

Management Accounting

Answers to the book "Management Accounting" (Atkinson and others, 2001)

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2. Abstract

'Management Accounting' was one subject of a management course, I took. The course was held by the Swiss University IIMT (<http://www.iimt.ch>). The book "Management Accounting" by Atkinson, Banker, Kaplan, and Young was base for the course. At the end of each chapter there was a list of questions.

First I thought that answering these questions is wasted time, but then I remembered a sentence I heard a long time ago:

"You understand something only if you are able to explain somebody else what you understood."

I realized that it was not as easy as I expected to answer all the questions. It was a big difference between reading the book and answering the questions. Some of the questions might not be very important but there were others which I regarded as very important and sometimes I was forced to read again some passages out of the book. As a second step, I decided to write down my answer in order to have them available for the examination and in order to keep them in my mind.

Eventually I decided to bring my list of answers into a professional shape and to put them on my homepage in the internet. I would like to stress at this point that all the following answers are my own interpretation with no guarantee that the authors agree with my answers!

3. Questions in Chapter 1

Question 1-1 (p25): Why do operators / workers, middle managers, and senior executives have different informational needs?

Answer: Different management levels need different kind of financial and cost information, because their focus is different. Workers need to optimize their practical work. Hence, they need cost information about their specific tasks. Middle managers need to know how costs are created in their responsibility. Normally this include several different tasks, different processes and / or different products. Hence, middle managers need information about their overall activities in order to decide which process or product can be continued or should be stopped.

Question 1-2 (p25): Why do a company's operators / workers, managers, and executives have different informational needs than shareholders and external suppliers of capital?

Answer: Shareholders and external suppliers of capital need a overall picture of the company's activities, earnings, income and costs. This overall pictures tells them if investing in the company might be worthwhile or not.

Company's employees need to know how costs occur inside and they don't need the overall picture. The information for internal and external usage is similar for internal and external people, the higher the internal position (e.g. CEO needs similar information like the stakeholders). The 'lower' the employee's position, the more different information s/he needs.

Question 1-3 (p25): Why may financial information alone be insufficient for the ongoing informational needs of operators / workers, managers, and executives?

Answer: Financial information only provides numbers on how much was spend and how much was earned. They don't inform for what money was spent. Managers need to know the 'why' and 'where for' in order to judge whether or not investments are useful.

Question 1-4 (p25): Why might senior executives need measures besides financial ones to assess how well their business performed in the most recent years?

Answer: Financial information only provides numbers on how much was spend and how much was earned. They don't inform for what money was spent. Managers need to know the 'why' and 'where for' in order to judge whether or not investments are useful.

Question 1-5 (p25): What forces have caused management accounting systems designed decades ago to become less relevant and less valuable for organizational employees in today's globally competitive environment?

Answer: Accounting designed decades ago focused on determining and distributing manufacturing costs to products. In the 90th much production and manufacturing moved from Europe and USA to the Asia countries. For European and USA companies the work switched from manufacturing to service and so the accounting systems had to be adapted.

Question 1-6 (p25): How does the role for management accounting systems change as the environment becomes more competitive?

Answer: The role changed from being a controller to being a consultant. In former times, management accounting provided pure numbers often at the end of a period. This information indicated how well the business performed in the last period. Managers were left alone with taking and interpreting the numbers. It was their business to identify a strategy how to improve the process which were under their control.

When competition increased, it became necessary that managers got an understanding of the complete company's business. They needed to know the relationship between tasks, costs, customer, and different product lines. The relation between all this are data which are gathered in the management accounting system. This system changed in a way from being a data storage to being a consultant function inside a company which acts as a bridge between departments, processes and different management levels.

Question 1-7 (p25): What is the impact of shifting the role of management accounting information from controlling workers and operators to informing the continuous improvement activities of these workers and operators.

Answer: The idea behind the second scenario is a complete different one. In the second scenario, the accounting managers are collaborators, who gather numbers and business information. They afterwards benchmarks these results with other departments or products within the company and if reasonable with other companies. The benchmark results are communicated to the affected people and all together will determine the things which must be improved. The 'new' accounting manager is not only collection numbers and prepare them for financial reports, but s/he communicates the conclusion to the managers who should take action. In the new business, managers should know and understand the language of the financial department and vice versa the financial managers must be able to communicate his/her findings to the manager in a way the manager understands.

Question 1-8 (p25): What, if any, are the differences between the management accounting information needed in manufacturing organizations and that needed in service organizations.

Answer: The answer depends on the cost-system used inside the company. If the company uses an activity-based costs system, then there is no difference. In both cases (manufacturing and service) all costs are gathered per product / service and correctly allocated.

If the company uses traditional accounting methods (e.g. Process Costing System), then the manufacturing costs are the base for distributing later on the service-costs. In a service-company this procedure does not work, because no manufacturing costs can be used as the base. In this case (traditional accounting methods), there is indeed a difference in the accounting procedure for the two companies.

Question 1-9 (p25): Why is management accounting information important in government and nonprofit organizations?

Answer: It is important because the competition is increasing even in this market segment. The budget for governments is declining each year. Therefore the governments need to find the most profitable organizations for particular tasks. Tasks and orders will be given to the cheapest company and so accounting information will be gathered and analyzed even in government or nonprofit organizations.

Question 1-10 (p25): What information do employees need about activities performed in the organization?

Answer: Employees need to know the cost information for their particular tasks and the cost information for equivalent tasks performed by internal or external competitors.

Question 1-11 (p25): How can managers use information on the cost of activities and business processes?

Answer: Company's managers have the responsibility do increase the cash-flow and profit of the company – not only for the sake of the shareholders but also for the sake of the company. This is only possible if they have on overview about costs and revenue related to their field of responsibility and the overall picture in which they are embedded. In a complex product line it's not enough if a department leader knows the costs and revenue of his/her department but equally important is that s/he knows what costs s/he causes for the company or a product if s/he changes (maybe improves) something in his/her department. I would like to give one example: the costs of an assembly department are partly determined by the storage costs. If an assembly manager decides to reduce the input-safety storage to zero, then his/her production costs might be lower afterwards, but if the input is missing and his/her department can not continue working then the overall loss for the company might be higher.

Question 1-12 (p25): What information might management accounting systems provide to managers and employees for each of the following strategies: operational excellence, product leadership, and customer service?

Answer:

Question 1-13 (p25): How can management accounting information produce behavioral and organizational reaction?

Answer:

Question 1-14 (p25): How can beliefs systems and boundary systems foster high ethical standards among employees?

Answer:

4. Questions in Chapter 2

Question 2-1 (p56): Why is the target set of customers the central strategic planning element?

Answer: The set of customers determines which kind of products and services a company offers. Hence, the strategy of marketing and accounting is determined by the set of customers.

Question 2-2 (p56): What are stakeholders ?

Answer: Stakeholders are the persons who are interested in the strategy and philosophy of a company. Stakeholders are customers, top-managers, shareholders and others.

Question 2-3 (p56): Why should stakeholder requirements matter to an organization ?

Answer: Stakeholder requirements matter, because stakeholders are customers.

