Symbols

100% online course approach 450
2027, the world in 22
(TMO), technology management by objectives 87

A

ABC (Assessment of Basic Components) 328
activity, criticality 365
ADCMS Project Risk Management Guidelines 263
ADDIE (Analysis, Design, Development, Implementation, and Evaluation) 392, 306
age distribution 24
agile methodologies 114
agile project management 303
agile project managers’ leadership competencies 68
agile SDLC 125
American Association for Higher Education (AAHE) 330
AMS (Asset Management System) 267
application service provider (ASP) 497
Art of War (AW), The 1, 3, 4, 15
assessment, alternative 327
assessment articulation 332
assessment audit 332
assessment, authentic 327
assessment, basics 323
assessment, conferences 334
assessment cycle 324
assessment dimensions 329
assessment, direct 327
assessment impact 331
assessment matrix 326
assessment measures, three types of 326
assessment pedagogy 330
assessment, performance 327
assessment practices, ultimate objective of 322
assessment principles 325
assessment protocols 328
assessment, resources 333
assessment rubrics 323
assessment strategies 333
assessment structure 327
assessment, systematic process for conducting 321
assessment team, of the corporation 333
assessment technology 328
assessment, traditional 327
assessment trio 328
ATLAS.ti v5.0 software. 137
audience, and needs assessment 303
audience assessment 296
Australian–New Zealand Standards for Risk Management 263
Automotive Electrical Body Module Case Study 467
automotive industry 460

B

Balci’s life cycle 129, 134
Balci’s methodology 131
Balci, v 131
Banco Central do Brasil 177
behavioral school 62
best practices, evaluation of 375
blended/hybrid approach 449
blogs 494
Index

b Model 120, 134
b-model SDLC 133
Boehm, Barry 129
Boehm’s spiral model 129, 134
BPR (Business Process Reengineering) 127
Brazil 406
Brazilian banking sector 176
Brazilian Central Bank 177
broad objective 88
budget impact 286
Burnout syndrome 408
business case, a likely form of diffusion 149
business case (BC) 146
business case, big picture of a 148
business case, developing a 144
business case, view of the future in a 147
Business Process Reengineering (BPR) 127
business value, generating 169
business value generation mechanism 169

C

Calgary, Canada 37, 41
case study research strategy 175
cause-and-effect analysis 233
CCM (Cockpit Control Model), 271
CE (Collaboration Environment) 408
charismatic school 62
chief technology officers 89
CMMS (Computerised Maintenance Management Systems) 267
CMM, the capability maturity model for software development 263
CMS (course management systems) 440
Cockpit control model (CCM), 271
collaboration, across culture and time zones 482
collaboration environment (CE) 408
commercial-off-the-shelf (COTS) 208
Committee on Academic Policy and Procedure (CAPP) 399
communication, within university of new prototype 377
communities of practice (CoPs) 408
company size 25
competence categories 37
competence, define 386

competence, in IT projects 38
competence, progression of 40
competence, types of 64
competency school 64
completion, stage of 367
component-based system 132
concept mapping model 331
concurrent engineering 463
confirmation prototype (CP) 470
contexts, commonalities across three 513
contingency school 62
cost considerations 219
COTS solution, perceived disadvantages to 209
course management systems (CMS) 440, 508
CRAMM methodology 263
critical success factors (CSF) 4
Crosby’s Four Absolutes of Quality 227
cross-industry standard process for data mining (CRISP-DM) 513
Crystal Family methodology 128
CS (Control System) 268

D
data flow diagram (DFD) 124
data mining 508
data mining, analysis phase 514
data mining, preparation phase 514
data mining projects, managing 513
deficiency, repair the areas of 391
deployment, of PolyPhone 382
design of experiments (DOE) 232, 237
design verification (DV) 474
destructive team characters 77
determinants, dynamic 361
determinants, static 361
development, by scenario 27
development methodologies, are they really that useful 312
development methodologies, expert identified categories for evaluating 314
development methodology selection process, model for the 317
Index

