## Index

### A

**Accountability**, 9  
- board of directors, 267  
- and business case, 215  
**Activity-based costing (ABC)**, 229, 230  
**Advanced modeling**, 239, 243  
- advantages and disadvantages of, 244  
- portfolio balancing, 249  
**Advantages of effective IT management**, 8, 9  
**Albin, James J.**, 33  
**Analysis of investments**, 18, 19  
**Analytical hierarchy process**, 195, 239, 254  
**Appel, Willie**, 156  
**Applications**  
- attributes, 159, 160  
- balancing the portfolio and tradeoffs, 252–254  
- categories of, 24  
- cost attributes, 164  
- defined, 157  
- elements of, 157  
- migration patterns, 253  
- as part of asset portfolio, 24, 25, 142, 143  
- portfolio, 156–168  
- risk-related attributes, 165, 166  
- user information, 161, 162  
- value, benefits, and costs, 158  
- value statements, 161  
**Approach to IT management**, 1, 2, 30  
**Approaches to IT portfolio management**, 21–25  
**Arbitrage pricing theory**, 29  
**Architecture**  
- architecture review board, 105  
- enterprise architecture (EA) group, 88  
- problems with, 12  
- “spaghetti” architecture, 12  
**Arthur Andersen**, 73  
**Arthur D. Little life cycle approach**, 254  
**Assessing IT portfolio (stage 4 of building IT portfolio)**  
- assessment cycle, 236  
- gaps between target and current investment mix, 245, 246  
- measuring the portfolio, 234, 237–241  
- overview, 19–21  
- performance, 241–246  
- report, 244, 245  
- scoring methods, 239, 240  
- tasks, 234, 235  
- triggering events, 235–237  
**Asset phase**  
- application of Stage-Gate®, 110, 111  
- elements of, 145–168  
- overview, 13, 107  
- shortfalls, 14, 15  
**Asset portfolio**  
- commonality among subportfolios, 112–121  
- elements of, 142  
- and IT governance, 83  
- metrics, 54  
- planning, 210, 211  
- review of, 145  
- and software selection, 57  

### B

**Balanced scorecard**, 229, 230, 241, 242  
- business alignment, 101  
- categories, 227  
- as communication tool, 264  
- for IT, 244, 245  
- performance management, 89, 90
Balancing IT portfolio (stage 5 of building IT portfolio)
alternative investments, 255
changes
implementation of, 258, 260
selection and approval of, 254–258
communication, 261, 262
failure to balance, 248
models for, 251
outputs of balancing stage, 246, 247
overview, 20, 246–248
tradeoffs
analysis of, 249, 250
application portfolio, 252–254
discovery portfolio, 250, 251
project portfolio, 250, 251
tuning options, 249, 254, 255
Ballou, Melinda-Carol, 285
Baseline assessment
business-IT credibility and dependency, 189–192
capabilities, 194
portfolio management maturity, 59–64, 192–194
readiness, 187, 189, 190
Benchmarking, 10, 31
against competitors’ investment balance, 255
peer benchmarking and performance assessments, 273
and performance measures, 200
Best practices
feasibility assessment, 127
governance process, 70
and planning, 39
project phase and gating process, 130
value, 31
Beta, 218, 219
Board of directors
and governance, 86, 89, 102
role of, 267
Booker, Michael, 130
Boston, Brad, 331
Boston Consulting Group (BCG), 152
growth share matrix, 254
Bottom-up approach, 21
governance, 90, 91
investment categories, 203, 204
Bruque, Sebastian, 16
Bubble charts, 115, 118
portfolio views, 228
Bucket method, 251
Budgets and budgeting. See also Costs
budget cycles, 248
and cutting costs, 9
impact of portfolio management, 21, 51
IT percentages, 8
spending, 10, 11
Building the IT portfolio
costs, 182, 184
factors to consider, 176
overview, 175–179
readiness assessment, 280–283
risk
categories and factors, 278, 279
generally, 181–183
stages. See Stages of IT portfolio management
value
categories and factors, 276, 277
generally, 180, 181
Business alignment, 10, 39, 80, 81, 208
balanced scorecard, use of, 101
and core competencies, 8
and portfolio management, 237
Business case, 10, 324, 325
and populating the portfolio, 215–217
project phase and Stage-Gate® process, 111, 112, 133, 134
Business continuity, 31, 181
Business performance indicators. See also Key performance indicators (KPIs)
understanding of and response to, 191, 192
Business process management systems, 12
Business process outsourcing, 162
Business process reengineering, 73
Business processes, 191
Business strategy, 177
alignment with, 237
business diagnostic, 280, 281
Business units, 72
Business value of IT, 8
Business vision, 52
C
Capability assessment, 46
Capability maturity model (CMM), 149
development of, 43, 45
levels of, 45, 46, 59–64
Capital asset pricing model (CAPM), 29, 219
Carlson, Mike, 342, 343
Carnegie Mellon University, 43, 149
Carr, Nicholas, 6, 327
Case studies, 329
Cisco Systems, Inc., 330–334
In-Q-Tel, 335–338
Xcel Energy, 339–363
Center for Information Systems Research, 81, 83
Central Computer and Telecommunications Agency (CCTA), 148