Question 2-4 (p56): What are organizational objectives ?

Answer: I am unsure about what is meant by this question. The overall objective of an organization is to serve the company's customers in a unique and sustainable way. The issue of the company's organization is to communicate to its employees in a clear way the company's strategy and the company's philosophy. It is fundamentally important that each employee understand his/her role in the company and how s/he can serve the customer and the company.

Question 2-5 (p56): What are the distinctions between the three levels of strategy : organizational level, business level, and operational level ?

Answer:

- **Strategy at organizational level:** The process of choosing what business the organization is in.
- **Strategy at business level:** The process of choosing the organization's target customers and the broad operating decisions necessary to meet its needs.
- **Strategy at operational level:** The process of choosing what business the organization is in; reflects the way the organization will pursue its business-level.

Question 2-6 (p56): What is a value chain ? Provide an example.

Answer: The values chain is the sequence of activities that make or deliver a good or service to customers. Each step in the chain should contribute more to the ultimate value of the product than it costs.

Question 2-7 (p56): What is an activity? Provide an example.

Answer: An activity is a unit of work, or task, with a specific goal. It is a principle that describes and measure how organizational resources and employees accomplish work.

Question 2-8 (p56): How are service and quality defined? Are they related? Explain.

Answer:

A service is the value in use of a good or service.

Quality refers to how well the product's operating characteristics conform to what the organization promises to customers.

They are related to each other: service is one operating characteristic and therefore a company must ensure that the service corresponds to what the company promises to its customers.

Question 2-9 (p56): What elements does price, defined as the lifetime cost of a product to a customer, include?

Answer: Life-cycle costing is a systematic consideration of product costs during the product's life time. These include development costs, introduction costs, production costs, distribution costs, after-sales costs, product take-back costs and product abandonment costs.

Classifying product costs provides important insights o how design costs today will affect product costs in the future.

Question 2-10 (p56): What is organization control, and what are its four components.

Answer: Organization control is the activity of ensuring that the organization is on track toward achieving its objectives. The types of organizational control are:

1. Process Control.
2. Operations Control.
3. Task Control.
4. Results control.

Question 2-11 (p56): What is process, or operations, control ?

Answer: Operations control is the process of providing feedback to employees and their managers about the efficiency of activities being performed.

Question 2-12 (p56): What does *effective* mean ?

Answer: Effective means doing the right things. If a company decides to produce shoes and not trousers because of the company's customers, then the company is doing the right things and is effective.

Question 2-13 (p56): What does *efficient* mean ?

Answer: Efficient means doing things right. If a company decides to produce shoes but does it more expensive or in lower quality than a competitor then the company is inefficient.

Question 2-14 (p56): What are customer-validated performance measures ? Provide an example.

Answer: They are tools used to reflect customer requirements and help employees manage the value chain's processes and activities in order to please customers.

Question 2-15 (p56): How are outcome and output defined? Are they related? Explain.

Answer:

Output is a physical measure of what an activity has produced.

Outcome is the value that a customer places on a product or service.

Question 2-16 (p56): What is task control? Provide an example.

Answer: Task control is the process of developing standard procedures that employees are told to follow.

Question 2-17 (p56): What is results control? Provide an example.

Answer: Results Control is the process of hiring qualified people who understand the organization's objectives. The organization tells them to do whatever they think is best to help the organization to achieve its objectives. It's essential to use a control system to evaluate the resulting performance, thereby assessing how well they have done.

Question 2-18 (p56): What is benchmarking?

Answer: Benchmarking is the process of studying and adapting the best practice of other organizations to improve the firm's own performance and establish a point of reference by which other internal performance can be measured.

Question 2-19 (p56): What is *managing by the numbers*, and what problems are associated with such an approach?

Answer: It's the practice of holding managers responsible for meeting financial targets. In such an organization, planners first decide the amount of cost reduction required and then reduce each facility's or department's budget by those amounts. This causes three problems:

1. It is ineffective, because it focuses cost-cutting activities on getting employees to work faster, longer, order harder. This will lead to poor quality, poor service, and disgruntled employees, rather than looking for better ways to do the job.
2. It assumes that cost is the only relevant measure of an activity's performance.
3. It does not recognize the reasons for costs in an organization.

Question 2-20 (p56): From the producer's point of view, what costs are included in life-cycle costs ?

Answer:

- Development costs.
- Introduction costs.
- Production costs.
- Distribution costs.

- After-sales costs.
- Product take-back costs.
- Product abandonment costs.

Question 2-21 (p56): How does continuous improvement differ from reengineering ?

Answer: Reengineering describes the redesigning or elimination of inefficient processes. It is a bigger achievement of a company than the continuous process improvement. Reengineering is rather a one-time shot than a continuous procedure.

Question 2-22 (p56): How are efficient and inefficient activities defined?

Answer:

Efficient activities are those that consume no excess resources.

Inefficient activities require more resources than necessary to produce the desired outcome.

Question 2-23 (p56): How can activity, or value, analysis help an organization reduce costs while improving processes ?

Answer: The answer is self-explaining and trivial.

5. Questions in Chapter 3

Question 3-1 (p102): What are some different uses of cost information?

Answer:

1. Determine whether a new product should be introduced.
2. Determine whether an existing product should be discontinued.
3. Assess the efficiency of a particular operation.

Question 3-2 (p102): Why do different types of cost information need to be reported to support different managerial purposes and decisions?

Answer: A line worker needs to know the cost of his tasks, whereas a line manager needs to know the costs of the complete process / department. The question is always for which purpose you need cost information. There exists not one management accounting system or one kind of cost information, but these information can always be adapted to the specific need.

Question 3-3 (p102): What is a cost object?

Answer: Something for which a cost must be computed.

Question 3-4 (p102): How is it possible to distinguish direct costs from indirect costs?

Answer: All costs that are related to a single object are direct costs. Costs which cannot be assigned to a single object are indirect costs.

Question 3-5 (p102): Explain the difference between flexible and capacity-related cost.

Answer: Flexible are one-to-one related to the amount of produced units. The more wood-chairs you produce, the more wood you need. Capacity-related costs are related to the amount of provided (not used) capacity. These costs are the same whether or not a machine is used the complete day.

Question 3-6 (p102): Are flexible costs always direct costs?

Answer: NO. One example is glue you use as a minor ingredient for construction. The amount of used glue increases with the number of produced goods, but the percentage of used glue is so small that calculated this as direct cost would be too inefficient. Glue would be calculated as indirect cost.

Question 3-7 (p102): Are capacity-related costs always indirect costs?

Answer: NO. A production supervisor who works only for one product is a capacity-related cost and this cost is direct and capacity related.

Question 3-8 (p102): How are costs in a manufacturing firm classified for external reporting?

Answer:

1. Product Cost
2. Period Cost

Question 3-9 (p102): Described the difference between costs and expenses.

Answer: Expenses are outside oriented whereas costs are inside oriented. Expenses occur in financial statements, whereas costs occur inside the company. The most important difference is that costs reflect the reality; expenses reflect rules and history data.

