Access, SSIS support for, 85
ad-hoc data analysis
described, 32–33
SSAS support for, 33, 35–36
ad-hoc reports
BI capabilities for, 32
defined, 160
report models for, 160–161
SSAS support for, 35–36
tools for creating and editing, 161
adopting BI. See implementing Business Intelligence
Adventure Works database, 201
aggregating values
defined, 81
overview, 81
PivotTables for, 191
pre-aggregated data with OLAP, 68–69
agile development. See iterative approach to implementation
agility, improving, 377–378
Alaska-Canadian (ALCAN) Highway, 41
algorithms
data mining, 126, 140–143
defined, 124
peanut-butter-and-jelly example, 124, 126
SSAS data-mining algorithms, 126, 140–143
analysis. See data analysis; SQL Server Analysis Services (SSAS)
Application Programming Interface (API), 182
Architecture Journal site, 55
artificial intelligence. See data mining
“Ask the BI genie” exercise, 42–43, 278
ASP.NET language, 215
assessing BI capabilities
current BI tools, 298–302
current environment, 366–367
current licensing, 43–44, 303
current skill sets, 40–41, 47–48, 303–305, 379–380
MAP toolkit, 299–302
association data-mining algorithms, 140
Avanade consulting company, 52
averages, in data mining, 128
Azure Services Platform, 154–155

Balanced Scorecard, The (Kaplan and Norton), 120
balanced scorecards, 120–122, 383.
See also scorecards
barcode scanners, 98
base-ten numbering system, 125
base-two numbering system, 125
BCS (Business Connectivity Services), 228–229, 243
BDC (Business Data Catalog), 243
benchmarks, 60–61
BI. See Business Intelligence
BI culture
communication and collaboration in, 350, 370–371
inclusion principle for, 350
merit-based recognition in, 351
need for, 349
ownership in, 350–351
trust in, 351–352
BIDS. See Business Intelligence Developer Studio
binary numbering system, 125
blogs
by BI experts, 53–54
going feedback using, 346–347
SharePoint, 235, 346–347
uses for, 235
bottom line, methods for boosting communication and collaboration, 380
consolidating content, 381
deep use of SQL Server and SharePoint, 382
forecasting, 378–379
importance of, 375
improving agility, 377–378
increasing efficiency, 376
increasing productivity, 381–382
increasing visibility of business processes, 378
reusing code, 380–381
using existing skill sets, 379–380
boutique consultancies, 52
Buffett, Warren (investment expert), 147, 175, 355
Business Connectivity Services (BCS), 228–229, 243
Business Data Catalog (BDC), 243
business goals of BI project
“Ask the BI genie” exercise, 278
assigning complexities, 279
factors affecting, 276–277
prioritizing, 278–279
sponsorship issues, 277, 365–366
technology goals driven by, 279–280
Business Intelligence (BI). See also specific components
agility improved by, 377–378
core components, 10, 12–15, 47, 118
culture, 349–352, 370–371
in data lifecycle, 34–36
defined, 27, 383
development tools, 10, 18–21, 247–271
ease of use, 46
efficiency increased by, 376
identifying current BI tools, 298–302
presentation components, 10, 15–18
project team, 368
self-powered information flow with, 46
tunnel vision with, avoiding, 65–66
Business Intelligence Developer Studio (BIDS). See also Visual Studio
Analysis Services Project, 256
Data Mining Designer, 137
Data Mining Wizard, 129, 135–137
defined, 383
described, 20, 83, 129–130
features, 254
as IDE, 113
Import Analysis Services Database, 256–257
Integration Services Connection Project Wizard, 257
Integration Services Project, 257
New Report Wizard, 259
overview, 112–113
Report Model Project, 257–258
Report Server Project, 259
Report Server Project Wizard, 257
report-building tools, 159, 160
business processes
canary processes, 50
changing, 332–333
collaborative, SharePoint for, 212
data generation by, 25–27
in data lifecycle, 26–27
data points in, 25, 38
data-generation points in, 62, 63
documenting, 50
efficiency critical for, 26–27
expert on BI SWAT team, 288
foundation for BI implementation, 291–292
identifying current BI tools, 298–299
increasing visibility of, 378
Key Performance Indicators (KPIs), 50
management/employee mismatch regarding, 286
mapping during testing, 320, 321
mapping future process state, 321
mapping IT processes, 44–46
metrics needed for, 59–60
modifying during testing, 321
process maps and process flows for, 286–288
scorecard perspective, 120
software products for, 25–26
SSRS as dashboard for, 112
buzzwords, 1, 11, 148

• C •

Campaign Analysis algorithm, 143
canary processes, 50
Cartesian/Gantry robots, 97
charts and graphs (Excel)
  creating, 189–190
  inserting in other Office programs, 189
  PivotCharts, 191, 195–196
  Scorecards using, 205–206
  uses for, 182–183
check-in and check-out
described, 112
  SharePoint Ribbon functionality, 240
  with Word/SharePoint integration, 237
Churchill, Winston (British statesman), 275
Churn Analysis algorithm, 141
Clarke, Arthur C. (science writer), 297
classification data-mining algorithms, 140
cleansing. See data cleansing
Codd, E. F. (father of the database), 66
  collaboration
  in BI culture, 350, 370–371
  bottom line increased by, 380
  Report Builder for, 261–262
  SharePoint for, 212
collection. See data collection
Color Scales feature (Excel), 184, 185–186
Comma Separated Value (CSV) files, SSIS support for, 85
command-line utilities
  PowerShell, 153
  for SQL Server installation, 168
  SQLCMD, 152
Common Language Runtime (CLR), 260–261
  communicating
  in BI culture, 350, 370–371
  bottom line increased by, 380
  with power users, 282
collectors
data generation speeds due to, 95–96
  numbering system of, 125
  SharePoint hardware, 213–214
conditional formatting (Excel)
  Color Scales feature, 184, 185–186
  Data Bars feature, 184–185
described, 184
  Icon Sets feature, 186–188
  setting rules for, 188–189
  consolidating content, 381
consultants. See experts or consultants
Control Flow Toolbox (SSIS), 86, 88
core components. See also specific components
common use of, 48
  overview, 10, 12–15, 47
  SQL Server components, 12, 47
core editions of SQL Server, 163–164
count, defined, 61
cSV (Comma Separated Value) files, SSIS support for, 85
cubes
databases versus, 70
defined, 64, 70, 383
  Excel use of, 64, 180, 197, 200–205
generational analogies for, 72–74
  PerformancePoint Services analysis of, 118
  with PivotTables and PivotCharts, 200–205
  PowerPivot for building, 14
  sample for Excel, 201
  SSAS for building, 64
culture. See BI culture
customer perspective of scorecards, 121
customer relationship management (CRM), 228