Change
adaptive companies and competitive advantage, 3, 326, 327
and baseline assessments, 41, 42
governance, role of, 266
internal and external challenges, 7, 8
and levels of IT spending, 8
management, 78, 149, 150
pace of, 1
perspectives on, 117
reasons for, 2, 3
resistance to, 25, 26, 321
responding to, 3, 4

Charter, 54, 55
approval of, 270
elements of, 201, 202

Chasm model, 127

Chief executive officer (CEO)
governance and mapping of top issues, 103
Sarbanes-Oxley compliance, 74

Chief financial officer (CFO), 72
obtaining support of, 47, 48
role of, 73
Sarbanes-Oxley compliance, 74

Chief information officer (CIO), 72
governance and mapping of top issues, 104
and planning phase, 41
role of, 3, 21, 77–79
historical background, 72
and regulatory requirements, 74–77
and Sarbanes-Oxley compliance, 74, 75

Christensen, Clayton, 127
Cisco Systems, Inc., 327
case study, 330–334
Clinger-Cohen Act, 76

CobiT (control objectives for information and related technology), 31, 70, 91–93

Collaboration, 328
business management and IT, 4
importance of, 4, 5
and information value, 328
and work flow, 316, 317

Communication (stage 6 of building IT portfolio)
and assessment stage, 273
consistency, 262
dashboards, use of, 263
employees, 264, 265
focus of, 261
importance of, 4, 20, 117, 260, 263
and information value, 328
between IT and business, 4
media for, 265, 266

plan overview, 266
planning, 55–57
and portfolio balancing stage, 261, 262
reporting mechanisms, 265
stakeholders
analysis, 261
identifying, 262–264
tasks, 262, 263
tools, 263, 264

Compliance
CobiT as framework for, 92
governance policy, 66
issues of key stakeholders, 48
regulatory, 165
Sarbanes-Oxley, 9, 74–76, 97, 98, 364, 365
Compustat, 123
Concept maturation, 128
Configuration management, 78
Consolidation of portfolio, 256, 257
Contingent portfolio programming (CPP), 251

Control objectives for information and related technology (CobiT), 31, 70, 91–93

Cooper, Dr. Robert G., 108, 130
Core competencies, 3
and business alignment with IT, 8
Correlation, 28

COSO, 70

Costs. See also Budgets and budgeting
and building IT portfolio, 182, 184
cost avoidance, 276
fixed costs, converting into variable costs, 12, 184
spending on IT, 10, 11
variable versus fixed costs, 143

Creating IT portfolio (stage 3 of building IT portfolio)
inventories, 18
metrics, defining, 225–230
overview, 18, 19, 211, 212, 233
populating the portfolio, 212–217
risks and results, identifying, 217–225
screening process, 18, 19
tasks, 213

Critical success factors (CSFs)
and defining metrics, 199, 200

Customer relationship management, 328
portfolio interrelationships, 210, 211
Customer surveys, 272