development models 305
development, of PolyPhone 381
diffusion 141
diffusion, economic attributes 143
diffusion, justified beliefs in 141
diffusion of innovations (DOI) theory 137, 138, 157
diffusion of innovations (DOI) theory, in a context 154
diffusion theory 105
digital libraries 508
discounted cash flows 137
distributed engagement approach 449
distributed learning, models of 448
DOE (Design of Experiments) 237
dynamic determinants 361
dynamic determinants, of forecast accuracy 363
dynamic systems development method 314
E
eadership styles 59
EAM (Enterprise Asset Management) 267
ever stage, for new services 375
Earned Duration Method (EDM) 359
earned schedule (ES) 360
earned schedule method (ESM) 359, 365
earned schedule project tracking, in software 368
Earned Value Management (EVM) 358, 359
earth, Sun Tzu’s five factors 9
EDM (Earned Duration Method) 359
Edsel phenomenon 303
Edsels 302
educational multimedia, challenges and opportunities 411
educational multimedia content 406
educational technology, teacher training in 410
EEIH, how to implement the project prioritization based on 183
e-learning tools 439
electrical electronics systems engineering (EESE) 467
ElectroCo 97
emerging technologies, pedagogical applications of 450

emotional (EQ) competencies 64
emotional intelligence school 63
emotional leadership competencies (EQ) 65
employee concerns, anticipating and mitigating 202
employee, preparation, participation and performance 201
employees, engaging 81
end-user perspective 105
end users, and project development 106
enterprise information Systems 261
enterprise resource planning (ERP) 1, 263, 267
enterprise resource planning management (ERPM) 1
enterprise resource planning systems (ERP) 304, 397
e-procurement system, initial reactions from the internal stakeholders 96
e-procurement system, proposal to set up 96
E-PRO project experience 102
E-PRO system 96
ERP applications 261
ERP domain, mapping Sun-Tzu terminology to the 4
ERP (Enterprise Resource Planning) 263
ERP life-cycle management (ELCM) 267
ERP project management five factors of initial estimations Framework 13
ESM (Earned Schedule Method) 359, 365
ETH community 380
ETH World 374
ETH World, results of technology exploration at 379
ETH Zurich 374
Europe, strong 23
evaluation phase 373
Event/Entity Relationship diagram (ER) 124
EVM (Earned Value Management) 359
Ex-Ante Economic Inefficiency Hypothesis (EEIH) 172
cXtensible Markup Language (XML) 409, 411
Extreme Programming (XP) 125, 129

F
faculty and learners, supporting 451
faculty styles, adoption, and support 451
failure, and success of IT projects 296
failure mode and effect analysis (FMEA) 232, 237
failure modes 283
Fairley’s seven-step PRM processes 263
final evaluation, of prototype 378
firm-level value creation 171
firm-level value creation model 169
firm model 171
five factors of initial estimation 1
FMEA (failure mode and effect analysis) 237
FMS (facility management system) 267
focus groups 303
 Fonterra 138
Ford 461
Ford Product Development System (FPDS)  process 470
forecast accuracy, determinants of 361
formative assessment 322
Fountain model 121, 133, 134
FoxMeyer 138
frequently asked questions (FAQ) 454
full project life-cycle, need to adopt a 265
functional managers and project managers, differences between 67

G
Gallup organization 81
Gap analysis 444
general assessment 434
General Motors 461
general, Sun-Tzu’s five factors 11
Gilbert, Thomas 385
GIS (Geographical Information System) 267
global communication, what makes it work 485
global economy 24
globalization, and project teams 480
global product development, challenges in 465
global product development, definition and management perspectives 464
global product development (GPD) 460, 462
Global TMO 87
GPD (global product development) 460
growth theory 86

H
hardware analysis 432
heaven, Sun-Tzu’s five factors 8
Helpdesk systems 454
higher education, data mining 510
higher education institutions 419
higher education IT project managers 508
highly accelerated life testing (HALT) 473
house of quality 230
Hoykom projects 192
hybrid role 46
HyperText Markup Language (HTML) 411