• D •
dashboards
  automatic updating of, 119
  Dashboard Designer for, 118, 119, 270–271
defined, 17, 119, 383
  PerformancePoint Services feature, 269
  scorecards versus, 120
  SSRS as, for business processes, 112
data analysis. See also SQL Server Analysis Services (SSAS)
ad-hoc, 32–33, 35–36
  in data lifecycle, 32–33
defined, 32
  Excel for, 16, 177, 191–197
granularity of, 75, 76
data analysis (continued)
  high-level, 75
  low-level, 75
  PerformancePoint Services analysis of cubes, 118
  SSAS data-mining algorithms, 126, 140–143
  statistical, in data mining, 128
Data Bars feature (Excel), 184–185
data cleansing
  for date formats, 79
  defined, 29, 79
  for naming conventions, 79–80, 82
data collection
  data silos for, 28–29
  described, 28
  digital format for, 63
  Excel for, 177, 179–181
  extracting data, 78–79
  from legacy systems, 29
  methods for, 27
  understanding the source data, 88, 89
Data Definition Language (DDL), 151–153
Data Exploration algorithm, 142
Data Flow Toolbox (SSIS), 88
data generation
  by business processes, 25–27, 62
  computers increasing speed of, 95–96
  described, 27
  by ERP systems, 96
  Excel for, 177, 178–179
  at point of sale, 98
  retail store example, 37–38
  by robots, 97
  by scanners, 98
data lifecycle
  analysis, 32–33
  business processes in, 26–27
  data mining, 33
  Excel use throughout, 176, 177
  generation and collection, 25–29
  Microsoft BI in, 34–36
  overview, 24–25
  transformation and organization, 29–30
  visualization and reporting, 31–32
data marts
  data flow to, 107–108
  defined, 13, 29, 106, 383
  purpose of, 106
  storage across many servers, 13
data mining
  averages and extremes, 128
  building your models, 129
  connecting Excel to SSAS server, 199, 201–204
  continuous iteration in, 130–131
  in data lifecycle, 33
  Data Mining Designer, 137
  defined, 15, 33, 124, 384
  defining the problem, 127
  deploying and updating your models, 130–131
  ETL needed for, 126, 127
  Excel use for, 177, 197–205
  exploring and validating your models, 129–130
  exploring the data, 128–129
  forecasting using, 378–379
  integrating with Microsoft Office, 133–134
  iteration 1, 128–129
  iteration 2, 129–130
  Microsoft process for, 127–131
  Microsoft resource page, 200
  models, 129–131, 132
  need for, 123, 124
  phases of, 127
  preparing the data, 127–128
  role in BI process, 126
  sample Excel document, 199
  SQL Server Management Studio for, 139
  SSAS algorithms for, 126, 140–143
  SSAS engine for, 33, 36
  SSIS tools for, 138–139
  statistical analysis of data, 128
  structures, 131, 132
  videos on, 200
  Visio add-in for, 16, 134, 198
  Visual Studio wizard for, 129, 135–137
Data Mining Client for Excel, 134, 198
Data Mining Designer (Visual Studio), 137
Data Mining Extensions (DMX), 129, 132, 138–139
Data Mining Templates for Visio, 134, 198
Data Mining Wizard (Visual Studio), 129, 135–137
data models
  dimensional, 108–109
  hybrid, 109–110
  model, defined, 110
  relational, 109
  as schemas or patterns, 110
data organization
  in data lifecycle, 29–30
  defined, 29
  Excel for, 177, 181–183
  SSIS capabilities for, 30, 34, 64
data points
  defined, 25, 179
  retail store example, 37–38
data silos
  defined, 28
  overview, 28–29
  SSIS with, 30
data sources supported
  by Excel, 180
  by Report Builder, 159
  by SSIS, 85–86, 128
  by SSRS, 11, 35
data storage. See also data marts; data warehouses
  centralized, need for, 100
creating a mechanism, 321
data silos, 28–30
dimensional models of, 108–109
  hybrid models of, 109–110
  models, 108–110
  patterns, 108–110
  relational models of, 109
  schemas, 110
  varieties and need for data transformation, 79, 82
data transformation
  aggregating values, 81
  calculating new values, 80
  checklist for building ETL processes, 88–89
  cleansing, 29, 79–80
  in data lifecycle, 29
  mapping for, 80, 89
  SSIS capabilities for, 30, 34, 64
  SSIS data-flow transformations, 139
  storage varieties and need for, 79, 82
time saved by, 81
Data Transformation Services (DTS), 83. See also SQL Server Integration Services (SSIS)
data versus information, 105–106
data visualization
  charts and graphs for, 182–183, 189–190
  conditional formatting for, 184–189
  in data lifecycle, 31–32
  Excel capabilities for, 177, 183–184
  Excel charts and graphs for, 189–190
  Excel conditional formatting for, 184–189
  Excel PivotCharts for, 191, 195–196, 200–205
  Excel Scorecards for, 205–206
  for KPIs in SharePoint, 227–228
  PerformancePoint Services capabilities for, 36
  PowerPoint themes with SharePoint for, 241–242
  as small project, 31
  starting point for, 31
  Visio Services for, 242
data warehouses
  as central storage mechanism, 100–102, 107–108
data flow to data marts from, 107–108
data formatting consistent in, 102
defined, 13, 29, 100, 384
ETL used for, 104
getting data from, 104, 106
need for, examples demonstrating, 101, 102–103
overview, 100–103
reasons for, 104
SQL Server database engine running, 103
storage across many servers, 13
database engine, defined, 150
database mirroring, 153–154
databases. See also data marts; data warehouses
creating using the DDL, 151–153
creating using the GUI, 151, 152
cubes versus, 70
data-mining models as, 132
de-normalization with OLAP, 71
Excel support for, 180
federated, 103
multidimensional, with OLAP, 71
multiple, in organization systems, 13
databases (continued)
normalization with OLTP, 70–71
relational, with OLTP, 70–71
retail store example, 37–38
snowflake design, 108–109
star design, 108–109
data-flow destinations (SSIS), 139
data-flow transformations (SSIS), 139

