

# Contents

<b>1.0</b>	<b>Introduction and Executive Overview</b>	<b>1</b>
1.1	Research Elements Used in This Report	2
1.1.1	Probabilities Defined	3
1.1.2	Type A, B and C Enterprises Defined	3
1.1.3	The Gartner Magic Quadrant	3
1.1.4	The Gartner Hype Cycle	5
1.2	Business Intelligence Trends and Technologies: The Quest for Insight	6
1.3	Effective Business Intelligence Approaches for Today's Business World	8
1.4	Organizing for Business Intelligence	9
1.5	Best Practices for Defining Effective Business Metrics	11
1.6	Building an Agile Infrastructure for Strategic Business Intelligence	12
1.7	The Benefits of Effective Data Quality and Metadata Management	15
1.8	Data Warehouses and Business Intelligence: Managing Costs and Enhancing Value	16
1.9	Managing Corporate Performance: Business Trends and Best Practices	18
1.10	The Corporate Performance Management Road Map	20
1.11	Key Trends in Corporate Governance and Compliance Management	21
1.12	Using Business Activity Monitoring to Gain a Real-Time Edge	23
1.13	Getting the Most Out of ERP Through Business Intelligence	24
1.14	The Role of Analytics in Successful CRM Strategies	26
1.15	Web Analytics: From Software to Service Model	27
1.16	Driving Workplace Productivity With Portals and Enterprise Suites	29
1.17	Emerging Technologies and the Future of Information Management	31
<b>2.0</b>	<b>Business Intelligence Trends and Technologies: The Quest for Insight</b>	<b>35</b>
2.1	Using BI to Create Competitive Advantages	36
2.1.1	The BI Mission	36
2.1.2	The Three Pillars of BI	36
2.2	The Role of the BI Framework	36
2.2.1	The Infrastructure Layer	37
2.2.2	The Functionality Layer	38
2.2.3	The Organization Layer	39
2.2.4	The Business Layer	39
2.3	Infrastructure and Tools That Make BI Initiatives Work	40
2.3.1	BI Infrastructure Topology	40
2.3.2	Business Activity Monitoring	41
2.3.3	Real-Time Data Warehousing	42
2.3.4	The ERP Data Warehouse	42
2.3.5	The Different Kinds of BI Tools	43
2.4	Packaged BI Applications	44
2.4.1	The Build-vs.-Buy Decision	45
2.4.2	Weighing the Risks	45

2.5	<b>How Market and Technology Changes Will Affect BI</b>	<b>46</b>
2.5.1	BI and Data-Warehousing Technology Trends	47
2.5.2	The Coming BI Technology Convergence	47
2.6	<b>Recommendations</b>	<b>48</b>
<b>3.0</b>	<b>Effective Business Intelligence Approaches for Today's Business World</b>	<b>49</b>
3.1	<b>Getting the Best Return From BI Investments</b>	<b>50</b>
3.1.1	The Importance of a BI Framework	50
3.1.2	A BI Initiative Needs Strategic Objectives	51
3.1.2.1	Case Study: Clear Objectives Drive BI Initiative's Success	52
3.1.3	A BI Initiative First Requires a Readiness Test	52
3.1.4	The Role of the BI Competency Center	54
3.1.4.1	A BI Competency Center Case Study	55
3.2	<b>The BI Infrastructure</b>	<b>55</b>
3.2.1	The Importance of a Technology Assessment	56
3.2.2	Selecting the Right BI Tools	56
3.2.2.1	Case Study: Extranet-Based Reporting Tools Improve Service and Reduce Costs	57
3.3	<b>The Hidden Costs of BI</b>	<b>58</b>
3.3.1	The Cost of BI Tool Proliferation	58
3.3.1.1	Case Study: The Hidden Costs of Tactical BI	58
3.3.2	The Cost of Cross-Functional Politics	59
3.4	<b>An Enterprise's Level of BI Maturity</b>	<b>59</b>
3.5	<b>Recommendations</b>	<b>61</b>
<b>4.0</b>	<b>Organizing for Business Intelligence</b>	<b>63</b>
4.1	<b>The Need to Organize for BI</b>	<b>64</b>
4.1.1	The Potential Pitfalls of BI Fragmentation	64
4.1.2	The Role of the BI Framework in Organizing for BI	64
4.1.3	Organizing for BI Example: CRM	65
4.2	<b>Concentrating Skills in the BI Competency Center</b>	<b>66</b>
4.2.1	Defining Skills: The First Step	66
4.2.2	Staffing the BI Competency Center	67
4.2.3	Governance and the BI Competency Center	68
4.2.4	The Organizational Fit of the BI Competency Center	68
4.2.5	Funding the BI Competency Center	69
4.3	<b>The Role of the Data Warehouse</b>	<b>70</b>
4.3.1	Optimizing Data Warehouse Administration	70
4.3.2	Data Warehouse Roles and the BI Competency Center	71
4.4	<b>Establishing an Effective BI Methodology</b>	<b>71</b>
4.4.1	Steps 1–5: Construction	72
4.4.2	Steps 6–9: Consumption	74
4.4.3	The Ongoing Cycle	74
4.5	<b>Using the BI Competency Center to Expand the Business</b>	<b>74</b>
4.5.1	The Role of Collaborative Applications	74
4.5.2	CPM and the BI Competency Center	75
4.5.3	How BI Can Help Improve Transparency	75
4.6	<b>Recommendations</b>	<b>75</b>

