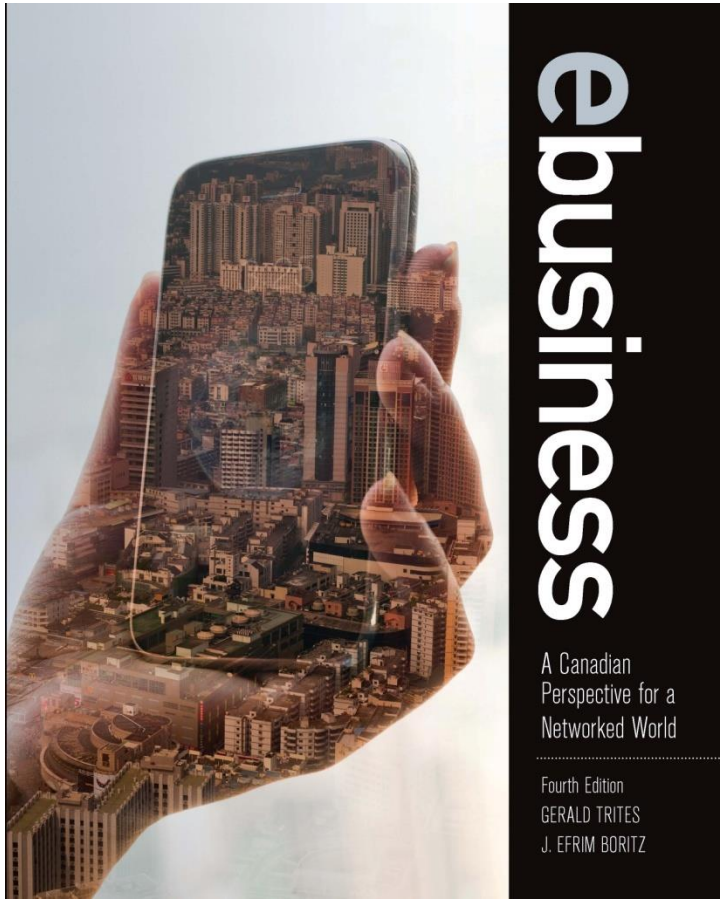

PART 3

Ebusiness Applications

PART 3

Chapter 7: Supply-Chain Management

Chapter 8: Eprocurement, Trading Exchanges, and Auctions

Chapter 9: Customer Relationship Management

Chapter 10: Business Intelligence

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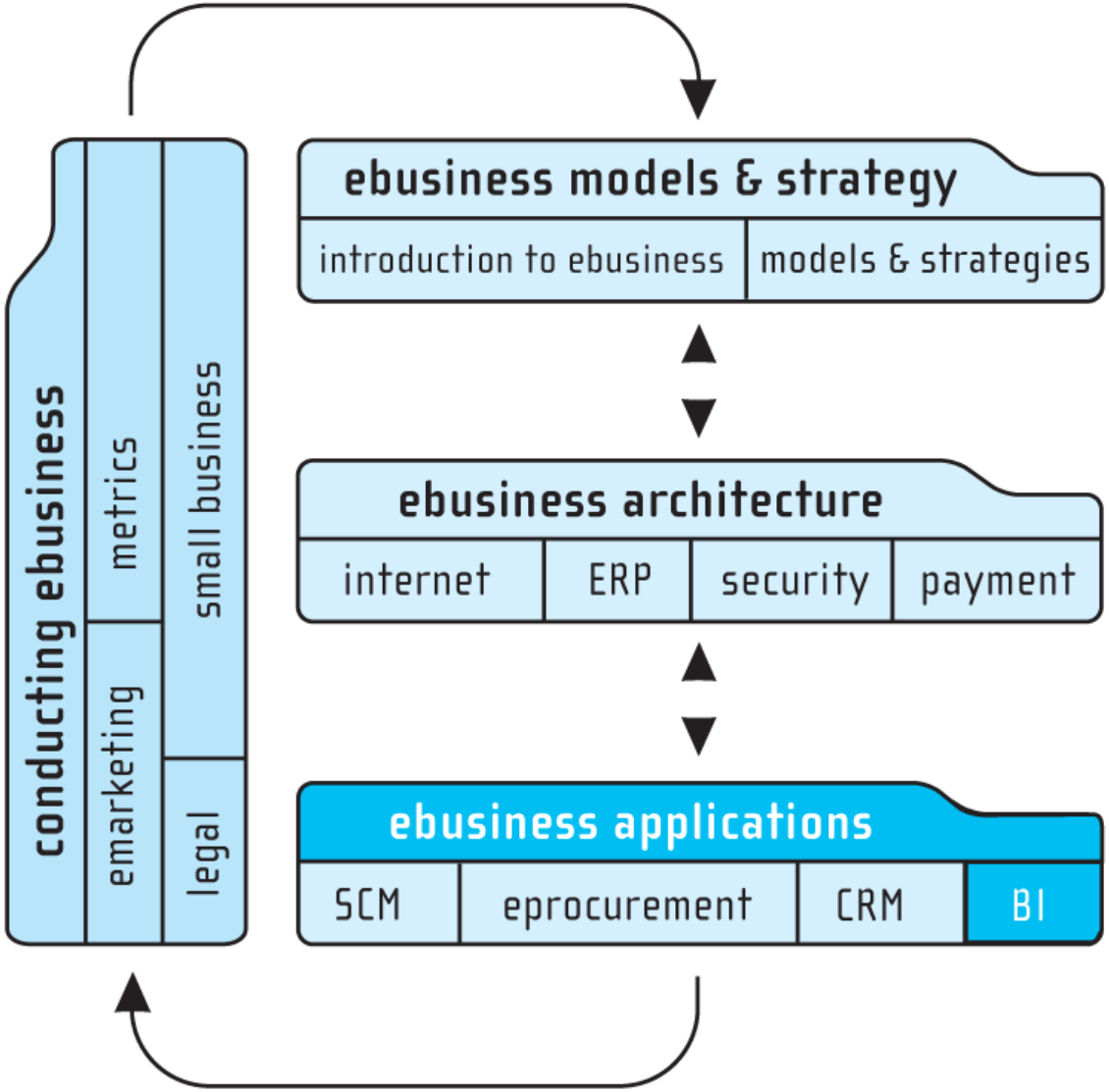