data-generation points
defined, 62
determining, 63
date formats
data cleansing for, 79
SSIS walk-through for transforming, 89–95
DB2. See IBM DB2
DDL (Data Definition Language), 151–153
deadlines for BI adoption, 42
decimal numbering system, 125
decision making
getting decision-makers on board early, 277
hierarchies of detail for, 76
identifying relevant data for, 63
providing relevant data for, 63–64
delegating ownership, 331–332
Design phase of iterative methodology, 284–285
Discover phase of iterative methodology, 284
discussion boards (SharePoint)
attaching to Outlook, 238–239
creating, 344–346
getting feedback using, 344–346
overview, 235–236
DMX (Data Mining Extensions), 129, 132, 138–139
document libraries (SharePoint)
adding an Excel document, 220–223
content management functionality, 231–232
creating, 232
defined, 209
embedding an Excel document in a SharePoint page, 223–226
overview, 231–232
Ribbon functionality, 240
documentation
of goals, 320
of key business processes, 50
SharePoint wikis for, 234
drilling in analytical technique, 68
drilling out analytical technique, 68
drilling through analytical technique, 68
Drucker, Peter F. (management expert), 23
DTS (Data Transformation Services), 83. See also SQL Server Integration Services (SSIS)
.dtsx filename extension, 85
Dynamics (Microsoft)
described, 25
SSIS support for, 85

• E •
early adoption, gaining, 329–330
efficiency
critical for business processes, 26–27
increasing, 376
Einstein, Albert (scientist), 9
Electronic Data Interchange (EDI), SSIS support for, 85
embedding an Excel document in a SharePoint page, 223–226
engine, defined, 103, 150
Extract, Transform, and Load (ETL) (continued)
defined, 14, 78, 384
drag-and-drop development using Visual Studio, 83, 84
extracting data, 78–79
focusing on “what” not “how,” 83, 127
loading data, 81–83
need for, 82, 104
package creation using SSIS, 322
SSIS as ETL tool, 14, 77, 82
SSIS walk-through, 89–95
testing, 318–319
transforming data, 79–81, 88–89
extremes, in data mining, 128

Fact Tables, 74
facts, defined, 61, 74, 384
failover clustering, 153
feedback after implementation
blogs for, 346–347
discussion boards for, 344–346
incorporating, 349
interviews for, 348
need for, 342–343
SharePoint tools for, 343–348
surveys for, 344
wikis for, 347–348
filename extension for SSIS packages, 85
financial perspective of scorecards, 121
fixer, on BI SWAT team, 288–289
Flat Text files, SSIS support for, 85
Ford, Henry (auto inventor), 123
forecasting, 378–379
Forecasting algorithm, 141–142
Franklin, Benjamin, 375
FTP, SSIS support for, 85
fully articulated robots, 97

Gates, Bill (Microsoft founder), 39, 211
generation. See data generation
global consultancies, 52
goals of BI project
“Ask the BI genie” exercise, 278
assigning complexities, 279
business goals, 276–279
documenting, 320
factors affecting, 276–277
as key to success, 371
prioritizing, 278–279
sponsorship issues, 277, 365–366
technology goals, 279–280
granular, defined, 75
granularity of data, 75
graphs. See charts and graphs (Excel)
Groove Networks, Microsoft acquisition of, 244
Groove Workspace, 244
grouping analytical technique, 68
Grove, Andy (business leader), 77, 99

hierarchies of detail
defined, 75
high-level versus low-level, 75
uses for, 75–76
high-level analysis, 75
high-tech tunnel vision, avoiding, 65–66
HTTP and HTTPs, SSIS support for, 85
hybrid data-storage models, 109–110
Hyperion
SSIS support for ERP systems, 85
SSRS support for Essbase, 35

