

Chapter 1

How Management Accounting Information Supports Decision Making

QUESTIONS

Note: The questions in this chapter are designed to generate discussion about the broad scope of contemporary management accounting information, cross-functional interaction in designing management accounting information systems, and the range of needed skills and knowledge in today's business environment.

- 1-1.** Management accounting is a discipline that designs planning and performance measurement systems, using financial and nonfinancial information, to help an organization develop and implement its business plans. The information must be relevant and helpful, and customized to serve multiple purposes, such as making decisions, allocating resources, and monitoring, evaluating, and rewarding performance. Common information requirements include measures of cost, profitability, quality, efficiency, and timeliness.
- 1-2.** A company's operators, managers, and executives need information for their operational control and improvement activities, as well as on the performance of their individual processes, products, services, and customers. This information is important to direct managers' attention to areas where improvement is needed, to provide feedback on activities, and to monitor and evaluate the performance of operators, departments, divisions, and business units and their managers. This information should be created and produced based on the internal need for actionable information.

Shareholders and external suppliers of capital are not involved in managing the business. Therefore, they do not need the timely and disaggregate information generated for internal managerial uses. External capital suppliers will receive less timely (typically quarterly for shareholders, monthly for creditors) and more aggregate information. Also the form and accounting procedures used to prepare these external reports are constrained by regulation—such as by the country's standard setting authorities and governmental regulatory agencies. This information may also have to be audited by independent accountants, whereas the data for internal uses do not have to be subjected to external auditing review.

Another constraint on information supplied externally is the risk of competitors seeing and acting upon a company's disclosed information. Therefore, while internal information should be highly relevant to understanding how successful the company is, such information disclosed externally could harm the company.

- 1-3.** Operators need direct measures on variables they can influence and control. These generally are physical measures of outputs produced and input resources used to produce the outputs (including productivity measures such as percentage of good units produced). In addition, operators should be seeing measures of the quality of their output (defects, scrap, and rework) and the time required to produce the output. In this way, they can become problem solvers and attempt to improve quality, productivity, and cycle times of their tasks and activities. Financial measures are a summary of the effectiveness and efficiency (or lack thereof) of operators' actions, but by themselves do not direct attention to the drivers of improved financial performance or the root causes of poor financial performance. Operators need leading measures of performance, and financial measures tend to be lagging measures of performance.

Middle managers, while generally seeing more financial information than operators, will also need to see summary measures about outputs produced (first-pass yields, productivity), quality (scrap, rework, defect rates) and cycle times if they are going to motivate employees for continuous improvement of yields, quality and production process times. The middle managers will also want to see operating summaries of the performance of their operations from their customers' perspectives (including internal customers), such as measures of on-time delivery, quoted and actual lead times for delivery, returns due to defects or dissatisfaction, and customer satisfaction. They may also want periodic summaries about their employees' attitude, skills, number of suggestions made, absenteeism, turnover, etc.

Even senior executives can benefit from seeing nonfinancial measures. Measures such as market share, customer satisfaction, retention and acquisition of customers, on-time delivery performance, employee morale, and summaries of the quality, yield, productivity, safety, and timeliness of key business processes can provide valuable information to senior executives about the success of their business initiatives and the efficiency of internal operations.

- 1-4.** Financial measures are inadequate for guiding and evaluating organizations' trajectories through today's competitive environments. Financial measures are lagging indicators that could fail to capture much of the value that has been created or destroyed by managers' actions in the most recent accounting period. The financial measures tell some, but not all, of the story about past actions and they fail to provide adequate guidance for the actions that have created or destroyed future financial value.