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Learning Objectives

1. Compare and contrast how business intelligence (BI) and enterprise resource planning (ERP) systems handle data
2. Describe the benefits of BI systems
3. Name and describe the major functions of BI systems
4. Explain the types of technologies and solutions used in BI systems
5. Discuss the implementation of BI systems and the stages it needs to follow
6. Describe how businesses may use data warehouses and data marts within BI infrastructure
7. Describe critical success factors and emerging trends in the field of BI.

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Introduction

- “One of the great ironies of information technology is that companies spend a lot of time and money amassing terrific amounts of data, which they then largely under utilize for strategic decision-making purposes”

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Introduction

- BI has emerged as a powerful tool that enables businesses to capture, analyze, interpret, and report on data – thus creating valuable information for the enterprise.

- The concepts of BI have emerged from data-mining techniques, decision support systems, data warehousing, knowledge management and other business tools that have been used for years.

- Top BI vendors include Oracle, Business Objects, Cognos, SAS etc.

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ERP vs. BI

- Business Intelligence (BI) is an extension of the ERP (Enterprise Resource Planning)
- Present data to decision makers
- To provide analytical capability
- BI applications can be closely related to CRM strategies.
- BI tools are provided by a number of software companies.

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Benefits of BI

- Some of the key benefits of business intelligence include:
  - **continuous rather than periodic management-** opportunity to manage based on a continuous flow of information that is current and exact.
  - information can be correlated with other data at any time, all the time.
  - **improved management of diverse business functions-** including marketing, HR, and finance/at the same time.

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Benefits of BI

- Other key benefits of business intelligence include:
  - **improved collaboration-** enables different divisions to share common data resources.
  - can produce a collaborative work culture among employees.
  - **improved understanding of customers-** reactions of customers to prices, products, and promotions.
  - can lead to action plans to meet or exceed their expectations.

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BI Functions

- BI tools should be considered as an extension of the power of the ERP system, and focus on:
  - Data Integration and Organization
    - Internal data sources include ERP systems, CRM systems, eprocurement systems, legacy systems, and call centres.
    - External data sources include supply-chain partners, industry information regarding competitors, or other external information such as economic indicators.
    - BI applications integrate all data sources in a manner optimized for reporting and analysis.

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BI Functions

- Data warehouses exists outside of **online transaction-processing (OLTP)** system or ERP, and is dedicated to the analytical aspects of the organization.
  - OLTP is a program that facilitates and manages transaction-oriented applications, typically for data entry and retrieval transactions across a network.
- Data in a BI system is structured around metadata.
  - Metadata is a structured definition of data; it is data about data

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BI Functions

- The integration of data occurs through a number of methods, as the data warehouse consolidates data from numerous sources using the process of **Extraction, Transformation and Loading (ETL)**.
  - ETL is the process of gathering data from a system such as an ERP system, which can be simplified and stored within the data warehouse.

