10
Fundamentals of Cost Management

Solutions to Review Questions

10-1.
Activity-based costing provides management with detailed costing information about products and services. Activity-based management focuses on the use of activity-based costing information to make decisions. Activity-based management is based on activity analysis and finding ways to be more efficient with activities within the organization.

10-2.
Activity-based management can be implemented without an activity-based costing system. However, since the focus of activity-based management is on those activities that cause the most costs, activity-based costing provides data useful to the implementation of activity-based management.

10-3.
Value-added activities add value to the product or service whereas nonvalue-added activities do not add value. By identifying activities that do not add value, management is able to focus on eliminating or reducing nonvalue-added activities. By identifying value-added activities, management knows which activities to retain and make more efficient.

Common nonvalue-added activities include storing materials, reworking defective units, correcting purchase orders that are incorrect, and moving materials and products.

10-4.
Customers affect costs by the way they interact with the company and place demands on company activities. Common examples are ordering behavior and sales support. Suppliers affect costs by the way they interact with the company and place demands on the company activities. Common examples are deliveries that are late or product that has to be inspected before use or sale.
10-5.
The cost of customers is the same as any cost allocation problem in that it requires costs from cost pools to be allocated to the cost objects, in this case customers. It differs in that it focuses on customers and not products.

10-6.
Resources supplied represent the capacity of the organization. They are the resources available for use. Resources consumed are those used in the manufacture of the product or the provision of the service. The difference is important because the firm pays for the resources supplied but benefits from the resources used. If the resources supplied are greater than those used, the firm could benefit by selling or reducing the excess resources supplied.

10-7.
Capacity costs, generally included in the fixed overhead allocation, affect reported product costs. Managers use reported costs to make decisions such as what price to set, whether to continue offering a product or service, or whether to outsource the production. Incorrect allocation of capacity costs can distort the information managers use and lead to incorrect decisions.

10-8.
The cost of excess capacity should be assigned to products or customers if the reason for the excess capacity is customer demands. Examples include seasonality in demand or “lumpy” capacity (additional capacity is only available in discrete increments). The cost of excess capacity should not be assigned to products or customers if it is for the benefit of the firm. An example would be excess capacity in anticipation of growth.

10-9.
Quality affects cost in two major ways. Conformance costs are those that the firm incurs in order to ensure the product or service meets required quality levels. Examples include inspection and preventative maintenance. Nonconformance costs are those costs the firm incurs by producing below standard quality products or services. Examples include the cost of rework and the lost revenue as unsatisfied customers buy from competitors.

10-10.
The four categories of a cost of quality system are:
1. Prevention: Costs to ensure good quality (product design, training).
2. Appraisal: Costs to ensure poor-quality items are not shipped (inspection).
3. Internal failure: Costs of producing below-quality items that are not shipped (scrap, rework).
4. External failure: Costs of producing and shipping below-quality items (warranty costs, lost sales).
Solutions to Critical Analysis and Discussion Questions

10-11. Answers will vary.
   a) Health clinic: Waiting for test results and storing equipment.
   b) Bank: Processing transactions with errors and waiting for manager to authorize a transaction.

10-12. Answers will vary.
   a) Lumber: Recutting to correct size and repairing damaged equipment.
   b) Furniture: Storing inventory and producing incorrect product (or scrap).

10-13. It was not value added to the customers (students and faculty) unless the new placement made the books easier to find and use.

10-14. Answers will vary.
   a) Clothing retail store: Returning defective product to suppliers and processing customer returns.
   b) Record store: Replacing items lost to shrinkage (inventory theft) and storing inventory.

10-15. Value is added in two ways. First, the customer prefers an answer quickly and will prefer to do business with the faster processor, all else equal. Second, if the time reduction comes from reduced handling, costs are saved as capacity is increased.

10-16. The problem with first computing product costs and then customer costs is that it assumes that all customers who buy the product have the same behavior of ordering and using firm resources. Therefore, the firm cannot determine the type of customer that is costly.

10-17. While customers are the source of revenue, they make demands on company resources and affect costs through their buying behavior.
10-18.
Two important factors managers need to consider are what competitors will do and how the competitive environment will change over time. Focusing on customer profitability for the year and not considering longer-term possibilities might lead managers to make decisions that add to profit (or reduce costs) in the current year, but reduce profit in the longer term. One reason some companies, such as banks, seek customers who might not be profitable currently (college students, for example) is that they expect these customers to become profitable in the future.

10-19.
There is an opportunity cost associated with idle capacity. Knowing that capacity is not being used allows managers to decide what to do with it. They may decide to leave it in place for growth or to dispose of it. It could be sold or used to produce something else. The point is that reporting the cost of unused capacity forces managers to consider the resources being supplied but not consumed.

10-20.
Raising prices when there is low demand will generally result in fewer rooms being filled. The problem is that the reported product costs include unused capacity costs in the off-season.