The information-age environment for both manufacturing and service organizations requires new capabilities for competitive success. The ability of a company to mobilize and exploit its intangible or invisible assets has become far more decisive than investing and managing physical, tangible assets. Intangible assets enable an organization to:

- Develop customer relationships that retain the loyalty of existing customers and enable new customer segments and market areas to be served effectively and efficiently;
- Introduce innovative products and services desired by targeted customer segments;
- Produce customized high-quality products and services at low cost and with short lead times;
- Mobilize employee skills and motivation for continuous improvements in process capabilities, product and service quality, and response times; and
- Deploy information technology, data bases, and systems

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Managers who are placed under pressure to deliver consistent and excellent short-term financial performance may make trade-offs that limit the search for investments in these growth opportunities. Even worse, the pressure for short-term financial performance can cause companies to reduce spending on new product development, process improvements, human resource development, information technology, databases and systems, and customer and market development. In the short run, the financial accounting model reports these spending cutbacks as increases in reported income, even when the reductions have cannibalized the company's stock of assets and its capabilities for creating future economic value. Alternatively, the company could maximize short-term financial results by exploiting customers through high prices or lower service. In the short-run, these actions enhance reported profitability, but the lack of customer loyalty and customer satisfaction will leave the company highly vulnerable to competitive inroads.

1-5. Innovations in management accounting practice have been driven by changes in information needs as companies became more complex, introduced new technologies, and encountered new competitors.

- When controlling and reducing costs were important, innovations in costing systems occurred. For example, by the middle of the 19th century, railroad managers had developed complex costing systems to compute the costs of carrying different types of freight along multiple routes. Later in the century, Andrew Carnegie developed detailed systems to track the cost of materials and labor in his steel mills. Carnegie used this information to determine where he could reduce costs and which mills to close. Based on his ability to control and reduce costs, Carnegie was able to lower prices to obtain a competitive advantage.
- When organizations gained advantage from scale and diversification, innovative executives developed new management control systems to monitor and manage their complex enterprises. For example, in the early 20th century, DuPont and General Motors expanded the focus of management accounting to management planning and control in order to determine resource allocations and assess performance of multiple lines of business. Assessment measures included return on investment and various disaggregations of return on investment.
- When competitive advantage shifted to how well a company deployed and managed its intangible assets—customer relationships, process quality, innovation, and, especially, employees—new systems for cost and performance management emerged. For example, in the 1970s, American and European companies faced intense competition from Japanese manufacturers. Management accounting systems advanced to add such nonfinancial measures as quality, service, innovation, drivers of customer satisfaction, and employee performance.

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Furthermore, many companies formerly produced a fairly narrow product line. The companies produced standard products in high volumes so that product distortions did not arise from variation in batch sizes, customization, and special features. Today, most companies produce a much greater variety of products and services, and sell and distribute these to more customers and markets. As a result, they need better cost systems to accurately assign indirect and support costs required to design and produce a product, deliver a service, and meet individual customers' demands.

- Though not covered in the chapter, commentary on service organizations is provided here: For many service organizations, the regulated environment did not require accurate knowledge of the cost of individual services or customer segments. Therefore these companies' cost systems focused on cost control and responsibility accounting, and had only very crude estimates of cost and profitability by service, line of business, or market segment. In a much more competitive, deregulated environment, service companies now have to know the cost of their outputs and customers, and to understand the underlying cost drivers of their business. In addition to better cost and profit information, service companies have to concentrate on customer service and satisfaction, so they now need information on the quality and timeliness of their services to customers. Measures such as customer loyalty and repeat purchase frequency become critical.
- Finally, organizations today derive competitive advantage from their intangible assets: innovative products and services, high quality and responsive processes, skilled and motivated employees, excellent technology and information systems, and reputation and image among targeted customer groups. None of these "assets" is well measured by traditional accounting systems. Consequently, management accounting systems in such organizations have advanced to include measures to help coordinate value creation from the organization's intangible assets.

- 1-6.** A Balanced Scorecard is a systematic approach to performance measurement that integrates an appropriate mix of short- and long-term financial and nonfinancial performance measures used across the organization, and specifically recognizes the importance of intangible assets. The nonfinancial performance measures are leading indicators of financial performance, in the sense that the measures indicate whether the company is building or destroying capabilities with customers, processes, employees, and systems.
- 1-7.** The four measurement perspectives in the Balanced Scorecard are (1) financial, (2) customer, (3) process, and (4) learning and growth.
- 1-8.** Increasingly, in order to succeed, organizations are relying on competitive advantage created from their intangible assets, such as loyal customers, high-quality operating and innovation processes, employee skills and motivation, data bases and information systems, and organization culture. The growing importance of intangible assets complements the growing interest in the Balanced Scorecard because the Balanced Scorecard helps organizations measure, and therefore, manage the performance of their intangible, knowledge-based, assets. With the Balanced Scorecard measurement system, companies continue to track financial results but they also monitor, with nonfinancial measures, whether they are building or destroying their capabilities—with customers, processes, employees, and systems—and how the company is managing intangible assets to create future growth and profitability. The Balanced Scorecard provides a framework for describing how intangible and tangible assets (such as property, plant, equipment, and inventory) will be combined to create value for the organization.