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Business Intelligence Functions

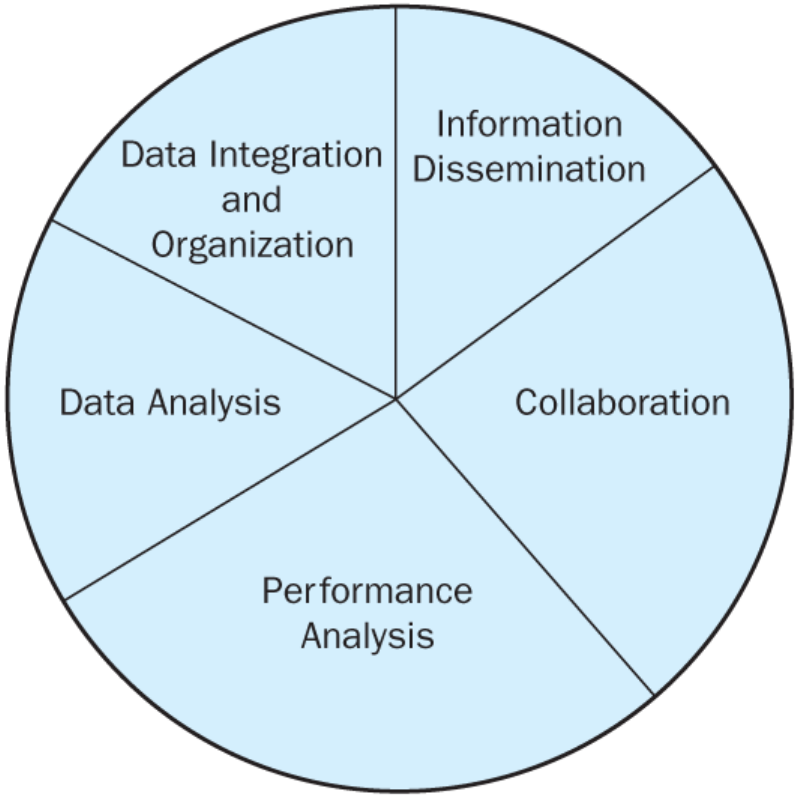

Figure 10.1 Business intelligence functions

The tools of BI can be used to focus on data integration and organization, data analysis, performance analysis, information dissemination, and collaboration.

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Data Sources for Business Intelligence

