

## Assignment 2: Chapter 4/5/6

### Discussion Questions (*Short answers*)

1. Discuss the different types of e-commerce.
2. Give two examples from the Internet for each of the different revenue models used in e-commerce.
3. How do supply chains for service organizations differ from supply chains for manufacturing organizations?
4. How can companies satisfy increasing customer expectations?
5. Think of your last major purchase. What criteria did you use to choose the supplier?
6. Explain the concept of partnering, including advantages and disadvantages.
7. Explain the benefits of using a single supplier as opposed to multiple suppliers.
8. Describe the kinds of information that are necessary in a supply chain.
9. Define quality for one of the following products: a university, an exercise facility, spaghetti sauce, and toothpaste. Compare your definitions with those of others in your class.
10. Describe the TQM philosophy and identify its major characteristics.
11. Explain how TQM is different from the traditional notions of quality. Also, explain the differences between traditional organizations and those that have implemented TQM.
12. Find three local companies that you believe exhibit high quality. Next find three national or international companies that are recognized for their quality achievements.
13. Describe the four dimensions of quality. Which do you think is most important?
14. Describe each of the four costs of quality: prevention, appraisal, internal failure, and external failure. Next, describe how each type of cost would change (increase, decrease or remain the same) if we designed a higher quality product that was easier to manufacture.
15. Think again about the four costs of quality. Describe how each would change if we hired more inspectors without changing other aspects of quality.
16. Explain the meaning of the Plan-do-study-act cycle. Why is it described as a cycle?
17. Describe the seven tools of quality control. Are some more important than others? Would you use these tools separately or together? Give some examples of tools that could be used together.

### Problems chapter 4

2. Gabriela Manufacturing was able to find a new supplier that would provide the item for \$1.80 per unit with an annual fixed cost of \$200,000. Should Gabriela Manufacturing insource or outsource the item?
4. Fast Finish, Inc. (FFI) has made a technological breakthrough in snow board finish application. FFI will apply the finish for \$0.23 per unit in variable costs plus a fixed annual cost of \$230,000. Use the cost and demand information given in Problem 3 for Downhill Boards to evaluate this proposal.
  - (a) What will it cost Downhill Boards to outsource the finishing process?
  - (b) At what demand level does it make sense economically to outsource the finishing process?
  - (c) What additional factors should be considered when making this outsourcing decision?

6. Cal's Carpentry is considering outsourcing its accounts receivable function. Currently, Cal employs two full-time clerks and one part-time clerk to manage accounts receivable. Each full-time clerk has an annual salary of \$36,000 plus fringe benefits costing 30 percent of their salary. The part-time clerk makes \$18,000 per year but has no fringe benefits. Total salary plus fringe cost is \$111,600. Cal estimates that each account receivable incurs a \$10 variable cost. The Small Business Accounts Receivables

Group (SBARG) specializes in handling accounts receivable for small- to medium-size companies. Doris Roberts from SBARG has offered to do the accounts receivable for Cal's Carpentry at a fixed cost of \$75,000 per year plus \$30 per account receivable. Next year, Cal expects to have 2000 accounts receivable.

- (a) Calculate the cost for Cal's Carpentry to continue doing accounts receivable in-house.
- (b) Calculate the cost for Cal's Carpentry to use SBARG to handle the accounts receivable.
- (c) If the fixed annual cost offered by SBARG is nonnegotiable but it is willing to negotiate the variable cost, what variable cost from SBARG would make Cal indifferent to the two options?
- (d) What other alternatives might Cal consider in terms of his current staffing for accounts receivable?
- (e) What additional criteria should Cal consider before outsourcing the accounts receivable?

### **Problems chapter 6**

2. Yasuko's Art Emporium (YAE) ships art from its studio located in the Far East to its distribution center located on the West Coast of the United States. YAE can send the art either via transoceanic ship freight service (15 days transit) or by air freight (2 days transit time). YAE ships 18,000 pieces of art annually.

- (a) Calculate the average annual transportation inventory when sending the art via transoceanic ship freight service.
- (b) Calculate the average annual transportation inventory when sending the art via air freight.
- (c) What additional information is needed to compare the two alternatives?

4. Genuine Reproductions (GR) plans on increasing next year's sales by 20 percent while maintaining its same average inventory in dollars of \$250,000.

- (a) Calculate the expected inventory turnover for next year.
- (b) Calculate the expected weeks of supply.

6. Frederick's Farm Factory (FFF) currently maintains an average inventory valued at \$3,400,000. The company estimates its capital cost at 10 percent, its storage cost at 4.5 percent, and its risk cost at 6 percent.

- (a) Calculate the annual holding cost rate for FFF.
- (b) Calculate the total annual holding costs for FFF.

8. A technology problem has rendered some of the inventory at FFF (Problem 6) obsolete. FFF estimates that the risk cost of its inventory is now 10 percent.

- (a) Calculate the new annual holding cost rate.
- (b) Calculate the new total annual holding costs for FFF.

**10.** Custom Computers, Inc. from Problem 9 is considering a new ordering policy. The new order quantity would be 650 heat sinks. Recalculate Problem 9, parts (a) through (e), and compare results.

**12.** A local nursery, Greens, uses 1560 bags of plant food annually. Greens works 52 weeks per year. It costs \$10 to place an order for plant food. The annual holding cost rate is \$5 per bag. Lead time is one week.

- (a) Calculate the economic order quantity.
- (b) Calculate the total annual costs.
- (c) Determine the reorder point.

**24.** Using the data provided in Problem 23, determine what will happen if HP uses the economic production quantity model to establish the quantity produced each cycle.

- (a) Calculate the economic production quantity (EPQ).
- (b) Calculate the maximum inventory level using the EPQ.
- (c) Calculate the total annual cost of using the EPQ.
- (d) Calculate the penalty cost HP is incurring with its current policy.