- 1-9.** Individuals react to measurements. They focus on the variables and behavior being measured and spend less attention on those not measured. In designing feedback mechanisms, measurements and goals, management accountants and the management team must understand and anticipate the reactions of individuals to feedback information, measurements, and goals. When the measurements are not only used for information, planning, and decision-making but also for control, evaluation, and reward, employees and managers may take unexpected and undesirable actions to influence their score on the performance measure.

As management accounting systems change in order to introduce or redesign cost and performance measurement systems, people familiar with the previous systems may resist. People who have acquired expertise in the old system may fear that their experience and expertise will not be transferable to the new system. People may also have concerns that decisions and actions based on information the old system produced, may no longer seem valid given information produced by a new management accounting system. Thus, people may feel threatened by a new management accounting system and react against the change.

EXERCISES

Note: The exercises and problems in this chapter are designed to generate discussion about the broad scope of contemporary management accounting information, cross-functional interaction in designing management accounting information systems, and the range of needed skills and knowledge in today's business environment.

- 1-10.** "Accounting" conveys a notion of recording and reporting for stewardship, or accountability for use of assets or incurrence of expenses. Accurate, timely, and relevant information about the economics and performance of organizations is crucial to organizational success or good stewardship over entrusted assets. Management accounting information is one of the primary informational sources for decision making, improvement, and control in organizations. Effective management accounting systems can create considerable value to organizations by providing timely and accurate information about the activities required for their success. Traditionally, management accounting information that helped support decision making and efficient use of resources was primarily financial. In recent times, management accounting information has expanded to encompass operational or physical (nonfinancial) information, such as quality and process times, as well as more subjective measurements, such as customer satisfaction, employee capabilities, and new product performance.

To develop effective management accounting information systems, the system designers must understand the different decision and feedback information needs of the organization's operators/employees, middle managers, and senior executives. The different needs include operational control, product and customer costing, management control, and business plan implementation and evaluation. In addition to technical financial skills and ability to communicate well with people in other functional areas, a person handling the described responsibilities needs an understanding of the organization's operations and processes, the organization's competitive environment (including customers and noncustomers), and the behavioral implications of performance measurements. In response to the challenging and continually changing environment facing organizations all over the world, management accounting systems must continue to undergo changes to enhance organizational performance. Thus, the management accountant, for example, as part of the management team, needs adaptability and the ability to manage both the technical and behavioral aspects of change.

1-11. As in the previous question, there is no single “correct” answer. The instructor should try to generate an interesting discussion with the class to brainstorm on the measures used, both financial and nonfinancial, by the different managers in the hospital. The answers below are meant to be suggestive but are certainly not definitive, complete, or comprehensive. The goal should be to engage the students in recognizing the different types of information—financial and nonfinancial, daily and monthly, disaggregate and aggregate—that managers at different levels of the hospital will find helpful in performing their jobs.

