

# Chapter

# 14

## Contemporary approaches to measuring and managing performance

After completing this chapter, you should be able to:

- 1 understand the various purposes of performance measurement systems and the role of these systems in enhancing customer value and shareholder value;
- 2 understand why conventional financial measures are not sufficient for managing an organisation;
- 3 describe the characteristics of contemporary approaches to performance measurement;
- 4 explain the advantages that non-financial performance measures offer over financial measures, as well as the problems;
- 5 describe the four perspectives of the Kaplan and Norton (1996) balanced scorecard;
- 6 understand the causal linkages within the balanced scorecard;
- 7 understand the relationships between lead and lag indicators;
- 8 formulate a balanced scorecard for an organisation, selecting objectives, and lead and lag measures for each of the four perspectives;
- 9 complete a Du Pont chart, to link non-financial measures to financial measures and performance;
- 10 describe the basic steps of benchmarking and understand how benchmarking can improve competitiveness;
- 11 outline the major warning signs of an inadequate performance measurement system;
- 12 describe the criteria for designing effective performance measurement systems; and
- 13 outline the issues that are relevant to selecting performance measures in service organisations.

LEARNING OBJECTIVES

**performance measurement system** a system that measures performance by comparing actual results with some benchmark

**Performance measurement systems** measure performance of areas of the business (or individuals) by comparing performance with benchmarks. These systems are an essential part of the planning and control process, and may help managers to assess the value added by the various operations and activities that they engage in. In this chapter, we explain that many organisations use performance measurement systems that go beyond the measurement of financial performance. These contemporary approaches to performance measurement may entail placing a greater emphasis on non-financial measures, implementing balanced scorecards and using benchmarking techniques to better manage resources, and hence, improve performance.

## The purposes of performance measurement

In Chapter 12, we saw that responsibility accounting provides the foundation for planning and control, and that performance measurement is a key aspect of responsibility accounting. Let's consider the many ways in which performance measures can be used within a planning and control system:

- Performance measures can be used *to communicate the strategy and plans of the business and align employees' goals* with those of the organisation. Thus, a wisely designed performance measurement system can encourage goal congruence.
- Managers use performance measures *to track their performance against targets*. This feedback allows managers at all levels of the business to assess progress in achieving targets, and to take corrective actions if necessary. It may also indicate the need to amend plans and targets when there have been changes in the internal or external environment of the business.
- Reporting performance allows managers *to identify problem areas*. This can occur at all levels of the business. This is of greater value if actual performance is compared with some benchmark, which may be a budgeted target or an external benchmark.
- Senior managers may use performance measures *to evaluate subordinates' performance and as the basis for rewards*. Enterprises need a range of performance measures that reflect their competitive environment and strategies, to ensure that managers are motivated and rewarded for achieving the 'things that matter'.
- Performance measures may be used by senior managers *to guide them in developing future strategies and operations*. Performance measures should not just inform managers of the outcomes of past decisions and operations; they should give an indication of the capability of the firm to compete effectively in the future and point to areas for future growth.

## Conventional performance measurement

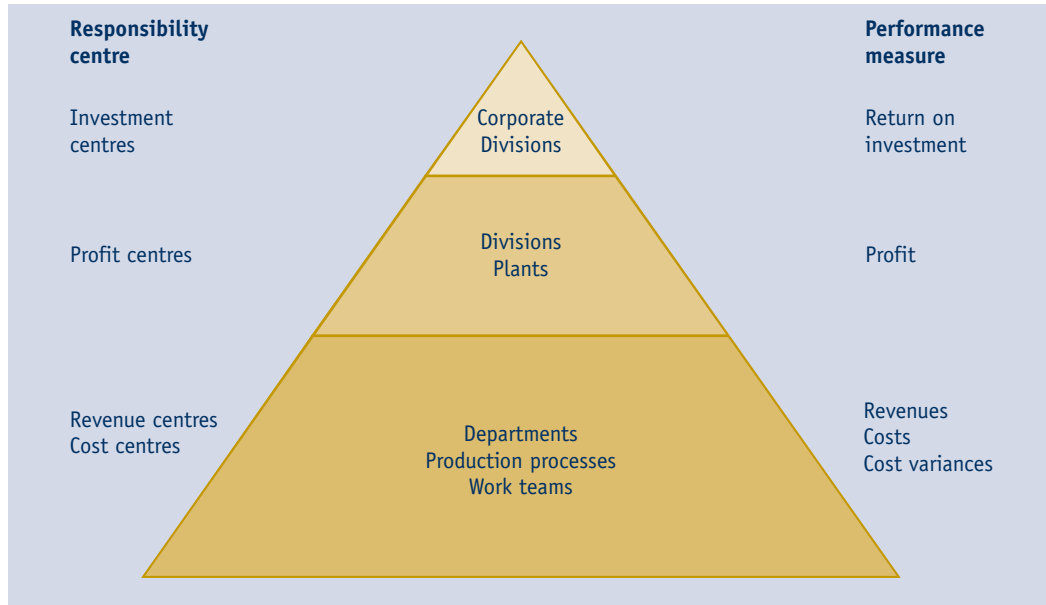
The financial performance measures used in typical conventional management accounting systems were described in Chapters 12 and 13 and are outlined in Exhibit 14.1. You will notice that the measures focus on profit and its components, revenues and costs. Performance measurement systems like these have been used since the 1920s. Profitability is the ultimate goal for most business owners. Profit performance is watched by owners, the financial markets and creditors, and therefore it must be important to managers too. However, over the past decade we have seen many companies change their performance measurement systems, often broadening the focus away from financial measures. Why has this happened?