10-21.
Answers will vary. The answer depends on why excess demand exists and what competitors will do. Historically, many if not most schools held few classes for the summer. In this case, the cost of excess capacity would be assigned to the programs (students), because it is for the benefit of the programs. This is changing as schools identify ways to utilize the excess capacity with classes or other programs.

10-22.
Answers will vary but should include reasons why the elements are not important. For instance, when purchasing a low-cost item, like paint to touch up minor scratches, service may not be important. The color is visible through the bottle, so assistance (“intangible” service) may not be required. Choosing to paint a house might require considerable service to determine the right base, weathering, etc. In this case, the choice of where to purchase may be driven more by the service than the quality of paint, which is more likely to be consistent across a wide range of brands.
Answers will vary. One example follows. The quality-based view would encourage continuous improvement of the production process and might offer incentives (i.e. cash bonuses) for production employees to make recommendations about how the production process can be improved. The result would be fewer product defects and more efficient operations. Conversely, the traditional view would assume that defective products are a natural part of the production process and are very difficult to eliminate. Thus, thorough inspections throughout the production process are necessary to ensure minimal defects.
Solutions to Exercises

10-24. (10 min.) Activity-Based Cost Management in a College.
1. b. Improves efficiency. Renewing books no longer requires an intermediate person, the librarian, as part of the transaction.
2. a. Reduces frequency of activity. Reducing the number of hours the library is open reduces all of the activities required to keep it open.
3. b. Improves efficiency. Improving the training of student workers makes them more efficient at their jobs. Of course, the cost of training has to be compared to its benefits from improved efficiency.

10-25. (10 min.) Activity-Based Cost Management for a Hotel.
1. b. Improves efficiency. Having guests check in on-line means less work for the clerk. In some cases, the key to the room can be provided by a kiosk or downloaded to an app.
2. b. Improves efficiency. Time is saved in the registration process, because the check-in forms can be mostly completed prior to guest arrival.
3. a. Reduces frequency of activity. Reducing the number of days the hotel is open reduces all of the activities required to keep it open.

10-26. (10 min.) Cost Hierarchy for a Not-for-Profit.

a. Facility level (will not vary over range of activity).
b. Facility level (will not vary over range of activity).
c. Unit level (likely to vary as activity changes).
d. Facility level (will not vary over range of activity).
e. Facility level (will not vary over range of activity).
f. Facility level (will not vary over range of activity).
g. Facility level (will not vary over range of activity).
h. Unit level (likely to vary as activity changes).
10-27. (20 min.) Driver Identification.
   a. Number of calls to new commercial customers; records kept by sales reps.
   b. Time spent on negotiation; time records kept.
   c. Time spent on review; time records kept.
   d. Number of customers; from accounting records.
   e. Time spent on community activities, money spent.
   f. Number of employees, time.
   g. Number of commercial loans; from accounting records, employee time.
   h. Number of consumer loans; from accounting records.
   i. Number of consumer loans.
   j. Number of calls to existing commercial customers; records kept by sales reps.
   k. Number of products.
   l. Number of transactions.
   m. Number of transactions.

10-28. (20 min.) Driver Identification.
   a. Number of classes: With some exceptions, faculty compensation is based on
      classes, not students.
   b. Number of interviews; number of students.
   c. Number of students; number of full-time students.
   d. Number of students; number of classes.
   e. Number of courses; number of students.
   f. Number of fairs.
   g. Number of applicants; time spent interviewing.
   h. Number of applicants; time spent evaluating.
10-29. (20 min.) Activity-Based Costing of Customers: Marvin’s Kitchen Supply.

a. Delivery cost based on order value:

<table>
<thead>
<tr>
<th>Customer</th>
<th>Order Value</th>
<th>Delivery Charge (@10%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Diner</td>
<td>$75,000</td>
<td>$7,500</td>
</tr>
<tr>
<td>Le Chien Chaud</td>
<td>$90,000</td>
<td>9,000</td>
</tr>
</tbody>
</table>

b. Delivery cost based on activity-based costing:

Cost driver rates:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost Driver</th>
<th>Cost Driver Volume =</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing order</td>
<td>Number of orders</td>
<td>$75,000 ÷ 5,000 orders =</td>
<td>$15 per order</td>
</tr>
<tr>
<td>Loading truck</td>
<td>Number of items</td>
<td>150,000 ÷ 100,000 items =</td>
<td>$1.50 per item</td>
</tr>
<tr>
<td>Delivering merchandise</td>
<td>Number of orders</td>
<td>90,000 ÷ 5,000 orders =</td>
<td>$18 per order</td>
</tr>
<tr>
<td>Processing invoice</td>
<td>Number of invoices</td>
<td>72,000 ÷ 4,000 invoices =</td>
<td>$18 per invoice</td>
</tr>
</tbody>
</table>

