

CONTENTS

- Preface xiii
- Foreword xix
- CHAPTER 1: ABOUT METADATA MODELS 1**
 - WHAT ARE METADATA? 1
 - IN SEARCH OF METADATA 5
 - THE ARCHITECTURE FRAMEWORK 7
 - The Rows 8
 - The Columns 11
 - METAMODELS AND THE FRAMEWORK 13
 - Data 15
 - Activities 15
 - Locations 16
 - People and Organizations 16
 - Timing 16
 - Motivation 17
 - THE NOTATION: OBJECT AND ENTITY CLASSES 17
 - Class Model (UML) 18
 - Entity-Relationship Model 24
 - LEVEL OF ABSTRACTION 29
- CHAPTER 2: DATA 33**
 - DATA AND THE ARCHITECTURE FRAMEWORK 33
 - THE BUSINESS OWNER AND BUSINESS RULES 34
 - ROW TWO: BUSINESS TERMS, CONCEPTS, AND FACT TYPES 37
 - Terms and Concepts 38
 - Ontologies 45
 - Propositions 48
 - Fact Types 49
 - Characteristics 52
 - Resources 54

Authorship	57
Document Distribution	60
Coverage	60
The Dublin Core	63
Data Stewardship	65
ROW THREE: THE ENTITY-RELATIONSHIP DIAGRAM	65
Sample Entity-Relationship Model	66
Entity Classes and Attributes	67
Relationships and Relationship Roles	70
Entity Class Views	82
About Reference Data	86
ROW FOUR: DATA DESIGN	87
Relational Database Design	88
Object-Oriented Data Design	97
ROW SIX: THE PRODUCTION SYSTEM	115
CHAPTER 3: ACTIVITIES, FUNCTIONS, AND PROCESSES	123
ACTIVITIES AND THE ARCHITECTURE FRAMEWORK	123
DEFINITIONS	125
TYPES OF PROCESS MODELS	127
ROW TWO: FUNCTIONS AND BUSINESS PROCESSES	129
Functions	130
Business Processes	133
Sample Process Model	138
Motivating Business Processes	140
Access Roles	140
ROW THREE: PROCESSING DATA	142
A Data Flow Diagram	144
System Processes and Data Flows	146
Access Roles and System Events	150
Essential System Processes	152
ROW FOUR: PROGRAM MODULES	157
Basic Module Structure	157
Program Roles	164
Object Modules	171
ROW SIX: PROGRAM INVENTORY	178
CHAPTER 4: LOCATIONS	183
ABOUT LOCATIONS	183
Site	185
Geographic Location	189

CONTENTS

xi

ROW TWO: PLACING PARTIES, BUSINESS PROCESSES, AND MOTIVATION	192
Business Locations	192
Means, End, and Effort	192
ROW THREE: DATA FLOW DIAGRAMS	195
ROW FOUR: PLACING DATA AND PROGRAMS	199
ROW SIX: SYSTEM INVENTORY	203
Database Instances	203
Servers	205
CHAPTER 5: PEOPLE AND ORGANIZATIONS	209
THE PEOPLE AND ORGANIZATIONS COLUMN	209
ABOUT PEOPLE AND ORGANIZATIONS	210
ROW TWO: THE BUSINESS OWNER'S VIEW	218
Access Roles	218
Concepts, Symbols, and Signifiers	221
Activities, Decisions, and Events	224
Means and Ends	225
ROW THREE: THE ARCHITECT'S VIEW	230
ROW FOUR: THE DESIGNER'S VIEW	234
Interactive Modules	236
ROW SIX: SECURITY AND GOVERNANCE	243
CHAPTER 6: EVENTS AND TIMING	245
THE EVENTS AND TIMING COLUMN	245
ROW TWO: BUSINESS EVENT TYPES	247
External Business Event Types	247
Internal Business Event Types	249
Motivation	252
ROW THREE: SYSTEM EVENTS	252
State-Transition Diagram	254
Entity Life History	257
Essential System Processes	263
The Feedback Loop	266
ROW FOUR: PROGRAM EVENTS	267
Object Orientation	270
CHAPTER 7: MOTIVATION	273
THE MOTIVATION COLUMN	273
About Motivation	274
Mission and Vision	274
Ends	277
Means	278

Directives	280
Influencers and Assessments	284
Directive Motivation	287
Activities	289
ROW THREE: THE ARCHITECT'S VIEW	292
About Business Rules	292
Sample Model	294
Domains	307
System Constraints	312
Business Rule Mapping	318
Parties	318
Data Quality	321
ROW FOUR: THE DESIGNER'S VIEW	322
Sample Database Design	324
Database Constraints	333
Object-Oriented Constraints	333
Links	336
Data Quality	338
ROW SIX: MEASURING DATA QUALITY	338
GLOSSARY	343
REFERENCES AND FURTHER READING	391
ABOUT THE AUTHOR	395
INDEX	397