I would like to stress the difference by giving an example: you purchase a machine and the price for the machine is listed in the financial statements. The complete price of the machine is divided by the number of years the machine will be used. The lifetime or depreciation period is normally defined by standard numbers defined in the accounting rules. The price for the machine is called expense. The depreciation of the machine is the same over the whole period.

Several things can happen:

1. The machine's lifetime in reality is longer than the defined depreciation time. The internal costs are less than the expenses.
2. The machine's lifetime is correctly assumed but the price for a new machine differs widely from the expected price for the new machine. The new machine will be more expensive so the real costs are higher than the expenses.

I pointed out the differences between costs and expenses. The complete picture or complete comparison is:

1. Expenses but no Costs:
2. Expenses less than Costs: New machine will be more expensive than old machine was. Hidden losses occur and should be taken into account for internal cost analysis in order to determine the correct price for products.
3. Expenses higher than Costs: The lifetime of a machine lasts longer than the depreciation period. As a result, the internal occurring costs are lower than the expenses and the price for a product should be lower as it would be if calculating it using expenses.
4. Costs but no Expenses: Cost of Equity are costs which exists in reality but are not considered in financial statements. These costs must be considered when determining the costs of a product.

Question 3-10 (p102): What are the two principal categories into which manufacturing costs are classified?

Answer:

1. Manufacturing costs.
2. Non-Manufacturing costs.

Question 3-11 (p102): What are six categories of costs, classified by function, that are included in non-manufacturing costs for external reporting?

Answer:

1. distribution costs,
2. selling costs,
3. marketing costs,
4. after-sales costs,
5. R&D costs, and
6. general and administrative costs.

Question 3-12 (p102): Why do traditional cost accounting systems tend to analyze manufacturing costs in greater detail than they do other functional categories of costs?

Answer:

The traditional cost accounting systems were created when manufacturing costs had a greater portion of all costs then it is the case in today's business. For this reason traditional costs systems focus on manufacturing costs and other costs are regarded as less-important.

Question 3-13 (p102): What are two broad purposes for which costs are used inside an organization?

Answer:

1. Determine selling price.
2. Forecast cost under changing production conditions (demand increases / decreases; resource prices change).

Question 3-14 (p102): Explain why you agree or disagree with the following statement: “An organization should have the most accurate and complete cost system.”

Answer: Wrong: The price of cost detecting must be less than the benefit of having the details.

Question 3-15 (p102): What is an opportunity cost?

Answer: The sacrifices incurred when using resources for one purpose instead of another. It is the value of the factor of production in its next best use.

Question 3-16 (p102): What is the distinction between short run costs and long run costs?

Answer: Short run is the period over which a decision maker cannot adjust capacity. The level of capacity-related resources, hence of capacity-related costs, is fixed. Therefore, the only costs that vary in the short-run are those that vary in proportion to production. Short-run costs are actually flexible costs.

Long-run costs are the sum of flexible and capacity-related costs associated with a cost object. They are important for product planning purposes because they are an estimate of the cost of all resources consumed to make the product.

Question 3-17 (p102): How has the composition of manufacturing costs changed in recent years? How has the change affected the design of cost accounting systems?

Answer: The manufacturing costs decreased in the last years compared with the amount of non-manufacturing costs. For this reason, cost accounting systems changed in a way that they considered in a more accurate way the non-manufacturing costs. This was important in order to determine the correct costs of a product or service.

Question 3-18 (p102): What are the five categories of production activities? Explain the differences among them.

Answer:

- *Unit related:* those activities whose volume or level is proportional to the number of units produced or sold.
- *Batch related:* Those activities triggered by the number of batches produced rather than by the number of units manufactured.
- *Product sustaining:* Those activities that support the production and sale of individual products but are independent of actual production volumes and batches.
- *Customer sustaining:* Those activities that enable the company to sell to an individual customer but are independent of the volume and mix of the products sold and delivered to the customer.
- *Business sustaining:* Those activities required for the basic functioning of the business, independent of production or sales volumes and mix.

Question 3-19 (p102): Why have customer-related costs attracted increasing attention in recent years?

Answer: First, In recent years non-manufacturing costs (e.g. after-sales service) increased compared with the manufacturing costs. Second, in the 1990th many production activities moved to Asian countries and Europe and USA many companies changed their core business in the direction of customer service.

Both reasons, above all the second, are reasons why customer-related costs came into focus. How much costs and how much revenue is associated with a certain customer or a certain customer-related activity? It is important to answer this question in order to determine the correct price for customer related activities.

Question 3-20 (p102): What are the five stages in a typical product life-cycle? What is the cost focus in each stage?

Answer:

1. Development: development costs are often unknown and often not assigned directly to a product but as general overhead costs.
2. Insertion (advertising, promotional costs occur).
3. Growth: product's revenue begins to cover the flexible and capacity-related costs. Little or no price competition. Focus on developing most efficient ways to deliver product to customer.
4. Maturity: competition increases; product margins decline. Intense efforts to reduce costs.

5. Decline: Product becomes unprofitable. Abandonment costs occur if product is abandoned (equipment, reorganization).

6. Questions in Chapter 4

Question 4-1 (p147): Why are costs estimated for individual jobs?

Answer: Costs are estimated for individual jobs in order to be competitive. If a competitor offers only one task out of a bunch you offer, then you must know which costs exactly occur for this special task. If you know the costs per job, then you can make one job as cheap as competitors and other jobs so expensive that earnings cover the expenses.

Costs per individual jobs are seldom determined in mass production companies but more in companies which offer special and different products or services form customer to customer.

Question 4-2 (p147): What information is represented in a typical job bid sheet?

Answer: A job bid sheet covers all relevant information for a certain job. It includes:

- Material costs.
- Labor costs.
- Support costs.
- The markup rate.
- The cost per job.
- The price per job.

Question 4-3 (p147): What is the source of the information to estimate the cost of materials?

Answer: The cost of material is retrieved from the purchasing department. Together with the standard engineering specification you can calculate the cost per job.

Question 4-4 (p147): What is the source of the information to estimate the direct labor cost?

Answer: The labor hours are estimated using industrial engineering specifications developed on the basis of work and motion studies, or by analogy with comparable standard products.

Question 4-5 (p147): How are support cost driver rates determined?

Answer: Support costs can be estimated by adding for each job a certain amount of support costs. E.g. you can add supports costs for maintaining machines and support costs for labor hours.

In traditional cost accounting systems the method was the following: The company's costs were distinguished between manufacturing and non-manufacturing costs. The manufacturing costs were distinguished between direct and indirect costs. The indirect costs were summed up in logical units (e.g. *maintenance department* and *IT department*). The indirect costs were split into several parts with respect to a qualifier (e.g. *labor hours* or *produced units*).

One practical example: A company has two manufacturing departments (assembly and cutting) and one support departments (maintenance).

The costs in the last period were:

- Maintenance: \$1,000,000.
- Cutting: \$3,000,000.
- Assembly: \$2,000,000.

The labor hours in the last period were:

- Cutting: 800.
- Assembly: 200.