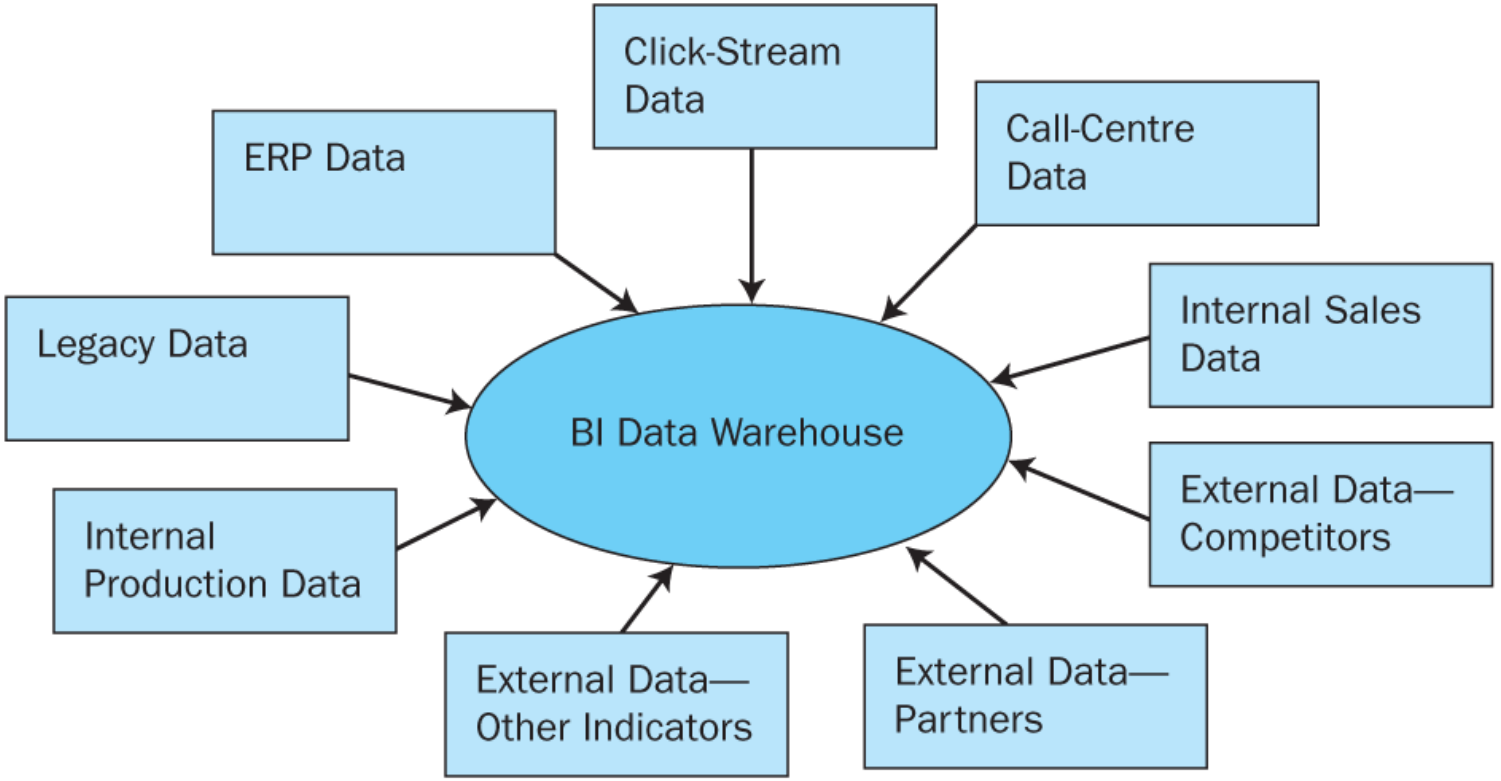

Figure 10.2 Data sources for business intelligence

Numerous data sources contribute to the BI data warehouse, including internal and external sources.

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BI Functions

- Data Analysis
  - Levels of data analysis may range from basic reporting upon pre-configured **data cubes** to ad-hoc queries or data mining.
    - Data cubes are multi-dimensional database structures that allow quick drill-down and reformatting of data.
  - BI allows users to have access to reports and information that previously resided only in the information systems group.

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BI Functions

- Data analysis and reporting range from standard reports through to data mining.
  - Standard reports
  - Ad-hoc query. The ability for users to generate any type of query or report they wish within the system.
  - OLAP Analysis. Provides the ability for users to perform detailed, summary or trend analysis on data and allows for drill-down into that data.
  - Data mining. The analysis of data for relationships that may not have previously been known.

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BI Functions

- BI tools should be considered as an extension of the power of the ERP system, and focus on:
  - Data Integration and Organization
    - Internal data sources include ERP systems, CRM systems, eprocurement systems, legacy systems, and call centres.
    - External data sources include supply-chain partners, industry information regarding competitors, or other external information such as economic indicators
    - BI applications integrate all data sources in a manner optimized for reporting and analysis.