IBM DB2
SSIS support for, 85
SSRS support for, 11
Icon Sets feature (Excel), 186–188
icons in margins of this book, 5
IDE (Integrated Development Environment), 113
IIS (Internet Information Services), 214–215
IL (Intermediate Language), 260
implementation plan, 367
implementing Business Intelligence.
See also assessing BI capabilities;
prototype for BI project
ALCAN Highway example, 41
“Ask the BI genie” exercise, 42–43, 278
BI SWAT team for, 288–289
Index

business goals for, 276–279, 371
choosing BI components, 308–309
determining which software to purchase, 46–47
documenting business processes, 50
effective versus ineffective, 275–276
employee ownership and engagement in, 41
evaluating results, 342–348
foundation for, 291–292, 361
free BI tools, 309–313
identifying data needed to attain goals, 290–291
inclusive environment for, 369–370
incorporating feedback, 349
involving power users, 282, 289–290, 324,
329–330, 359
IT department involvement, 43–44, 280
iterative approach, 281–282, 284–285,
293–295, 315–316, 364–365
keys to success, 363–373
maintaining perspective, 372–373
management plan for, 327–328
managing change, 328–334
MAP toolkit for assessment, 299–302
mapping business processes, 46, 286–288
mapping IT processes, 44–46
overpromising results, avoiding, 360
phases of iterative approach, 284–285
phases of waterfall approach, 282–284, 356
pitfalls to avoid, 355–362
plan for, 367
reducing risk, 313, 371–372
resources for guidance, 51–56
rolling out, 323–326
scope creep, 292–295
shelf-ware, avoiding, 357–358
solidifying the project goals, 290
step 1: determining knowledge needed,
40, 42–43
step 2: investigating current licensing and
capabilities, 40, 43–47, 303
step 3 and 4: determining knowledge and
skills available, 40–41, 47–48, 303–305
step 5: prototype development and
iteration, 41, 48–50
team for, 368–369
technology goals for, 279–280
testing, 316–323
timelines and deadlines for, 42
top-down control issues, 361
understanding BI tools, 307–308
understanding business processes,
unknowns involved, 42
waterfall approach, 281, 282–284, 290,
293, 315, 356
inclusion principle for BI culture, 350
inclusive environment, creating, 369–370
inclusive leadership style, 331
indicators, defined, 61
InfoPath Form Services, 226–227
InfoPath (Microsoft Office), 226
Information Quality algorithm, 143
information versus data, 105–106
Infosys consulting company, 52
installing
Excel Data Mining Add-in, 198
SQL Server, 166–169
SQL Server Management Studio, 263
Visual Studio BI components, 135, 159
Integrated Development Environment
(IDE), 113
Integration Services. See SQL Server
Integration Services (SSIS)
IntelliSense feature, 171–172
Intermediate Language (IL), 260
Internet Information Services (IIS), 214–215
Internet resources
Azure Services Platform, 154
blogs, 53–54
data mining resource page, 200
data mining videos, 200
Excel Data Mining Add-in, 198
for experts or consultants, 53–54
magazines, journals, and newsletters, 55
MAP toolkit, 300
Microsoft Developer Network, 55
Microsoft Support, 54–55
MVP directory, 53, 54
sample Excel document for data
mining, 199
sample OLAP cube, 201
SharePoint Designer download, 266
SharePoint Designer training, 340
SharePoint training roadmap, 337
SharePoint training system, 337
SharePoint trial version, 310, 312
SharePoint versions, 217
Internet resources (continued)
  SQL Data Services (SDS), 155
  SQL Server Books Online documentation, 340–342
  SQL Server software download, 166
  SQL Server trial version, 166, 310, 311
  TechNet site, 55, 56
  Theme Builder, 242
  user groups, 53
  Visual Studio trial version, 248
  whitepapers, 55
  Wikipedia, 234
  interviews (SharePoint), 348
  intranets
    defined, 48
    SharePoint as portal, 122
    SharePoint blogs for, 235
  introducing new technology, 333–334
  ISO image for SQL Server installation, 167
  IT department, involving in BI decisions, 39, 43–44, 280, 358
  IT processes, mapping, 44–46
  iterative approach to implementation
    changing business processes, 333
    continuously adding value, 316
    iterative cycle for testing, 317–318, 323
    as key to success, 364–365
    managing change, 328–334
    overview, 281–282
    phases, 284–285
    prototype iteration, 41, 48–50
    scope refinement in, 293–295
    testing and rollout in, 315
    using, 284–285

  • J •
  JD Edwards ERP systems, SSIS support for, 85
  journals online, 55
  juggling data, 36–37

  • K •
  Kaplan, Robert (The Balanced Scorecard), 120
  Key Performance Indicators (KPIs)
    canary processes, 50
    defined, 50, 61, 227, 384
  Excel Scorecards for, 205–206
  PerformancePoint Services feature, 269
  SharePoint KPI lists, 119, 227–228
  surfacing information during rollout, 325

  • L •
  Lawson ERP systems, SSIS support for, 85
  learning and growth perspective of scorecards, 121
  legacy systems, data collection from, 29
  licensing
    adoption rate for Microsoft, 43
    checking before adopting BI, 43–44, 303
    determining which software to purchase, 46–47
    IT department knowledge of, 39, 43–44
    Microsoft Support options with, 55
    needless, for shelf-ware, 43
  Site Licensing (Microsoft), 43–44, 55
  Volume Licensing (Microsoft), 43–44, 55
  Web site for information, 44
  Line of Business (LOB) systems
    SharePoint BCS with, 228–229, 243
    Word/SharePoint integration for, 243
  Lippman, Walter (journalist), 335
  Lists (SharePoint)
    built-in lists, 232
    custom, creating, 232–234
    defined, 232
    sorting and filtering dynamically, 243
  loading data
    defined, 81
    mapping numeric values before, 80
  log shipping, 154
  low-level analysis
    defined, 75
    granularity of, 75, 76

  • M •
  machine learning. See data mining
  magazines online, 55
  maintenance, 327–328
  management plan
    managing change, 328–334
    minimum, 327
    need for, 327, 328
Index

Management Studio. See SQL Server Management Studio

managing change
benefits of, 328
changing business processes, 332–333
delegating ownership, 331–332
gaining early adoption, 329–330
inclusive leadership style for, 331
introducing new technology, 333–334
resistance to change, 329
transparency for, 329–331