The cost-driver rate for the maintenance is calculated as: $\$1,000,000 / 1000 = \1000 (per labor hour). This means the total costs per production department were:

- Cutting: $\$3,000,000 + 800 * \1000 .
- Assembly: $\$2,000,000 + 200 * \1000 .

Question 4-6 (p147): How are support cost estimated for individual jobs?

Answer: The support costs for an individual job are determined by multiplying the time needed to support this job with the associated cost driver rate

Question 4-7 (p147): What is the markup rate? On what factors does it depend?

Answer: The markup rate is the percentage of which prices are higher than the costs. Most often it depends on the market economy, the global market, the number of competitors and the lifetime of your business.

Question 4-8 (p147): What is a cost pool? Why are multiple cost pools required?

Answer: A cost pool is a subset of total support costs that can be associated with a distinct cost driver.

Multiple costs pools are required if you have different cost driver. If you have several maintenance activities which all depend on the number of labor hours, then you can gather them in one cost pool – it's cheap, simple and correct. However, if you have another support activity which doesn't depend on the labor hours but more on

the number of machine setups, then you need another cost-pool which gathers all activities which are based on machine setups.

Question 4-9 (p147): What problem arises when cost driver rates are based on planned or actual short-term usage instead of normal usage?

Answer: When cost driver rates are based on planned or actual short-term usage, then wrong prices are calculated which can end-up in a deadly spiral. During high-sell volumes, the CDR will be low, resulting in low prices and the sell volume will increase even more, but under wrong conditions. During low-sell volumes, the CDR will be higher than necessary, leading to a decline in sell volumes. The average volume (e.g. over a whole year) is an appropriate figures in order to compute the CDR.

Question 4-10 (p147): What is the normal cost of a support activities? What is the normal usage level of a cost driver?

Answer: The normal cost of support activity is based on the level of capacity of each activity rather than by the level of actual usage of the committed resources. Normal costs and normal usage level are assigned or come out of the provided capacity.

Question 4-11 (p147): Use of peanut butter spreading approach of a single cost driver rate when there are multiple cost drivers leads to distortions in job costs. Do you agree with this statement?

Answer: Peanut-butter spreading approach might be harmful for your business. Assume you offer a service which can only be done by expensive experts and another service which can be done by low-salary people. If you put both people in one cost pool, then your special services will be charged too cheap, but your easy service will be too expensive.

Question 4-12 (p147): What are cost pools? How is the appropriate number of cost pools selected?

Answer: The appropriate number of cost pools depends on the cost of determining the cost pools with the benefit of evaluating them. The cost of measurement increases with the detail of analysis. The cost of errors in decision declines the higher the detail is. The appropriate number of cost driver is reached when the sum of both (cost-of-error + cost-of-measurement) is least. See question (and answer) for question 4-8.

Question 4-13 (p147): What is the managerial use of tracking actual costs of individual jobs?

Answer: Tracking of costs for individual jobs is necessary in order to determine whether unexpected variations in quantity or price occurred.

Question 4-14 (p147): Why are predetermined cost driver rates used when recording actual job costs?

Answer: Predetermined cost driver rates are based on the normal usage of machines and this is the best base on which you can do calculation. Never calculate costs and cost driver rates on actual, maximum or minimum usage but always on the average usage.

Question 4-15 (p147): What does the term conversion costs mean?

Answer: Conversion costs are costs of production labor and support activities to convert the materials or product at each process stage.

Question 4-16 (p147): What is the basic procedure for determining product costs in continuous processing plants?

Answer: Product costs in continuous processing plants are determined in the following steps (see exhibit 4-14 + 4-15 on page 132):

Define the separate *process steps*.

- a. Assign conversion costs to these *process steps*. This means, divide the total amount of support costs (production labor, engineering support, materials handling, depreciation, power...) according the real existing percentage.
- b. Sum up the all conversion costs per *process step* => *process cost*.
- c. Divide the total *process cost* by the number of process hours => *Conversion Cost Per Process Hour*.
- d. Sum up the material cost per product => *total material cost per product*.
- e. Multiply the needed process hours per process step by the cost/process-hour => *total conversion cost per product*.
- f. Add d) and e)

Question 4-17 (p147): What are the similarities and differences between job order costing and multistage process costing systems?

Answer: see exhibit 4-12 on page 131.

Similarities:

- Both systems assign material, labor, and manufacturing support activity costs to products.

Discrepancies:

- Job order system is carried out per job. This can only be done if jobs vary considerably from customer to customer. Multistage process costing system are carried out continuously, semi-continuously, or in large batches.
- The production requirements differ from job to job in job-order-costing systems.
- The costs are measured for individual jobs in job-order-costing systems.
- The variances between actual and estimated direct materials and direct labor costs are determined for individual jobs in job-order-costing systems.

Question 4-18 (p147): What is the difference between production departments and service departments?

Answer: The production department converts material into customer products. The service department does not contribute to the conversion cycle but supports the production departments in their tasks.

Question 4-19 (p147): What are the two stages of cost allocations in conventional product costing systems?

Answer: The two stages of cost allocation of service departments in conventional product costing systems are:

- First, expenses are assigned to departments.
- Departments (and hence costs) are assigned to products.

Question 4-20 (p147): Why do conventional product costing systems allocate service department costs first to the production departments before assigning them to individual jobs?

Answer: See 4-19. That's the method: first costs are assigned to department and then department-costs are assigned to products or individual jobs.

Question 4-21 (p147): What are the different situations for which direct, sequential, and reciprocal allocation methods are designed?

Answer:

- Direct Allocation Method is used when service department costs are directly allocated to the production departments, ignoring the possibilities that some of the activities of a service department may benefit other service departments in addition to the production department.
- Sequential and reciprocal allocation methods are used when service departments consume services provided by other service departments.
- The sequential allocation method allocates service department costs to one service department at a time in sequential order.
- The reciprocal allocation method determines service department cost allocations simultaneously.

Question 4-22 (p147): Why are conventional two-stage cost allocation systems likely to systematically distort product costs?

Answer: There exists a break in the link between the cause for the support activity costs (e.g. setup hours) and the basis for assignment of the costs to individual products (e.g. machine hours).

Question 4-23 (p147): What are two factors that contribute to cost distortions resulting from the use of conventional, two-stage cost allocation systems?

Answer:

1. Allocations based on unit-related measures.
2. Differences in relative consumption ratios.

7. Questions in Chapter 5

Question 5-1 (p191): What is the difference between production and service department?

Answer:

- *Production department:* The department that have direct responsibility for converting raw materials into finished products.
- *Service department:* The departments that perform activities that support production but are not responsible for any of the conversion processes.

Question 5-2 (p191): What are the two stages of cost allocations in conventional product costing systems?

Answer:

1. Cost allocation: Expenses are assigned to departments.
2. Production department expenses are assigned to the products.

Question 5-3 (p191): Why are conventional two-stage cost allocation systems likely to systematically distort product costs?

Answer: There exists a break in the link between the cause for the support activity costs (e.g. setup hours) and the basis for assignment of the costs to individual products (e.g. machine hours).

Question 5-4 (p191): What are two factors that contribute to cost distortions resulting from the use of conventional, two-stage cost allocation systems?