### L01

LEARNING OBJECTIVE

### L02

LEARNING OBJECTIVE

**EXHIBIT 14.1** Conventional financial performance measures**Problems with conventional financial performance measures**

- 1 *Conventional financial performance measures are not actionable.* Why are measures of profit, and its components, costs and revenues, not useful in controlling the business? It is because they describe consequences, not causes. They describe what has happened, not why it has happened. They are too aggregated and they do not tell operational managers what needs fixing.<sup>1</sup> Also, financial measures are often reported at the end of each month, so they are not timely. Businesses cannot afford to wait that long.
- 2 *Financial performance measures emphasise only one perspective of performance.* Businesses need to manage the determinants of future financial performance, and this is where strategy plays a role. Top management determines the strategies that will be implemented to enable the business to achieve long-term goals. Managers need a performance measurement system that assesses how well they perform across the full range of strategically important areas, such as quality and delivery performance, as well as cost.
- 3 *Financial performance measures provide limited guidance for future actions.* Financial measures do not allow managers to assess areas that need to be developed in the future for the organisation to be successful in the long term. For example, to ensure future growth, managers need to determine how effectively they have invested in areas such as new product development, development of staff, and actions to ensure customer loyalty. Financial measures report only on the *immediate* financial outcomes of actions and decisions.
- 4 *Financial performance measures may encourage actions that decrease both shareholder and customer value.* Financial performance measures may encourage managers to achieve short-term financial performance, at the expense of long-term performance. This

<sup>1</sup> As explained in Chapter 1, the term *operational* (or *operations*) *managers* usually refers to manufacturing managers and manufacturing supervisors who have responsibility for manufacturing activities. They include production line supervisors, foremen, department managers and plant managers in manufacturing firms. In service businesses they include office managers, supervisors and front-line employees.

happens particularly when there is excessive pressure on managers to achieve short-term profit improvements, and where remuneration systems are closely tied to short-term profit achievement. For example, managers can improve short-term performance by reducing expenditure on new product development, quality initiatives, human resource development (including training), information systems and customer and market developments. While these spending cuts cause an immediate increase in profits, they can seriously erode future profits and growth potential and, thus, decrease shareholder value. Retaining outdated technology and systems can reduce competitiveness, and a lack of attention to products, customers and the market can lead to a reduction in customer value, and customer loyalty, leaving a company open to competitive threats.

These limitations arise largely from the particular orientation of financial performance measurement systems—they focus on the outcomes of past actions, not on the determinants of outcomes. However, to improve performance, managers at all levels need to manage the determinants of performance. Consider performance in sport. Let's say the Adelaide Crows are thrashed by the West Coast Eagles in an AFL match. The score is Crows: 6 goals 15 points, and Eagles: 12 goals 11 points. The score is the ultimate result and is of crucial interest to the clubs' supporters. It is the outcome of the teams' actions. However, it is not particularly useful to the Crows' coach. He needs to know why the Crows lost. The Crows aimed to handball wherever possible to keep the game flowing freely. They aimed to minimise free kicks given away and maximise free kicks received. They planned to drive the ball through the centre of the ground rather than using the wings. These were the team's strategies. So the Crows' coach needs to know the number of handballs, how many free kicks were given and received, and how many hand passes and kicks went through the players in the centre of the ground compared with the number that went through the players on the wings. These performance measures will help the coach to assess how well the team performed. Then he can determine which areas need improving. If the team performed well in each of the measures and still lost, then he needs to consider new tactics that will drive improved performance.

### Performance measurement in not-for-profit organisations

The financial measures described in Exhibit 14.1 are used by businesses that have profitability as their primary goal, but may not always be appropriate for not-for-profit organisations. For example, the goals of many public sector organisations and private not-for-profit enterprises focus on social factors, such as client welfare, rather than on profit, and their performance measurement systems tend to monitor effectiveness in these areas. However, even in these organisations, financial management is important and some financial measures, such as costs, will be monitored. The criticisms of conventional financial performance measures may be just as relevant in not-for-profit organisations, as are some of the new approaches to performance measurement, described below.

## Contemporary performance measurement systems

We have discussed the limitations of conventional financial performance measurement systems in assisting managers to focus on both customer value and shareholder value, and noted that many organisations have broadened their performance measurement system. What are the characteristics of contemporary performance measurement systems? Contemporary performance measurement systems often have the following features:

### L03

#### LEARNING OBJECTIVE

- *Non-financial and financial measures* Contemporary performance measurement systems include a range of financial and non-financial performance measures. Non-financial measures have been used for many decades, particularly at the operational levels, but they have not always been part of the formal performance measurement system. For example, manufacturing managers may have ‘privately’ measured the quality of their production processes, and sales managers may have monitored customer satisfaction. However, those managers may have been evaluated using financial measures such as cost and sales revenue.
- *A strategic orientation* Performance measures may be selected to directly measure areas that provide competitive advantage, and which increase customer and shareholder value. This entails monitoring performance in those areas that the organisation believes are critical to ensure the long-term success of the business, which may be quality, innovation, customer satisfaction and delivery, as well as cost.
- *External benchmarks* Contemporary performance measurement systems often use external benchmarks to provide an indication as to whether performance is as good as that of competitors, or of best practice companies. In conventional performance measurement systems, it is common to compare actual performance with last year’s performance, or with budget targets that have been set within the organisation. However, this does not provide any assurance that the business’s performance is good enough.
- *Continuous improvement* Contemporary performance measurement systems often build continuous improvement into performance targets and into the way performance is measured. This may involve making performance targets more challenging over time, and measuring performance more precisely.

