Chapter 7

E-Supply Chains, Collaborative Commerce, and Corporate Portals

Learning Objectives

1. Define the e-supply chain and describe its characteristics and components.
2. List supply chain problems and their causes.
3. List solutions to supply chain problems provided by EC.
4. Describe RFID supply chain applications.
5. Define c-commerce and list the major types.

6. Describe collaborative planning and Collaboration, Planning, Forecasting, and Replenishing (CPFR) and list the benefits of each.
7. Discuss integration along the supply chain.
8. Understand corporate portals and their types and roles.
9. Describe e-collaboration tools such as workflow software and groupware.
E-Supply Chains

- Definitions and Concepts
  - supply chain
    The flow of materials, information, money, and services from raw material suppliers through factories and warehouses to the end customers
  - e-supply chain
    A supply chain that is managed electronically, usually with Web technologies

E-Supply Chains

- Supply Chain Parts
  - Upstream supply chain
    - procurement
      The process made up of a range of activities by which an organization obtains or gains access to the resources (materials, skills, capabilities, facilities) they require to undertake their core business activities
  - Internal supply chain
  - Downstream supply chain
Supply Chains

**Supply Chain Management (SCM)**

A complex process that requires the coordination of many activities so that the shipment of goods and services from supplier right through to customer is done efficiently and effectively for all parties concerned. SCM aims to minimize inventory levels, optimize production and increase throughput, decrease manufacturing time, optimize logistics and distribution, streamline order fulfillment, and overall reduce the costs associated with these activities.

**E-Supply Chains**

**E-Supply Chain Management (e-SCM)**

The collaborative use of technology to improve the operations of supply chain activities as well as the management of supply chains.

The success of an e-supply chain depends on:

- The ability of all supply chain partners to view partner collaboration as a strategic asset
- A well-defined supply chain strategy
- Information visibility along the entire supply chain
- Speed, cost, quality, and customer service
- Integrating the supply chain more tightly

**Activities and Infrastructure of E-SCM**

- Supply chain replenishment
- E-procurement
- Supply chain monitoring and control using RFID
- Inventory management using wireless devices
- Collaborative planning
- Collaborative design and product development
- E-logistics
- Use of B2B exchanges and supply webs
E-Supply Chains

- **e-procurement**
  The use of Web-based technology to support the key procurement processes, including requisitioning, sourcing, contracting, ordering, and payment. E-procurement supports the purchase of both direct and indirect materials and employs several Web-based functions such as online catalogs, contracts, purchase orders, and shipping notices.

- **collaborative planning**
  A business practice that combines the business knowledge and forecasts of multiple players along a supply chain to improve the planning and fulfillment of customer demand.

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E-Supply Chains

- **Infrastructure for e-SCM**
  - Electronic Data Interchange (EDI)
  - Extranets
  - Intranets
  - Corporate portals
  - Workflow systems and tools
  - Groupware and other collaborative tools

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E-Supply Chains

- **Determining the Right Supply Chain Strategy**
  - Functional products are staple products that have stable and predictable demand and call for a simple, efficient, low-cost supply chain.
  - Innovative products tend to have higher profit margins, volatile demand, and short product life cycles. These products require a supply chain that emphasizes speed, responsiveness, and flexibility rather than low costs.
Supply Chain Problems and Solutions

- Typical Problems along the Supply Chain
  - With increasing globalization and offshoring, supply chains can be very long and involve many internal and external partners located in different places
  - A lack of logistics infrastructure might prevent the right goods from reaching their destinations on time
  - Quality problems with materials and parts also can contribute to deficiencies in the supply chain
  - bullwhip effect
    Erratic shifts in orders up and down supply chains

Supply Chain Problems and Solutions

- The Need for Information Sharing along the Supply Chain
- EC Solutions along the Supply Chain
  - Order taking
  - Order fulfillment
  - Electronic payments
  - Managing risk
  - Inventories can be minimized
  - Collaborative commerce