Answer:

1. Allocations based on unit-related measures.
2. Differences in relative consumption ratios.

Question 5-5 (p191): What fundamental assumption implicit in conventional two-stage cost allocation systems is rejected in activity-based costing systems?

Answer: The fundamental assumption in the conventional two-stage cost allocation systems is that the production department with more labor hours needs also more support from service departments and hence is charged more than a production department with less labor hours. This assumption can be wrong. A production with little labor hours could need intensive support from service department and must be charged higher than a production department with uses just a little the support from service departments.

Question 5-6 (p191): What do the terms 'activity cost driver' and 'activity cost driver rates' mean?

Answer:

- *Activity Cost Drivers:* Measures that identify the linkage between activities and cost objects; they serve as quantitative measures of the output of activities.
- *Activity Cost Driver Rate:* The amount determined by dividing the total activity expense (= activity amount for all products) by the total quantity of the activity cost driver.

Question 5-7 (p191): What major steps must be performed to determine that activity cost driver rates?

Answer:

- Tracing Cost to activity.
- Tracing activity to 'Activity Cost Driver'
- Determine the total quantity for each activity cost driver.
- Determine the quantity of each activity cost driver per product.
- Determine the activity cost driver rates.
- Assign activity expense to products by multiplying '*activity cost driver rate*' with '*activity amount per product*'.

Question 5-8 (p191): What are some special considerations in the design of cost accounting systems for service organizations?

Answer:

- Service companies have only little (almost none) flexible costs. All costs are capacity related.
- They need to identify the differential profitability of individual customers, even those using standard products.
- Before taking drastic actions with a customer who has an unprofitable basic phone line, the company's managers should understand all the relationship it has with the customer and act based on total relationship profitability.

Question 5-9 (p191): When would you prefer to use the number of setups instead of the number of setup hours as the cost driver measure for the setup activity?

Answer: If the cost per setup is the same for different products, then the number-of-setups is an appropriate cost-driver. If the during per setup differs from product to product (this means the cost per setup differs), then the setup-hours must be taken as cost-driver.

Question 5-10 (p191): How do activity-based costing systems avoid distortions in tracing batch-related costs to products?

Answer: In activity-based costing systems there is per definition no distortion, because costs are calculated per activity. In batch-related jobs the costs are determined for the batch and then divided by the number of products or parts produced during this batch. The results are the activity-based costs per unit.

Question 5-11 (p191): Why do conventional product costing systems often exclude selling and distribution costs?

Answer: A reason could be that these systems follow the traditional idea that most costs are generated as manufacturing costs and that these costs are the main portion of occurring costs. If you follow this idea then you will try to catch up selling and distribution costs via the markup rate. However, this approach is in my opinion not detailed enough. A more accurate way of finding and calculation product costs is activity based costing and in this method the selling and distribution costs will not be forgotten.

Question 5-12 (p191): What recent changes have made it more important to have non-manufacturing costs assigned to products lines, or market segments?

Answer: The portion from direct labor costs (material and direct labor hours) to service costs changed dramatically towards service costs. The fraction of labor costs declined so that it is nowadays very important to determine the service-costs per product or market segment in order to make a correct pricing.

Question 5-13 (p191): Why are conventional product costing systems more likely to distort product costs in highly automated plants? How do activity-based costing systems deal with such a situation?

Answer: Highly automated means little direct labor hours, but high service support costs (maintaining the machines). In the conventional two-stage costing system it is difficult to assign the service costs in an appropriate way if you have products using different automatic systems. ABC systems do not consider the fact 'automated' or 'manual' but it considers solely the activities which are needed to produce the product. In doing so, the service costs for maintaining the machines are considered correctly per product.

Question 5-14 (p192): "Conventional product costing systems are likely to over-cost high-volume products." Do you agree with this statement? Explain.

Answer: I assume that this question has in mind a company which produces more than one product and one if these products is a high-volume product. In such a case, the high-volume will be charged with a big portion of indirect (e.g. support) costs due to the mechanism explained in question 4.8. The idea in conventional product costing systems is that the product with high volume needs most labor hours and the support costs are distributed over the products with respect to the labor hours. The higher the volume, the higher the labor hours, the higher the associated support costs. This logic is wrong. Support costs should be charged with respect to the really needed support time and this might be higher for special or high-quality products and not automatically for high-volume products.

Question 5-15 (p192): How are cost drivers selected in activity-based costing systems?

Answer:

- First, activities are identified.
- Second, the drivers of the activities are identified as activity-cost-drivers.

Question 5-16 (p192): In activity-based costing, what are the trade-offs made in choosing among transaction, duration, and intensity activity cost drivers?

Answer:

- *Transaction:* Used to count the frequency of an activity, the number of times and activity is performed.
- *Duration:* Represents the amount of time required to perform an activity.
- *Intensity:* Used to directly charge for the resource used each time an activity is performed. They are the most accurate activity cost drivers but the most expensive to implement; in effect they required direct charging via a job order costing system to track all the resources used each time an activity is performed. They should be used only when the resources associated with performing an activity are both expensive and variable each time an activity is performed.

Question 5-17 (p192): Why is practical capacity recommended in calculating activity cost driver ratios?

Answer: The amount of work that can be performed by resources supplied for production or service is called 'practical capacity'. It is better to use this value than the really achieved amount, because this is the best possible price.

- If you choose the really executed amount and this amount is below capacity, then your product price might be higher than competitors' prices.
- The management is due to allocate the correct amount of resources. If the management does a correct job, then the practical capacity will be equal the real used capacity and nobody has to worry. If there is a difference, then it is an indicator of mismanagement and an indicator of improvement.
- *Cost of unused capacity:* An expense determined by the amount of resources unused during production. This cost should not be assigned to products produced or customers served during a period. This cost should later be assigned to a customer or market segment, which was wrong forecasted. Such an assignment is done on a lump-sum basis; it will be treated as a sustaining, not a unit-level, expense.

Question 5-18 (p192): Why might an organization not experience financial improvement even after using activity based costing to identify and take action promising opportunities for process improvements and cost reductions?

Answer:

1. Missing business purpose: Never do an ABC-project only for doing it. Nobody will recognize it. Execute ABC projects only with a clear business purpose which must be communicated in advance to involved parties.
2. Don't oversell the ABC system in order to avoid frustrations.
3. Create ABC projects that fit to the purpose. Several managers might need different information – so maybe different ABC projects must be started.
4. Get senior management commitment before the ABC project is started.
5. Take care before delegating ABC projects to consultants (they lack company-specific knowledge, they like tools instead of analyzing, they can hardly bring together company's managers).
6. Poor ABC model design: don't get lost in details.
7. Individual and organizational resistance.

Question 5-19 (p192): "ABC systems yield more accurate product costs than conventional systems because they use more cost drivers to assign support costs to products." Do you agree with this statement? Explain.

Answer: The statement is wrong! Not the number of cost-drivers is the reason, but allocating the really appearing costs to the correct product is the reason. Too many cost drivers are also harming a company, because assessing the number for the cost-drivers might be more expensive than the benefit of having them is.