In the following sections we will elaborate on all of these features.

## Non-financial measures for operational control

If conventional performance measures are not actionable and have the wrong perspective, this must be obvious to the managers and other employees who use them. How have they responded? For a number of years managers, particularly operational managers, have often supplemented conventional financial performance measures with their own non-financial performance measures.

What advantages do non-financial performance measures offer over financial measures?

- Non-financial measures can reflect the *drivers of future financial performance*. For example, managers may consider that improved quality and customer satisfaction will flow through to improved financial performance.
- They are *more actionable*. For example, it is easier for operational managers to investigate the sources of product defects and customer complaints than it is to investigate cost variances, as defects and customer complaints relate more directly to activities and operations.
- They are *more understandable and easier to relate to*, particularly at the operational level. Shopfloor employees may find it easier to understand the meaning of ‘rejects per 100 units’ or ‘number of delivery days’, compared with variable overhead cost variances.

We will describe how managers at Mitsubishi Motors used operational performance measures to help manage performance.

## Performance measurement at Mitsubishi Motors Australia Ltd

In the early 1990s, managers of Mitsubishi Motors Australia Ltd, at the Tonsley Park plant in South Australia, were surveyed to identify what measures they used to evaluate performance in their areas of responsibility. The results are shown in Exhibit 14.2. Mitsubishi has a very sophisticated standard costing system that reports detailed cost variances right down to the shopfloor supervisor. However, you will see that managers at all levels collected additional information about performance. The additional measures served two purposes. First, they helped managers monitor performance in areas of strategic importance, such as quality and delivery. Mitsubishi was opening up export markets in the US, Europe and Japan, and high-quality cars, delivered on time, were essential to its success. Second, they provided timely, actionable feedback to operational managers. On the shop floor, the measures focused on *causes of problems*, not consequences, and were available daily or sometimes hourly. Like the conventional financial performance measures, the additional measures were more detailed at the shop floor level and more aggregated at the upper levels of management.

The results of the investigation worried some Mitsubishi managers. While they could see some value in all of the measures, they were concerned about their proliferation. Were all these measures essential to achieving quality and delivery at a reasonable cost? What was the relationship between all these measures and the ultimate Mitsubishi goal—profit?

**EXHIBIT 14.2** Performance measures at Mitsubishi Motors

CORPORATE MANAGEMENT		
	Quality	Viability
	Customer satisfaction audits	Profit
	Warranty cost per unit	Sales numbers
	Warranty defects per 100 vehicles	Actual manufacturing costs
	Owner surveys: defects per vehicle	Standard cost variances
		Actual output
		Variances between actual and planned output
PLANT MANAGER		
Delivery	Quality	Cost/Productivity
Number of good units completed in plant	Customer satisfaction audit	Overtime hours
Daily shortages	Statistical process control	Cost of scrap
Stock status	Top 50 recurring defects in plant	Standard cost variances
	Percentage good units first time through plant	
	Number of defects per unit per day in plant	
	Number of defects from this plant found at final line	
	Internal quality audit reports (e.g. paint thickness audits)	

*continues ...*

SHOPFLOOR MANAGERS			
Delivery	Quality	Cost/Productivity	Resource management
Number of good units completed in work area	Percentage good units first time through shop	Labour hours per car	Degree of multiskilling
Number of units achieved by each work area	Number of defects per unit per day in shop	Overtime hours	Absence reports
Schedule adherence	Top 50 recurring defects in shop	Cost of scrap	Accident reports
Daily shortages	Number of defects from this shop found at final line	Standard cost variances	Hours of machine breakdowns
Stock status	Number of vehicles scrapped in shop		Number of machine breakdowns
	Number of units reworked in shop		Equipment monitoring
	Internal quality audit reports (e.g. paint thickness audits)		
SHOPFLOOR SUPERVISORS			
Delivery	Quality	Cost/Productivity	Resource management
Number of good units completed in work area	Percentage good units first time through work area	Labour hours per unit	Hours of machine breakdown
Number of units achieved by each work area	Number of defects per unit per day	Overtime hours	Equipment monitoring
Schedule adherence	Number of defects by source within work area	Cost of scrap	Accident reports
	Internal quality audit reports (e.g. paint thickness audits)	Standard cost variances	

### *A closer look at some non-financial measures*

Exhibit 14.2 contains some non-financial performance measures that may be new to you. Let's look more closely at some of these performance measures, and consider how they may be designed and calculated.

**Customer satisfaction** This may be measured by a survey, which contains a series of questions, designed to gauge aspects of the product or service that result in customer satisfaction or dissatisfaction. The survey may be administered to a sample of customers every three months. Degrees of customer satisfaction may be expressed as percentages—for example, 45 per cent of customers are highly satisfied with our service, and 30 per cent are mildly satisfied. This measure is important in assessing whether customer value is increasing. Customer-related measures are discussed in more detail in Chapter 16.

**Number of defects from this plant found at final line** A defect is a fault in a product that occurs during the manufacturing process. It is better that defects are detected early in the production process, rather than later (at the final production line), so that minimal resources are expended on a defective product. When defects are found early in the process, the partly completed product may be reprocessed, repaired or scrapped. A low defect measure is critical in supporting a high quality strategy.

**Internal quality audits** The quality of a product may be determined by periodic inspections or testing of products during the production processing. High quality products support the competitive strategy of quality.