<b>5.0</b>	<b>Best Practices for Defining Effective Business Metrics .....</b>	<b>77</b>
5.1	Techniques and Frameworks for Defining Metrics .....	78
5.1.1	Linking Metrics .....	78
5.1.2	Using Frameworks .....	78
5.1.2.1	The EFQM Model .....	78
5.1.2.2	Activity-Based Management .....	79
5.1.2.3	Gartner's Business Performance Framework .....	80
5.1.2.4	The Balanced Scorecard and Performance Management Methodologies ....	80
5.1.3	Performing Risk Analysis .....	80
5.1.4	Corporate Performance Management and Metrics .....	81
5.2	Deciding What Parts of an Enterprise to Enhance .....	82
5.2.1	Customer Complaints Will Highlight Performance Priorities .....	82
5.2.2	The Right Set of Performance Indicators .....	82
5.3	Creating Effective Metrics .....	82
5.3.1	Designing Metrics .....	83
5.3.2	Visualizing Metrics .....	84
5.4	How to Define the Right Metrics .....	84
5.4.1	Defining the First Set of Metrics .....	85
5.4.2	A Sample Process for Defining the Right Metrics .....	85
5.4.3	The Importance of Data Model Design .....	86
5.5	Two Case Studies in Frameworks and Metrics .....	86
5.5.1	An Example of a Poor Balanced Scorecard .....	86
5.5.2	The Royal Norwegian Air Force .....	87
5.6	Recommendations .....	88
<b>6.0</b>	<b>Building an Agile Infrastructure for Strategic Business Intelligence ..</b>	<b>89</b>
6.1	The Vital Role of the BI Infrastructure .....	90
6.1.1	The Costs of Data Acquisition, Integration and Cleansing .....	91
6.2	Options When Planning a Data Warehouse .....	92
6.2.1	Data Warehouses vs. Data Marts .....	92
6.2.2	Normalization vs. Denormalization When Designing a Data Warehouse Schema .....	93
6.2.3	Dimensional Models vs. More Normalized Models .....	93
6.2.4	Alternate Approaches to Data Warehouse Schema Design .....	94
6.2.5	Using Data Warehousing Methodologies .....	95
6.2.6	Data Acquisition Tools and Technologies .....	95
6.2.7	ETL: Tools or Custom Code? .....	96
6.2.8	The Hidden Cost of Data Quality Issues .....	97
6.3	Developments Shaping the Future of BI Infrastructures .....	97
6.3.1	Consolidating BI Architectures .....	97
6.3.2	Real-Time Data and the BI Architecture .....	98
6.3.3	The Virtual Data Warehouse .....	99
6.3.4	Vendor Trends .....	100
6.4	Recommendations .....	100
<b>7.0</b>	<b>The Benefits of Effective Data Quality and Metadata Management ..</b>	<b>101</b>
7.1	The Impact of Data Quality .....	102
7.1.1	Data Quality as a Strategic Business Issue .....	102
7.1.2	The Many Facets of Data Quality .....	103
7.1.3	Data Quality and the BI Framework .....	103
7.1.4	Data Quality as an Ongoing, Iterative Process .....	104