D
Dashboards, 200, 325
and asset portfolio reviews, 145–146
Mercury Interactive, 354
selection dashboard, 117, 120
Dashboards (Continued)
  use of in communication, 263
  Xcel Energy, 339, 343, 354, 355
Data. See also Information and data
  collection, 211, 212, 214
Databases, 324, 325
  centralized, 113
  mining, 113, 115
Decision (probability) trees, 243
Dedrick, Jason, 14
Dell Computer, 327
Diagnostics, 280–283
Diffusion of innovation model, 127
Discovery phase
  application of Stage-Gate®, 110, 111
  elements of, 124–128
  fuzzy front end, 13, 111, 121, 122
  overview, 13, 22, 107
  project phase compared, 113
  shortfalls, 14, 15
Discovery portfolio
  commonality among subportfolios, 112–121
  discovery phase. See Discovery phase fuzzy front end, 121
  and IT governance, 83
  metrics, 53
  overview, 21–23, 107, 121–124
  planning, 210, 211
  technology readiness level, 124
Disruptive technology curves, 127

E
  e-business, 73
  Earned value analysis (EVA), 229, 230
eBusiness Value Dial, 112
  Economic value added, 241
Edgett, Scott J., 130
Efficient Frontier, 28, 29, 243, 257–259, 287
Elton, Edwin J., 29
Enron, 73
Enterprise application integration (EAI), 211
  and value, 223
Enterprise architecture (EA) group, 88
Enterprise program management, 24
Enterprise program management office (EPMO), 86, 88
Enterprise resource planning (ERP), 73, 328
  vendors, 287
Executive steering committee (ESC), 86–88, 105, 267
  governance and mapping of top issues, 105
  performance management, 89, 90
Expectations management, 41
Expected commercial value, 241

F
  Feasibility stage, 126, 127
  Federal CIO Council, 76
  Federal Express, 327
  Federalism of IT, 91
  Financial models, 239
    advantages and disadvantages of, 242
    common models, 241
    portfolio balancing, 249
  Financial portfolio management
    IT portfolio management compared, 27, 28
  Financial portfolios
    and IT portfolios, 323
  Fisher-Pry model, 127
  Fixed costs, 184, 255
  Function point, 229, 230
  Future trends
    adaptive companies and technologies, 327, 328
    IT and competitive advantage, 326, 327
  Fuzzy front end. See Discovery phase

G
  Game plan (stage 1 of building IT portfolio)
    baseline assessment, 187–194
    chart, 188
    documentation, 201, 202
    goals, identifying, 185
    objectives, defining, 194–196
    overview, 18, 185–187
    process metrics, defining, 196–201
  Gates. See Stage-Gate®
  General Accounting Office (GAO), 29, 30
  Goals
    identifying, 185
    of IT portfolio, 3, 4
    of IT portfolio management, 17
  Gogel, Ray, 339–342, 363
  Gompertz model, 127
  Governance (stage 7 of building IT portfolio)
    approaches, 90, 91
    board of directors, 86, 89, 102
    business focus for IT, 71–80
    business-IT alignment, 80, 81
    centralized versus decentralized approach, 90, 91
    and change, 266
    chief information officer, role of, 74–79, 104
    CobiT. See CobiT (control objectives for information and related technology)
    corporate, 66
defined, 65
demands on companies, 67
enterprise architecture (EA) group, 88
enterprise program management office (EPMO), 86, 88
executive steering committee. See Executive steering committee (ESC)
framework, 83
functions, 66
governing bodies, 86–89, 102–105, 267, 326
implementing, 93–95
importance of IT governance, 73
internal diagnostic, 281, 282
IT investment committee, 86
and IT portfolio management, 66
IT strategy committee, 86
management issues, 99–101
maturity level assessment, 68–70
overview, 17, 20, 81–91, 324
performance management, 89, 90
policy
development and compliance, 66
and principles, 84, 85, 269, 270
and portfolio management process, 269
principles, 84, 85, 269, 270
role of, 66
role of IT, 67, 68
Sarbanes-Oxley. See Sarbanes-Oxley Act
self-diagnosis checklist, 68–70
steps in developing governance mechanisms, 267
structure for, 86–89
tasks and activities in developing, 267, 268
triggers, 270
Graham-Leach-Bliley Act, 76
Grow-the-business investments, 206, 207, 210, 219, 325
and budget cycle, 248
Growth
allocation of resources to, 204, 205
grow-the-business investments. See Grow-the-business investments
Growth share matrix, 254
Gruber, Martin, 29
Gunther McGrath, Rita, 123
Gurbaxani, Vijay, 34

