



ERP Future & Trends

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ERP

Objectives

After completing this chapter, you will be able to:

- ◆ Define RFID and its role in logistics and sales
- ◆ Define business intelligence (BI), and provide examples of its uses
- ◆ Discuss the importance of mobile applications to businesses
- ◆ Describe cloud computing and why it is becoming important for ERP providers

Objectives (cont'd.)

- ◆ Explain how the service-oriented architecture (SOA) concept has changed ERP development
- ◆ Describe Web services, and outline the unique components of NetWeaver
- ◆ Define software as a service (SaaS), and identify the advantages and disadvantages of using this software delivery model

Introduction

- ◆ An Enterprise Resource Planning (ERP) system allows a company to accomplish tasks that cannot be done well, if at all, without such a system
- ◆ Traditionally:
 - ERP systems have been software applications that are run on a company's own computer systems
 - Focus of ERP has been on managing business transactions

Introduction (cont'd.)

- ◆ Technologies, such as radio frequency identification (RFID), are increasing the amount of data that is contained in ERP systems
- ◆ Business intelligence technologies are turning data in ERP systems into valuable information
- ◆ Cloud computing and mobile technologies are changing where ERP data is stored and how it is delivered

Radio Frequency Identification (RFID) Technology

- ◆ **Radio frequency identification** technology
 - Known commonly as RFID
 - Becoming an increasingly efficient tool for tracking items through a supply chain
- ◆ RFID device
 - Can be attached to products
 - A small package (or tag) made up of a microprocessor and an antenna

Radio Frequency Identification (RFID) Technology (cont'd.)

- ◆ RFID reader
 - Can determine location of an item with an RFID tag
 - Emits radio waves and receives signals back from the tag
 - Sometimes called an interrogator
- ◆ Advantages of RFID technology:
 - Does not need a line-of-sight connection
 - Can withstand most environmental stresses

Radio Frequency Identification (RFID) Technology (cont'd.)

- ◆ Walmart is on the leading edge of the move to integrate RFID technology into the supply chain
- ◆ Pharmaceutical firms are evaluating the use of RFID technology
- ◆ RFID technology is being employed to track medical devices
 - Spectrum Health's Meijer Heart Center is using RFID technology to track stents

Business Intelligence/Business Analytics

- ◆ **Business intelligence (BI)**
 - Also referred to as *business analytics*
 - A range of different applications and technologies used to extract and analyze large amounts of data to aid in decision making
 - Includes data-mining tools and querying tools
 - Often interactive and visual
- ◆ There has been significant growth in the BI market in recent years

Concepts in Enterprise Resource Planning
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The diagram illustrates the SAP Business Intelligence (BI) framework. It is structured as follows:

- Data sources:** Includes 'Social media' (represented by a document icon) and a database cylinder icon. An arrow points from these sources to the central hub.
- Analytic capabilities:** A central circular hub labeled 'Collaboration' is surrounded by six segments:
 - Business intelligence
 - Enterprise information management
 - Data warehousing
 - Governance, risk, and compliance
 - Enterprise performance management
 - Analytic applications
- Access:** An arrow points from the analytic capabilities to a server rack, a desktop computer, and a smartphone, representing various access points.

Figure 8-1 SAP Business Intelligence (BI) framework

Concepts in Enterprise Resource Planning
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Business Intelligence/Business Analytics (cont'd.)

- ◆ Analytic applications and business intelligence
 - Similar sets of data analysis tools
- ◆ Analytic applications
 - Data analysis tools applied to specific industries
- ◆ Enterprise performance management
 - Concept of developing strategic goals for the organization
 - Gathering data to evaluate how the organization is performing in relation to those goals

Business Intelligence/Business Analytics (cont'd.)

- ◆ Governance, risk, and compliance category
 - A group of activities focused on ensuring an organization is functioning ethically and legally
- ◆ Data warehousing
 - Technology used to store the large volumes of data used in the analysis
- ◆ **Enterprise information management**
 - Describes the business and technology functions that manage information as a corporate asset

In-Memory Computing

- ◆ Data in a data warehouse are structured as **multidimensional data cubes**
 - Allow for relationships in the data to be analyzed quickly
- ◆ Two main challenges with using a multidimensional cube structure
 - A significant level of technical expertise is needed to construct a cube
 - A multidimensional cube necessarily restricts how the data can be analyzed