7.2	<b>Measuring Data Quality .....</b>	<b>104</b>
7.2.1	Using Aggregation to Better Understand Data Quality Measurement .....	104
7.2.2	Quantifying the Impact of Data Quality Issues .....	105
7.3	<b>Ways to Ensure Better Data Quality .....</b>	<b>105</b>
7.3.1	Application Styles and Data Quality Technology .....	105
7.3.2	The Data Quality Firewall .....	106
7.4	<b>The Importance of Metadata .....</b>	<b>107</b>
7.4.1	Defining Metadata .....	107
7.4.2	Data Quality Metrics as Metadata .....	108
7.5	<b>The Value of Metadata Management .....</b>	<b>108</b>
7.5.1	Categorizing Metadata .....	108
7.5.2	Handling Metadata Integration .....	111
7.5.3	Metadata Standards Will Facilitate Reuse, Interoperability and Collaboration .....	112
7.6	<b>Recommendations .....</b>	<b>112</b>
<b>8.0</b>	<b>Data Warehouses and Business Intelligence: Managing Costs and Enhancing Value .....</b>	<b>113</b>
8.1	<b>Data Warehouse Components .....</b>	<b>114</b>
8.1.1	Establishing a Data Warehouse Budget .....	114
8.1.2	Data Warehouse Staff .....	115
8.1.3	Data Preparation Components .....	116
8.1.4	Business Intelligence Tool and Application Costs .....	117
8.2	<b>Determining CPU Resources .....</b>	<b>118</b>
8.2.1	The Right Balance of Reporting and Query Tools .....	119
8.2.2	Understanding Qualifications and Needs .....	119
8.2.3	The Shared-Service Model .....	119
8.2.4	Data Warehouse Implementation Case Study .....	120
8.2.5	Maintaining Cost Management Control .....	121
8.3	<b>Assessing the Value of a Data Warehouse Implementation .....</b>	<b>121</b>
8.3.1	Communicating a More Complete Picture of IT Value .....	122
8.3.2	The Role of Architecture .....	122
8.3.3	Evaluating ROI .....	123
8.3.4	Data Warehouses vs. Data Marts .....	124
8.3.5	Using “Cost Per Seat” for Business Intelligence Tools .....	124
8.3.6	Supporting an Enterprise’s Analytical Requirements .....	125
8.4	<b>Conclusions .....</b>	<b>125</b>
<b>9.0</b>	<b>Managing Corporate Performance: Business Trends and Best Practices .....</b>	<b>127</b>
9.1	<b>What’s Influencing the Development of CPM .....</b>	<b>128</b>
9.1.1	Defining CPM .....	128
9.1.2	The Differences Between CPM and BI .....	129
9.1.3	What’s Making CPM So Important .....	129
9.1.4	The Increased Need for Corporate Transparency .....	130
9.1.5	Metrics, Processes and the Enterprise Value Proposition .....	130
9.1.6	The CPM Progression .....	131
9.2	<b>How to Implement CPM Effectively .....</b>	<b>131</b>
9.2.1	Using Feedback Loops to Connect Processes .....	131
9.2.2	Leveraging the BI Application Framework for CPM .....	132
9.2.3	Using a Comprehensive Road Map to Prevail Over CPM Challenges .....	133
9.2.4	Vendors Offering CPM Suites .....	134