- (a) (1) The manager of a patient unit will want to track the number of patients each day in the unit, and their predicted demands for meals, housekeeping, medication, and other nursing services that day, based on their treatments required, and whether they need to be fed or assisted in basic toilet functions. In this way, the manager can adjust the supply of nurses and other personnel, and the mix of skills required in these personnel, to anticipated patient demands. The manager may want indicators of quality problems—incorrect medications provided, inappropriate meals delivered, and excessive delays in responding to patients’ needs and requests—so that the root causes of these problems can be identified and efforts made to eliminate these causes. Most of this information will be provided daily, and will be nonfinancial. Perhaps a daily report of total personnel expenses used each day would be helpful to signal the importance of continually adjusting the mix of personnel required to the expected demand. For example, it would be inefficient to have highly-paid registered nurses changing sheets, a task that could be done equally well by much lower paid orderlies. But low paid or inexperienced personnel should not be performing patient-care functions that require the skill levels of experienced registered nurses.
- (2) On a weekly basis, the manager of the radiology department would monitor the consumption of supplies—such as X-ray films—and the utilization of expensive equipment, such as CAT scanners and Magnetic Resonance Imaging (MRI) machines. The manager would also monitor the staffing of the department to ensure that radiology technicians and other skilled personnel were available to perform scheduled procedures, as well as emergency (unexpected) procedures. The manager should monitor any excess supply of personnel. Quality measures would include the number and percentage of procedures that had to be redone, stockouts of critical supplies, and the quality of images created (perhaps the manager could measure the complaints of the radiologists who had to examine and interpret the images). Process times—time required to perform each procedure—would be tracked, and delay time—the time between when the patient showed up for a procedure and the time when the procedure was actually initiated would provide an indicator of customer service. Weekly (or monthly) the manager would want financial summaries of the cost of supplies used and of the department’s personnel expenses, normalized by the quantity and mix of services provided. Supplies and personnel expenses would be among the principal controllable items by the department manager. Weekly summaries of rework and delays would also be useful indicators of trends in departmental operating performance. Depending on the job description, the manager may be responsible for process times of staff conducting radiological examinations, CAT scans, or MRI procedures.

- (b) The manager of the nursing service would likely get daily summaries of the staffing at each of the patient units, and the number of patients in each unit. If any department appears overstaffed or understaffed, the manager of the nursing service can ask the departmental manager (see answer to (a) (1) above) to explain deviations by the mix of specific patient demands in that unit that day. Weekly and monthly summaries of number, mix, and total cost of personnel by each nursing unit, again normalized by patient-days (or, better, a measure of weighted patient demands for nursing service) would provide a summary indication of the ability of each unit manager to adjust staffing levels to actual demands. Weekly and monthly summaries of absenteeism or tardiness in each patient unit may help identify where employee morale and commitment to the hospital are above and below normal levels. Weekly and monthly summaries of supplies used at each patient unit will provide control as to whether the departmental managers are monitoring the consumption of these supplies at their units.

The manager of the nursing service might establish a procedure in which discharged patients are asked to evaluate the quality of the service they received during their stay. This would enable the manager to compare the quality of the service provided (as perceived by the customer—in this case the patient) by each of the units under her control. A similar survey might be done with the house staff and attending physicians to get their perception about the quality of the professional service being delivered by patient unit personnel. Monthly summaries of these customer surveys could indicate where improvement might be needed and where a departmental manager has succeeded in creating highly satisfied patients and physicians. The practices being used by this manager can then be disseminated to the other departmental managers.

The manager of the nursing service will also want a weekly and monthly report on the staffing levels at the specialty units, normalized by the number of procedures or the number of patient hours delivered in each unit. Physical counts (number of procedures or patient hours per employee) will provide a measure of whether these units are over-staffed or under-staffed, and personnel cost per procedure or per patient hour will provide an indicator of whether the skill mix of personnel is being appropriately adjusted. A similar report on supplies used at each unit will supply information about consumption of expensive materials and supplies.

- (c) The chief executive officer of the hospital will want to see aggregate operating statistics such as occupancy rates, personnel expenses per patient day, number of full-time-equivalent personnel per patient day, and trends in admissions and length-of-stay. Financial measures will be important—operating revenues and expenses, accounts receivable (or average collection period), and utilization of expensive resources—such as specialized equipment and intensive care units. Financial data are probably useful on a monthly basis, but key operating statistics such as occupancy rates, admissions backlogs, and average length-of-stay could be provided daily. Monthly, the CEO could attempt to compare the hospital's admissions and occupancy rates with that of other hospitals in the region, to evaluate market share trends.

Aggregate measures of satisfaction—from attending physicians as well as patients—would be helpful in spotting whether performance is improving or deteriorating.