Mobile Computing

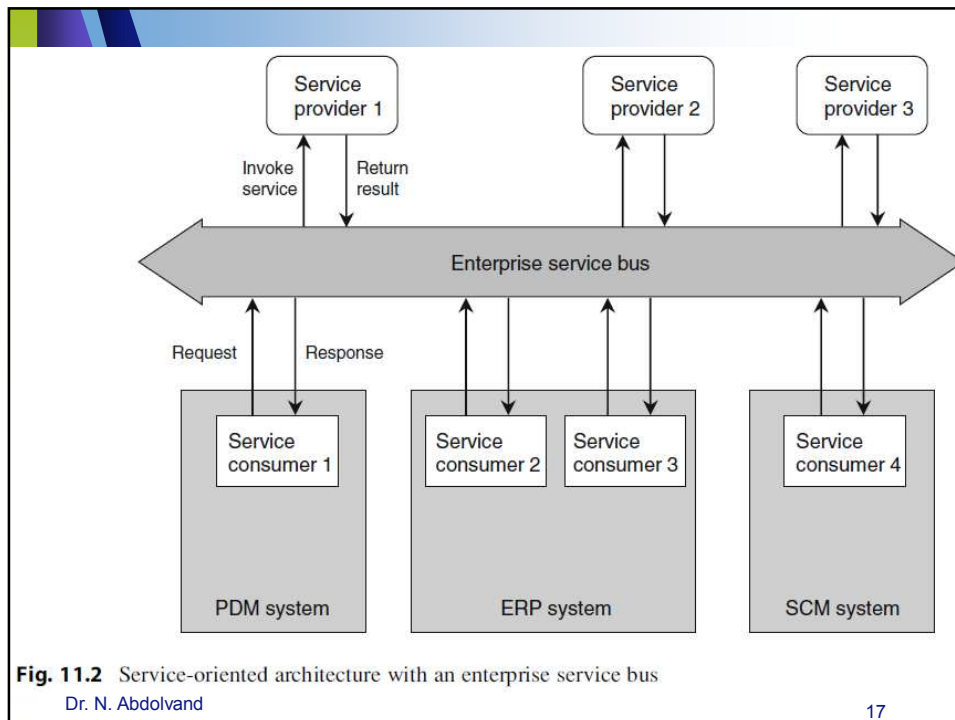
- ◆ Increasing use of smartphones, tablet computers, and other mobile computing devices
- ◆ Mobile applications need to be developed for different kinds of smartphones, with different operating systems
- ◆ Companies need to make many decisions about the use of mobile devices by employees
- ◆ Mobile devices provide users with information and can also be sources of information

SOA

- ◆ Using a service-oriented architecture (SOA) (Sweeney 2010), a software system is made up of services.
- ◆ Application software is considered a service (or a collection of services) and not a piece of software installed on the company's computers
- ◆ The rationale for a software service is similar to that of services in a business context
- ◆ A software system with a service-oriented architecture is essentially a collection of services that are capable of communicating with each other.

Web Services

- ◆ a web service can be described as a software component designed to support interoperable machine to-machine interaction over a network.
 - SOAP (simple object access protocol) defines a common syntax for data exchange.
 - Any program on the web can send a SOAP message with the service name and input parameters via the Internet, and will obtain another SOAP message with the results in return.
 - WSDL (web services description language) specifying how to communicate with the service



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Enterprise Services

- ◆ Enterprise services are business-level web services.
 - This term has been particularly stressed by SAP when they introduced SOA for their new products.
 - While web services are for programmers, enterprise services are defined on a higher level
 - an enterprise service is likely to employ functionality from different information systems, modules, or web services
- ◆ Example: Cancellation Order

Federated ERP

- ◆ based on the assumptions that
 - (1) different ERP systems have strengths and weaknesses in different areas, and
 - (2) while some of a company's requirements may be best served by a component of system A, others would be better served by components of B and C.