9.2.5	Gartner's CPM Suites Magic Quadrant .....	135
9.2.5.1	Dramatic Moves in the CPM Suites Magic Quadrant .....	136
9.2.5.2	Smaller Changes in the CPM Suites Magic Quadrant .....	136
9.2.5.3	New Entrants in the CPM Suites Magic Quadrant .....	137
9.2.5.4	No Longer in the CPM Suites Magic Quadrant .....	137
<b>9.3</b>	<b>CPM: Trends for the Future .....</b>	<b>137</b>
9.3.1	The Importance of Processes to New Virtual Enterprises .....	137
9.3.2	Information Democracy and CPM .....	137
9.3.3	Transforming the Planning Process: A Case Study .....	138
<b>9.4</b>	<b>Recommendations .....</b>	<b>138</b>
<b>10.0</b>	<b>The Corporate Performance Management Road Map .....</b>	<b>141</b>
10.1	CPM Drivers and Inhibitors .....	142
10.2	Developing a Winning Approach to CPM .....	142
10.2.1	The Need for an Open Information Culture .....	144
10.2.2	Making a Methodology Work .....	144
10.2.3	Managerial Processes Are Breaking Down .....	145
10.2.4	Redesigning Meeting and Reporting Structures for CPM .....	145
10.2.5	Replacing Traditional Budgeting With Continuous Planning .....	146
10.2.6	Strategy Maps .....	147
10.2.7	Monitoring and Analytical Metrics .....	148
10.2.8	Considering CPM Vendors .....	148
10.2.9	The Role of the Finance Organization .....	148
10.2.10	The Effects of Regulation on CPM .....	150
10.3	Recommendations .....	150
<b>11.0</b>	<b>Key Trends in Corporate Governance and Compliance Management</b>	<b>151</b>
11.1	Issues Driving Corporate Governance and Compliance Management .....	152
11.1.1	The Trend Toward Global Regulation .....	152
11.1.2	Beyond Sarbanes-Oxley: Governance Initiatives Worldwide .....	153
11.1.3	Trends Driving the Need for Risk Management .....	154
11.1.4	Changing and More Stringent Corporate Governance .....	155
11.2	What Enterprises Need for Corporate Governance and Compliance Management	156
11.2.1	Enterprisewide Risk Management .....	156
11.2.2	A Compliance Management Architecture .....	157
11.2.3	Developing a Management Policy for Business Records .....	159
11.2.4	Planning for the Life Cycle of Content .....	159
11.3	Applying Compliance Management Processes and Technologies .....	160
11.3.1	Internal Control .....	160
11.3.2	Creating a Program Management Office .....	161
11.3.3	Sarbanes-Oxley Compliance Software .....	161
11.4	Recommendations .....	162
<b>12.0</b>	<b>Using Business Activity Monitoring to Gain a Real-Time Edge .....</b>	<b>163</b>
12.1	The Basics of BAM .....	164
12.1.1	BAM and the Real-Time Enterprise .....	164
12.1.2	BAM Isn't Just BI .....	164
12.1.3	The BAM Hype Cycle .....	165
12.2	Capabilities Needed to Build a BAM Architecture .....	167

