Business Intelligence Roadmap

Course Summary

Description

Students should have experience with any relational database management system as well as experience with data warehouses and star schemas. It would be helpful if students are involved with delivering business intelligence.

Topics

- Business Case Assessment
- Enterprise Infrastructure Evaluation
- Project Planning
- Project Requirements Definition
- Data Analysis
- Application Prototyping
- Meta Data Repository Analysis
- Database Design

- Extract/Transformation/Load Design
- Meta Data Repository Design
- Extract/Transformation/Load Development
- Application Development
- Data Mining
- Meta Data Repository Development
- Implementation
- Release Evaluation

Audience

This course is targeted at business intelligence developers and users, data warehouse developers, star schema and cube developers, data modelers, data base analysts, and any other personnel who need to deliver business intelligence.

Prerequisites

Students should have experience with any relational database management system as well as experience with data warehouses and star schemas. It would be helpful if students are involved with delivering business intelligence.

Duration

5 days

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Course Outline

I. Business Case Assessment
- A. Business Justification
- B. Business Drivers
- C. Business Analysis Issues
  1. Information Needs
  2. Types of Data Sources
  3. Source Data Quality
- D. Cost-Benefit Analysis
- E. Risk Assessment
- F. Business Case Assessment Activities
- G. Deliverable Resulting From These Activities
- H. Roles Involved in These Activities
- I. Risks of Not Performing Step 1

II. Enterprise Infrastructure Evaluation
- A. The Hardware Platform
  1. Controlled Chaos
  2. Hardware Platform Requirements
- B. The Middleware Platform
  1. DBMS Gateways
- C. The DBMS Platform
  1. Criteria For Selecting a DBMS
- D. Technical Infrastructure Evaluation Activities
- E. Deliverables Resulting From These Activities
- F. Roles Involved in These Activities
- G. Risks of Not Performing the Above Activities
- H. The Effects of Stovepipe Development
- I. The Need for Nontechnical Infrastructure
- J. Enterprise Architecture
- K. Enterprise Standards
- L. Nontechnical Infrastructure Evaluation Activities
- M. Deliverable Resulting From These Activities
- N. Roles Involved in These Activities
- O. Risks of Not Performing the Above Activities

III. Project Planning
- A. Managing the BI Project
- B. Defining the BI Project
  1. Project Goals and Objectives
  2. Project Scope
  3. Project Risks
  4. Project Constraints
  5. Assumptions
  6. Change-Control Procedures
  7. Issues Management Procedures
- C. Planning the BI Project
  1. Activities and Tasks
  2. Estimating Techniques
  3. Resource Assignment
  4. Task Dependencies
  5. Resource Dependencies
  6. Critical Path Method
  7. Project Schedules
- D. Project Planning Activities
- E. Deliverables Resulting From These Activities
- F. Roles Involved in These Activities
- G. Risks of Not Performing Step 3

IV. Project Requirements Definition
- A. General Business Requirements
  1. Interviewees for General Business Requirements
  2. Data Quality Requirements
  3. Business Requirements Report
- B. Project-Specific Requirements
  1. Interviewees for Project-Specific Requirements
  2. Application Requirements Document
- C. The Interviewing Process
  1. Interviewing Considerations
  2. Interviewing Tips
  3. Project Requirements Definition Activities
  4. Deliverable Resulting From These Activities
  5. Roles Involved in These Activities
  6. Risks of Not Performing Step 4

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Course Outline (cont'd)

V.   Data Analysis
A. Business-Focused Data Analysis
B. Top-Down Logical Data Modeling
1. Project-Specific Logical Data Model
2. Enterprise Logical Data Model
3. Logical Data Modeling Participants
4. Standardized Business Meta Data
C. Bottom-Up Source Data Analysis
1. Technical Data Conversion Rules
2. Business Data Domain Rules
3. Business Data Integrity Rules
D. Data Cleaning
1. Data Quality Responsibility
2. Source Data Selection Process
3. Key Points of Data Selection
4. To Cleanse or Not to Cleanse
5. Cleansing Operational Systems
E. Data Analysis Activities
F. Deliverables Resulting From These Activities
G. Roles Involved in These Activities
H. Risks of Not Performing Step 5

VI.   Application Prototyping
A. Purposes of Prototyping
1. Time-Boxing
B. Best Practices for Prototyping
1. Considerations for Prototyping
C. Types of Prototypes
1. Show-and-Tell Prototype
2. Mock-Up Prototype
3. Proof-of-Concept Prototype
4. Visual Design Prototype
5. Demo Prototype
6. Operational Prototype
D. Building Successful Prototypes
1. Prototype Charter
2. Guidelines for Prototyping
3. Skills Survey
E. Application Prototyping Activities
F. Deliverables Resulting from These Activities
G. Roles Involved in These Activities
H. Risks of Not Performing Step 6

VII.   Meta Data Repository Analysis
A. The Importance of Meta Data
1. Meta Data Categories
B. Meta Data Repository as a Navigation Tool
1. Data Standardization
C. Meta Data Classifications
1. Groupings of Meta Data Components
2. Prioritization of Meta Data Components
D. Meta Data Repository Challenges
1. Technical Challenges
2. Staffing Challenges
3. Budget Challenges
4. Usability Challenges
5. Political Challenges
E. The Logical Meta Model
1. The Entity-Relationship Meta Model
2. Meta-Meta Data
F. Meta Data Repository Analysis Activities
G. Deliverable Resulting from These Activities
H. Roles Involved in These Activities
I. Risks of Not Performing Step 7