**productivity**  
the ratio of outputs  
produced per unit of  
input

**Productivity** **Productivity** is the ratio of outputs produced per unit of input. It is a measure of efficiency. Traditionally, manufacturing plants have measured labour productivity as follows:

$$\text{Labour productivity} = \frac{\text{Number of units produced}}{\text{Number of direct labour hours}}$$

Thus, labour productivity may be expressed, for example, as 3 units of product per DLH. Clearly direct labour is only one input to production, and with the growth in automation, it is decreasing in importance. Thus, **total factor productivity** measures the ratio of production inputs to the outputs produced, and may be calculated as follows:

$$\text{Total factor productivity} = \frac{\text{Number of units produced}}{\text{Cost of all inputs to production}}$$

Thus, total factor productivity may be expressed, for example, as 0.50 units of output per dollar of input costs. Productivity measures support a cost leadership strategy, as productivity is a driver of costs.

**Stock Status** This is the balance of inventory on hand. A company may have a target level of inventory that it wishes to keep available which is high enough to satisfy production demands, but not too high, as inventory entails storage costs for the company. Managing inventory is discussed in detail in Chapter 16.

**Accident report** This measure is often called a 'safety report', and refers to the number of accidents that employees may experience per day or per week in the production plant.

**Multiskilling** This is a measure of the number of employees who have achieved a certain level of multiskilling. That is, they have completed training and acquired skills allowing them to undertake their own task as well as the tasks of other workers in the production area.

**Machine down time** This is measured as the number of hours, or percentage of total production hours in a week or month that machines are unable to operate. This may be due to many factors, including the machine breaking down, employees refusing to work, electricity outages or setup time. **Setup time** is the time that it takes to get the machine and materials ready to start producing a product. Setup time can take 10 minutes in some plants, and two hours in others. By decreasing machine downtime in setup, the timeliness of deliveries to customers can be improved.

**Schedule adherence, or delivery on time** This is a measure of whether the required products or services were provided to the customers by a certain targeted time. It may be calculated in several ways. For example, it might be the percentage of orders that were delivered to customers within 3 days of the customer order, or the percentage of orders delivered to customers at the promised time. Prompt delivery to customers is an important driver of customer value.

## The problems with non-financial performance measures

Exhibit 14.2 highlights some of the problems that can occur when performance measurement systems are broadened to include non-financial performance measures:

- There is a *wide choice of non-financial measures* available. As you can see, quality is measured in many ways. Are all of these measures necessary? How do managers select appropriate quality measures?
- The development can be *ad hoc and undirected*. A proliferation of measures can occur over time, as new measures are adopted in response to a particular problem. However, old measures may not be discontinued.

**total factor  
productivity**  
measures the ratio  
of production inputs  
to the outputs  
produced

**setup time** the time  
that it takes to get  
the machine and  
materials ready to  
start producing a  
product



- Managers must necessarily make *trade-offs*. Exhibit 14.2 indicates that there are many measures to focus on at each level of management. Which measures are the most important? What should a manager do if certain actions improve some measures, but not others? For example, improving the quality measure ‘number of defects’ may result in an increase in the cost driver measure ‘labour hours per unit’.
- Some non-financial measures may *lack integrity*. Data used to calculate non-financial performance measures may be gathered in a variety of ways—manually, computerised, by an external party—and because the accuracy of the data may be difficult to verify (compared with financial measures recorded in the accounting system), there is potential for manipulation and error.
- Some non-financial measures *may not easily translate into financial outcomes*. Some managers ‘take it on faith’ that improving measures such as number of machine breakdowns, customer satisfaction or the number of on-time deliveries will lead to improved profits. We will consider this issue further later in this chapter.

Mitsubishi clearly needed a *systematic method* to redesign its performance measurement system and, over the following years worked on developing a balanced scorecard.

## Measuring performance with a balanced scorecard

Like those at Mitsubishi, managers and other employees in businesses often supplement the *formal* performance measures with a wide range of non-financial performance measures, particularly at the operational level. As stated above, this can lead to several problems. How can these measures be integrated into a coherent performance measurement system? Some management accountants began to search for a system for reporting performance in all key strategic areas, in a form that was useful for the various levels of management. The aggregated financial and other strategic measures appropriate for upper-level managers needed to be translated into detailed operational measures for lower-level managers. One response has been the development of balanced scorecards. A **balanced scorecard** is a performance measurement system that identifies and reports on performance measures for each key strategic area of the business. Performance measures are developed for each level of the organisation. While there are a number of approaches to developing balanced scorecards, they all tend to be based on similar principles.<sup>2</sup>

A popular approach to developing a balanced scorecard is that of Kaplan and Norton (1996). This framework translates the organisation’s mission and strategies into objectives and performance measures. The first step in the process is to consider the mission and the specific strategies of the organisation, and then translate these strategies into specific objectives that reflect four perspectives: financial, customer, internal business processes, and learning and growth. For each perspective, performance measures and targets are developed that relate to the specific objectives.

- 1 *Financial perspective* This perspective includes financial objectives, which provide a view of performance from the perspective of the shareholders. To determine the specific financial objectives, the following question may be asked: *If we succeed, how should we look to our shareholders?* From this objective, a series of measures are developed. Financial measures summarise the financial outcomes of decisions and actions. Measures may include various cost and profit measures, return on investment, measures based on cash flow, and shareholder value measures (these were discussed in Chapter 13).

### L05 LEARNING OBJECTIVE

**balanced scorecard**  
a performance measurement system that identifies and reports on performance measures for each key strategic area of the business

<sup>2</sup> See, for example, Lynch & Cross (1991); Beischel & Smith (1991).