MAP (Microsoft Assessment and Planning) toolkit, 299–302

mapping
business processes, 46, 286–288
business processes during testing, 320
for data transformation, 80, 89
IT processes, 44–46
Market Analysis algorithm, 141
Market Basket Analysis algorithm, 141
Master Data Management (MDM), 105
MDX (Multi-Dimensional Expressions), 173, 385
Measure Groups, 75
measurements. See metrics
measures
defined, 61, 74, 384
varieties of, 74–75
 merit-based recognition, in BI culture, 351
metrics
data-generation points for, 62
defined, 27, 61
determining relevant data, 62–63
gut feelings versus, 61
measuring changes, 60
need for, 59–60, 61
for prototype development, 42–43
terminology, 60–61
Microsoft Access, SSIS support for, 85
Microsoft Assessment and Planning (MAP) toolkit, 299–302
Microsoft Business Intelligence, 384. See also Business Intelligence (BI)
Microsoft Developer Network (MSDN), 55
Microsoft (Dynamics)
described, 25
SSIS support for, 85
Microsoft Message Queuing (MSMQ), SSIS support for, 85
Microsoft .NET. See .NET Framework
Microsoft Office. See also specific programs
current skill sets for, 304
data-mining tools, 133–134
SharePoint integration with, 236–239, 243–244
Microsoft Office SharePoint Server (MOSS), 216, 217. See also SharePoint
Microsoft Support, 54–55
mission-critical applications, 153
Model Designer (Visual Studio), 161
models
data mining, 129–131, 132
data-storage patterns, 108–110
defined, 110, 132
for reports, 159–161
Most Valuable Professionals (MVPs), 53, 54
multi-dimensional databases, 71
multi-dimensional, defined, 384
Multi-Dimensional Expressions (MDX), 173, 385
MySQL
SSIS support for, 85
SSRS support for, 11

\[N\]

naming conventions, data cleansing for, 79–80, 82

.NET Framework
ASP.NET language, 215
Common Language Runtime (CLR), 260–261
current skill sets for, 305
custom code for SSIS using, 79, 89
defined, 384
described, 18, 19, 21, 259
as development tool, 259–261
English-syntax languages supported by, 260
Intermediate Language (IL), 260
as SharePoint framework, 214
newsletters online, 55
normalization
defined, 70, 109
de-normalization of OLAP databases, 71
normalized data models, 109
in OLTP databases, 70–71
Norton, David (*The Balanced Scorecard*), 120
numbering systems, 125

Object Linking and Embedding, DataBase (OLEDB), 35, 182
ODBC (Open DataBase Connectivity), 35, 182
OLAP cubes. *See* cubes
OLTP. *See* Online Transactional Processing
Online Analytical Processing (OLAP). *See also* SQL Server Analysis Services (SSAS)
ad-hoc data analysis provided by, 33
defined, 24, 385
de-normalization for, 71
described, 14
drilling in technique, 68
drilling out technique, 68
drilling through technique, 68
Excel as analysis tool, 200
grouping technique, 68
multidimensional databases for, 71
OLTP compared to, 66–67, 69
power of, 69
PowerPivot cubes as, 14
pre-aggregation by, 68–69
speed of, 67–69
as SQL Server component, 70
SSAS as, 14
Online Transactional Processing (OLTP)
defined, 385
OLAP compared to, 66–67, 69
relational databases for, 70–71
Open DataBase Connectivity (ODBC), 35, 182
open-source software, 309–310
operating system (OS). *See* Windows Operating Systems
Oracle
Report Builder support for, 159
SSIS support for, 85
SSRS support for, 11, 35
organizing data. *See* data organization
Outlook, SharePoint integration with, 237–239
ownership
in BI culture, 350–351
delegating, 331–332
employee, in BI project, 41
Ozzie, Ray (Microsoft executive), 244
Package Explorer Toolbox (SSIS), 86
packages (SSIS)
building by dragging tasks, 86
configuring task properties, 86–87
defined, 84, 86
ETL package creation, 322
filename extension for, 85
Package Explorer Toolbox, 86
procedures for building, 162
testing, 319
Visual Studio projects versus, 84
PASS (Professional Association for SQL Server), 53
PerformancePoint Server, 117–118, 119
PerformancePoint Services for SharePoint
advantages of, 270
cube analysis feature, 118
Dashboard Designer, 118, 119, 270–271
dashboard feature, 269
defined, 385
described, 17
as development tool, 269–271
KPI feature, 269
as MOSS feature, 36
overview, 117–119
reports using, 269–270
scorecarding feature, 117, 269
surfacing information during rollout, 326
perspective, maintaining, 372–373
PivotCharts (Excel)
changing the chart type, 196
creating, 195–196
cube data with, 200–205
described, 191
updating, 195
uses for, 195
PivotTables (Excel). *See also* PowerPivot feature (Excel)
adding pivot points, 194
calculations available, 194
creating, 191–193  
cube data with, 200–205  
data grouping by, 68  
described, 14, 191  
dragging fields into boxes, 193–194  
slicing and dicing a dataset, 194  
updating PivotCharts using, 195  
uses for, 191  
PL/SQL (Procedural Language/SQL), 172  
point of sale, data generation at, 98  
political environment of organization, 277, 358  
post-backs, 240–241  
PostgreSQL  
  SSIS support for, 85  
  SSRS support for, 11  
power users  
  benefits of input from, 282, 289  
  communicating with, 282  
  gaining early adoption by, 329–330  
  getting on board early, 290  
  involving in implementation, 329–330, 359  
  involving in testing, 324  
  as keys to successful implementation, 289–290  
  training by, 342  
PowerPivot feature (Excel), 14, 68  
PowerPoint themes with SharePoint, 241–242  
PowerShell, 153  
pre-aggregated data with OLAP, 68–69  
predictive analytics. See data mining  
Premium Edition of Visual Studio, 251–254, 255  
presentation components, 10, 15–18. See also specific components  
private contractors, 52  
Procedural Language/SQL (PL/SQL), 172  
process maps and process flows  
  for BI project prototype, 46  
  for business processes, 46, 286–288  
  for IT processes, 44–45  
productivity, increasing, 381–382  
Professional Association for SQL Server (PASS), 53  
Professional Edition of Visual Studio, 251–254, 255  
programming languages  
  ASP.NET, 215  
  IL (Intermediate Language), 260  
  .NET environment support for, 260  
  overview, 259–260  
  PL/SQL (Procedural Language/SQL), 172  
  T-SQL (Transact-SQL), 151, 152, 172, 386  
project manager, on BI SWAT team, 289  
project team, 368  
projects (Visual Studio), SSIS packages versus, 84  
prototype for BI project  
  ALCAN Highway example, 41  
  benefits of, 40, 48–49  
  business process map for, 46  
  consultant agreement for, 51  
  employee ownership and engagement in, 41  
  iterating and expanding upon, 41, 49–50  
  key questions and metrics for, 42–43  
  before large-scale implementation, 42  
  value generated by, 39, 40, 46, 49–50  
publishers, defined, 154  

