Chapter 13 Data Resource Management

Data Resource Management: Data resource management is a managerial activity that applies information systems technology and management tools to the task of managing an organization's data resources. It includes the database administration function that focuses on develop and maintaining standards and controls for an organization's databases. Data administration, however, focuses on the planning and control of data to support business functions and strategic organizational objectives. This includes a data planning effort that focuses on developing overall data architecture for a firm's data resources.

Database Management: The database management approach affects the storage and processing of data. The data needed by different applications are consolidated and integrated into several common databases, instead of being stored in many independent data files. Also, the database management approach emphasizes updating and maintaining common databases, having users' application programs share the data in the database, and providing a reporting and an inquiry/response capability so end users can easily receive reports and quick responses to requests for information.

Database Software: Database management systems are software packages that simplify the creation, use, and maintenance of databases. They provide software tools so end users, programmers, and database administrators can create and modify databases, interrogate a database, generate reports, do application development, and perform database maintenance.

Types of Databases: Several types of databases are used by business organizations, including operational, distributed, and external databases. Data warehouses are a central source of data from other databases that have been cleaned, transformed and cataloged for business analysis and decision support applications. That includes data mining, which attempts to find hidden patterns and trends in the warehouse data. Hypermedia databases on the World Wide Web and corporate intranets and extranets store hyperlinked multimedia pages at a website. Web server software can manage such databases for quick access and maintenance of the Web database.

Database Development: The development of databases can be easily accomplished using microcomputer database management packages for small end-user applications. However, the development of large corporate databases requires a top-down data planning effort. This may involve developing enterprise and entity relationship models, subject area databases, and data models that reflect the logical data elements and relationships needed to support the operation and management of the basic business processes of the organization.

Data Access: Data must be organized in some logical manner on physical storage devices so that they can be efficiently processed. For this reason, data are commonly organized into logical data elements such as characters, fields, records, files, and databases. Database structures, such as the hierarchical, network, relational, and object-oriented models, are used to organize the relationships among the data records stored in databases. Databases and files can be organized in either a sequential or direct manner and can be accessed and maintained by either sequential access or direct access processing methods.
Key Terms and Concepts
These are the key terms and concepts of this chapter.

1. Data dictionary
2. Data mining
3. Data modeling
4. Data planning
5. Data resource management
6. Database administration
7. Database administrator
8. Database access a. Direct b. Sequential
9. Database management approach
10. Database management system
c. Network d. Object-oriented e. Relational
12. DBMS uses a. Application development b. Database development
c. Database interrogation d. Database maintenance
13. Key field
d. File e. Database
15. Metadata
16. Query language
17. Report generator
18. Types of databases a. Data warehouse b. Distributed c. External
d. Hypermedia e. Operational

Review Quiz
Match one of the key terms and concepts listed previously with one of the brief examples or definitions that follow. Try to find the best fit for answers that seem to fit more than one term or concept. Defend your choices.

1. The use of integrated collections of data records and files for data storage and processing.
2. A DBMS allows you to create, interrogate, and maintain a database, create reports, and develop application programs.
3. A specialist in charge of the databases of an organization.
4. This DBMS feature allows users to easily interrogate a database.
5. Defines and catalogs the data elements and data relationships in an organization's database.
6. Helps you specify and produce reports from a database.
7. The main software package that supports a database management approach.
8. Databases are dispersed to the Internet and corporate intranets and extranets.
9. Databases that organize and store data as objects.
11. The management of all the data resources of an organization.
12. Developing databases and maintaining standards and controls for an organization's databases.
13. Processing data in a data warehouse to discover key business factors and trends.
14. Enterprise planning that ties database development to the support of basic business processes.
15. Developing conceptual views of the relationships among data in a database.
16. A customer's name.
17. A customer's name, address, and account balance.
18. The names, addresses, and account balances of all of your customers.
19. An integrated collection of all of the data about your customers.
20. An identification field in a record.
22. A tabular structure of records in a database.
23. Records are organized as cubes within cubes in a database.
24. Transactions are sorted in ascending order by Social Security number before processing.
25. Unsorted transactions can be used to immediately update a database.
26. Databases that support the major business processes of an organization.
27. A centralized and integrated database of current and historical data about an organization.
28. Databases available on the Internet or provided by commercial information services.

Discussion Questions

1. How should an E-business enterprise store, access, and distribute data and information about their internal operations and external environment?
2. What roles do database management, data administration, and data planning play in managing data as a business resource?
3. What is the advantages of a database management approach to organizing, accessing, and managing an organization's data resources? Give examples to illustrate your answer.
4. Refer to the Real World Case on Shop At Home and others in the chapter. What key capabilities of data resource management are needed to support a useful business intelligence system?
5. What is the role of a database management system in an E-business information system?
6. Databases of information about a firm's internal operations were formerly the only databases that were considered to be important to a business. What other kinds of databases are important for a business today?
7. Refer to the Real World Case on Payless Shoe Source in the chapter. How could a company's storage management strategies support its use of IT for competitive advantage?
8. What is the benefits and limitations of the relational database model for business applications today?
9. Why is the object-oriented database model gaining acceptance for developing applications and managing the hypermedia databases at business websites?
10. How have the Internet, intranets,extranets, and the In/World Wide Web affected the types and uses of data resources available to business end users?