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Illustration of a Data Cube

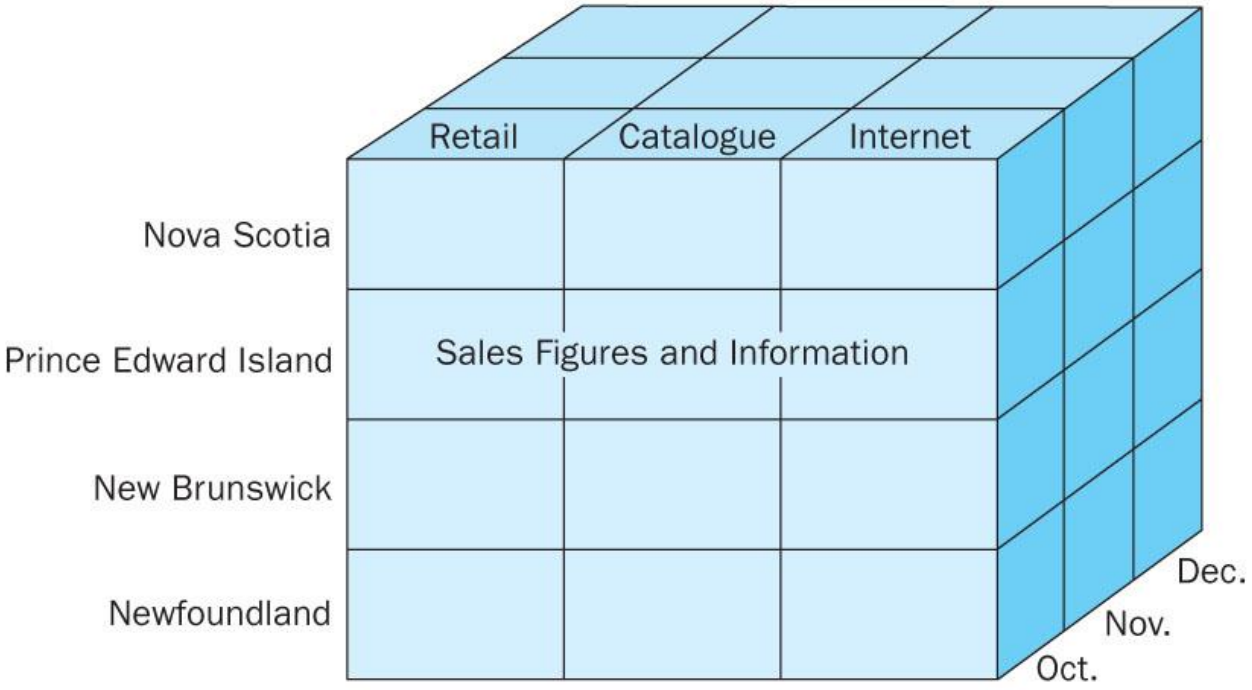

Figure 10.3 Illustration of a data cube

This illustration shows how a data cube could structure data for an Atlantic Canadian company selling via different channels to allow drill-down and data analysis in a structured format.

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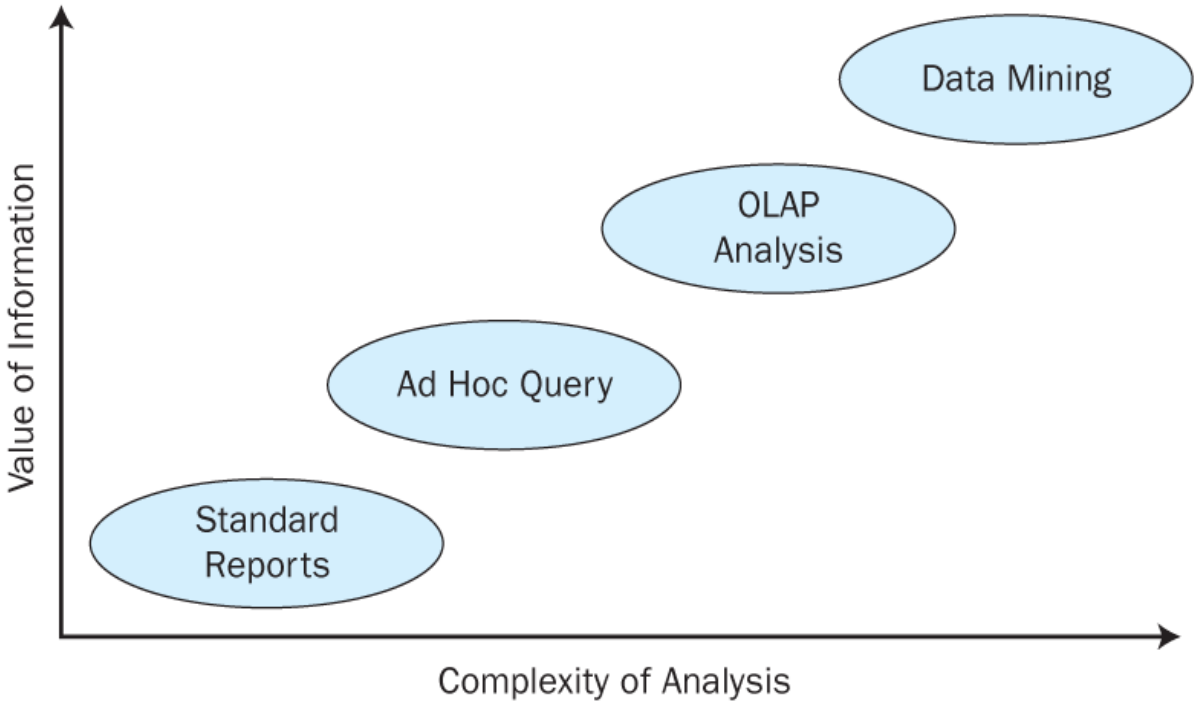
Data Analysis and Reporting Methods



Online analytical processing

Figure 10.4 Data analysis and reporting methods

The value of BI increases as the complexity of the level of analysis increases beyond standard reporting.