• R •  
Radio Frequency Identification (RFID) scanners, 98  
RDL (Report Definition Language), 156–157  
regression data-mining algorithms, 140  
relational databases, 70–71  
relational data-storage models, 109  
relevant data, determining, 62–63  
Remember icon, 5  
render, defined, 150  
replication, 154  
Report Builder  
  ClickOnce downloads for, 158  
  collaborative use of, 261–262  
  data sources supported by, 159  
  defined, 385  
  described, 18, 19, 20, 45, 114  
  as development tool, 261–262  
  integration with SharePoint and SSRS, 45–46  
  overview, 114–115, 158–159, 261–262  
Ribbon, 115, 261
Report Builder (continued)
SSRS capabilities supported by, 114
surfacing information during rollout, 326
user-friendly features, 115
Report Definition Language (RDL), 156–157
Report Explorer (SSRS), 219
Report Manager (SSRS), 161, 219
Report Viewer (SSRS), 219
Reporting Services. See SQL Server Reporting Services
reports. See also SQL Server Reporting Services
ad-hoc, 32, 160–161
in data lifecycle, 31–32
defined, 385
importance of, 32
models, 159–161
need for, 13
PerformancePoint Services feature, 269–270
as small projects, 31
starting point for, 31
surfacing information during rollout, 325, 326
tools for building, 157–159
resources for BI adoption. See also Internet resources
experts, 51–54
in-house expertise, 51
Microsoft Support, 54–55
online, 55–56
reusing code, 380–381
RFID (Radio Frequency Identification)
scanners, 98
Ribbon
Excel, 176–178, 198–199
Report Builder, 115, 261
SharePoint, 240
Rights Management feature (Excel), 208
risk, reducing, 313, 371–372
robots, data generation by, 97
rolling out
changing business processes, 332–333
delegating ownership, 331–332
gaining early adoption, 329–330
introducing new technology, 333–334
managing change, 328–334
overview, 323–324
phase of iterative methodology for, 316
surfacing information, 324–326
transparency during, 329–331
RS. See SQL Server Reporting Services
• S •
Sage ERP systems, SSIS support for, 85
SAP
described, 25
Report Builder support for, 159
SSIS support for, 85
SSRS support for, 11, 35
scaleout approach, 34
scaleup approach, 34
scaling
Excel limits for, 207–209
prototype iteration, 41, 49–50
scope creep, 292–294
SQL Server database engine, 34
scanners, data generation by, 98
SCARA (Selectively Compliant Articulated Robot Arm) robots, 97
scope creep, 292–294
scorecards
balanced, 120–122, 383
BI products useful for, 121–122
business process perspective, 120
customer perspective, 121
dashboards versus, 120
defined, 120, 385
Excel, 205–206
financial perspective, 121
learning and growth perspective, 121
Microsoft approach to, 121–122
PerformancePoint Services feature, 117, 269
SDS (SQL Data Services), 155
security
Excel Rights Management feature, 208
Excel Services features, 17, 117
SharePoint features, 17, 112, 117
segmentation data-mining algorithms, 140
Selectively Compliant Articulated Robot Arm (SCARA) robots, 97
self-service training, enabling, 336–337
semiconductors, 125
sequence analysis data-mining algorithms, 140
servers. See also SQL Server
current skill sets for, 304–305
defined, 214
for SharePoint, 214–215
SSAS, Excel connection to, 199, 201–204
servers-in-the-clouds, 154–155
service, defined, 150
Services Oriented Architecture (SOA), 226
SharePoint
adding an Excel document to a library, 220–223
BI features, 115–116, 118
blogs, 235, 346–347
Business Connectivity Services (BCS), 228–229, 243
check-in and check-out functionality, 112, 237, 240
components of environment, 213–216
computer hardware for, 213–214
content management functionality, 222–223
as core of Microsoft BI, 118
dashboards, 119
data visualization using, 241–242
deep use of, 382
defined, 385
described, 15, 16, 47, 212–213
development ladder, 218
discussion boards, 235–236, 238–239, 344–346
document libraries, 209, 231–232
document versioning with, 111, 222–223
as ECM solution, 18, 36, 111
embedding an Excel document in a page, 223–226
Excel integration with, 220–226
Excel Services, 17, 116–117
feedback tools, 343–348
fluid user experience with, 240–241
IIS servers for, 214–215
inclusive leadership style aided by, 331
InfoPath Form Services, 226–227
interviews, 348
as intranet portal, 122
KPI lists, 119, 227–228
Lists, 232–234, 243
My Site pages, 46
Navigation Ribbon, 240
.NET framework for, 214
new features for SharePoint Server 2010, 239–245
Office integration with, 236–239, 243–244
operating systems for, 214
Outlook integration with, 237–239
overview, 115–116
PerformancePoint Services, 17, 117–119, 269–271
PowerPoint themes with, 241–242
Report Builder integration with, 45–46
scorecards, 120–122
security features, 17, 112, 117
SharePoint Designer, 264–268
SharePoint Foundation, 215, 216, 217, 218
SharePoint Server, 215–216, 217, 218
SSRS integration with, 17–18, 36, 112, 115, 161, 218–219
SSRS SharePoint Integrated mode, 219, 325
surfacing of information by, 64, 229
surveys, 344
Theme Builder, 242
training resources, 337–340
trial version, 310, 312–313
