Chapter 12
Fulfilling E-Commerce Orders and Other EC Support Services

Learning Objectives

Upon completion of this chapter, you will be able to:

1. Describe the role of support services in electronic commerce (EC).
2. Define EC order fulfillment and describe the EC order fulfillment process.
3. Describe the major problems of EC order fulfillment.
4. Describe various solutions to EC order fulfillment problems.
5. Describe the integration of enterprise systems and e-commerce.
6. Describe enterprise resource planning (ERP) and its benefits.
7. Describe intelligent agents as supporters of EC.
8. Describe other EC support services.
9. Discuss the drivers of outsourcing support services.

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Answers to Pause/Break Section Review Questions

Section 12.1 Review Questions

1. Define order fulfillment and logistics.

Fulfillment is all of the activities needed to provide customers with ordered goods and services, including related customer services. Logistics is defined as the operations involved in the efficient and effective flow and storage of goods, services, and related information from point of origin to point of consumption.

2. Compare traditional logistics with e-logistics.

E-logistics is different in that it is generally more personalized, dynamic and reliant on
technology. These differences are summarized in Exhibit 12.2.

3. Compare traditional logistics to e-logistics.
E-logistics is different because instead of sending large shipments to a few locations, it deals with sending many small packages to many small locations (usually homes).

4. Compare logistics to reverse logistics.
Logistics is the shipment of goods to customers while reverse logistics is customers returning those goods. Reverse logistics is generally more difficult because there is no expected flow of goods.

Section 12.2 Review Questions

1. List some problems along the EC supply chain.
Some problems include inventory levels, incorrect or slow shipments, and demand forecasting.

2. Explain how uncertainties create order fulfillment problems; list some of these problems.
The scope of the order fulfillment mechanism depends on the volume of orders to process. The greatest uncertainty is forecasting this volume. If the order fulfillment mechanism is too large, idle time is created, if the order fulfillment mechanism is too small, orders are not shipped on time.

3. Describe the role of 3PLs.
Pure EC companies are likely to have more problems because they do not have a logistics infrastructure already in place and thus are forced to use external logistics services rather than in-house departments for these functions. These external logistics services often are called third-party logistics (3PL) suppliers, or logistics service providers.

Section 12.3 Review Questions

1. List the various order-taking solutions.
The solutions can include the use of EDI, EDI/Internet, Internet, extranet or other more automated solutions.

2. List solutions for improved delivery.
Some solutions include partnerships with delivery carriers, and forwarders that can immediately ship products to customers.
3. Describe same-day shipments.

Same-day shipments are product orders that can be delivered to the customer in the same day that the product is ordered. Same-day shipments are very difficult because of the fast processing time needed, but necessary in certain industries.

4. Describe some innovative e-strategies for order fulfillment.

Two examples are merge-in-transit and rolling warehouses.

5. Describe how to effectively manage the return of items.

There are several different methodologies for return handling, including: returning the item to the place where it was purchased, separate logistics for returns, outsourcing returns, and physically dropping off the returned items to collection stations.


The major issues are shipment size, multiple distribution channels, variety of shipment frequency, uneven breadth of carrier services, fewer carrier EC offerings, and complex EC transaction paths.

Section 12.4 Review Questions

1. Why do we need to integrate EC in the enterprise?

EC needs to be integrated to allow firms to fully benefit from its potential and to create the greatest efficiencies.

2. Define ERP.

An enterprisewide information system designed to coordinate all the resources, information, and activities needed to complete business processes such as order fulfillment or billing.

3. Describe the ERP modular design.

Different functions are separated into modules to allow for better customization.

4. How can ERP interface with EC?

ERP systems can interface with many phases of the EC process from inventory to sales to logistics.

5. List five specific benefits of ERP that are related to EC.

All benefits are listed on pages 527 and 528.

Section 12.5 Review Questions
1. **Define intelligent agents.**
   An autonomous entity that perceives its environment via sensors, and acts upon that environment directing its activity toward achieving a goal(s) (i.e., acting rationally).