- 2 *Customer perspective* The customer perspective includes measures of the company's success in achieving customer value. Specific customer objectives are formulated, based on an understanding of customer value. The question can be asked: *If we achieve our vision, how should we look to our customers?* Specific measures that measure achievement of customer objectives may include customer satisfaction, customer profitability, market share, and the number of new customers. These can be considered outcome, or lag measures. More specific measures that may drive these outcome measures may include on-time delivery, the number of new products launched and the number of product defects.
- 3 *Internal business processes* Objectives must be formulated for specific processes that contribute to achieving customer and financial objectives. These processes can be identified by asking the question: *To satisfy our shareholders and customers, at which business processes must we excel?* The internal business processes may be those in the areas of product design, operations, marketing, sales, distribution and customer service. Measures that are included under this perspective are designed to monitor the internal processes that are critical to delivering products or services to customers and achieving financial strategies. They can include measures of cost, product quality, and time-based measures of existing business processes. Long-term measures may be created to monitor new product development, or processes that determine the changing needs of customers.
- 4 *Learning and growth* This perspective focuses on the capabilities of the organisation that must be developed to achieve superior internal processes that create both customer value and shareholder value. These capabilities can be identified by asking the following question: *To achieve our vision, how will we sustain our ability to change and improve?* This perspective concentrates on the infrastructure that firms put into place to deliver long-term growth and improvement. Measures may focus on employee capabilities (measures of employee satisfaction, training, absenteeism and skills), on information system capabilities (measures such as the percentage of customer service employees having real-time access to customer information) and on the organisational climate for employee motivation and initiative (measures such as the number of employee suggestions made and implemented, and the number of employees whose goals are aligned with those of the organisation).

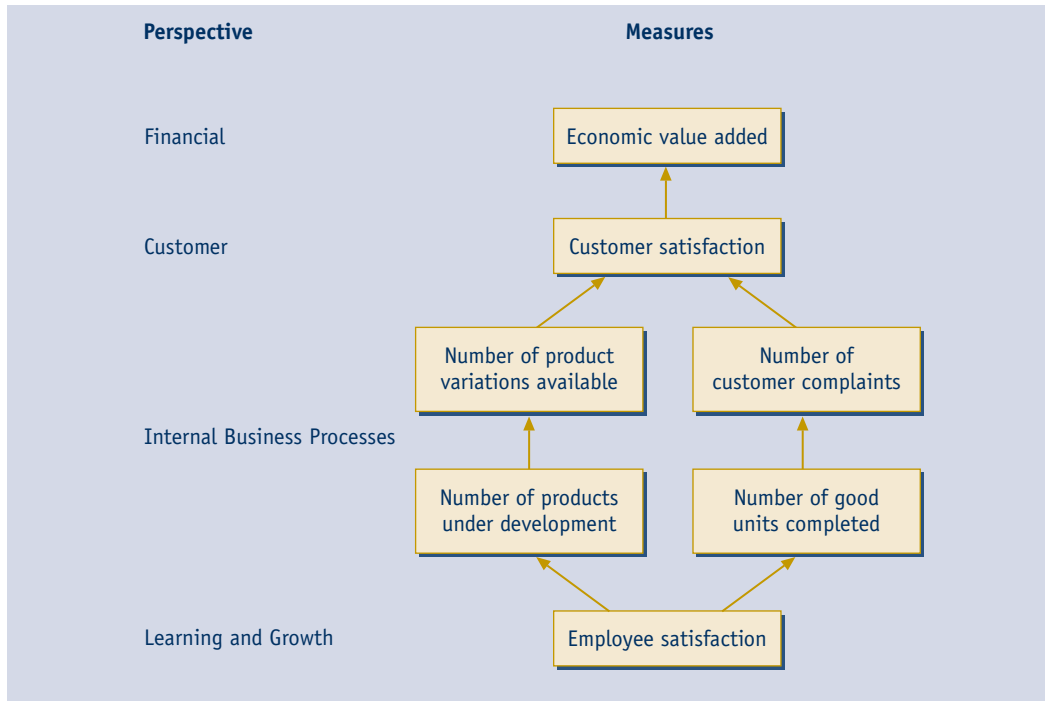
### Cause and effect linkages

Performance measures are cascaded down through the various levels of the organisation to communicate what aspects of the business are important at each level. You may have noted in the above discussion that there are linkages between objectives and measures under each of the four perspectives. That is, the scorecard is structured to reflect 'cause and effect' relationships between the objectives (and measures) in the various perspectives. This process is illustrated in Exhibit 14.3. An overall measure of shareholder value, economic value added, is chosen to capture achievement of the financial objectives. This measure may be influenced by the level of customer satisfaction, which in turn is caused by having a high number of product variations available and few customer complaints. These are the two customer measures. The critical business processes on which management has chosen to focus are the product development cycle and production processes. Increasing the number of products under development will lead to an increase in the number of product variations to be offered. Increasing the number of good units completed will reduce the number of customer complaints. Finally, one of the key drivers of the two measures of internal business processes is employee satisfaction. Increasing the level of employee satisfaction, a measure of learning and growth, will lead to improving the two internal business process measures.

#### L06

#### LEARNING OBJECTIVE

**EXHIBIT 14.3** Causal linkages in the balanced scorecard



## Lead and lag indicators

Exhibit 14.4 contains an example of some objectives and performance measures for each of the four perspectives. Note that some measures are called *lag indicators* (outcome measures), and others are lead indicators (or *drivers* of those measures). **Lag indicators** monitor progress towards objectives. While these measures provide important information for managers about outcomes of decisions and operations, they may be difficult to manage directly. Examples of lag measures include many of the summary financial measures, market share information, and even customer satisfaction measures. These measures are often used as the basis for managers' performance contracts.