uses for, 211–213
versioning features, 111, 222–223, 237, 240
versions and editions, 216–217
Visio Services, 242
Web site, 17
Web sites, 230–231
wikis, 234, 347–348
Word integration with, 237, 244
workflow monitoring with, 112
Workspace, 244–245
SharePoint Designer
connecting to SharePoint site, 266–267
creating a new SharePoint object, 267
defined, 385
downloading, 266
overview, 264–265
training, 338–340
uses for, 267–268
SharePoint Foundation. See also SharePoint
described, 215, 216, 217
in SharePoint development ladder, 218
SharePoint Server. See also SharePoint
described, 215–216, 217
in SharePoint development ladder, 218
shelf-ware, 43, 357–358
Siebel ERP systems, SSIS support for, 85
Silverlight
defined, 386
described, 18, 19, 20
as development tool, 241, 268–269
Expression Blend, 268–269, 384
Site Licensing (Microsoft), 43–44, 55
Slalom Consulting, 52
SMTP, SSIS support for, 85
snowflake database design, 108–109
SOA (Services Oriented Architecture), 226
software licensing. See licensing
sponsorship issues for BI goals, 277,
365–366
SQL Data Services (SDS), 155
SQL Server. See also SQL Server database
time; specific components
Books Online documentation, 340–342
core BI components, 12, 47, 149–150
core editions, 163–164
as core of Microsoft BI, 118
data Mining Engine, 140–141
deep use of, 382
defined, 386
described, 148
Developer edition, 166
Enterprise edition, 163–164
Express editions, 164–165
installing, 166–169
PASS user group for, 53
Standard edition, 163
training resources, 340–342
trial version, 166, 310, 311–312
Web edition, 165
Workgroup edition, 165
SQL Server Analysis Services (SSAS)
ad-hoc data analysis provided by, 33,
35–36
as back end for Excel, 178
BIDS features for, 254
connecting Excel to server, 199, 201–204
Data Mining Engine, 33, 36, 163
Data Mining Extensions with, 129, 132
defined, 386
described, 12, 150
Excel integration with, 35
Measure Groups in, 75
OLAP cubes built by, 64
as OLAP implementation, 14, 163, 201
overview, 162–163
sample OLAP cube for, 201
SQL Server database engine
on cluster of computers, 30, 103
creating a database using the DDL,
151–153
creating a database using the GUI, 151–152
current skill sets for, 305
data warehouses run by, 103
database mirroring, 153–154
defined, 386
described, 12, 149
eengine, defined, 103, 150
failover clustering, 153
federated database using, 103
log shipping, 154
replication, 154
scaling, 34
servers-in-the-clouds, 154–155
SQL Server Express (Runtime Only), 164
SQL Server Express with Advanced
Services, 164
SQL Server Express with Tools, 164
SQL Server Integration Services (SSIS).
See also Extract, Transform, and Load
(ETL)
BIDS features for, 254
checklist for building ETL processes,
88–89
Control Flow design surface, 86–88
custom code for, 79, 89
data extraction by, 78–79
Data Flow design surface, 88
in data lifecycle, 30
data sources supported by, 85–86, 128
data transformation and organization by,
30, 34, 64
data-flow destinations, 139
data-flow transformations, 139
data-mining tools, 138–139
defined, 386
described, 12, 14, 150
drag-and-drop development using Visual
Studio, 83, 84
ETL package creation, 322
as ETL tool, 14, 77, 82, 162
filename extension for packages, 85
overview, 307–308
packages, 84–87, 162, 319, 322
testing packages, 319
Toolbox, 86–88
walk-through, 89–95
SQL Server Management Studio
for data mining, 139
for database creation, 152
defined, 386
development in, 171–172
as development tool, 263–264
installing, 263
IntelliSense feature, 171–172
overview, 170–171
queries using, 263–264
terminology confusion with, 170
SQL Server Reporting Services (SSRS). See also reports
BIDS features for, 254
capabilities of, 31–32
as dashboard for business processes, 112
data sources supported by, 11, 35
defined, 386
described, 12, 13–14, 111, 149
history of, 155
Report Builder integration with, 45–46
Report Definition Language (RDL), 156–157
Report Explorer, 219
Report Manager, 161, 219
report models, 159–161
Report Viewer, 219
report-building tools, 157–159
in SharePoint Integrated mode, 219, 325
SharePoint integration with, 17–18, 36,
112, 115, 161, 218–219
stand-alone mode, 325
surfacing information during rollout, 325
Web Parts, 219
SQL (Structured Query Language), 386
SQLCMD utility, 152
SSAS. See SQL Server Analysis Services
SSIS. See SQL Server Integration Services
SSRS or SRS. See SQL Server Reporting Services
stakeholders, getting on board early, 277
Standard edition of SQL Server, 163
star database design, 108–109
statistical analysis in data mining, 128
storage. See data storage
Structured Query Language (SQL), 386
subscribers, defined, 154
surfacing information
by Excel, 324–325
KPIs, 325–326
by PerformancePoint Services, 326
by Report Builder, 326
during rollout, 324–326
by SharePoint, 64, 229
by SSRS, 325
during testing, 319, 323
verifying its value, 319
surveys, SharePoint, 344
SWAT team for BI, 288–289
swim lanes
in business process maps, 286–287
defined, 44, 286
in IT process maps, 44–45