H
Health Insurance Portability and Accountability Act (HIPAA), 76
Higgs Report, 76
Historical background
of IT, 71–74
of IT management, 2
Human capital. See also People, focus on
as element of asset portfolio, 142
portfolio, 154–156
Hybrid approach, investment categories, 203, 204

I
IBM, 341, 343
In-Q-Tel, 327
case study, 335–338
Industrial Research Institute, 123
Information and data
data collection, 211, 212, 214
as part of asset portfolio, 142, 143
portfolio, 150–154, 210
Information Systems Audit and Control Association, 31, 91
Infrastructure
as element of asset portfolio, 142, 143
portfolio, 146–147
Innovation, 122, 123
Xcel Energy scoring criteria, 125
Intangible assets and importance of IT, 70, 71
Intel Corporation, 112, 114, 122
Internal control report, 74
Internal rate of return, 241
Inventories
of IT investments, 18
of resources, 225
Inventories of IT investments, 18
Investment categories, defining, 203–205
ISO 900X, 70
IT Governance Institute, 86, 89
IT Infrastructure Library (ITIL), 70, 148
IT investment council, 267
IT service delivery, 215
IT steering committee, 105, 267
ITIL, 70, 148

K
Kaplan, Robert S., 89, 241
Key performance indicators (KPIs)
as communication tool, 264
and defining metrics, 199, 200
Key performance measures, 26, 27
Kleinschmidt, Elko J., 130
Koen Peter, 124
Kraemer, Kenneth L., 14

L
Leadership, support of, 208, 209
Legacy systems, 9, 11, 74
Legal issues and human capital management, 156
Legislation, 74–77
Organization chart
and IT/IS group, 80
IT organizational models, challenges of, 82
Outputs
of balancing stage, 246, 247
defined, 132
project phase gates and stages, 132–140
Outsourcing, 9, 12
and business perceptions of IT, 190
business process, 162
and IT governance, 83
Overview of IT portfolio management,
17–27, 321–326

