, 393
    - concept of, 360, 362, 364–365
    - discipline for, 389, 393
    - project office role in, 380
    - purpose of, 383–384, 393
    - system components, 384–389
  - Project support office, 376
  - Proposal, project:
    - content of, 77–80
    - definition checklist for, 90
    - importance of, 80
    - purpose of, 76–77, 81
    - sample form, 82–83
  - Purpose statement(s), 61–62
  - Quality, 20, 45–46, 138–139, 234, 235. *See also* Balancing a project; Cost-schedule-quality equilibrium
  - Quality Is Free* (Crosby), 234, 239

- Rapid Development* (McConnell), 138
- Recalls, 234
- Regulatory agencies, 47
- Reimbursable contract, 112–113
- Reporting period rule, 135–136
- Requirements engineering:
  - defined, 394
  - processes and techniques for, 394, 399–406
  - project success and, 394–396, 406–407
  - requirements capability, building, 406
  - steps to implementing, 405–406
  - types of requirements, 45–46, 79–80, 396–399
- Reserve strategies, 99, 115–116
- Resource(s), 30. *See also* Enterprise project management (EPM)
  - assigning, 432–434
  - constraints, 147–148
  - leveling, 169–176, 434–436
  - managers for, 41, 43–44
  - projections, 94
  - reallocating, 224, 225
- Responsibility beyond authority, 349–350
- Responsibility matrix:
  - development of, 57
  - purpose of, 42, 67–68, 81
  - sample forms, 68, 69, 87
  - setting up, 68–70
- Rework, 234, 239, 240, 245, 395
- Right-to-left scheduling, 246–247
- Risk(s):
  - analysis of, 99, 104–109, 118, 121
  - business vs. project, 98
  - contingency and reserve strategies, 99, 110–112, 115–116
  - continuous management of, 99–100, 116–117
  - description in proposal, 80
  - identifying, 99, 100–104, 113, 117
  - log, 113–115, 117, 118, 122
  - management of, 95–98, 117–118, 353
  - management process, 98–117
  - obstacles vs., 80
  - planning and, 97–98
  - planning checklist, 217
  - prioritizing, 99, 104, 108
  - probability assignment, 105–109
  - profile, 101–103, 119–120
  - response strategies development, 99, 109–115, 117
- Rivera, James, 394–407
- Roebing, John, 16–17
- Roebing, Washington, 16
- Rother, Mike, 410
- Rough-order-of-magnitude (ROM) estimates, 187–188
- Rules, project, 21–23, 37, 55–57, 81, 90
- SAFECO Field, 242–245
- Schedule(s). *See also* Balancing a project; Cost-schedule-quality equilibrium
  - baselines, 344–346, 437–438
  - calculating, 157–169, 425–427
  - cash flow, 202–203, 205–206
  - costs and, 153
  - crashing, 232, 233
  - critical path and, 161, 162, 164, 224, 225, 342, 413, 430–431
  - description in proposal, 80
  - disaster recovery and, 350–351
  - estimating, 65, 150–157
  - fast-tracking, 237–238, 242–245
  - finishing on time, 329
  - fixed-phase, 236–237, 351–352
  - management by exception, 332
  - planning checklist, 218
  - realistic, 145, 351
  - resource leveling and, 169–176, 434–436
  - right-to-left, 246–247
  - risk management for, 103–104
- Schedule performance, 329–333
- Schedule performance index (SPI), 339, 341
- Schedule variance (SV), 338–339, 340, 342, 344, 345
- Scope, product, 20, 63, 234, 235–236, 241
- Scope, project, 62–63, 80, 81, 235
- Seattle children’s hospital, 32–35
- Seattle Mariners stadium, 242–245
- Senge, Peter, 291
- Sequence constraints, 147–148