12.2.1	BAM's Logical Architecture .....	168
12.2.2	Create Goals and Processes Before the BAM Architecture .....	168
12.2.3	Generating BAM Events .....	168
12.2.4	Filtering Events .....	169
12.2.5	The Use of BAM Alerts .....	169
12.2.6	The BAM Technology Market .....	170
<b>12.3</b>	<b>How to Use BAM to Improve the Enterprise .....</b>	<b>171</b>
12.3.1	The Need for Continuous Process Improvement .....	171
12.3.2	BAM Use in Industries and Departments .....	172
<b>12.4</b>	<b>Recommendations .....</b>	<b>173</b>
<b>13.0</b>	<b>Getting the Most Out of ERP Through Business Intelligence .....</b>	<b>175</b>
<b>13.1</b>	<b>BI and Business Applications .....</b>	<b>176</b>
13.1.1	The Increased Importance of Business Applications .....	176
13.1.2	Business Application Hype .....	176
13.1.3	The Evolution of Business Applications .....	177
13.1.4	Leveraging BI in Business Applications .....	178
13.1.5	BI's Increasing Importance to ERP Vendors .....	178
13.1.6	Implementing BI and ERP Together .....	179
<b>13.2</b>	<b>Implementing an ERP Data Warehouse .....</b>	<b>180</b>
13.2.1	Increased Focus on Industries .....	180
13.2.2	Deciding Whether to Use the ERP Data Warehouse .....	180
13.2.3	Choosing an ERP Data Warehouse Strategy .....	181
13.2.3.1	A Single ERP Data Warehouse .....	182
13.2.3.2	A Custom Data Warehouse .....	182
13.2.3.3	Separate Data Warehouses .....	182
13.2.3.4	Custom Data Warehouse Feeding an ERP Data Warehouse .....	183
13.2.3.5	ERP Data Warehouse Feeding a Custom Data Warehouse .....	184
<b>13.3</b>	<b>The Pros and Cons Associated With ERP Data Warehouses .....</b>	<b>185</b>
13.3.1	The Increasing Role of CPM in ERP .....	185
13.3.2	The Main ERP Data Warehouse Vendors .....	185
<b>13.4</b>	<b>The Development of ERP Data Warehouses .....</b>	<b>185</b>
<b>13.5</b>	<b>Conclusions and Recommendations .....</b>	<b>186</b>
<b>14.0</b>	<b>The Role of Analytics in Successful CRM Strategies .....</b>	<b>187</b>
<b>14.1</b>	<b>How Analytics Can Support CRM .....</b>	<b>188</b>
14.1.1	The Eight Building Blocks of CRM .....	188
14.1.2	Sourcing, Maintaining and Leveraging Customer Information Assets .....	188
14.1.3	Guidelines for Categorizing CRM Analytics .....	189
14.1.4	Customer Segmentation and CRM Strategy .....	190
14.1.5	Managing Customers and Channels .....	190
14.1.6	Estimating Customer Value .....	191
<b>14.2</b>	<b>Ensuring CRM Success .....</b>	<b>192</b>
14.2.1	CRM Metrics .....	192
14.2.2	Challenges in Implementing CRM Metrics .....	193
14.2.3	The Need for Ongoing Measurement .....	195
14.2.4	The Role of Corporate Performance Management .....	195
<b>14.3</b>	<b>Applying Analytics to Uncover Customer Insight .....</b>	<b>196</b>
14.3.1	When to Consider Real-Time Analytics .....	196