I
ICT based service innovation 189
ideation workshops 376
implementation methodology 263
incremental model 119
industry sectors 25
information and communication technologies (ICT), in education 382
information and communication technology (ICT) infrastructure 373
information technology (IT) projects, high failure rate of 310
information technology (IT) projects, persistent problems of 261
initiatives, framing through models and tools 448
innovation, classical diffusion attributes of the 142
innovation, justified perceived attributes of the 142
Institute for the Future (IFTF) 455
institutional assessment 442
institution conceptual model, assess the 386
instructional design model 392
integrated classic structure 189, 197
integrated project management system (IP-RMS) 272
integrated project-risk management (IPRM) model 261, 267
integrated project-risk management system (IPRMS) 274
intellectual (IQ) competencies 64
interactive digital television (iDTV) 407
International Competence Baseline 3 (ICB 3) 17
International Competence Baseline (ICB) 20
International Project Management Association (IPMA) 20
International Project Management Association’s (IPMA) 60
investment decision process, and value perception 173
IPRM-7, architecture of 269
IPRM, and project health 272
IPRM, and project outcome 272
IPRM, building of 269
IPRM, context 272
IPRM, future outlook 279
IPRM, guiding mechanism 272
IPRM, how it is different 278
IPRM, implementation guide 272
IPRM model 264
IPRMS (Integrated Project-Risk Management System) 274
iron triangle 191
issues, concerns, problems and threats (ICPT) 267
Issues-Concerns-Problems-Threats (ICPT) 269
iterative cycles of assessment 296
IT project failure 93, 294
IT project management, evolution of 263
IT project managers 37
IT projects, success or failure of 174
IT projects, why do they fail 277

J
Johns Hopkins University 494
junior technical role 42

K
Kansas State University 397
Kipling, Rudyard 324
knowledge management (KM) 408
knowledge, skills and/or abilities (KSAs) 427
Knowledge Works Foundations (KWF) 455
KSAs (knowledge, skills and/or abilities) 427

L
LASER (Legacy Applications System Replacement) project 398
LASER project 398, 404
launch readiness (LR) 470
laws of military organization and discipline 12
LCMS (Learning Content Management Systems) 408
leadership competences, of successful project managers in different types of projects 65
leadership, defined 59
Leadership Development Questionnaire (LDQ) 65
leadership literature 60
leadership research, in project management 59
leadership roles, additional 79
leadership, theories in the 20th century 61
leadership theory, schools of 59
leadership, various definitions of 76
leader, the importance of 78
leader, to address negative and positive 78
Lean Product Development Framework, proposed 468
learners’, changing expectations 440
learner styles, adoption, and support 452
learning content management systems (LCMS) 408
learning/course management systems (L/CMS) 448
learning management system (LMS) 386, 408
Linux/Apache/MySQL/PHP (LAMP) 497
LMS (learning management system) 386, 408
Local TMO 87

M
management, definition of 59
management information system (MIS) 87
management methodologies 495
management of change (MoC) 407
management system (MS) 268, 271
managerial (MQ) competencies 64
manager’s oversight (MO) 268, 271
Mathematical Markup Language (MathML) 411
meetings, and deadlines 425
methodologies, overview of 311
methodology, right culture for the right 315
methodology selecting, which factors matter 313
methodology selection factors, models of 316
methodology, three requirements for a 313
military domain (MD) 1
mining usage, in the course management systems context 512
mining usage, in the digital library context 511
mining usage, in the online museum context 512
mission and vision, analysis of 426
MoC (Management of Change) 407
model of human competence 385
MO (Manager’s Oversight) 268
Monte Carlo simulation 365
Moodle 513
MS (Management System) 268
Mutual Adaptation 189
mutual adaptation, of service innovations 197

N
National Coordination for the Improvement of Graduate Professionals (CAPES) 407
National Science Digital Library (NSDL), 510
NCAT’s Supplemental Model 449
needs assessment 205, 296
Norwegian Government 192

O
OEMs, benchmarking of other 469
online museums 508
open content publishing 508
open knowledge framework 455
open source development projects 508
open source projects, background 509
Oracle Student System (OSS) 398
organizational change projects 66
original equipment manufacturers (OEMs) 460
outsourced software development projects 40

P
packaged-based IS projects 132
Pareto analysis 233
PeopleSoft Campus Solutions™ 398
Peopleware analysis 426
perceived value 176
performance assessment, of a multinational corporation 321
performance assessment, of an individual employee 321
performance monitoring 211
personal digital assistants (PDAs) 407
personality, project type and project success, relationship between 64
PG (Project Governance) 268
phase level, investigations at the 268
Planned Value Method (PVM) 359
Plato 142
PMLC (project management life cycle) 247
PolyPhone 380
portfolio assessment approaches 331
position 25
positive team environment, effects of 82
positive team member roles 77
post-mortem review 305
potential value 185
PPO (Project Performance Outcome) 268
practices suitability and effectiveness (PSE) 267, 268, 269, 277
previously perceived potential value 181
primary trait analysis (PTA) 329
PRINCE 2 Project 263
PRM (project risk management) 263
procurement manager, supplier’s appeal to the 97
product development, lean thinking in 466
product development processes, evolution of 462
product development process, optimization of 473
professional development, provide instruction 391
program risk consequences, three types 286
progression of the research, three distinct levels 268
project duration 26
project governance (PG) 268, 271
project health indicators (PHI) 268, 272
project, introduction of the 76
Index