**Lead indicators** are measures that drive the outcomes and provide information that is actionable and manageable. Lead indicators often relate to the processes and activities of the business, and improvements in these indicators should flow through to lag indicators over time. Lead indicators are often used as the focus for process improvement, or cost management. This is because they are the *drivers* of activities and processes. When you study Chapter 15, you will see that various cost management approaches focus on identifying, managing and monitoring cost drivers.

In examining Exhibit 14.4 you will notice that measures that are lag indicators of one perspective may be lead indicators of another perspective. For example, market share is an outcome measure for the customer perspective, given the objective of expanding the customer base, but also a lead indicator of the financial perspective, as market share drives profitability.

In summary, the measures in the balanced scorecard provide *balance* between:

- short-term and long-term objectives;
- financial measures, customer measures, measures of business processes, and measures of learning and growth;

### L07 LEARNING OBJECTIVE

**Lag indicators** measures of the progress towards the organisation's objectives

**Lead indicators** measures of the factors that drive the outcomes

- outcome measures (lag indicators) and measures of the drivers of those outcomes (lead indicators); and
- objective and easily quantified measures and subjective performance measures.

**EXHIBIT 14.4** Objectives and performance measures for a balanced scorecard

Objectives	Performance measures	
	Lag indicators	Lead indicators
<b>1 Financial</b> Improve returns to shareholders. Increase profits.	Return on equity Economic value added Product profitability	Sales mix Cost per product
<b>2 Customer</b> Increase customer satisfaction. Expand the customer base.	Customer satisfaction Market share Number of new customers Number of customers retained	Number of product returns On-time delivery Number of product variations available Number of customer complaints Number of good units completed
<b>3 Internal business processes</b> Improve the quality of products. Create new, innovative products. Improve production processes.	Number of good units completed Number of products under development	Product defects Number of product returns Product development time Production cycle time Number of machine breakdowns
<b>4 Learning and growth</b> Improve employee satisfaction. Develop employees' technical skills.	Employee satisfaction survey Number of employees participating in training programs	Improvements made to employee facilities Time spent developing employee programs

## Performance measures in practice

There are many variations in the way that organisations structure their performance measurement systems. Some organisations use lag and lead indicators, but do not go as far as adopting a balanced scorecard. A range of alternative terms is used in companies to describe lead and lag indicators. For example, lag indicators may be called outcome measures, or key performance indicators (KPIs). Lead indicators may be called drivers of measures or key performance drivers (KPDs). Also, some organisations identify **critical success factors (CSFs)**. These are the factors that are critical to the survival of the business, such as quality, cost or innovativeness. They are so important that, without any one of them, the company would fail. So the performance measurement system focuses on these factors.

The structure of the balanced scorecard that is used by some companies will vary. Some companies may use scorecards that have more than four perspectives, or perhaps the names of their perspectives are different. The two 'Real lives' on pages XXX and XXX show how some organisations have customised their balanced scorecard. The factors that should be common to all scorecard approaches are:

- the measures should support the objectives and strategy of the business;
- they should cascade down through the various levels of the organisation; and
- the measures chosen should include both short-term and long-term measures, as well as financial and non-financial measures, to reduce the likelihood of dysfunctional behaviour.

**critical success factors** factors that derive from the competitive strategy, and are critical to the survival of the business

## Customising the balanced scorecard

How widely used is the balanced scorecard?

In 1999, an executive survey of management practices by Bain and Co found that 55 per cent of those surveyed in the US and 45 per cent in Europe used some form of balanced scorecard. Similarly, in 2000 a study by Renaissance Worldwide found that over 30 per cent of companies that were included in the BRW top 500 companies in Australia used balanced scorecards. However, the design of the balanced scorecards can vary across organisations.

Some organisations include more than four perspectives in their balanced scorecards. For example, at the National Library of Australia the balanced scorecard is used to translate the library's vision and strategies into a set of performance measures. There are five perspectives: Customer, Stakeholder, Financial, Process, and Learning and Growth. Within these perspectives key measures include customer satisfaction, stakeholder satisfaction, the relevance of the library's services, and staff skill levels. Telstra uses the following perspectives in their balanced scorecard: Financial, Customer Services, Staff Measures and Future Positioning. Telstra includes EVA as part of the balanced scorecard and clearly identifies financial and non-financial value drivers, at lower levels of the company.

Some organisations refocus the four perspectives within their balanced scorecard:

- Financial → Resources; Cost Reduction
- Customer → Community and Customers
- Internal Business → Operational; Excellence and Internal Efficiency
- Innovation and Learning → People; People Motivation and Learning

There is also some variation among Australian users of balanced scorecards in the extent to which companies link the measures within their balanced scorecard into cause-and-effect chains, across perspectives, and whether they identify outcomes, measures and drivers.

Well-known Australian organisations that use balanced scorecards include AMP Limited, Australia Post, Honeywell Australia, Australian Taxation Office, Centrelink, BASF Australia, Uncle Tobys, Westpac Financial Services and Qantas Airport Operations.