Table Analysis Tools for Excel, 134, 198
task sequence for unit testing, 320
tasks (SSIS)
building packages from, 86
configuring properties of, 86–87
Data Flow Task, 88
for data mining, 138–139
SSIS Analysis Services Execute DDL, 138
SSIS Analysis Services Processing, 138
SSIS Data Mining Query, 138–139
TechNet site, 55, 56
Technical Stuff icon, 5
technology choices
business foundation for, 306–307
choosing BI components, 308–309
free BI tools, 309–313
introducing new technology, 333–334
open-source software, 309–310
reducing risk, 313
understanding BI tools, 307–308
technology expert, on BI SWAT team, 289
technology goals of BI project, 279–280
TERADATA
Report Builder support for, 159
SSIS support for, 85
SSRS support for, 85
11, 35

• T •
testing. See also unit testing
BI testing diversity, 317–319
business process testing, 318
complexity of, 316–317
ensuring data are captured and stored, 318
ETL testing, 318–319
involving power users, 324
iterative cycle for, 317–318, 323
phase of iterative methodology for, 316
unit testing, 319–323
verifying the value of information, 319
Text Analysis algorithm, 143
Theme Builder (SharePoint), 242
timelines for BI adoption, 42
Tip icon, 5
Toolbox (SSIS)
  Control Flow tab, 86, 88
  Data Flow tab, 88
  Event Handlers tab, 86
  overview, 86
  Package Explorer tab, 86
trainers, finding, 53
training
  continuous education, 336
  grassroots level, 342
  self-service, enabling, 336–337
  SharePoint training resources, 337–340
  SQL Server training resources, 340–342
  Transact-SQL (T-SQL) language, 151, 152, 172, 386. See also Data Definition Language (DDL)
transforming data. See data transformation transparency, 329–331
trial versions
  SharePoint, 310, 312–313
  SQL Server, 166, 310, 311–312
  Visual Studio, 248
trust, in BI culture, 351–352
tunnel vision, avoiding, 65–66
Turner, Dale E. (Oingo Boingo), 315

Ultimate Edition of Visual Studio, 251–254, 255
unit testing
  creating information and surfacing data, 322–323
  creating the ETL package using SSIS, 322
data-storage mechanism creation, 321
documenting goals, 320
iterative cycle for, 323
mapping current business processes, 320
mapping future process state, 321
modifying current processes, 321
task sequence for, 320
Unsupervised Learning algorithm, 142
user groups, 53

Validate phase of iterative methodology, 285, 316
versioning
  SharePoint features, 111, 222–223, 240
  Word/SharePoint integration for, 237
  Virtual Private Network (VPN), 48
visibility of business processes, increasing, 378
Visio
  Data Mining Templates, 16, 134, 198
described, 15, 16
  SharePoint integration with, 242
  Visio Services (SharePoint), 242
  Visual Studio. See also Business Intelligence Developer Studio (BIDS)
    Analysis Services Project, 256
    architecture and modeling features, 253
    avoiding for data mining, 138
    BI capabilities of, 137, 254, 255–259
    as container, 250–251, 254
    creating a new project, 249
    creating an Integration Services project, 90
    current skill sets for, 305
    Data Mining Designer, 137
    Data Mining Wizard, 129, 135–137
database development features, 252
data-mining model validation using, 129–130
debugging and diagnostics features, 252–253
defined, 386
described, 18, 19, 129–130, 135
development platform support, 252
as development tool, 248–259
drag-and-drop ETL development using, 83, 84
editions compared, 251–254, 255
Express editions, 251, 255
Import Analysis Services Database, 256–257
installing BI components, 135, 159
Integration Services Connection Project Wizard, 257
Integration Services Project, 257
interface, 248–250
lab management features, 254
Model Designer, 161
New Report Wizard, 259
Premium Edition, 251–254, 255
Professional Edition, 251–254, 255
projects, defined, 84
Report Model Project, 257–258
Report Server Project, 259
Report Server Project Wizard, 257
report-building tools, 159, 160
Solution Explorer, 250
start page, 248–249
Team Foundation Server features, 251
testing features, 252
Toolbox pane, 250
trial version, 248
visualization. See data visualization
Volume Licensing (Microsoft), 43–44, 55
VPN (Virtual Private Network), 48

• W •
Warning! icon, 5
waterfall approach to implementation
iterative approach compared to, 281, 282–284
as pitfall, 356
power users ignored in, 290
scope creep in, 293
testing and rollout in, 315
Web edition of SQL Server, 165
Web Parts
defined, 36
embedding an Excel document in a
SharePoint page, 223–226
for SSRS, 219
Web resources. See Internet resources
Web services, 209
Web Site Analysis algorithm, 142
Web sites. See also Web Parts
discussion boards (SharePoint), 235–236
embedding an Excel document in a
SharePoint page, 223–226
fluid user experience with SharePoint, 240–241
post-backs, 240–241
SharePoint sites, 230–231
Silverlight for, 18, 19, 20, 241
wikis (SharePoint), 234
Welch, Jack (GE chairman), 61
whitepapers, 55
Wikipedia, 234
wikis (SharePoint), 234, 347–348
Windows Operating Systems
current skill sets for, 304
described, 47
for SharePoint, 214
Windows Presentation Foundation (WPF), 268
Windows Server, current skill sets for, 304
Windows SharePoint Services (WSS), 215, 216, 217. See also SharePoint
Word, SharePoint integration with, 237, 244
workflow monitoring features of
SharePoint, 111
Workgroup edition of SQL Server, 165
Workspace
Groove, 244
SharePoint, 244–245

• X •
XML
for BCS configuration, 228
defined, 157
Excel support for, 180
opening documents, 157
RDL formatted as, 156–157
SSIS support for, 85
SSRS support for, 35