project level, investigations at the 268
project life cycle 272
project life cycle point-of-view 358
project management 20, 21, 27, 218
project management, and Wiki 500
Project Management Body of Knowledge (PM-BOK) 358
project management, defined 21
project management failures, reasons for 243
project management, future of 18
Project Management Institute (PMI) 70
project management life cycle (PMLC) 247
project management literature, leadership in the 60
project management (PM) 271
project management, quality and 219
project management related leadership, contemporary research in 64
project management, with quality assurance 216
project manager, leadership qualities for a 75
project manager’s role 43, 75
project monitoring and control, with mining visualization 515
project performance 272
project performance outcome (PPO) 268, 271
project phase 37
project quality management 220
project risk management (PRM) 263
projects, engineering and construction 66
projects, information technology and telecommunication 66
projects, types of 26
proposals evaluation phase 376
prototype stage, for new services 377
prototype stage, of PolyPhone 381
prototyping 122
PSE (practices suitability and effectiveness) 267, 268
PTA (Primary Trait Analysis) 329
PVM (Planned Value Method) 359

Q

QFD (Quality Function Deployment) 230
quality, and project management 219
quality assurance (QA) 217, 220
quality control component, four key considerations in structuring the 231
quality, definitions of 225
quality function deployment (QFD) 230
quality management 224
quality management, new directions in 238
quality management, non-quantitative tools 237
quality management system (QMS) 237
quality management tools 224
quality, nine different dimensions of 225
quality, planning and organizing for 229
quality planning process, elements of the 229
quality, what is 217

R

rapid application development (RAD) 126
rapid application development (RAD) model 126
rapid prototyping models of development 106
rational unified process (RUP) 125
realized value 176
really simple syndication (RSS) 407
regional communities 23
relay race methodology (RRM) 115, 123, 133, 134
reliability requirements 207
request for proposal (RFP) 146
requests for information (RFI) 146
research and practice, implications for 196
researcher’s knowledge-set (RKS) 265, 268
research level, investigations at 268
research propositions 97
return on investment (ROI) 268
reusable learning objects (RLOs) 435
revised potential value 181
risk, concepts and applications of 263
risk identification 285
risk management applications 263
risk management (RM) 271
risk ranking 285, 286
risk reduction plan 285, 288
risk tracking 288
RKS (researcher’s knowledge-set) 265, 268
RLOs (reusable learning objects) 435
ROI (return on investment) 268
RRM (relay race methodology) 123
RSS (really simple syndication) 407
rubric, defined 323
RUP (rational unified process) 125

S
Sakai Project 513
schedule, adherence 367
schedule impact 287
scope, defined 190
scrum 126
SCRUM 314, 306
SCRUM methodology, three phases of 312
scrutinize, synthesize and summarize (SSS) 329
SDLC (software development lifecycle) 114, 243, 247
second-generation knowledge management movement 410
self and peer assessment resource kit (SPARK) 448
senior project manager (PM) 4
service development, of new services 379
service development, of PolyPhone 381
service innovation 190
service innovation processes, management of the 190
service operation, of new services 379
SIP technology 380
sociotechnical systems 105
soft competencies 40
soft system methodology (SSM) 132
software analysis 433
software and hardware development 377
software development lifecycle (SDLC) 243
software quality assurance (SQA) 242, 243, 244
Software/System Development Life Cycle (SDLC) model 306
SPC, seven tools of 232
SPC (statistical process control) 232
spiral methodologies 114
spiral SDLC 129
SQA, implications for practice 256
SQA, implications for research 257
SQA lifecycle phases 248
SQA process, and role of SQA teams 246
SQA process, explored 247
SQA (software quality assurance) 243
SSADM (structured systems analysis and design method) 124
SSS (scrutinize, synthesize and summarize) 329
stage gate product development process 462
stakeholder assessment framework 94
stakeholder audiences, maintaining engagement with 296
stakeholder, (dis)engagement 305
stakeholder matrix, as a foundation for developing an evaluation plan 301
stakeholder matrix, collecting feedback 301
stakeholder matrix, develop a 300
stakeholder matrix, sorting for 300
stakeholders, getting to know your 299
state value stream map, analysis of current 469
static determinants 361
static determinants, of forecast accuracy 362
statistical process control (SPC) 232
status of practice, strategies for ascertaining 445
strategy, ERPM 4
strength, weakness, opportunity, threat, and trend (SWOTT) 444
structured content model 331
structured systems analysis and design method (SSADM) 115, 124, 134
student practice, considering 448
style school 62
summative assessment 322
Sun-Tzu 1, 3
Sun-Tzu and ERPM, rationale for equating 4
Sun-Tzu’s Five Factors 2, 4
Sun-Tzu’s Five Factors of Initial Estimation 6
suppliers, benchmarking of 468
suppliers’ doubts and suspicions 96
SWOTT analysis 444
SWOTT (strength, weakness, opportunity, threat, and trend) 444
system acquisition 208
system compatibility 206
system deployment 210
system development, employee acceptance of 204
system development life cycle (SDLC) 114, 115, 205, 247
system tests 209