2. **List and describe the major components of an intelligent agent.**
   - **Sensors** – Eyes, nose, camera, sonar, laser range finder, search engine
   - **Percepts** – Electronic signals, noise level, temperature level, e-mail volume
   - **Actuators** – Limbs (artificial, real), digits, electronic commands
   - **Actions** – Move an arm (real, artificial), activate electronic command, move, close, or open switch

3. **Define a software agent.**
   Autonomous software programs that carry out tasks on behalf of users

4. **Describe a mobile agent.**
   Software agents that move to other systems, performing tasks there; a mobile agent can transport itself across different system architectures and platforms

5. **Define a learning agent.**
   Software agents that have the capacity to adapt or modify their behavior—that is, to learn

6. **Define multiagents and describe some of their applications.**
   Computer systems in which there is no single designer who stands behind all the agents; each agent in the system can be working toward different, even contradictory, goals.

**Section 12.6 Review Questions**

1. **Describe the role of EC consultants and list their major types.**

   EC consultants can play many roles in assisting businesses as they design and manage EC Sites. There are three major types of EC consultants: EC specific consultants, general consultants, and hardware/software consultants.

2. **Describe the value of directory services. Provide three examples of what value they add.**

   Student answers will vary. Directory services aggregate buyers and sellers; provide basic information and may have some aspect of endorsement.

3. **Explain why specialized search engines are needed.**

   As the number of sites increases, search engines become generalized. Specialized engines keep their focus.
4. **List some other EC support services.**

Additional services include trust services, trademark and domain names, digital photos, global business communities, commercial databases, consulting, KM, client matching, rating sites, encryption sites and coupon-generating sites.

5. **List the major reasons why companies outsource EC support services.**

Generally these services are outsourced if the firm does not have the ability to perform the actions required, or does not feel that it is an organizational strength.

6. **Which types of services are outsourced the most?**

IT services are most often outsourced.

7. **Describe the benefits of ASPs.**

ASP can provide many of the services required by an EC firm. These vendors can provide an unbundled variety of services. Their primary advantage is cost for SMEs and allowing a firm to concentrate on its core competence.

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**Answers to EC Application Case Questions**

**EC Application Case 12.1: How WMS Helps Schurman Improves Its Internal And External Order Fulfillment System**

1. **Identify what the WMS automates, both in receiving and shipping.**

An advanced ship notice is automatically generated (replacing the lengthy process of manual scanning). The new system also automates the task of assessing the length, width, height, and weight of each item before it goes into a box (to determine which item goes into what box). The system also improved inventory replenishment allocations.

2. **In the future, RFID tags could replace the bar codes that are currently used. What would be the advantages of using RFID?**

RFIDs would reduce the need to scan bar codes and improve the efficiency and speed of product placement and recording.

3. **How has inventory management been improved?**

The WMS simultaneously created two lists, expediting fulfillment. This tripled the number of orders fulfilled per picker per day. The system also generates automatic replenishment orders for items falling below a minimum level at any storage location.
Insights and Additions 12.2: UPS Provides Broad EC Services

1. Why would a shipper such as UPS expand to other logistic services?

Firms might enter these related industries because of their existing investments in infrastructure that could support other services.

2. Why would shippers want to handle payments?

Shippers may want to handle payments because it facilitates the overall process of shipping, and thus adds to their business.

3. Why does UPS provide software tools to customers?

UPS provides these goods because it eliminates the need for direct customer service while using existing shipping information to grow EC and UPS’s business.

4. What B2B services does UPS provide? (Note: Check ups.com to make sure that your answers are up-to-date.)

UPS provides a wide range of business services involved with shipping and logistics operations. Examples include integration with shipping and e-commerce systems, desktop-based shipping applications, logistics services for warehousing and shipping, and mobile commerce applications for shipment management.

EC Application Case 12.2: How Daisy Brand Fulfills B2B Orders

1. Describe the steps in order fulfillment at Daisy Brand.

Orders are placed through EDI, and then move to an ERP system that tracks and manages fulfillment and shipping.

2. How is the automation of order fulfillment done?

Orders are all electronic; fulfillment services are controlled by the ERP system which designate product, volume and shipping date.

3. How can supermarkets benefit from introducing electronic processing by Daisy Brand?

They can reduce costs by using electronic ordering and ensure needs are met by specifying them.
4. Enter tibco.com and find information about their BPM and workflow products. How can they support order fulfillment?

Student responses will vary. These systems help to automate many of the stages of the supply chain.

5. How can Daisy Brand improve its agility?

Student responses will vary.

EC Application Case 12.3: How Sundowner Motor Inns Fulfill Its Online Reservations

1. Once you automate the order fulfillment and your data are online, you can generate additional revenue. How?

Student responses will vary, but may focus on marketing of unfilled rooms.