P
Pacific Edge Software, 34, 117
Pareto principle, 212, 334
Partnering and shared services, 9
Payback periods, 239, 276
People, focus on, 25–27, 47, 117, 321. See also Human capital
IT portfolio management as people process, 177–179
Performance management, 89, 90, 100, 101
Performance measurement. See Metrics
Pictorial diagrams, 251
Planning for IT portfolio management, 39, 40, 58
baseline assessments, 41, 42
capability assessment, 46
capability maturity model (CMM), 42–46
levels of, 59–64
communication planning, 55–57
maturity levels, 59–64
metrics. See Metrics
objectives
defining, 51, 52
identifying, 40, 41
refining, 49–52
and software selection, 58
overview, 18
processes involved, 40
project charter, 54, 55
readiness assessment, 42, 43
scope, 49–51
software selection, 57, 58
stakeholder analysis, 47, 48
task planning, 55
Planning stage (stage 2 of building IT portfolio)
investment classifications, 206–209
investment strategy, 202–209
overview, 202
portfolio structure, 209, 210
subportfolios, 210, 211
task planning, 203
Policy
as foundation for governance, 84
types of, 85
Portfolio management software
assessment of
considerations, 286
overview, 285, 286
assessment of vendors
advanced criteria, 304–319
functional capabilities, 292–295
methodology, 292–303
performance criteria, 299–303
presence criteria, 295–299
consolidation of vendors, 288
convergence of features, 288
market, 286–288
market niches, 287
opportunity and demand management, 295
portfolio management, 293, 294
portfolio management tool suites (PMTS), 287
process management, 294, 295
program management, 292, 293
project management, 292
provider evaluation, advanced criteria for
architecture, 304, 305
billing and invoicing, 319
collaboration and work flow, 316, 317
data management, 307, 308
estimation, 318
expense management, 318
initiation and categorization, 309, 310
integration, 305, 306
optimization and progress management, 318
performance measurement, 312–314
planning and scheduling, 317
portfolio adjustment, 314, 315
prioritization, 310, 311
project cost and accounting, 319
reporting and visualization, 315, 316
resource management, 317
scope management, 317, 318
security, 306, 307
time management, 318
view management, 308, 309
resource management, 294
selection of, 201, 289–292
suites, 287
use of in documenting applications portfolio, 167, 168
vendors, 287, 288
Portfolio structure, planning, 209, 210
Portfolio views, 228, 230 See also Bubble charts, pictorial diagrams, and views financial views, 232
graphic representation, 228
purpose of, 231, 232
Positioning options, 123
Processes
portfolio, 148–150
Processes for managing IT portfolio, 17, 26
IT Infrastructure Library (ITIL), 148
operational success, 148, 149
processes defined, 148
stages of, 18–21
Productivity
and focus on people, 25–27
index, 239
Productivity paradox, 14, 16, 17
summary of studies on, 36, 37
Profitability index, 239
Program management, 24
Project charter, 54, 55
Project failures, 11
Project initiation form, 129, 130
Project management, 23, 24
project defined, 128
Project Management Institute (PMI), 11, 128
Project phase, 13, 107
discovery phase compared, 113
elements of, 130–142
key factors in managing, 140, 141
shortfalls, 14, 15
Stage-Gate® process, 130–140
stages and gates in, 13, 109, 130–140
transition to operations, 141, 142
Project portfolio, 21, 23, 24, 107, 325
comminality among subportfolios, 112–121
and IT governance, 83
metrics, 53, 54
overview, 128, 129
planning, 210, 211
project initiation form, 129, 130
project phase. See Project phase and software selection, 57
ProSight, Inc., 115, 116
Pure plays, 73
Real options, 123, 184, 243
Regulatory compliance, 165. See also Sarbanes-Oxley Act
Regulatory environment, 74–77
Reports
assessment and execution report, 273, 274
as communication tool, 264
Request for information (RFI) for software, 57
software vendors, 290, 291
Request for proposal (RFP) for software, 57
software vendors, 290, 291
Request for quotation (RFQ) software vendors, 290, 291
Research and development
and discovery phase, 122
statistics on, 123
Resistance to change, 25, 26
Resource management, 100
inventory of resources, 225
Return
categories of, 224
IT returns, study results, 36, 37
and resources, inventorying and allocating, 225
and risk, 224, 225
Return on invested capital (ROIC), 16
Return on investment (ROI), 27, 73, 74, 79, 80, 239, 276
Risk
assessment, 31, 254
beta, 218, 219
business, 278, 279
categories and factors, 278–279
diversifying, 28, 31, 34
expected risks and results, identifying, 217–225
and investment categories, 218–222
low-risk/high-risk balance, 141
management, 31, 100, 181, 182
operational, 279
planning, 28–33
CobiT. See CobiT (control objectives for information and related technology)
customer, 279
defined, 181
expected risks and results, identifying, 217–225
and portfolio management, 183
positive and negative, 181
project, 279
resources, 225, 279
and return, 217, 218
and reward, 28, 236
risk/reward impact analysis, 236
scenario planning, 32, 33

R
RACI (responsible, accountable, consulted, and informed), 70
Readiness assessment, 42, 43
diagnosis, 280–283
discovery phase, 128

and success probability, 222
technology, 278
Road-mapping, 127, 196
Roche, Elizabeth, 156
Rogers, Everett, 127
Role of IT management, 3, 4
Ross, Jeanne W., 80
Run-the-business investments, 325
and budget cycle, 248
resources allocated to, 204–206
and risk, 219
subportfolios, 210

