

## **FBI TUTORIAL 2**

### **Learning Objectives for FBI TUTORIAL 2**

- Understand the basic definitions and concepts of data warehouses
- Understand data warehousing architectures
- Describe the processes used in developing and managing data warehouses
- Explain data warehousing operations
- Explain the role of data warehouses in decision support
- Explain data integration and the extraction, transformation, and load (ETL) processes
- Describe real-time (active) data warehousing
- Understand data warehouse administration and security issues

## **CHAPTER OVERVIEW**

The concept of data warehousing has been around since the late 1980s. This chapter provides the foundation for an important type of database, called a *data warehouse*, which is primarily used for decision support and provides improved analytical capabilities. We discuss data warehousing in the following sections:

### **Section 2.1 Review Questions**

1. Why is it important for Isle to have an EDW?
2. What were the business challenges or opportunities that Isle was facing?
3. What was the process Isle followed to realize EDW? Comment on the potential challenges Isle might have had going through the process of EDW development.
4. What were the benefits of implementing an EDW at Isle? Can you think of other potential benefits that were not listed in the case?
5. Why do you think large enterprises like Isle in the gaming industry can succeed without having a capable data warehouse/business intelligence infrastructure?

### **Section 2.2 Review Questions**

1. What is a data warehouse?

2. How does a data warehouse differ from a database?
3. What is an ODS?
4. Differentiate among a data mart, an ODS, and an EDW.
5. Explain the importance of metadata.

### **Section 2.3 Review Questions**

1. Describe the data warehousing process.
2. Describe the major components of a data warehouse.
3. Identify and discuss the role of middleware tools.

### **Section 2.4 Review Questions**

1. What are the key similarities and differences between a two-tiered architecture and a three-tiered architecture?
2. How has the Web influenced data warehouse design?
3. List the alternative data warehousing architectures discussed in this section.
4. What issues should be considered when deciding which architecture to use in developing a data warehouse? List the 10 most important factors.
5. Which data warehousing architecture is the best? Why?

### **Section 2.5 Review Questions**

1. Describe data integration.
2. Describe the three steps of the ETL process.
3. Why is the ETL process so important for data warehousing efforts?

### **Section 2.6 Review Questions**

1. List the benefits of data warehouses.

2. List several criteria for selecting a data warehouse vendor, and describe why they are important.
3. What is OLAP and how does it differ from OLTP?
4. What is a cube? What do drill down, roll up, and slice and dice mean?
5. What are ROLAP, MOLAP, and HOLAP? How do they differ from OLAP?

### **Section 2.7 Review Questions**

1. What are the major DW implementation tasks that can be performed in parallel?
2. List and discuss the most pronounced DW implementation guidelines.
3. When developing a successful data warehouse, what are the most important risks and issues to consider and potentially avoid?
4. What is scalability? How does it apply to DW?

### **Section 2.8 Review Questions**

1. What is an RDW?
2. List the benefits of an RDW.
3. What are the major differences between a traditional data warehouse and an RDW?
4. List some of the drivers for RDW.

### **Section 2.9 Review Questions**

1. What steps can an organization take to ensure the security and confidentiality of customer data in its data warehouse?
2. What skills should a DWA possess? Why?
3. What recent technologies may shape the future of data warehousing? Why?

## **CASE STUDY QUESTIONS**

### **Application Case 2.1: A Better Data Plan: Well-Established TELCOs Leverage Data Warehousing and Analytics to Stay on Top in a Competitive Industry**

1. What are the main challenges for TELCOs?
2. How can data warehousing and data analytics help TELCOs in overcoming their challenges?
3. Why do you think TELCOs are well suited to take full advantage of data analytics?

### **Application Case 2.2: Data Warehousing Helps Multi-Care Save More Lives**

1. What do you think is the role of data warehousing in healthcare systems?
2. How did MultiCare use data warehousing to improve health outcomes?

### **Application Case 2.3: BP Lubricants Achieve BIGS Success**

1. What is BIGS?
2. What were the challenges, the proposed solution, and the obtained results with BIGS?

### **Application Case 2.4: Things Go Better with Coke's Data Warehouse**

1. How did Coca-Cola in Japan use data warehousing to improve its business processes?
2. What were the results of their enterprise active data warehouse implementation?

### **Application Case 2.5: Starwood Hotels & Resorts Manages Hotel Profitability with Data Warehousing**

1. How big and complex are the business operations of Starwood Hotels & Resorts?
2. How did Starwood Hotels & Resorts use data warehousing for better profitability?
3. What were the challenge, the proposed solution, and the obtained results?

### **Application Case 2.6: EDW Helps Connect State Agencies in Michigan**

1. Why would a state invest in a large and expensive IT infrastructure (such as an EDW)?
2. What are the size and complexity of EDW used by state agencies in Michigan?
3. What were the challenges, the proposed solution, and the obtained results of the EDW?

**Application Case 2.7: Egg Plc Fries the Competition in Near Real Time**

1. What kind of business is Egg plc in? What is the competitive landscape?
2. How did Egg plc use near-real-time data warehousing for competitive advantage?