Cost of delivery:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Units of Cost Driver</th>
<th>Cost</th>
<th>Units of Cost Driver</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing order</td>
<td>52 orders</td>
<td>$780(^a)</td>
<td>110 orders</td>
<td>$1,650</td>
</tr>
<tr>
<td>Loading truck</td>
<td>600 items</td>
<td>900(^b)</td>
<td>1,500 items</td>
<td>2,250</td>
</tr>
<tr>
<td>Delivering merchandise</td>
<td>52 orders</td>
<td>936(^c)</td>
<td>110 orders</td>
<td>1,980</td>
</tr>
<tr>
<td>Processing invoice</td>
<td>12 invoices</td>
<td>216(^d)</td>
<td>150 invoices</td>
<td>2,700</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
<td>$2,832</td>
<td></td>
<td>$8,580</td>
</tr>
</tbody>
</table>

\(^a\) $780 = 52 orders x $15 per order.

\(^b\) $900 = 600 items x $1.50 per item.

\(^c\) $936 = 52 orders x $18 per order.

\(^d\) $216 = 12 invoices x $18 per invoice.

c. Marvin’s can use this information to change the way they price delivery service. They can also use the information to work with customers to change the way they (customers) order to reduce the costs of order and delivery.
10-30. (30 min.) Activity-Based Costing of Customers: Rock Solid Bank & Trust.

a. Sales revenue ................. $375,000,000 x 5.2% $19,500,000

   Costs:
   Interest on deposits....... $375,000,000 x 0.5% 1,875,000
   Operating costs........... (Given) 15,000,000

   Total costs.................... 16,875,000
   Operating profit ............. $2,625,000

b. 

<table>
<thead>
<tr>
<th></th>
<th>Customer A</th>
<th>Customer B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit..............</td>
<td>$6,000</td>
<td>$6,000</td>
</tr>
<tr>
<td>Sales revenue ...........</td>
<td>$312(^a)</td>
<td>$312</td>
</tr>
<tr>
<td>Interest on deposits.....</td>
<td>30(^b)</td>
<td>30</td>
</tr>
<tr>
<td>Operating costs.........</td>
<td>240(^c)</td>
<td>240</td>
</tr>
<tr>
<td>Customer profit .........</td>
<td>$42</td>
<td>$42</td>
</tr>
</tbody>
</table>

\(a\) $312 = 6,000 deposit \times 5.2%.

\(b\) $30 = 6,000 deposit \times 0.5%.

\(c\) $240 = 6,000 deposit \times 4\% operating cost to deposit ratio
   (= 15,000,000 / 375,000,000).
**10-30. (continued)**

c.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost Driver</th>
<th>Cost</th>
<th>Driver Volume</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use ATM</td>
<td>Number of uses</td>
<td>$1,500,000</td>
<td>÷ 2,000,000</td>
<td>= $0.75 per use</td>
</tr>
<tr>
<td>Visit branch</td>
<td>Number of visits</td>
<td>900,000</td>
<td>÷ 150,000</td>
<td>= $6 per visit</td>
</tr>
<tr>
<td>Process transaction</td>
<td>Number of transactions</td>
<td>6,600,000</td>
<td>÷ 80,000,000</td>
<td>= $0.0825 per transaction</td>
</tr>
<tr>
<td>General bank overhead</td>
<td>Total deposits</td>
<td>6,000,000</td>
<td>÷ $375,000,000</td>
<td>= 1.6% of deposits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Customer A</th>
<th>Units of Cost Driver</th>
<th>$312.00</th>
<th>$312.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest on deposit</td>
<td></td>
<td>30.00</td>
<td>$30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Account margin</td>
<td></td>
<td>$282.00</td>
<td>$282.00</td>
<td>$282.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Customer B</th>
<th>Units of Cost Driver</th>
<th>$204.30</th>
<th>$489.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating costs:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use ATM</td>
<td>100</td>
<td>$75.00(^a)</td>
<td>200</td>
<td>$150.00</td>
</tr>
<tr>
<td>Visit branch</td>
<td>5</td>
<td>$30.00(^b)</td>
<td>20</td>
<td>120.00</td>
</tr>
<tr>
<td>Process transaction</td>
<td>40</td>
<td>$3.30(^c)</td>
<td>1,500</td>
<td>123.75</td>
</tr>
<tr>
<td>General bank overhead</td>
<td>$6,000</td>
<td>$96.00(^d)</td>
<td>$6,000</td>
<td>96.00</td>
</tr>
<tr>
<td>Total operating cost</td>
<td></td>
<td>$204.30</td>
<td></td>
<td>$489.75</td>
</tr>
</tbody>
</table>

|                      | Customer A | $77.70               |         | ($207.75) |
|----------------------|------------|-----------------------|---------|
| Customer profit      |            |                       |         |           |

\(^a\) $75 = 100 uses x $0.75 per use.

\(^b\) $30 = 5 visits x $6 per visit.

\(^c\) $3.3 = 40 transactions x $0.0825 per transaction.

\(^d\) $96.00 = $6,000 deposit x 1.6%.