8. Questions in Chapter 6

Question 6-1 (p253): Why should decision makers focus only on the relevant costs for decision making?

Answer: Because they can only influence the future – that are future costs and future revenues.

Question 6-2 (p253): Are sunk costs relevant?

Answer: Sunk costs are not relevant because they appear in the past. These costs appear regardless of the decision makers decision and for this reason they are not relevant costs.

Question 6-3 (p253): What behavioral factors may influence some managers to consider sunk costs as being relevant?

Answer:

- People are concerned about their reputation, so they seldom change a decision they once took.
- If the manager does not purchase the new machine, then his or her behavioral may be viewed as sub-optimal in that it ensures lower productivity or performance from the old machine rather than improved performance with the new one.
- If a manager admit to making an error that person might garner more respect from colleagues for accepting the responsibility.
- Many decision makers have a difficult time distinguishing business decisions from personal decisions.

Question 6-4 (p253): Are direct material and direct labor costs always relevant?

Answer: If you just purchased a new machine for manufacturing and you can not get rid of these costs, then these costs are not relevant for any future decision. They appear regardless of your decision and they are direct labor costs. The answer to this question is NO.

Question 6-5 (p253): When are (1) product-sustaining and (2) business sustaining costs relevant?

Answer: If the product-sustaining or business sustaining costs vary with respect to a future decision, then these cost are relevant for taking a decision. If these costs occur in any case, then these costs are not relevant.

Question 6-6 (p253): Why can't we directly compare cash flows at different point in time?

Answer: Because money has a time value. Money you receive later in time has less value than money you receive earlier. Managers should focus on spending money later and earning money sooner.

Question 6-7 (p253): Are avoidable costs relevant?

Answer: Avoidable costs are those costs eliminated when a part, product, product line, or business segment is discontinued. Hence, avoidable costs are relevant.

Question 6-8 (p253): Give two examples of costs and decision context in which the costs are not relevant for a short-term context but are relevant for a long-term context?

Answer:

1. Manpower reduction for long-term contracted employees: If a company considers manpower reduction then this decision is nowadays a long-term decision. The salaries of the employees are unimportant for the short-term decision but are relevant for the long-term consideration.
2. The rent of a building is normally a long-term contract. If you consider to change your production in a way that you don't need so much inventory then the rent for your storage is not important in short-term, because the rent appears anyways but it is important for long-term consideration because the rent will be avoided in long-term.

Question 6-9 (p253): Why are business sustaining support costs often not relevant for make-or-buy decisions? Give an example when business sustaining support costs are relevant for a make-or-buy decision.

Answer: Business sustaining support costs are normally fixed and occur in any case (e.g. insurance for a building). For this reason these costs are normally not relevant for a make-or-buy decision.

If a company can sell a building or rent less buildings when they buy something instead of producing it, then these business sustaining costs are relevant for the make-or-buy decision.

Question 6-10 (p253): What qualitative considerations are relevant in a make-or-buy decision?

Answer: The following questions about a potential supplier must be answered before a buy-decision is taken. Is the supplier:

- Able to deliver the required quality?
- Willing to deliver the required quality (reliability)?
- Able and reliable to deliver in time?

Question 6-11 (p253): What are opportunity costs in a make-or-buy decision?

Answer: Opportunity costs are the sacrifices incurred when using resources for one purpose instead of another. If you buy some parts and can use your own machinery for producing other things with profit, then these 'possible' profits are opportunity costs which must be considered for a make-or-buy decision.

Question 6-12 (p253): The theory of constraints (TOC) relies on 3 measures. Define these three measures in the context of TOC.

Answer:

1. *Investment:* The monetary value of the assets that the organization gives up to acquire an asset.
2. *Operating costs:* Costs, other than direct materials costs, that are needed to produce a product or service.
3. *Throughput contribution:* The difference between revenues and direct materials for the quantity of product sold.

Question 6-13 (p253): What is the difference between process and product layout systems?

Answer: The *process layout system* focus on producing a product following processes. The separate parts of a product are assembled or inspected in batches. If all parts of batch passed one process step, then the whole batch is given to the next process step.

The *product layout systems* follow the idea of producing a product subsequently in one line. All parts are handled as a single item; they are not passed in batches. This concept is most often used in high-volume factories.

Question 6-14 (p253): What is cellular manufacturing?

Answer: Cellular manufacturing is a system where the work is grouped in cell which use several equipment for similar products.

Question 6-15 (p253): How is Just-In-Time (JIT) manufacturing system different from a conventional manufacturing system?

Answer: The main idea is to have no inventory (or at least almost none). A product is only produced if an order exists. The parts are handled single (not in batches). Each part can be inspected immediately (not in batches) and given to rework immediately (not in batches) if a fault is detected. System (part delivery,...) must be reliable.

Question 6-16 (p253): (1) What creates the need to maintain work-in-process (WIP) inventory? (2) Why in WIP inventory likely to decrease on the implementation of cellular manufacturing, JIT production, and quality improvement programs?

Answer:

- (1): WIP inventory causes costs (time-value of money, storing costs, handling costs, maintenance costs, inventory tracking costs). For this reason the focus must be on reducing inventory.
- (2): Cellular manufacturing: several process steps are done in one cell. This avoid automatically that the cell needs inventory. Inside one cell the production is done like in product manufacturing systems so few WIP is needed. Second, one cell tries to work with least costs and this means they don't require incoming stock and neither gather outgoing stock. Third, one cell can be use for several products because one cell uses processes or machines which can be used for several products. If a blocking problem appears for one problem then the cell can switch easy to another product and can continuous working. Hence, this cell doesn't produce outgoing stock and WIP inventory is reduced.
- JIT has as base to lessen WIP inventory.
- Quality improvement programs have in mind to produce products with fewer failures. If a product has only few failures and there is no need to rework it then WIP inventory is automatically smaller (no repair articles are needed; no spare capacity must be produced to overcome the bad-product rate).

Question 6-17 (p253): Why are production cycle time and the level of WIP inventory positively related?

Answer: The shorter the production cycle time, the short the work in progress inventory.

Question 6-18 (p253): List two types of costs incurred when implementing a cellular manufacturing layout.

Answer:

1. Training.
2. Machine movement.

Question 6-19 (p253): What are two types of financial benefits resulting from a shift to cellular manufacturing, JIT production, or continuous quality improvements?

Answer:

1. Quality related costs lessen.
2. WIP inventory costs lessen.

Question 6-20 (p253): What is meant by *cost of nonconformance* (CONC)?

Answer: The cost incurred when the quality of products and services does not conform to quality standards.

Question 6-21 (p253): Waste, rework, and not cost of scrap are examples of what kinds of quality costs?

Answer: Internal failure costs.

Question 6-22 (p253): Quality engineering, quality training, statistical process control, and supplier certification are what kinds of quality costs?

Answer: Prevention costs.

Question 6-23 (p253): List three examples for each of the following quality costing categories: (a) prevention, (b) appraisal, (c) internal failure, (d) external failure costs.