**T**

Tao 7
TAP (Transformative Assessment Process) framework 442
task analysis 206
task force, becomes a major player in the project 400
task force, origins of the 399
team approach perspective 332
team building 424
team, creation of 76
team, negative leadership/membership on the 77
team, positive leadership/membership on the 77
technical impact 287
technical risk management 285
technical risk management (TRM) 283
technical team members 37
technological determinism 105
technology-adoptions cycle 440
technology commitments, institutional changes to 440
technology exploration 373, 374, 380
technology integration, as novel 394
technology management, by objectives 86
technology management by objectives, definition and concept 87
technology management by objectives, TMO 87
technology management by objectives (TMO) 88
technology management by objectives (TMO), five objectives of 88
technology management by objectives (TMO), three base types 88
technology monitoring phase 376
technology planning 419
technology planning project, framework for 419
technology tools, lack of integrated 440
The Risk Management Guide 263

**threshold competencies** 46
TIDIA 414
TMO, advantages of various 90
TMO, steps in setting up 89
topological network structure 365
total cost of ownership (TCO) 137, 143, 146
total quality management (TQM) 197, 217, 224, 227
TQM 189
TQM (Total Quality Management) 197, 217, 227
tradeoff studies 208
traditional methodologies 114
traditional project management 189
traditional team 484
traditional teaming vs. virtual teaming 484
trait school 61
transactional leadership 63
transatlantic market 23
transformational leadership 63
transformation step, of new services 379
Transformative Assessment Process (TAP) framework 442
TRM process 283
T value generation 169

**U**

UAT (user acceptance testing) 304
UNICAMP, Brazil 406
Union of Japanese Scientists and Engineers (JUSE) 229
usability testing 304
user acceptance testing (UAT) 304
user centered design (UCD) 109
user evaluation, of new services 378
user integration 375
user interface 377
user training 210

**V**

value approach, diffusion and economic attributes 144
value perception, investment decision process and 173
value stream mapping (VSM) 469
variable control charts, basic types of 235
Index

variables affecting learning 385
VIP (very influential person) 300
virtual team, development of a 486
virtual teaming 483
virtual teaming, benefits and drawbacks of 483
virtual teaming, tools available for 491
virtual teams 480, 485
visionary school 62
V-Model 120, 133, 134
voice over IP service 373
Voice over IP (VoIP) 380

W
Washington State University’s Critical Thinking Project 329
waste, examples of in product development 466
waterfall model 115, 312
waterfall model, six iterative steps of 312
waterfall SDLC 133
Web enhanced course approach 449
Web usage, mining research 510
Wiki, adoption 502
Wiki, advantages 496
Wiki, and communications 500
Wiki, and stemming knowledge loss 501
Wiki, brainstorming and raw collaboration 502
Wiki, considerations for implementing a 497
Wiki, content and access 497
Wiki, document creation and management 500
Wiki, feature usage 504
Wiki, history of our 499
Wiki, in action 499
Wiki, monitoring progress and status 502
Wiki, outcomes and observations 502
Wiki products 497
Wikis 494
Wikis, and changes in work habits 503
Wikis are not . . . 504
Wikis, benefits 505
Wiki, structure 499
Wiki, used to facilitate project management 494
Wiki, What can it do for you 497
Wiki, what is a 495
work experience 24