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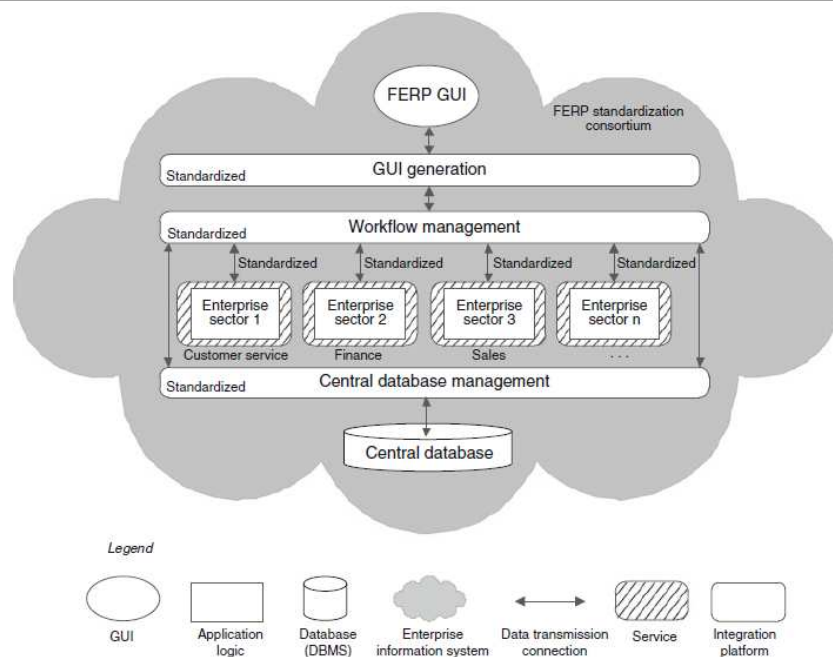
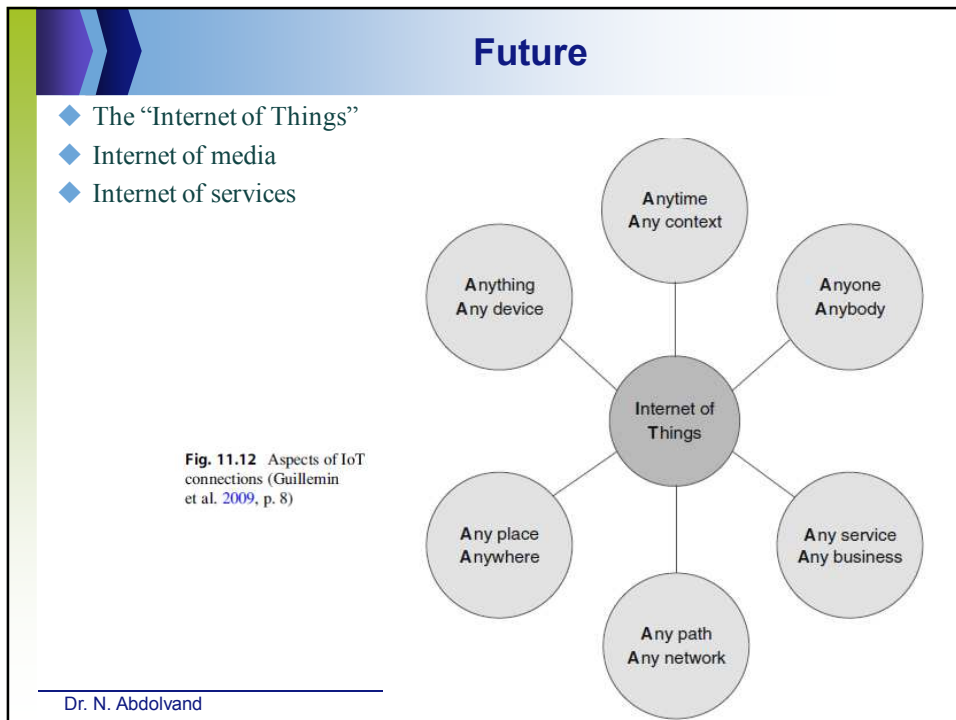
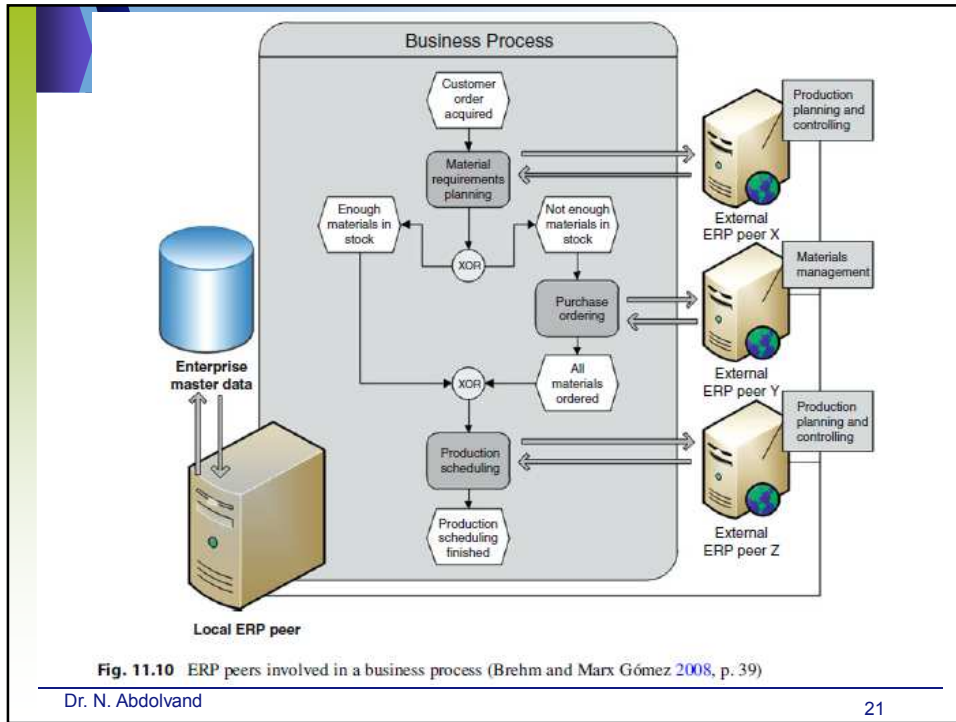


Fig. 11.11 Architecture of a federated ERP system (Brehm and Marx Gómez 2007, p. 6)





Questions?