PROBLEMS

- 1-12.** One principal advantage of separating the financial reporting from the management accounting department is that employees who are dedicated to their particular tasks develop expertise in these tasks. The financial reporting accountants can concentrate on the financial accounting and tax standards that must be used to stay in compliance with the country's accounting and tax regulations. They can also serve as liaisons with the external auditors. The financial reporting department can be responsible for the company's basic transaction and general ledger systems, ensuring that these systems reliably capture data and have adequate internal controls.

The management accounting department can work closely with the functional areas (for example, manufacturing, marketing, and engineering) that use management accounting information. This will ensure that the reports are timely and relevant for these internal users. If users wish to use specific accounting conventions (interest on capital employed, asset valuation and depreciation using current, not historical values), the management accountants can incorporate these conventions in their reports. Also, weekly and monthly operating summaries for internal information and performance measurement may not have to abide by financial accounting requirements (for example, on inventory valuation procedures). The management accountants can include nonfinancial operating information in the reports they prepare for employees and managers, and they can become familiar with how to access information from all the organization's information systems and databases, not just the general ledger. Also, some of the information might be judgmental, subjective, and based on rough estimates. This information might be accurate enough for certain internal uses, but not reliable enough for external reporting and external auditing requirements.

The disadvantage of separate accounting departments is that the information prepared for internal use may not be immediately compatible with external reporting requirements. Therefore, an additional and perhaps costly and time-consuming reconciliation process may be required to translate from statements prepared for internal use into statements suitable for external reporting. Also by having separate departments, more total accounting and finance personnel may be required since unused capacity in one department (or function) cannot be easily or quickly mobilized to perform duties for the other department.

- 1-13.** (a) The controller is attempting to respond to the needs of internal users (managers of operating activities and marketing managers) to create information that is most relevant to these users' needs. The company president or marketing manager may want to ensure that current prices cover not just the historical costs of providing resource capacity but what the costs would be today based on today's investment costs. In addition, the president or marketing manager may have wanted to see whether today's prices cover not only today's capital acquisition cost but also provide an adequate return on the capital invested in the equipment. The modifications of using replacement cost depreciation and interest on invested capital require the controller to deviate from the generally accepted accounting principles used for external financial statements. This situation illustrates how a management accountant treats an internal customer as the primary customer of the management accounting reports and therefore customizes the internal information to the expressed preferences of this internal customer.

- (b) Management accountants should treat as their primary customers the organization's managers and their information and decision needs. These needs may not always be consistent with U.S. Generally Accepted Accounting Principles (GAAP), for example. With modern computer systems, the cost of reconciling from managerial information to GAAP information should be relatively small. A benefit-cost analysis should generally favor producing the information that will be most useful to the managers, and leave for the financial reporting group the task of translating and reconciling from the managerial information to the financial reporting information.

- 1-14.** The discussion should begin by specifying the organization's objectives and how the manager contributes to achieving those objectives. This provides a framework for the ensuing discussion. Presumably the primary objective for a fast-food restaurant is profitability, which becomes the primary objective in the Balanced Scorecard system. The response should identify reasonable customer expectations regarding service, quality, and cost, and should specify performance measures that reflect how the manager contributes to each of these. The response should identify how employees affect performance on the primary objective and how the manager's activities affect employees' performance. For example, while the manager may have no control over wages or general employment conditions, through general management practices the manager contributes to the general level of employee satisfaction. The manager is likely to have little interaction with suppliers since in most fast-food operations the head office handles these relationships. Similarly, while the corporate office handles most important community initiatives, the local manager can contribute by participating in community activities—for example, by sponsoring various youth activities.

The Balanced Scorecard should include operational, customer, employee, and community measures thought to influence profitability, as well as profitability measures. Such measures might include customer wait time, quality of the food served, materials and food scrapped, number of customers served per hour, average revenue per customer served, stockouts of ingredients, errors in serving customers, employee absenteeism and tardiness, and daily revenues and operating expenses.