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Performance Analysis

- Key Performance Indicators
  - important standards that a company measures its performance against in relation to goals, competitors, and the industry.
  - Examples of KPI's include market share percentages, revenue growth, and quality deviations.

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Performance Analysis

- Balanced Scorecard
  - Multi-dimensional measurement tool aimed at capturing a variety of performance indicators including performance metrics on customers, internal processes, learning and growth, and financial performance.
- Dissemination
  - communicating on a timely basis
- Collaboration
  - share info with entire supply chain

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Technologies of BI

- The major technological components of BI architecture can be described as: core technologies, enabling technologies and solutions.
  - Core technologies.
    - Technologies that provide the basic infrastructure for business intelligence. E.g. use of relational databases.
      - A relational database is one that uses numerous tables and can relate fields or tables within the database to one another, and can easily be reorganized or extended.
    - Enabling technologies.
      - Technologies that provide the ability of the BI applications to interact and perform tasks within the core technologies, such as the data warehouse. E.g. OLAP, SQL, XML
    - BI Solutions
      - Technologies that provide the reporting and analysis of data at the client or user end of the process.

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Relational Databases – big time saver by reducing duplicate data entry

Customer Table

Customer #	Name	Address	Phone	Contact Name
1000	Acme Co	Toronto, ON	416-555-5555	John Summers

Supplier Table

Inventory Code	Description	Manufacturer	Weight	Price
986756	Disk Drive	Seagate	1 kg	99.99

Transaction Record

Customer #	Item	Quantity	Date
1000	986756	5	01/01/08

Figure 10.6 Relational databases

The use of relational databases reduces data redundancy, inconsistency, and errors by minimizing duplication and the amount of information that needs to be entered into a system. The system can link order information to other fields in the inventory and customer tables as necessary to get other needed information, such as price or shipping addresses.

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Implementation

- Planning phase
  - Critical Success Factors:
    - Ease of use
    - Scalability
    - Flexibility
    - Performance
    - Data Quality
    - Security
- Architectural Design
  - Database design
  - System architecture

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Implementation

- Execution.
  - Top management commitment needs to exist throughout the project to ensure adequate resources are dedicated and to gain employee buy-in.
  - Team approach to the entire project is necessary to allow departmental input and evaluation of the project planning and implementation.

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Implementation

- Make sure the system covers the goals set out in the planning stage i.e.. ROI measurement.
- Planning must be very detailed and well thought out.
- Levels of detail required need to be considered carefully - you can’t “drill down” if there is no additional detail.

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Implementation

- Maintenance and Change Management.
  - Design and implementation of a BI system must be revised as new user requirements and new technologies come along.
  - As technologies such as ERP systems, databases, and the internet continue to evolve, BI will need to keep pace if it is to continue to provide value to the firm.

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Implementation

- Flexible systems are needed to enable the BI implementation to adapt as the organization's needs change.
- The company's BI systems will need to be modified to incorporate changes quickly and effectively.

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New Trends in BI

- BI on Mobile Devices
  - Existing BI architecture is designed to enable users to interact with BI content via their mobile devices, such as BlackBerrys.
- Enhanced Search Capabilities
  - Organizations also capture great volumes of unstructured information, such as emails, memos, documents, telephone records, contracts, and customer responses to surveys.
  - A new application for BI is the ability to link BI solutions to online search engines.
- Real-Time BI
  - Enterprises are seeking to implement real-time BI to increase the speed and efficiency of short-term tasks such as data integration, data reporting, performance management, and automated actions.

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Case study - NTUITIVE

- Study the case study on page 240. Then answer the following questions:
  1. What are some examples of analyses that could benefit from a system like Nvision?
  2. What issues does this type of BI raise? How should they be addressed?
  3. Is software licensing the best way to sell Nvision? What other options could Mark consider?
  4. How should Mark respond if the IT department is not supportive?

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Summary

- The growth in the information economy has led to the need for a much more sophisticated understanding of business processes, statistics, financial information, and other information based on data.
- The primary enabling technologies of BI systems include both data warehouses and data marts.
- The analysis of data can be carried out in numerous ways with BI systems.
- BI implementation is a complex task. Critical success factors include ease of use, scalability, flexibility, performance, data quality and security.
- Emerging trends include BI on mobile devices, enhanced search capabilities, and real time BI.

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