Chapter 8
E-Supply Chains, Collaborative Commerce, and Intrabusiness EC

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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. Define e-commerce and list its major types.
5. Describe collaborative planning and Collaboration, Planning, Forecasting, and Replenishing (CPFR), and list their benefits.
6. Define intrabusiness EC and describe its major activities.
7. Discuss integration along the supply chain.
8. Understand corporate portals and their types and roles.
9. Describe e-collaboration tools such as workflow and groupware.

OPENING VIGNETTE: How General Motors Is Collaborating Online

• The Problem
  – Information regarding a new car design has to be shared among a pool of approximately 20,000 designers and engineers in hundreds of divisions and departments at 14 GM design labs, some of which are located in different countries
  – Communication and collaboration with the design engineers of the more than 1,000 key suppliers could mean 4 years to completion of a model

How General Motors Is Collaborating Online (cont.)

• The Solution
  – GM began by examining over 7,000 existing legacy IT systems, reducing that number to about 3,000 and making them Web enabled
  – A computer-aided design (CAD) program that allows 3D design documents to be shared online by both the designers (internal and external) and engineers
  – Collaborative and Web conferencing software tools have radically changed the vehicle review process
  – GM electronically sends its specifications for the seat to the vendor’s product data system allowing:
    • Searching
    • Designing
    • Tooling
    • Testing in real time
  – This expedites the process and cuts costs by more than 10%

How General Motors Is Collaborating Online (cont.)

• The Results
  – It now takes less than 18 months to bring a new car to market
  – The change has produced enormous savings
  – Shorter cycle time enables GM to bring out more new car models more quickly, providing the company with a competitive edge
How General Motors Is Collaborating Online (cont.)

- What we can learn...
  - Applications of EC that help reduce costs and increase profits
    - collaborative commerce
    - improvements along the supply chain
    - B2E

8.1 E-Supply Chains

- The success of organizations (private, public, and military) depends on their ability to manage the flow of materials, information, and money into, within, and out of the organization
  - Such a flow is referred to as supply chain
- Supply chain involves activities that take place during the entire product life cycle including the movement of information, money and individuals involved in the movement of a product or a service

E-Supply Chains (cont.)

- 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 (cont.)

- Supply chain parts
  - Upstream supply chain
    - activities of a manufacturing company with its suppliers (1st tiers)
    - their connections to their suppliers (2nd tiers)
    - procurement is the major activity
  - Internal supply chain
    - in-house processes for transforming the inputs from the suppliers into the outputs
    - major concerns are production management, manufacturing, and inventory control
  - Downstream supply chain
    - activities involved in delivering the products to the final customers
    - attention is directed at distribution, warehousing, transportation, and after-sale service
E-Supply Chains (cont.)

- Managing 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:
    1. The ability of all supply chain partners to view partner collaboration as a strategic asset
    2. Information visibility along the entire supply chain
    3. Speed, cost, quality, and customer service
    4. Integrating the supply chain segments more tightly

E-Supply Chains (cont.)

- Major infrastructure elements and tools of e-supply chains are:
  - Extranets
  - Intranets
  - Corporate portals
  - Workflow systems and tools
  - Groupware and other collaborative tools
  - EDI and EDI/Internet

8.2 Supply Chain Problems and Solutions

- Typical problems along the supply chain
  1. Slow and prone to errors because of the length of the chain involving many internal and external partners
  2. Large inventories without the ability to meet demand
     ✓ Incorrect demand forecasting
  3. Insufficient logistics infrastructure
     ✓ Vehicle failures to road conditions
  4. Poor quality
Supply Chain Problems (cont.)

- **Bullwhip effect**: Erratic shifts in orders up and down supply chains
  - Creates production and inventory problems
  - Stockpiling can lead to large inventories
- Effect is handled by information sharing - *collaborative commerce (c-Commerce)*

Supply Chain Solutions

- Major solutions provided by an EC approach and technologies
  1. Order taking
  2. Order fulfillment
  3. Electronic payments
  4. Inventories can be minimized
  5. Collaborative commerce

8.3 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 (e.g., GM opening case)

Collaborative Commerce (cont.)

- Major benefits (on organizations’ performance) are:
  - Cost reduction, increased revenue, better customer retention
- As a result of:
  - Fewer stock outs
  - Less exception processing
  - Reduced inventory throughout the supply chain
  - Lower materials costs
  - Increased sales volume
  - Increased competitive advantage

Exhibit 8.2a Comparing the Traditional Collaborative Supply Chain and Collaborative Networks

Exhibit 8.2b Comparing the Traditional Collaborative Supply Chain and Collaborative Networks

Part A: Traditional collaboration, including CPM. Collaboration agents and efforts are shown as erats.

Part B: Supply chains are evolving into collaborative networks. Check designated agents and processes.
Collaborative Commerce (cont.)

- Information sharing between retailers and suppliers: P&G and Wal-Mart
  - Wal-Mart provides P&G access to sales information on every item P&G makes for Wal-Mart
  - Accomplished done electronically
    - P&G has accurate demand information
    - Wal-Mart has adequate inventory
  - How?

Collaborative Commerce (cont.)

- Collaborative commerce and knowledge management
  - Knowledge management: the process of capturing or creating knowledge
  - Gathering and making available experts’ opinions, as well as providing them to partners
  - Learning is also facilitated by KM
- C-commerce is essentially an integration of KM, EC and collaboration tools and methodologies that are designed to carry out transactions and other activities within and across organizations.

8.4 Collaborative Planning and CPFR

- In collaborative planning, business partners—all have real-time access to point-of-sale order information
  - manufacturers
  - suppliers
  - distribution partners
  - other partners
- What is CPFR?