Answer:

- **Prevention Costs:** Quality Engineering, Quality Training, Statistical process control, Supplier certification, Research of customer needs
- **Appraisal Costs:** Inspection / testing of incoming material, Maintenance of test equipment, Process control monitoring, Product quality audits.
- **Internal Failure Costs:** Downtime due to defects, Waste, Net cost of scrap, Rework costs.
- **External Failure Costs:** Product liability lawsuits, Repair costs in the field, Returned products, Product liability recalls, Service calls, Warranty claims.

Question 6-24 (p253): What is the additional cost of replacing one unit of a product rejected at inspection and scrapped?

Answer:

- All costs again
- Direct labor
- Direct material
- Support
- Quality

Question 6-25 (p253): What is the additional cost if a unit rejected at inspection can be reworked to meet quality standards by performing some additional operations?

Answer:

- Direct labor
- Quality

Question 6-26 (p253): What costs and revenues are relevant in evaluating the profit impact of an increase in sales?

Answer:

Question 6-27 (p253): “Design an accounting system that routinely reports only relevant costs, “advised a management consultant. Is this good advice?

Answer: In my opinion this is a wrong advice. For many decisions only the relevant costs are important, but for a global picture of the whole company, the top-managers need to know all occurring costs – relevant and irrelevant.

9. Questions in Chapter 7

Question 7-1 (p294): “Prices must cover both – variable and fixed – costs of production.” Do you agree with this statement?

Answer: NO. In case of short-term decisions, only the variable costs are relevant. The fixed costs should only be considered in case of long-term decisions.

Question 7-2 (p294): Why is the evaluation of short-term pricing and product mix different from long-term decisions?

Answer: Short term decisions are based on facts which can not be adjusted in a short-term (e.g. layoff of employees). For this reason, pricing can be based on variable costs only. The fixed costs were already considered under the long-term pricing concept. For short-term decision the variable costs are important with respect to the availability of activity resources. If capacity is free, then only the ‘normal’ variable costs must be considered. If capacity is not available, then the variable costs (direct and indirect) increase (e.g. product sustaining, partially business sustaining).

Long-term decisions are based on completely other factors: e.g., ‘how elastic is demand?’, ‘what is the strategic goal?’, ‘how is the competitor’s position?’. The long-term decisions consider both (variable and fixed) costs.

Question 7-3 (p294): What distinguishes a commodity-type business from other business?

Answer:

Question 7-4 (p294): What two considerations complicate short-term product mix decisions?

Answer:

1. The availability of capacity.
2. The opportunity costs of products which are not produced for a short-term.

Question 7-5 (p294): What firms are likely to behave as price-taker firms?

Answer:

- Mass production (e.g. coffee, steel).
- Market with strong competitors which already established prices.
- Companies which cannot distinguish their products adequately from competitors’ products.
- When customers created elastic demand.

Question 7-6 (p294): What firms are likely to behave as price-setters?

Answer:

- No mass production, where specific knowledge is needed (IT-equipment).
- Companies which are busy in an industry segment for which entry barriers are high due to high investment costs.
- Companies which offer products which are needed by the public (e.g. telecommunication years ago).
- Companies which follow a certain strategic action (e.g. market share increase (low); product separation (high)).

Question 7-7 (p294): “When production capacity is constrained, determine what products to make by ranking them in order of their contribution per unit.” Do you agree with this statement?

Answer: The ranking of products should be done based on contribution to machine hours, because these bring the most profit. Assume you have one product with a high contribution per unit, but this production uses the whole machine time. With the same machine you could produce 10 times of product 2 which has half contribution-per-unit as product 1. The total profit will be more if you produce product 2 with lower contribution-per-unit but higher contribution-per-machine-hour.

Question 7-8 (p294): “When production capacity is limited and it is possible to obtain additional customer orders, then a firm must consider its opportunity costs to evaluate the profitability of these new orders.” Do you agree with this statement? What are the opportunity costs in this context?

Answer: The statement is correct. If capacity is limited and a company evaluates to take the offer, then it will not produce a product it would otherwise do. The revenues of the not-produced product are the opportunity costs. These costs have to be added to the variable costs of the to-be-produced-offer in order to obtain the total costs.

Question 7-9 (p294): “What additional costs should a firm consider when making a short-term pricing decision when surplus production capacity is not available and it must employ overtime, extra shifts, sub-contracting, or other means to augment the limited capacity?”

Answer: A company must also consider the additional product-sustaining and business-sustaining costs as well as overtime-salary. These costs must be added to the variable costs in order to obtain the total costs for the additional short-term offer.

Question 7-10 (p294): Should a firm consider business-sustaining costs in making a short-run pricing decision? Give two examples to illustrate your answer.

Answer:

1. Security costs are business sustaining. If more security personnel is needed because of night-shifts, then these are additional business-sustaining costs.
2. Additional cleaning activities are business sustaining. They might be necessary due to extra-shifts.

Question 7-11 (p294): Describe three situations in which there is economic justification for using full costs for pricing decisions.

Answer:

1. Many contracts for the development and production of customized products and many contracts with governmental agencies specify that prices should equal full costs plus markup.
2. When a firm enters into a long-term contractual relationship with a customer to supply a product, it has great flexibility in adjusting the level of commitment for all resources. Therefore, most activity costs will depend on the production decisions under the long-term contract, and full costs are relevant for the long-term pricing decision.
3. If the demand is low, then discounts on prices are useful in order to increase the demand. However, discounts on prices can only be given, if previously the cost was based on full-cost.

Question 7-12 (p294): How do price markups over costs related to the strength of demand, the elasticity of demand, and the intensity of competitions?

Answer:

- If demand is high, then markups can/will be higher. If demand is low, then markup will be lower (e.g. hotels over weekend).
- If demand elasticity is high, then markup changes have big influence on your income. The market is very sensible to price increases. A price increase of 5% might result in a sales decline of 10% resulting in a net-loss.
- If competition is high, then you need to compare the customers' value of your product with this of your competition. If prices of competition are low and your products more-value is not appropriate, your markup must be adjusted downwards.

Question 7-13 (p294): Why do short-run prices fluctuate over time?

Answer: Short-run prices are based on variable costs. They depend on the amount of used machine capacity. If an extra order is received, which can be fulfilled using unused capacity, then the costs for this extra order are calculated without considering fixed costs (e.g. business sustaining costs). For this reason, short-run prices fluctuate.

Question 7-14 (p294): What strategic reasons may influence the level of markup?

Answer:

1. Penetration price strategy to enter a market.
2. Skimming price strategy for the consumers' benefits of possessing the latest technology first.

Question 7-15 (p294): What options should firms consider when long-run market prices are below full costs?

Answer:

1. Cost reduction.
2. Change of product mix.
3. Drop of unprofitable product.

Question 7-16 (p294): Why is full-cost information useful for long-run product mix decisions?

Answer: You need to compare regularly your full-costs with the market price of your product. The regularity ensures that you can identify early enough when and in which direction you need to take actions. Take care that most of managers' actions can not be realized in short-term. Retraining of employees, introduction of new product, drop of products, sell of machines, are long-term decisions and need time to evaluate and put into practice.

10. Questions in Chapter 8

Question 8-1 (p 354): What is the defining feature of a long-term, or capital, asset ?