14.3.2	Bell Mobility: A Case Study in Real-Time Analytics .....	198
14.3.3	Data-Mining Workbenches vs. Black Boxes .....	198

14.3.4	Approaches for Deploying CRM Analytics .....	199
14.3.5	The Different Types of CRM Analytics Suite Vendors .....	199
<b>14.4</b>	<b>Recommendations .....</b>	<b>200</b>
<b>15.0</b>	<b>Web Analytics: From Software to Service Model .....</b>	<b>201</b>
<b>15.1</b>	<b>What Web Analytics Offer the Enterprise .....</b>	<b>202</b>
15.1.1	The Three Main Groups of Web Analytics Users .....	202
15.1.2	Web Analytics Features .....	203
15.1.3	Funnel Reports .....	203
15.1.4	Advanced Analytics .....	205
15.1.5	Comparisons to Other Sites .....	205
15.1.6	Case Study: Using Web Analytics to Target Online Advertising .....	205
15.1.7	Web Analytics Examples .....	206
<b>15.2</b>	<b>Getting ROI From Web Analytics .....</b>	<b>206</b>
15.2.1	The Importance of ROI to Web Analytics .....	206
15.2.2	How ROI Relates to Site Goals .....	207
15.2.3	The Steps to Implementing Web Analytics .....	207
15.2.4	Treating Web Analytics Like a Production Application .....	208
<b>15.3</b>	<b>Information for Evaluating Web Analytics Vendors .....</b>	<b>209</b>
15.3.1	The Build vs. Buy Decision .....	209
15.3.2	Web Analytics Vendors .....	209
15.3.3	The ASP Model for Web Analytics .....	210
15.3.4	The Levels of Ambition for Web Analytics .....	211
<b>15.4</b>	<b>Recommendations .....</b>	<b>212</b>
<b>16.0</b>	<b>Driving Workplace Productivity With Portals and Enterprise Suites ..</b>	<b>213</b>
<b>16.1</b>	<b>Examining the SES .....</b>	<b>214</b>
16.1.1	Standards for the E-Workplace .....	214
16.1.2	The Increasing Role of Collaboration in Enterprises .....	214
16.1.3	The Role of Personalization .....	215
16.1.4	The Four Generations of Portal Products .....	215
16.1.5	Characterizing the SES .....	216
16.1.6	Building on Workplace Systems .....	217
16.1.7	The SES and Content Management .....	217
16.1.8	Building the SES .....	217
16.1.9	SES Capabilities .....	218
16.1.10	The Maturity of the SES .....	219
<b>16.2</b>	<b>Using the SES to Become More Productive .....</b>	<b>219</b>
16.2.1	Justifying Deployments .....	220
16.2.2	Developing Portals in Stages .....	220
16.2.3	The 90/10-10/90 Rule for Portal Deployment .....	221
16.2.3.1	The Effect on TCO .....	221
16.2.3.2	The Effect on Skill Sets .....	221
16.2.3.3	Timing for Subsequent Releases .....	221
16.2.3.4	Maintenance to Back-End Applications .....	222
16.2.3.5	Overall Architectural Requirements .....	222
16.2.4	Portal Case Study: Swiss Re .....	222
<b>16.3</b>	<b>The SES and Business Processes .....</b>	<b>224</b>
16.3.1	Business Process Fusion and the SES .....	224
16.3.2	The Business Process Fusion Application Platform .....	225
<b>16.4</b>	<b>Recommendations .....</b>	<b>226</b>