VIII.   Database Design
A. Differences in Database Design Philosophies
1. Operational Databases
2. BI Target Databases
B. Logical Database Design
1. The Star Schema
2. The Snowflake Schema
C. Physical Database Design
1. Implementation Options
2. Physical Dataset Placement
3. Partitioning
4. Clustering
5. Indexing
6. Reorganizations
7. Backup and Recovery
8. Parallel Query Execution

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Course Outline (cont'd)

D. Database Design Activities
E. Deliverables Resulting from These Activities
F. Roles Involved in These Activities
G. Risks of Not Performing Step 8

IX. Extract/Transformation/Load Design
  A. Implementation Strategies
  B. Preparing for the ETL Process
    1. The Initial Load
    2. The Historical Load
    3. The Incremental Load
  C. Designing the Extract Programs
  D. Designing the Transformation Programs
    1. Source Data Problems
    2. Data Transformations
  E. Designing the Load Programs
    1. Referential Integrity
    2. Indexing
  F. Designing the ETL Process Flow
    1. The Source-to-Target Mapping Document
    2. The ETL Process Flow Diagram
    3. The Staging Area
  G. Evaluating ETL Tools
  H. ETL Design Activities
  I. Deliverables Resulting from These Activities
  J. Roles Involved in These Activities
  K. Risks of Not Performing Step 9

X. Meta Data Repository Design
  A. Meta Data Silos
    1. Sources of Meta Data
  B. Meta Data Repository Solutions
    1. Centralized Meta Data Repository
    2. Decentralized Meta Data Repository
    3. Distributed XML-Enabled Meta Data Solution
  C. Designing a Meta Data Repository
    1. Entity-Relationship Design
    2. Object-Oriented Design

D. Licensing (Buying) a Meta Data Repository
    1. Product Evaluation
    2. Vendor Evaluation
E. Meta Data Repository Design Activities
F. Deliverables Resulting from These Activities
G. Roles Involved in These Activities
H. Risks of Not Performing Step 10

XI. Extract/Transformation/Load Development
  A. Source Data Transformation
    1. Data Transformation Activities
    2. Underestimating Data Transformation Efforts
  B. Reconciliation
    1. Calculating Reconciliation Totals
    2. Storing Reconciliation Statistics
  C. Peer Reviews
  D. ETL Testing
    1. Unit Testing
    2. Integration Testing
    3. Regression Testing
    4. Performance Testing
    5. Quality Assurance Testing
    6. Acceptance Testing
  E. Formal Test Plan
  F. ETL Development Activities
  G. Deliverables Resulting from These Activities
  H. Roles Involved in These Activities
  I. Risks of Not Performing Step 11

XII. Application Development
  A. Online Analytical Processing Tools
    1. Advantages of OLAP Tools
    2. OLAP Tool Features
  B. Multidimensional Analysis Factors
    1. Multivariate Analysis
  C. Online Analytical Processing Architecture
    1. Presentation Services
    2. OLAP Services

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Course Outline (cont'd)

3. Database Services
D. Development Environments
E. Application Development Activities
F. Deliverables Resulting from These Activities
G. Roles Involved in These Activities
H. Risks of Not Performing Step 12

XIII. Data Mining
A. Defining Data Mining
1. The Importance of Data Mining
2. Data Sources for Data Mining
B. Data Mining Techniques
1. Associations Discovery
2. Sequential Pattern Discovery
3. Classification
4. Clustering
5. Forecasting
C. Data Mining Operations
1. Predictive and Classification Modeling
2. Link Analysis
3. Database Segmentation
4. Deviation Detection
D. Applications of Data Mining
E. Data Mining Activities
F. Deliverables Resulting from These Activities
G. Roles Involved in These Activities
H. Risks of Not Performing Step 13

XIV. Meta Data Repository Development
A. Populating the Meta Data Repository
B. Meta Data Repository Interface Processes
1. The Tool Interface Process
2. The Access Interface Process
C. Meta Data Repository Testing
D. Preparing for the Meta Data Repository Rollout
1. Meta Data Repository Directory
E. Meta Data Repository Development Activities

F. Deliverables Resulting from These Activities
G. Roles Involved in These Activities
H. Risks of Not Performing Step 14

XV. Implementation
A. Incremental Rollout
B. Security Management
1. Security Measures for BI Applications
2. Security in a Multi-Tier Environment
3. Security for Internet Access
C. Data Backup and Recovery
D. Monitoring the Utilization of Resources
1. Computer Utilization
2. Network Utilization
3. Personnel Utilization
E. Growth Management
1. Growth in Data
2. Growth in Usage
3. Growth in Hardware
F. Implementation Activities
G. Deliverables Resulting from These Activities
H. Roles Involved in These Activities
I. Risks of Not Performing Step 15

XVI. Release Evaluation
A. The Application Release Concept
1. Guidelines for Using the Release Concept
B. Post-Implementation Review
1. Organizing a Post-Implementation Review
2. Post-Implementation Review Session Flow
C. Release Evaluation Activities
D. Deliverables Resulting from These Activities
E. Roles Involved in These Activities
F. Risks of Not Performing Step 16

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Course Outline (cont'd)

XVII.   **Human Resource Allocation Matrix**

XVIII. **Entry and Exit Criteria and Deliverables Matrix**

XIX.   **Activity Dependency Matrix**

XX.   **Task/Subtask Matrix**

XXI.   **Practical Guidelines Matrix**

XXII.   **Work Breakdown Structure**