- Serial tasks, 413
- Shingo, Shigeo, 412
- Shook, John, 410
- Single-developer model, 212–214
- Single Minute Exchange of Die (SMED), 412
- Slack. *See* Float
- Software. *See also* Microsoft Project
  - benefits of using, 423–424
  - development of, balancing projects, 236–237
  - development of, estimating project time for, 212–216
  - development of, requirements engineering and, 394–407
  - resource leveling, 175
  - schedule calculating with, 157, 176
  - tools for project management, 10
- Software Development Risk
  - Taxonomy (Software Engineering Institute), 119–120
- Software Engineering Institute (SEI), 119–120, 361
- Solution statement, 78
- Sponsor(s), 41, 42–43, 48, 350
- Staffing issues:
  - balancing a project and, 224, 226–228, 241
  - challenges of, 15
  - labor estimates, 150, 198–199, 200–203
  - overtime, 232–234, 242–243
  - priority of projects and, 43
  - productivity and, 228, 230
  - successful projects and, 21
- Stakeholder(s):
  - advocates as, 47
  - analysis, definition checklist for, 89
  - communication with, 306–307
  - control checklist, 325
  - customers as, 45–47, 48
  - defined, 38, 39
  - expectations of, 8, 20–21, 221–222, 313, 353
  - external constraints representatives as, 47
  - identifying, 38–39, 48–52, 66
  - leadership over, 48
  - management as, 41–45, 48
  - opponents as, 47
  - project managers as, 39–40
  - risk identification activities for, 100–101
  - team members as, 40–41
- Standard work practices, 413–414
- Start-to-start relationships, 150, 151
- Statement of work (SOW):
  - changes to, 66–67
  - content of, 61–66, 81, 351
  - contract compared to, 60–61
  - development of, 57
  - purpose of, 42, 60–61, 81, 350, 353, 354
  - sample forms, 63, 85–86
- Status meetings, 75, 301–305, 350, 351, 352, 354–355
- Status reports, 73, 75, 135–136, 315, 320, 353
- Stellar performers:
  - Adobe Systems, 212–216
  - Boeing Company, 246–247
  - Children’s Hospital of Seattle, 32–35
  - Habitat for Humanity International, 294–295
  - OrthoSpot, 12
  - SAFECO Field, 242–245
  - Software Engineering Institute, 119–120
  - Tynet, Inc., 208–211
- Strategic Selling* (Miller & Heiman), 44
- Subcontractors, 218, 230–232
- Successful project(s):
  - defined, 19–21
  - expectations and, 8, 20–21, 221–222
  - obstacles to success, 80
  - requirements engineering and, 394–396, 406–407
  - sponsor’s role in, 43
  - success factors, 7–9, 355, 361, 373
- Summary task(s), 126, 129, 131–137, 147, 428
- Systematic testing, 139
- Task assignment, 301, 315, 317
- Task relationships, 147–150, 151, 218, 227–228, 413, 426, 428
- Taxonomy Based Questionnaire (Software Engineering Institute), 119–120

- Team(s) and team members:
  - assessing team health, 277–278
  - challenges of teamwork, 252–256
  - cohesion requirements, 253–254
  - communication with, 40–41, 298–306
  - control checklist, 326
  - customers as, 40
  - defined, 252
  - definition checklist for, 81, 89–90
  - development stages, 262–264
  - environment for, 257, 258, 264–276
  - high-performance team
    - framework, 256–260, 292–293
  - integrated product teams (IPTs), 226–227, 246–247
  - job satisfaction, 292
  - leadership of, 257, 259, 260–264, 292–293
  - problem-solving skills, 257, 258–259, 278–291
  - role of, 5, 251
    - as stakeholders, 40–41
    - task assignment, 301, 315, 317
- Team leader, 39–40
- Technical lead, 39–40
- Technical skills, 18–19
- Technology, 360, 362, 369–372, 382
- Time-scaled network, 164, 168
- Top-down design, 227–228, 246–247
- Top-down estimating, 192–193, 194, 195. *See also* Fixed-phase scheduling
- Toyota Production System, 410–411
- Traceability, 404
- Trigger events, 112
- Triple constraint. *See* Cost-schedule-quality equilibrium
- Tuckman, Bruce, 262–263, 264
- Tynet, Inc., 208–211
  
- Undertime, 233
- Unknown unknowns, 96, 116
- Use case specification, 398, 399
- User requirements, 397, 398, 399
- U.S. government, 16–17, 47, 337
  
- Validation, 402
- Value:
  - earned value reporting, 335–342, 439
  - Lean methods, 409–412, 415
  - product, 235
- Value stream analysis, 410
- Vendors, 141, 142, 218, 230–231
- Verification, 402
- Volunteers, managing, 294–295, 354–355
- Voting, 283
  
- Walk-throughs, 139
- Waste, eliminating. *See* Lean methods
- Womack, James, 409
- Work breakdown structure (WBS):
  - criteria for, 133–134
  - development of, 129–137, 140–142, 428, 429
  - earned value reporting and, 340–341, 439
  - models for, 126, 127–129, 131–133, 134, 135, 138, 140–141
  - planning checklist, 217
  - project management activities, 137–138
  - purpose of, 125–126, 142
  - tasks on, types of, 126, 129, 431–432
  - vendor-provided, 141, 142
- Work package(s):
  - completion criteria, 138–139, 149, 331–332, 350, 352, 354
  - defined, 126, 129
  - earned value reporting and, 340–341, 439
  - estimating, 150–157, 175, 205, 351
  - naming, 134, 140, 142
  - organizing, 131–135
  - schedule progress and, 329–333
  - size of, 135–137, 140, 142, 354
  - task relationships, 147–150, 151, 218, 227–228, 413, 426, 428
  
- 0–50–100 Rule, 330–331
- Zero float, 161, 164, 165