Key Enabling Supply Chain Technologies: RFID and Rubee

- radio frequency identification (RFID)
  Tags that can be attached to or embedded in objects, animals, or humans and use radio waves to communicate with a reader for the purpose of uniquely identifying the object or transmitting data and/or storing information about the object
Key Enabling Supply Chain Technologies: RFID and RuBee

- LIMITATIONS OF RFID
  - For small companies, the cost of the system may be too high
  - The restriction of the environments in which RFID tags are easily read
  - Different levels of read accuracy at different points along the supply chain
  - Concerns over customer privacy
  - Agreeing on universal standards
  - Connecting the RFID with existing IT systems

RuBee
Bidirectional, on-demand, peer-to-peer radiating transceiver protocol under development by the Institute of Electrical and Electronics Engineers

<table>
<thead>
<tr>
<th>Feature</th>
<th>RFID</th>
<th>RuBee</th>
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<tbody>
<tr>
<td>Signal Type Frequency</td>
<td>Magnetic (13.56 MHz, 2.4 GHz)</td>
<td>600 MHz (RFID)</td>
</tr>
<tr>
<td>Read Speed</td>
<td>2000-5000 ms per second</td>
<td>High (RFID)</td>
</tr>
<tr>
<td>Battery Life (in years)</td>
<td>Long (RFID)</td>
<td>Short (RuBee)</td>
</tr>
<tr>
<td>Suitable for Mobility</td>
<td>Suitable for use in any environment</td>
<td>Suitable for use in mobile environments</td>
</tr>
<tr>
<td>Data Rate</td>
<td>Varies (RFID)</td>
<td>High (RuBee)</td>
</tr>
<tr>
<td>Data Transmission Mode</td>
<td>Broadcast, point-to-point</td>
<td>Point-to-point (RuBee)</td>
</tr>
<tr>
<td>Cost</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

Wireless communication between RFID and RuBee.
Collaborative Commerce

- **collaborative commerce (c-commerce)**
  The use of digital technologies that enable companies to collaboratively plan, design, develop, manage, and research products, services, and innovative EC applications

- **collaboration hub**
  The central point of control for an e-market. A single c-hub, representing one e-market owner, can host multiple collaboration spaces (c-spaces) in which trading partners use c-enablers to exchange data with the c-hub.

EXHIBIT 7.4A  Comparing the Traditional Collaborative Supply Chain and Collaborative Networks

EXHIBIT 7.4B  Evolving the Collaborative Network of Suppliers, Distributors, and Customers

Part of traditional collaboration, including OPAC. Collaboration agents and efforts are shown as nodes.
Collaborative Commerce

- grid computing
  A form of distributed computing that involves coordinating and sharing computing, application, data, storage, or network resources across dynamic and geographically dispersed organizations

- service-oriented architecture (SOA)
  An architectural concept that defines the use of services to support a variety of business needs. In SOA, existing IT assets (called services) are reused and reconnected rather than the more time consuming and costly reinvention of new systems

Collaborative Commerce

- Representative Examples of E-Collaboration
  - vendor-managed inventory (VMI)
    The practice of retailers’ making suppliers responsible for determining when to order and how much to order
  - Information sharing between retailers and suppliers
  - Retailer–supplier collaboration
  - Lower transportation and inventory costs and reduced stockouts
  - Reduction of design cycle time
  - Reduction of product development time
Collaborative Commerce

- Barriers to C-Commerce
  - Most organizations have achieved only moderate levels of collaboration because of:
    - A lack of internal integration, standards, and networks
    - Security and privacy concerns, and distrust over who has access to and control of information stored in a partner’s database
    - Internal resistance to information sharing and to new approaches
    - A lack of internal skills to conduct c-commerce