Collaborative Commerce (cont.)

- Barriers to c-commerce: lack of defined and universally agreed-on standards
  - technical reasons involving integration, standards, and networks
  - security and privacy concerns over who has access to and control of information stored in a partner’s database
  - internal resistance to information sharing and to new approaches
  - lack of internal skills to conduct collaborative commerce
  - Organizational culture shock: trust

Exhibit 8.3 Collaborative Commerce Example: Target’s Extranet

(an example, this model can be also employed to other apps)

Exhibit 8.5 The Collaborative Planning CPFR Process
8.5 Internal Supply Solutions, Intrabusiness, and B2E

- **Intrabusiness EC**: E-commerce activities conducted within an organization
- **Business-to-employee (B2E)**: Intrabusiness EC in which an organization delivers products or services to its employees

8.6 Integration along the Supply Chain

- Enabling integration and the role of standards and Web services
  - Integration involves **connectivity, compatibility, security, and scalability**
  - Applications, data, processes, and interfaces must be integrated
  - Middleware, standards and protocols have been developed to facilitate (ease) integration

8.7 Corporate (Enterprise) Portals

- **Corporate (enterprise) portal**: A gateway for entering a corporate Web site, enabling communication, collaboration, and access to company information
- Corporate portals offer employees, business partners, and customers an organized focal point for their interactions with the firm

Corporate (Enterprise) Portals (cont.)

- Types of corporate portals
  1. **Generic portals**
     - portal for suppliers
     - portal for customers
     - portal for employees
     - supervisor portals
     - mobile portals—accessible via mobile devices, especially cell phones and PDAs

Corporate (Enterprise) Portals (cont.)

2. **Functional 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 (cont.)

- Justifying portals
  - Offer a simple user interface for finding and navigating content via a browser
  - Improve access to business content and increase the number of business users who can access information, applications, and people
  - Offer access to common business applications from anywhere
  - Offer the opportunity to use platform-independent software

8.8 Collaboration-Enabling Tools: From Workflow to Groupware

- **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

Collaboration-Enabling Tools: Workflow (cont.)

- Three major categories of workflow applications:
  - **Collaborative workflow**
    - project-oriented and collaborative types of processes
    - goal: to empower knowledge workers
  - **Production workflow**
    - mission-critical, transaction-oriented, high-volume processes
    - goal: to improve productivity and quality of BP.
  - **Administrative workflow**
    - cross between collaborative and production
    - goal: to reduce clerical costs in systems with a low volume of complex transactions.

Collaboration-Enabling Tools: Groupware

- **Groupware:**
  Software products that support collaboration, over networks, among groups of people who share a common task or goal
  - Provide a way for groups to share resources and opinions
  - Groupware technology products are fairly inexpensive and can be easily incorporated into existing IS.

Collaboration-Enabling Tools: Group Decision Support Systems (GDSS)

- **Electronic (Virtual) meetings:** Online (Web-based) meetings whose members are in different locations, frequently 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
Components of GDSS

HARDWARE
SOFTWARE
PROCEDURES
PEOPLE

Burr-Brown GDSS session room

Facilitator's station
Participants' stations

Duration of Decision-Making Session
Framework: Group Decision Support

Electronic Brainstorming (generate ideas)
Issue Analyzer (organize and sort the comments)
Voting
Collaboration-Enabling Tools: GDSS (cont.)

- Major characteristics of a GDSS
  - Its goal is to support the process of group decision makers by providing automation of subprocesses using information technology tools
  - It is a specially designed information system, not merely a configuration of already-existing system components.
  - It encourages generation of ideas, resolution of conflicts, and freedom of expression.

Collaboration-Enabling Tools: GDSS (cont.)

- GDSSs improve the decision-making process by:
  - providing structure to the planning process
  - support parallel processing of information and idea generation
  - make larger meetings possible.

Decision Support and Intelligent Systems

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Collaboration-Enabling Tools (cont.)

- Real-time collaboration (RTC) tools help companies bridge time and space to make decisions and collaborate on projects by supporting synchronous communication of graphical and text-based information.
- Interactive white boards
- Screen sharing
- Virtual reality (VR): System that delivers interactive computer generated 3D graphics to a user through a head-mounted display.
Collaboration-Enabling Tools (cont.)

- Implementation issues
  - An effective collaborative environment is necessary
  - Connecting collaborative tools with file management products on an organization’s intranet is necessary
  - Protocols to change the read-only Web to a truly collaborative environment

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?

Summary

1. The e-supply chain, its characteristics, and components: Digitized and automated flow of information throughout the supply chain and managing it via the Web
2. Supply chain problems and their causes: access to inventories, lack of supplies when needed, need for rush orders, deliveries of wrong materials or to wrong locations, and poor customer service
3. Solutions to supply chains problem provided by EC: automate/expedite order taking, speed order fulfillment, provide e-payments, control inventories, provide for correct forecasting and scheduling, and improve collaboration among partners

Summary (cont.)

5. Collaborative planning: concentrates on demand forecasting and on resource and activity planning along the supply chain. CPFR: business strategy that develops standard protocols and procedures for collaboration
6. Intrabusiness: all EC initiatives conducted within an organization.

Summary (cont.)

7. Intrabusiness: all EC initiatives conducted within an organization.
8. Integration along the supply chain: critical to the success of companies.
9. Types and roles of corporate portals: for suppliers, customers, employees, and supervisors.
10. Collaborative tools: workflow, groupware, GDSS, devices that facilitate product design