**17.0 Emerging Technologies and the Future of Information Management 227**

**17.1 Six Predictions on the Future of Information Management ..... 228**

17.1.1 Prediction: Enterprises Will Focus on Managing Hybrid Data ..... 228

17.1.2 Prediction: BI Products Will Support a More Networked View of the Business ..... 228

17.1.3 Prediction: Text Mining Will Emerge as the “Hot” Area in CRM by 2006 ..... 229

17.1.4 Prediction: Virtual Communities Will Flourish ..... 229

17.1.5 Prediction: The Semantic Web Will Take Off — but Ontology Design Will Not  
Become a Mass Phenomenon ..... 230

17.1.6 Prediction: Microcontent and Microbusiness Will Drive the Knowledge Economy ..... 230

**17.2 Innovative Technologies That Can Deliver Competitive Advantages ..... 230**

17.2.1 Semiconductor-Based Innovation in the Next Decade ..... 230

17.2.2 Mobile and Wireless in the Next Decade ..... 231

17.2.3 Human-Computer Interaction in the Next Decade ..... 232

17.2.4 Data Mining in the Next Decade ..... 233

17.2.5 Artificial Intelligence in the Next Decade ..... 233

**17.3 Trends and Opportunities Created by Emerging Technology ..... 234**

17.3.1 The Information Universe in the Next Decade ..... 234

17.3.2 System Development and Integration in the Next Decade ..... 234

17.3.3 Enterprise Applications in the Next Decade ..... 235

17.3.4 Five Key Trends for the Coming Decade ..... 235

**17.4 Conclusions and Recommendations ..... 236**

**Appendix A: Business Intelligence and Data Warehousing Case Studies .... 237**

A.1 Educational Data Warehouse Shines in Florida ..... 237

A.2 Insurance Firm Becomes a Business Intelligence Beneficiary ..... 241

A.3 Data Warehouse a Credit to Bank’s Risk Management Goals ..... 243

A.4 Hospital Finds the Cure for Its Business Intelligence Ills ..... 246

**Appendix B: Gartner’s 2H03 Business Intelligence Magic Quadrants ..... 249**

B.1 Enterprise BI Suites and Reporting ..... 250

B.2 Business Intelligence Platforms ..... 251

B.3 Conclusions ..... 253

**Appendix C: Glossary ..... 255**

**Vendor Index ..... 265**

# Figures

Figure 1-1: The Gartner Magic Quadrant .....	4
Figure 1-2: The Gartner Hype Cycle .....	5
Figure 2-1: The Three Pillars of BI .....	37
Figure 2-2: The Four-Level BI Framework Provides Alignment and Defines Return .....	38
Figure 2-3: BI Infrastructure Topology Choices .....	40
Figure 2-4: The Logical Architecture Behind BAM .....	41
Figure 2-5: A Real-Time Data Warehouse .....	42
Figure 2-6: ERP Data Warehouse Implementation Strategies .....	43
Figure 2-7: Large Enterprises Typically Need Multiple BI Tools .....	44
Figure 2-8: Most Popular Types of BI Applications .....	45
Figure 2-9: Worldwide BI Market Trends and Forecast, 2000-2007 .....	46
Figure 2-10: The BI Timeline, 2005 to 2007: Innovation Amid Convergence .....	48
Figure 3-1: Most Enterprises Need to Close the “BI Gap” .....	50
Figure 3-2: Alignment and Integration in the BI Framework Help Close the BI Gap .....	51
Figure 3-3: BI Readiness Assessment Matrix .....	53
Figure 3-4: Match User Types and Functionality to Maximize Value .....	57
Figure 3-5: The BI Strategic Maturity Spectrum .....	60
Figure 4-1: The Difference Between BI Driving Revenue and BI Reducing Costs .....	65
Figure 4-2: Skills Needed Within the BI Competency Center .....	67
Figure 4-3: The Scope of Governance Depends on Project Scope .....	69
Figure 4-4: Overview of All Roles in the BI Competency Center .....	71
Figure 4-5: A Well-Defined BI Methodology .....	73
Figure 4-6: BI Methodology Activities and Roles .....	73
Figure 5-1: The EFQM Model .....	79
Figure 5-2: Gartner’s Business Performance Framework .....	81
Figure 5-3: The Right Set of Metrics Tells a Story .....	83
Figure 5-4: A Sample Design Sheet for Key Performance Indicators .....	84
Figure 5-5: An Insurance Company’s Flawed Balanced Scorecard .....	87
Figure 5-6: The Royal Norwegian Air Force Strategy Map .....	88
Figure 6-1: Four Levels of Increasing BI Value .....	90
Figure 6-2: Comparing Topology Choices .....	92
Figure 6-3: Approaches to Data Warehouse Schema Design .....	93
Figure 6-4: ETL Approaches in Data Warehouse Implementations .....	96
Figure 6-5: Businesses Focus on Consolidation .....	98
Figure 6-6: Data Latency Requirements — 2002 vs. 2006 .....	99
Figure 7-1: Data Quality and Metadata Are Business Issues .....	102