CASES

- 1-15. (a) An employee desiring to serve customers efficiently and effectively would be interested in the time it takes to perform specified tasks and the quality of the work performed. If standard times exist for routine jobs that Super Printing performs, the employee can compare actual and standard times to determine potential areas of improvement. Information on the actual time to perform jobs can be reported per job or per day. Information on time and resources needed to perform nonroutine jobs can be collected as they occur, to provide input to future pricing and staffing decisions. Assessment of the quality of the work performed should include feedback on whether each customer's instructions were met, and whether the output was high quality. This feedback can be obtained through formal or informal feedback each time a customer picks up a job, or through formal written feedback, such as comment cards. Information on the frequency and reasons for rework or customer dissatisfaction with the output should help the employee in continuous improvement efforts.
- (b) Michelle, the retail outlet (store) manager, will want to monitor overall outlet profitability. This starts with subtracting all operating expenses and purchasing costs from store revenues, but this is much too aggregate to be very useful. The manager will want information on operational control (quality, timeliness, and efficiency), business line and customer costs, and financial and nonfinancial performance measurements at the store level. For example, the manager will want day-to-day operating statistics on the efficiency and productivity of the various machines (copies per hour); machine availability and downtime; product defects, rework, customer returns, and defective merchandise; and response times to customer requests. She will want accurate information about business line cost and profitability (black-and-white copying, color copying, document preparation, computer services, and office supplies), and profitability by major customer type (the business school's MBA and executive programs, faculty research, school administration, and other institutional accounts). The manager can use such information in making pricing decisions for services and customers, including volume discounts or surcharges for orders with special requirements and services. The information about the most profitable business lines and customer segments will help direct marketing efforts and spending on equipment, space, and inventory to their most profitable uses. To monitor sales trends, the store manager could collect information about sales by hour of day, day of week, and month of year to guide decisions about which hours the store should be open, and also to staff the store appropriately for predictable fluctuating demands. Possible key nonfinancial measures for the outlet include market share and satisfaction for targeted customers; time, quality, and cost of internal processes; new products and services to offer, and employee skills and motivation.
- (c) The president of Super Printing would look at profitability, perhaps monthly, for every outlet (store) in the chain. The president would want operating statistics that would enable him or her to compare the profitability and operating performance of each business line across stores. This internal benchmarking information suggests opportunities for improvement that can be shared across stores. Competitive information could include the market share of Super Printing relative to their competitors. Competitive pricing information on key products and services would also be valued. The president should also have established information mechanisms by which consumer complaints (and satisfaction) are directed to his or her attention.

- 1-16.** For government and nonprofit agencies, the financial information provides little useful information, except that the agency did or did not overspend its budgeted or authorized amount. An agency would not be considered to have had a terrific year because it stayed within \$10 of its budget, or spent 10% less than its budget. For government and nonprofit agencies, success is not measured in financial terms. Success should be measured in the outcomes achieved. This requires the agency to have a clear definition of its mission and its targeted customer base. With such a mission and a targeted set of constituencies, it can then formulate objectives and measures to motivate and focus employees towards achieving organizational objectives. Ex post, the agency can measure the outcomes from its activities to see whether it has delivered on its mission and objectives.

A comprehensive performance measurement system for a government or nonprofit agency can include such financial measures as operating expenses as a targeted percentage of total funds raised or disbursed. For nonprofits, the financial perspective could also include measurement of funds raised relative to targeted amounts, and increases in contributions per donor.

The performance measurement system can also include measures of interest to the specific beneficiaries of the agency or the donors who provide funds for the agency. Consider a group like the Nature Conservancy or the Sierra Club. From the perspective of donors to these organizations (the customers), performance on objectives can be measured, for example, by acres preserved and species protected. United Way organizations may measure improvements in the local community served by the number of agencies supported by United Way. One would need to think about objectives and measures for both the providers of funds to the organization (taxpayers or donors) and the recipients of the services provided by the organization.

The performance measurement system can also include measures to monitor the business processes required to meet the objectives of donors (or taxpayers) and beneficiaries. Such objectives could include high quality delivery of services, speedy and zero defect responses to donors and beneficiaries, innovative services for recipients, and recognition of donors and volunteers.

Finally, the performance measurement system can include measures on learning, growth, and innovation. Relevant objectives include improving the skills and motivation of employees, and improving access to information about donors, beneficiaries, and volunteers.