Joe Bloggs meets the operator of the year

Courtesy of the Australian Broadcasting Association

real life

Sources: Haddrick (2000); Walsh (2000); National Library of Australia (2000)

## Developing a balanced scorecard for the Otago Bus Company

To illustrate the development of a balanced scorecard, we will examine how this was achieved at the Otago Bus Company. The company operates in the South Island of New Zealand. It offers the public a series of regular bus routes within the city of Otago, seven days a week. The company also undertakes one-day tours to major tourist attractions throughout the South Island. The company is structured into four units. The Commuter

Travel Division consists of a manager and bus drivers who operate the daily bus routes within Otago. The Long-haul Trips Division consists of managers, tour hosts and bus drivers who undertake the tours to popular tourist destinations. This Division has much larger and more luxurious buses than those used by the Commuter Travel Division. The Marketing and Sales Department manages advertising and promotions for the entire company. Managers in the Head Office unit oversee the operation of the three divisions, and undertake general administration.

The transport market in New Zealand is highly competitive, so the managers need to consider carefully how to manage their performance. There are many competing transport companies that would be very pleased to expand their businesses into the lucrative tourist travel market, as well as the commuter market. Jackson Murray, the managing director of the company, has hired a consulting firm to provide a market analysis and to investigate the determinates of customer value. The consulting firm has found that all of the customers are highly sensitive to the price charged by the companies for bus tickets, and value a highly prompt service. In addition, the tourist market places great value on a comfortable bus service, and innovative tourist routes.

- 1 The starting point in developing a balanced scorecard is to identify the vision and objectives of the company. The vision of the company is:

*To be the leading bus company in the South Island, through providing superior customer service to the community.*

The objectives of the Otago Bus Company are to:

*Achieve a 98 per cent on-time reliability performance*

*Provide an increase in the number of creative tours to exciting tourist destinations*

*Achieve a return on investment of 10 per cent within 5 years*

Clearly, to achieve these objectives, the strategies of the firm will centre on cost, reliability of service and product innovation.

- 2 For each of the four perspectives in the balanced scorecard, specific objectives were formulated. These objectives were derived from the overall objectives and business strategies of the company. Lag and lead indicators were then designed to support the objectives in each perspective. The balanced scorecard in Exhibit 14.5 shows all of the measures for the company.
- 3 To operationalise the balanced scorecard, measures and targets that are consistent with those in the balanced scorecard were selected for managers in each of the units of the company. For senior managers in each unit, the measures were aggregate and broad, and for lower levels of the company, such as the bus drivers, the measures were specific and narrow. Specific targets for each measure were formulated for the first year of operation, as well as plans to achieve these targets. For example, the manager of the Commuter Travel Division was responsible for achieving targets for all of the lead and lag indicators under the customer and internal business process perspectives relating to commuter travel. Each bus driver in the Division would have their own individual targets for the percentage of bus trips made within published schedules, the number of breakdowns per shift, and the average bus downtime per shift. Managers in the Marketing and Sales Department would have prime responsibility for achieving many of the customer measures. These include the average time to respond to customer complaints, and amount of advertising spending per month.
- 4 Regular performance reports, which compare actual results to the target for each measure, are prepared for managers at various levels in the company.



**EXHIBIT 14.5** Balanced Scorecard for the Otago Bus Company

Objectives	Performance measures	
	Lag indicators	Lead indicators
<b>1 Financial</b> Improve profitability. Increase profits.	Return on investment Profitability of each bus route	Number of new passengers per month Cost of diesel fuel Average ticket cost per kilometre
<b>2 Customer</b> Increase customer satisfaction. Improve quality of facilities on the bus. Offer innovative tours.	Customer satisfaction measure Market share Number of new passengers per month Number of regular customers retained Maintenance/repairs on buses	Number of customer demands for refunds Average time to respond to customer complaints Number of customer complaints Average advertising spending per month Number of monthly bus passes sold Number of bus accidents Number of new tourist routes offered Percentage of journeys made within published schedule
<b>3 Internal business processes</b> Improve the reliability of the bus services. Improve productivity.	Percentage of journeys made within published schedule Cost per journey	Number of bus breakdowns Average bus downtime per shift. Average capacity utilisation of each bus
<b>4 Learning and growth</b> Improve employee satisfaction. Develop employees' skills in managing the bus communication systems.	Employee satisfaction survey Number of employees participating in training programs	Improvements made to communication systems on the buses Improvements to lunchroom facilities Technical training provided to bus drivers

## Linking non-financial measures to financial performance measures and financial performance

Focusing on strategic objectives, critical success factors, and identifying performance measures at all levels of the business is the rationale underlying balanced scorecard approaches. However, ultimately, most organisations measure their performance as a whole in financial terms, as profitability is a critical measure of success from a shareholder's point of view.

In describing the cause and effect linkages in Exhibit 14.3, it is apparent that some measures within a scorecard have a clear link with profit. For example, improvements in the number of good units completed will feed through to reduced cost and hence increased profit. But the relationship between improving performance in non-financial measures and improving profit is not always so direct. For example, it is not possible to identify the financial impact of an increase in the number of product variations or an increase in customer satisfaction.

### L09

#### LEARNING OBJECTIVE



Effective management of non-financial measures at the operational level *should* ensure improved profitability. However, this is not always so. An electronics company in the US, over a three-year period, achieved dramatic improvements in its operational performance measures. Defect rates dropped from 500 to 50 parts per million, on-time delivery improved from 70 per cent to 96 per cent, and yield increased from 26 per cent to 51 per cent. Nevertheless, these improvements were not mirrored in the company's financial results nor in its share price, which fell by two-thirds (Kaplan & Norton, 1996, p. 32). How can this happen?