Answer: A long-term asset is acquired and paid for before it generates benefits that last two or more years.

Question 8-2 (p 354): What is capital budgeting?

Answer: Capital budgeting is a systematic approach to evaluating an investment in a long-term, or capital, asset.

Question 8-3 (p 354): What are the attributes of long-term assets? Why do organizations use capital budgeting to evaluate the acquisition of long-term assets?

Answer:

1. Organizations usually are committed to long-term assets for an extended time. This type of commitment creates the potential for either excess or scarce *capacity* that, in turn, creates excess costs or lost opportunities, respectively.
2. The amount of capital committed to the acquisition of capital assets is usually quite large; therefore, acquiring long-term assets creates significant *financial risks* for organizations.
3. The long-term nature of capital assets creates *technological* risk for organizations.

Question 8-4 (p 354): What are the major objectives in capital budgeting?

Answer: The major objectives in capital budgeting are to find out whether or not potential investments are worthwhile or to determine which of several projects / investments is the one to select.

Question 8-5 (p 354): What is an investment?

Answer: An investment is the monetary value of the assets that the organization gives up to acquire an asset.

Question 8-6 (p 354): What does *return* mean?

Answer: Return is the increased cash inflows in the future attributable to the long-term asset.

Question 8-7 (p 354): What does *time value of money* mean?

Answer: The time value of money is the opportunity cost of using money; that is, money like all commodities has a cost and can earn a return, so its value depends on when it is expended or received.

Question 8-8 (p 354): Is it always true that money today is worth more than the same amount of money received a year from now?

Answer: NO. Maybe more theoretical, but if interest is zero then the value of money in a year from now is the same as it is today.

Question 8-9 (p 354): What is *future value*?

Answer: The future value is the value money will have in the future. It takes into account the interest you can earn on investments with the same risk.

Question 8-10 (p 354): What is the role of future value in capital budgeting?

Answer: The future value of cash outflows or cash inflows represents *expected* values. The expected savings are computed as future values which must be discounted to present values in order to determine the profitability of an investment.

Question 8-11 (p 354): What does the compounding effect mean?

Answer: The compounding effect means that you receive interest on the interest which you once received. It assumes that you don't waste the received interest but reinvest it for the same interest rate.

Question 8-12 (p 354): What is present value?

Answer: The present value is the today's value of an investment or any savings expected in the future.

Question 8-13 (p 354): What is the significance and role of time zero in capital budgeting?

Answer: Time zero is the moment the investment project starts. Normally, at this point in time cash outflow occurs. It is important that all future cash flows must be discounted back to this date in order to compute the correct net present value and in order to be able to determine if the investment project is worthwhile or not.

Question 8-14 (p 354): What is discounting?

Answer: Discounting is the process of computing the present value from values that are expected to occur in the future.

Question 8-15 (p 354): Give an example of an annuity.

Answer: The pension is an annuity.

Question 8-16 (p 354): What is the cost of capital?

Answer: The cost of capital is the return that the organization must earn on its investment to meet its investor's return requirements.

Question 8-17 (p 354): What is the most widely used approach to computing the cost of capital for evaluating new investments?

Answer: The weighted average cost of capital (WACC) method is most often used.

Question 8-18 (p 354): What is the discount rate?

Answer: A discount rate is the rate which causes a future value to be less in present time during a number of periods. It is the opposite like interest. Interest rate causes the present value to increase and the discount rate causes the future value to decrease down to the present value.

Question 8-19 (p 354): What does *payback period* mean?

Answer: The payback period is the time needed to get back the invested money from the savings earned through the investment. It is the number of periods required to recover a project's initial investment.

Question 8-20 (p 354): How is accounting rate of return defined?

Answer: The accounting rate of return is defined as:

$$AROR = \frac{\text{Average Income}}{\text{Average Investment}}$$

The average income takes into account the annual savings and the depreciation. If you have savings of \$20000 and depreciation of \$12000, then your annual average income is \$20000 - \$12000 = \$8000.

The average investment is calculated as (Historical Cost + Salvage) / 2.

Question 8-21 (p 354): What are inflows and outflows in capital budgeting?

Answer: Outflows are money you spend in order to purchase something or to make an investment. Inflows are the savings you receive from the made investments.

Question 8-22 (p 354): Why are incremental cash flows important in capital budgeting?

Answer: The time value of money has big impact in how much savings you really gain. The sooner you receive savings the more value they have. For this reason it is important to know at which point in time which increments of cash flow occur.

Question 8-23 (p 354): Why do planners compute the present value of a sum that will be received in the future?

Answer: The sooner you receive savings, the more value it has. For this reason it is important to calculate the savings with their present value.

Question 8-24 (p 354): What is net present value?

Answer: The net present value is the differences between the present value of all occurring costs and the present value of all estimated savings. If this difference is positive then the investment is worthwhile.

Question 8-25 (p 354): How is the idea of net present value used in capital budgeting?

Answer: The net present value is the differences between the present value of all occurring costs and the present value of all estimated savings. If this difference is positive then the investment is worthwhile.

Question 8-26 (p 354): What is internal rate of return?

Answer: The internal rate of return is the actual rate of return expected from an investment.

Question 8-27 (p 354): How would you explain the idea of internal rate of return using non-financial terms?

Answer: The internal rate of return is the actual rate of return expected from an investment. If you make an investment then you expect some savings later on. The difference between all savings and the all costs for the investments is the net saving. The division of the net saving and the sum of all costs is the internal rate of return.

Question 8-28 (p 354): How is profitability index defined?

Answer: The profitability index is a variation on the net present value method. It is computed by dividing the present value of the cash inflows by the present value of the cash outflows.

Question 8-29 (p 354): How is economic value added computed?

Answer: The economic value added is computed as:

$$EVA = AdjustedAccountingIncome - (CostofCapital * InvestmentLevel)$$

Question 8-30 (p 354): Why are post-implementation audits useful?

Answer: They are useful for three reasons:

1. They give feedback to management whether or not the investment was really a good choice.
2. They give feedback to the management accountant who took the decision about his assumptions. By doing so, the management accountant has the chance to evaluate how good his performance was and in which aspects s/he can do better next time.
3. Managers can influence the management accountant by being too optimistic or too pessimistic in a way that supports his intention (e.g. receiving the newest technology). This can lead to wrong decisions. The manager will only be judged and criticized if his estimations are checked later on against the reality.

Question 8-31 (p 354): What is the difference between the nominal and effective rate of interest?

Answer: The effective rate of interest takes into account whether or not the interest is paid more than once per year. If interest is paid per half a year then the effective rate of interest is higher than the nominal value, because the earned interest after half a year will earn interest in the second half a year as well. The effective rate of interest is computed as:

$$i_e = \left(1 + \frac{i_n}{n}\right)^n - 1$$

11. Questions in Chapter 9

12. Questions in Chapter 10

13. Questions in Chapter 11

14. Questions in Chapter 12

15. Literature

1. Atkinson, Banker, Kaplan, Young. 2001. *Management Accounting*. 3rd edition. Prentice Hall.