S
S–curve model, 127
Saaty, Thomas L., 195
Sarbanes–Oxley Act
CobiT as framework for compliance, 92
compliance and role of IT, 9, 75, 76
Xcel Energy system, 364, 365
compliance road map, 97, 98
corporate governance, 66
provisions of, 74–76
and return on investment, 80
Scenario planning, 115, 119, 127, 243
portfolio balancing, 249, 253
probabilities, 33
risk management, 32, 33
trade-offs, determining, 250
Scope of IT portfolio management, 49–51
Scorecards, 31, 200, 242
balanced scorecard. See Balanced scorecard
business alignment, 184, 185
investment review, 115, 116
portfolio scorecard, 237, 238
risk comparison, 220
risk scoring method, 221, 222
Scoring methods, 239, 240, 249
Scoring models, 130–132
Scouting options, 123
SEI capability maturity model (CMM), 70,
229
Sensitivity analysis, 239
Service levels, 255
Services-oriented development of applications
(SODA), 12
Seven-Eleven, 327
Seven-Eleven Japan Co., 326, 327
Shared services, 9
Sharpe, William, 29
Should-meet criteria, 130
Simulation approaches, 239, 240, 243
advantages and disadvantages of, 244
portfolio balancing, 249
Six Sigma, 9, 229, 230
Software. See also Applications
collectors and agents, 211, 212
portfolio management. See Portfolio
management software
providers, assessment of. See Portfolio
management software
selection of, 57, 58
Software Engineering Institute (SEI), 43,
149
Spital, Francis, 141
Sribar, Váš, 156
Stage–Gate®
and discovery phase, 124–128
In-Q-Tel, 337
and IT life cycle, 108–112
and project phase, 130–140
requirements for effective gates, 110
Stages of IT portfolio management
chart, 186
overview, 18–21, 184, 185
stage 1 (game plan), 185–202
stage 2 (planning), 202–211
stage 3 (creating), 211–233
stage 4 (assessing the portfolio), 234–246
stage 5 (balancing), 246–260
stage 6 (communicating), 260–266
stage 7 (governance and organization),
266–270
stage 8 (assessing management process),
270–274
Stakeholders
approval of charter and governance, 270
asset portfolio reviews, 145
communication with, 56, 57
feedback from, 210
level of support, 47, 48
meeting needs of, 209
readiness assessment, 187, 189
values, 180
views, 238
Standard & Poors, 123
Standard operating procedure, 200
Statistics on IT investments, 10, 11
research and development, 123
Stepping stone options, 123
Strategic alignment, 99
Strategic business unit (SBU) approach, 208
Strategic information system plans (SISPs),
72
Subportfolios, 21, 22
applications. See Applications
asset portfolio. See Asset portfolio
commonality, 112–121
discovery portfolio. See Discovery portfolio
and IT governance, 83
Subportfolios (Continued)
planning, 210, 211
project portfolio. See Project portfolio
Success probability, 222
Supply-chain management, 328

T
2004 R&D Trends Forecast, 123
Task plan, 55
Technology adoption models, 127
Technology council, 105
Technology forecasting, 127
Technology readiness level (TRL), 124
hardware and software, 171–174
Teradyne, Inc., 137–140
Tools
for analyzing information and data, 17. See also Software
portfolio management, 17
Top-down approach
funding, 21
governance, 90, 91
investment categories, 203
Total quality management (TQM), 229, 230
Trade-offs
portfolio balancing
application portfolio, 252–254
discovery portfolio, 250, 251
project portfolio, 250, 251
steps, 249, 250
Transform-the-business investments, 204–207, 210, 219, 325
and budget cycle, 248
Transition from project phase to operations, 141, 142
Treacy, M., 177
Triggers
identifying, 235
monitoring, 235, 236
risk/reward impact analysis, 236
Trust, 78, 90
Tuning options, 249

U
Uncertainty. See Risk
United Management Technologies, 180, 181
business alignment scorecard, 185
investment strategic map, 197
Portfolio Optimizer, 257–259
U.S. Department of Treasury, metrics used by, 226, 227
USA Patriot Act, 76
User satisfaction, 272
Utilization rates
average server and storage utilization, 144
underutilized fixed assets, harvesting, 143, 145

V
Value
and building the IT portfolio, 180, 181
categories and factors, 222–224, 276–277
delivery, 99, 100
drivers, 180, 181
four E’s of business value, 227
of IT portfolio management, 5, 28–33
scoring ranges for value factors, 224
Value Measuring Methodology, 76
Value tree analysis, 239
Variable costs, 184, 255
model, 143, 145
Vendors. See Portfolio management software
Views
bubble charts, 228
financial views, 232
graphic representation, 228
portfolio views, 228, 230
purpose of, 231, 232
selecting and approving portfolio changes, 257–258
stakeholders, 238

W
Wal-Mart, 327
Waterfall approach, 18
Web services, 12, 143
Web sites
Office of Management and Budget, information on Exhibit 300, 76, 77
Stage-Gate®, 108
Weill, Peter, 80, 83
What-if analysis, 17, 115, 119, 246
portfolio balancing, 249, 251
Wiersma, F., 177
Work activities
defined, 132
project phase gates and stages, 132–140
Worldcom, 73

X
Xcel Energy, 75, 76, 327
business case outline, 134
case study, 339–363
innovation scoring criteria, 125
Sarbanes-Oxley, compliance with, 364–365

Y
Y2K, 73, 76