Figure 7-2: A Successful Data Quality Program Never Ends .....	105
Figure 7-3: Aggregating Measurement of Data Quality .....	106
Figure 7-4: The State of the Market for Data Quality Technology .....	107
Figure 7-5: Nine Architectural Sectors of Metadata .....	109
Figure 7-6: The Seven Critical Levels of Metadata .....	110
Figure 7-7: Approaches to Metadata Integration for BI .....	111
Figure 8-1: Selected Cost Components of a Data Warehouse Implementation .....	115
Figure 8-2: Data Warehouse Sample Budget .....	116
Figure 8-3: Sample Data Warehouse Implementation Staffing Mix .....	117
Figure 8-4: The Typical Pattern in Data Warehouse Usage .....	118
Figure 8-5: Data Warehouse Readiness Assessment .....	120
Figure 8-6: Survey Results on IT Cost and Benefit Assessments .....	123
Figure 9-1: What is CPM? .....	128
Figure 9-2: BI Tools and a CPM Suites Differ, But Their Capabilities Overlap .....	129
Figure 9-3: How Feedback Loops Connect Managerial Processes .....	132
Figure 9-4: Using a BI Application Framework to Help Implement CPM Feedback Loops .....	133
Figure 9-5: CPM Layout — Building on an Established IT Infrastructure .....	134
Figure 9-6: The CPM Suites Magic Quadrant .....	135
Figure 10-1: The CPM Road Map .....	143
Figure 10-2: Visualizing to Redesign Reporting Structures and Meeting Schedules .....	146
Figure 10-3: The Beyond Budgeting Methodology .....	147
Figure 10-4: Factors Influencing Vendor Choices for CPM .....	149
Figure 10-5: The Evolution of the Finance Department .....	149
Figure 11-1: The Global Regulatory Hype Cycle .....	152
Figure 11-2: Corporate Governance and Compliance Management Milestones .....	153
Figure 11-3: Corporate Compliance Regulation in Europe and Elsewhere .....	154
Figure 11-4: Corporate Governance and Compliance Management Drivers .....	155
Figure 11-5: The Shift to Improved Governance and Transparency .....	156
Figure 11-6: Sample Risk Management Technology/Functionality Chart .....	157
Figure 11-7: Steps in a Generic Risk Management Project Plan .....	158
Figure 11-8: Comparison of Internal Control Methodologies .....	160
Figure 11-9: The Evolving Program Management Framework .....	161
Figure 12-1: Taking Action in a Real-Time Enterprise .....	165
Figure 12-2: The Increasing Need for Real-Time Information .....	166
Figure 12-3: The Hype Cycle of BAM Development .....	166
Figure 12-4: BAM Is a Core Extension of the ENS .....	167
Figure 12-5: Event Processing and Filtering Through Rules .....	170
Figure 13-1: Business Applications Will Evolve to Leverage Intellectual Capital .....	177
Figure 13-2: Survey Results on Whether BI Improves the Value of Other IT Initiatives .....	178
Figure 13-3: How BI and ERP Fit Together .....	179
Figure 13-4: Deploying BI and ERP Simultaneously Maximizes Return on Investment .....	180

Figure 13-5: Determining Whether to Use the ERP Data Warehouse .....	181
Figure 13-6: Using an ERP or Custom Data Warehouse .....	182
Figure 13-7: Using Separate Data Warehouses .....	183
Figure 13-8: Using a Custom Data Warehouse to Feed the ERP Data Warehouse .....	183
Figure 13-9: Using an ERP Data Warehouse to Feed the Custom Data Warehouse .....	184
Figure 13-10: Comparing ERP Data Warehouses .....	186
Figure 14-1: The Flow of Customer Information and Insight .....	189
Figure 14-2: The Hierarchy of CRM Analysis .....	190
Figure 14-3: Segmenting Customers by Value .....	191
Figure 14-4: Using Customer Value to Manage Customer Profitability .....	192
Figure 14-5: The CRM Metrics Hierarchy .....	193
Figure 14-6: Connecting Metrics to Processes in the Customer Life Cycle .....	196
Figure 14-7: Integrated Feedback Among Strategic, Operational and Transactional Users .....	197
Figure 14-8: Real-Time and “Right Time” Analytics .....	197
Figure 14-9: The Data-Mining Tool Complexity Spectrum .....	198
Figure 14-10: CRM Analytics Vendor Landscape .....	200
Figure 15-1: The Range of Web Analytics .....	202
Figure 15-2: An Example of a Funnel Report .....	204
Figure 15-3: Steps to Implementing Web Analytics .....	208
Figure 15-4: The Landscape of Web Analytics Vendors .....	210
Figure 15-5: Four Levels of Ambition for Web Analytics Projects .....	211
Figure 16-1: The Nature of Work Is Changing .....	214
Figure 16-2: The Four Generations of Portal Products .....	216
Figure 16-3: Integrating Content in an SES .....	218
Figure 16-4: Evaluating SES Products in Five Key Areas .....	219
Figure 16-5: Business Process Fusion Applications .....	225
Figure 17-1: Hardware Innovations in the Next Decade .....	231
Figure 17-2: The Five Biggest Technology Trends for the Next 10 Years .....	236
Figure A-1: Data That Spans Time Adds Value .....	239
Figure A-2: Florida EDW Project Staffing .....	239
Figure B-1: Magic Quadrant for EBIS/Reporting, 2H03 .....	250
Figure B-2: Magic Quadrant for BI Platforms, 2H03 .....	252