Collaborative Planning, CPFR, and Collaborative Design

- Collaborative planning, forecasting, and replenishment (CPFR)
  Project in which suppliers and retailers collaborate in their planning and demand forecasting to optimize flow of materials along the supply chain
- Advanced planning and scheduling (APS) systems
  Programs that use algorithms to identify optimal solutions to complex planning problems that are bound by constraints.
Collaborative Planning, CPFR, and Collaborative Design

- **product lifecycle management (PLM)**
  Business strategy that enables manufacturers to control and share product-related data as part of product design and development efforts

Supply Chain Integration

- **How Information Systems Are Integrated**
  - Internal integration includes connecting applications with databases and with each other and connecting customer-facing applications (front end) with order fulfillment and the functional information systems (back end)
  - Integration with business partners connects an organization’s systems with those of its external business partners

Supply Chain Integration

- **Web Services**
  An architecture enabling assembly of distributed applications from software services and tying them together
- **Integration along the Extended Supply Chain**
  - Information integration along the extended supply chain—all the way from raw material to the customer’s door
Corporate (Enterprise) Portals

- corporate (enterprise) portal
  A gateway for entering a corporate Web site, enabling communication, collaboration, and access to company information

Types of Corporate Portals
- Types of generic portals
  - Portals for suppliers and other partners
  - Customer portals
  - Employee portals
  - Executive and supervisor portal
- mobile portals
  Portals accessible via mobile devices, especially cell phones and PDAs

The Functionalities of Portals
- information portals
  Portals that store data and enable users to navigate and query these data
- collaborative portals
  Portals that allow collaboration
Corporate (Enterprise) Portals

- Justifying Portals
  - Portals offer benefits that are difficult to quantify
- Developing Portals
  - Many vendors offer tools for building corporate portals as well as hosting services

Collaboration-Enabling Tools: From Workflow to Groupware

- Workflow Technologies and Applications
  - workflow
    - The movement of information as it flows through the sequence of steps that make up an organization’s work procedures
  - workflow systems
    - Business process automation tools that place system controls in the hands of user departments to automate information processing tasks
  - workflow management
    - The automation of workflows, so that documents, information, and tasks are passed from one participant to the next in the steps of an organization’s business process
**Types of Workflow Applications**
- Collaborative workflow
- Production workflow
- Administrative workflow

**The benefits of workflow management systems include:**
- Cycle time reduction
- Productivity gains
- Improved process control
- Improved quality of services
- Lower staff training costs
- Lower management costs
- Improved user satisfaction
- More effective collaboration and knowledge sharing

**groupware**
Software products that use networks to support collaboration among groups of people who share a common task or goal

**Synchronous versus Asynchronous Products**

**Electronic Meeting Systems**
- **virtual meetings**
  Online meetings whose members are in different locations, even in different countries
- **group decision support system (GDSS)**
  An interactive computer-based system that facilitates the solution of semistructured and unstructured problems by a group of decision makers
Collaboration-Enabling Tools: From Workflow to Groupware

- **Electronic Teleconferencing**
  - The use of electronic communication that allows two or more people at different locations to have a simultaneous conference

- **video teleconference**
  - Virtual meeting in which participants in one location can see participants at other locations on a large screen or a desktop computer

- **data conferencing**
  - Virtual meeting in which geographically-dispersed groups work on documents together and exchange computer files during videoconferences

- **Voice-over-IP (VoIP)**
  - Communication systems that transmit voice calls over Internet Protocol–based networks

- **Interactive whiteboards**

- **screen-sharing software**
  - Software that enables group members, even in different locations, to work on the same document, which is shown on the PC screen of each participant
Collaboration-Enabling Tools: From Workflow to Groupware

- Instant video
- Integration and groupware suites
  - Lotus Notes/Domino
  - Microsoft NetMeeting
  - Novell GroupWise

Managerial Issues

1. How difficult is it to introduce e-collaboration?
2. How much can be shared with business partners? Can they be trusted?
3. Who is in charge of our portal and intranet content?
4. Who will design the corporate portal?
5. Should we conduct virtual meetings?