2. What are the criteria for a good order fulfillment in online hotel reservations?

Student responses will vary, but will focus on accurate, available data.

3. Why is it advantageous to integrate the front-end and back-end systems?

This integration allows visibility of what is booked and what is not.

Answers to Discussion Questions

1. Discuss the problems of reverse logistics in EC. What types of companies may suffer the most?

The process of reverse logistics in EC is difficult because reverse logistics is not scheduled or controlled by the company, it is controlled by consumers. This means that returns can happen at any time and from a variety of locations. Because the good was not sold from a physical location, returning the good to the firm will be difficult because some sort of shipping or other method must be used. Small businesses have the largest issues with reverse logistics because their small transaction size does not allow the level of planning and organization afforded with larger businesses.

2. Explain why UPS defines itself as a “technology company with trucks,” rather than a “trucking company with technology.”

UPS feels that it derives its business processes from its technology and not its experience in traditional trucking. The firm believes that its core competency and strategic
differentiation is its ability to use technology to control the trucking process.

3. **Chart the supply chain portion of returns to a virtual store. Check with an e-tailer to see how it handles returns. Prepare a report based on your findings.**

   Student reports will vary.

4. **Under what situations might the outsourcing of EC services not be desirable?**

   Student answers will vary, but may include when those services are too expensive, critical to the business, or complex/proprietary.

5. **Why does it make sense to use a consultant to develop an e-strategy?**

   Student answers will vary. It can be argued that an experienced consultant can help a business avoid mistakes and realistically evaluate the possibilities of EC.

6. **UPS and other logistic companies also provide financial services. Discuss the logic of this.**

   These companies are expanding their service offering with the hope of capturing existing customers. This service may also be an extension of shipping as it relates to factoring and purchasing known A/R.

7. **Differentiate order fulfillment in B2C from that of B2B.**

   B2C order fulfillment deals generally with inventory and logistics to the customer, while B2B deals with shipment size, multiple distribution channels, variety of shipment frequency, uneven breadth of carrier services, fewer carrier EC offerings and complex EC transaction paths.

8. **Discuss the pros and cons of using ASPs.**

   ASPs can provide services that may be difficult or expensive to re-create. They allow a business to focus on its core competencies. ASPs are a risk because important functions of the firm have been outsourced, and the firm has given up a level of control over those functions.

9. **Discuss the motivation of suppliers to improve the supply chain to customers.**

   Improving the supply chain provides better overall service and can also result in reduced costs.

10. **Discuss the need to integrate EC with enterprise systems.**
EC must be integrated with enterprise systems so that its actions can be coordinated in the same ways that other operational areas are. Coordination should result in better speed and efficiency.

11. Discuss the need to integrate EC with partners’ systems.

In the same way that internal integration can bring benefits, external integration can provide similar results. This speeds up the supply chain and can be seen as a valuable service to vendors.

12. Explain how ERP facilitates integration and discuss its benefits.

ERP allows a firm to view consolidated and integrated data concerning each portion of a business, both present and past. This information, combined with software systems allows for more intelligent decisions to be made regarding overall operations.

13. Discuss the need for intelligent and software agents.

These agents allow for streamlining of important processes, increasing speed and efficiency.

14. Why might we need multiagent systems?

While individual agents with defined functions have benefits, the ability to integrate multiple agents allows for more robust applications and interactions.

15. Discuss the benefits of mobile intelligent agents.

These agents have similar benefits to other systems, but their mobile nature addresses a growing area in computing, and simplifies processes that would be more difficult in this setting.

Internet Exercises
(Note: URLs may change over time; please check the Internet Exercises on the Turban Web site for possible updates: www.prenhall.com/turban.)

1. The U.S Postal Service is also in the EC logistics field. Examine its services and tracking systems at usps.com/shipping. What are the potential advantages for EC shippers?

Student reports will vary.

2. Enter redprairie.com and find their order fulfillment related products and services. Prepare a list. Also, review the RFID products that can be used for order fulfillment.

Report your experiences.

Both firms provide a wide variety of shipping software and solutions related specifically to electronic commerce. Both firms provide plug-ins to electronic commerce applications that allow for the immediate calculation of e-commerce shipping amounts. Both firms provide a wide variety of specific shipping and returns options. FedEx appears to deal specifically with business-level shipping, while UPS additionally provides logistics services. Both firms also provide an application for shipment management via mobile devices.

4. Visit freightquote.com and the sites of one or two other online freight companies. Compare the features offered by these companies for online delivery.

Student reports will vary.

5. Enter efulfillmentservice.com. Review the products you find there. How does the company organize the network? How is it related to companies such as FedEx? How does this company make money?

Student reports will vary. This firm assists in providing a variety of outsourced fulfillment solutions, organizing their networks based on company size and type of firm. It takes a portion of each sale to cover their costs and may use companies such as FedEx in the shipping process.

6. Enter categoric.com and find information about products that can facilitate order fulfillment. Write a report.

Student reports will vary.

7. Enter kewill.com. Find the innovations offered there that facilitate order fulfillment. Compare it to shipsmo.com. Write a report.

Student reports will vary.

8. Enter b2byellowpages.com and a2zofb2b.com Compare the information provided on each site. What features do both sites share? How do the sites differ?

Student reports will vary.
9. Visit b2btoday.com. Go to the B2B Communities area and identify the major vendors there. Then select three vendors and examine the services they provide to the B2B community. Also enter sharedinsights.com and examine the information provided and the usefulness of joining the site.

Student reports will vary.

10. Enter ahls.com and find out what they offer. Comment on the uniqueness of the services.

Student reports will vary.

11. Enter support.dell.com and examine all the services available. Examine the tracking services Dell provides to its customers. Finally, examine Dell’s association with bizrate.com. Write a report about customer service at Dell.

Student reports will vary.

12. Review Insights and Additions 12.2 and enter ups.com and answer the following questions:

   a. Why would a shipper such as UPS expand to other logistic services?
   b. Why would shippers want to handle payments?
   c. Why does UPS provide software tools to customers?
   d. What B2B services does UPS provide?

Student reports will vary.

13. Enter rlec.org and summarize the differences between reverse and forward logistics. Also include returns management.

Student reports will vary.

14. Enter autocrat.biz and review the different classifications (options) available. Write a summary report.

Student reports will vary.

15. Enter chainanalytics.com and find how they can improve logistics and solve supply chain and other fulfillment difficulties. Write a report.

Student reports will vary.
16. Enter freshdirect.com and examine the methods they use to improve order fulfillment of online grocers.

Student reports will vary.

17. Enter zoovy.com and find how they provide data integration. Click on the areas that inhibit EC growth (see diagram there). Write a report.

Student reports will vary.

Team Assignments and Role Playing

1. Each team should investigate the order fulfillment process offered at an e-tailer’s site, such as amazon.com, staples.com, or landsend.com. Contact the company, if necessary, and examine any related business partnerships. Based on the content of this chapter, prepare a report with suggestions for how the company can improve its order fulfillment process. Each group’s findings will be discussed in class. Based on the class’s findings, draw some conclusions about how companies can improve order fulfillment.

Student reports will vary.

2. FedEx, UPS, the U.S. Postal Service, and others are competing in the EC logistics market. Each team should examine one such company and investigate the services it provides. Contact the company, if necessary, and aggregate the findings into a report that will convince classmates or readers that the company in question is the best. (What are its best features? What are its weaknesses?)

Student reports will vary.

3. Each team selects a product/service that can be managed by an intelligent agent (or group of agents), such as a self-driving car. Identify the IA major components: sensors, actuators, and so forth, as well as its environment and the goal(s) that direct its operation.

Student reports will vary.

4. Address the following topics in a class discussion:
   a. Should a B2B EC company outsource its shipments?
   b. Some say outsourcing B2B services may hurt the competitive edge. Others disagree. Discuss.
c. Which activities are most critical in order fulfillment of B2C (check Exhibit 12.3)? For B2B? Discuss the differences.

d. Should we buy ERP or lease (on-demand)?

Student opinions and responses will vary.

**Closing Case: HOW MASS CUSTOMIZATION EC ORDERS ARE FULFILLED—MULTIBRAS OF BRAZIL**

1. *What are the drivers of the make-to-order project?*

The product sets the firm as an innovative, customer driven company. It is also very profitable.

2. *How are orders taken?*

Orders can only be taken on the website.

3. *How are orders handled on the assembly line?*

They are tracked by an auditor, the system essentially becomes a parallel assembly line.

4. *How are channel conflicts eliminated?*

The customized product is meant to complement what is available from retailers. Additionally this product serves those you are not near a retailer.

5. *How is customer service provided?*

Customer service is provided online through an online chat.