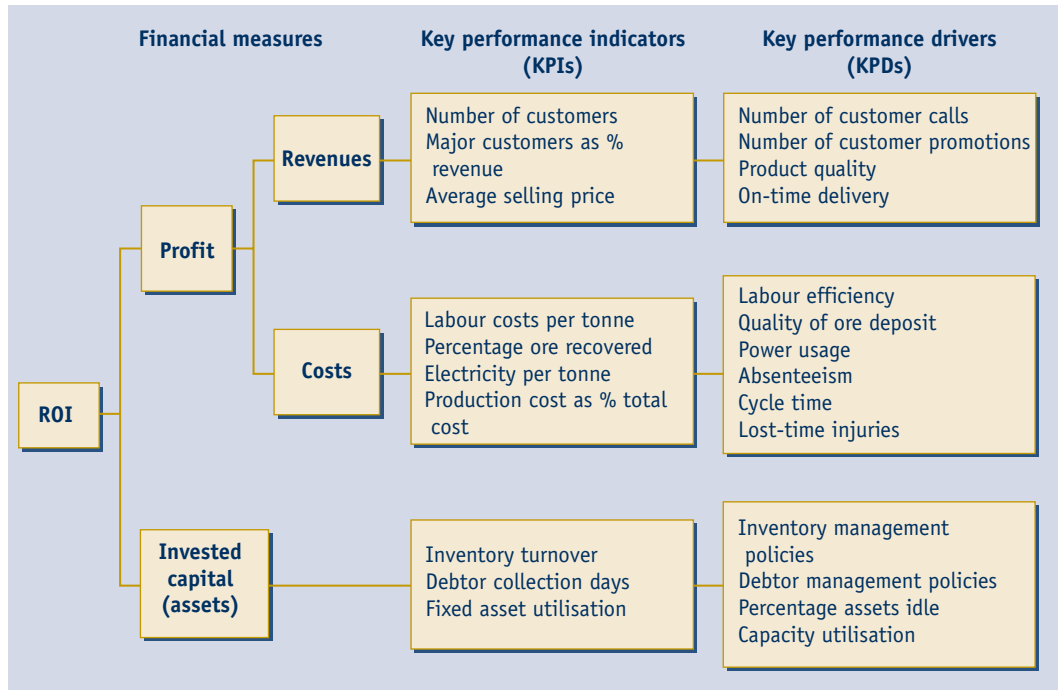
Improvements in non-financial measures will not result in improved profits if management has selected the *wrong critical success factors*. If this happens, the performance measurement system may be directing employees to focus on areas that will not lead to success. For example, a firm may believe that high-quality innovative products are critical success factors, and will design performance measures to communicate this strategy to all employees. However, if customers do not value quality and are unwilling to pay extra for this, and if they are perfectly satisfied with the standard range of products, then the company may find that it is out of step with the market. It has not understood what it is about their products that customers value. The strategy will not lead to improved profitability. Hopefully, the performance measures of the company should provide warning signals before the company is in too much trouble!

Another reason for improvements in non-financial measures not flowing through to improved profit performance can relate to the *failure to utilise freed-up resources*. Many improvements in areas such as productivity and quality effectively expand the productive capacity of the business. When cycle time reduces, more units of product can be produced in a shorter time. When reject rates improve, fewer products are reworked, and the need for inspections may be reduced. This means that employees and equipment may be underutilised. Improvements in these areas will not translate into cost savings and improved profits unless the idle resources (equipment and employees) are used by the company to undertake profitable activities elsewhere in the business, and used to increase the level of production, or are disposed of. However, many of the resources that are freed up may be *committed costs*; for example, it may be difficult to dispose of equipment or rationalise staff levels immediately. Also, it may be difficult, in the short term, to increase sales, and hence production, to use the idle resources. Thus, improvements in a range of non-financial areas will benefit a firm only if they can be translated into higher capacity utilisation and increased sales, or cost reductions.

A final reason for improvements in non-financial measures not flowing through to improved financial performance may relate to the *incorrect design of the performance measurement system*. Performance measures can provide incentives to engage in dysfunctional decisions, which maximise performance in some areas of the business, at the expense of other areas. Also, the measures may be easy to manipulate and falsify, so that 'real' performance is not as high as the measures indicate. Some of these behavioural issues are described in the 'Real life' on page XXX.

While it can be difficult to establish direct links between the non-financial performance measures at operational levels and profitability, some companies design their performance measurement system to explicitly build in this link. We saw that this is the thinking underlying the design of balanced scorecards. An alternative approach to linking non-financial performance measures to profitability is to use a **Du Pont chart**, which identifies linkages between key performance drivers, key performance indicators, and financial performance measures. Exhibit 14.6 shows a Du Pont chart for a mining company. The original Du Pont chart was developed by the Du Pont chemical company in the early 20th century, and included only financial measures.

**Du Pont chart**  
a framework that identifies linkages between key performance drivers, key performance indicators, and financial performance measures

**EXHIBIT 14.6** Du Pont chart, linking financial and non-financial measures

## Benchmarking

Many organisations use benchmarking as part of their performance measurement systems. **Benchmarking** involves comparing the products, functions and activities of an organisation against external businesses, to identify areas for improvement and to implement a program of continuous improvement (Reider, 2000). These external businesses are sometimes called **best practice companies**, which are businesses that are high performers in relation to a particular practice or process. In benchmarking, a business may not simply compare its own performance against a benchmark; it may follow a more formal procedure where the processes that the best practice companies have used to achieve their high levels of performance are examined, and use this as a basis to implement continuous improvement.

### Steps in the benchmarking process

Formal benchmarking may involve the following steps (Shetty, 1993):

- 1 *Identifying the functions or activities to be benchmarked, and performance measures* The functions and activities to be benchmarked will be those that are vital to the achievement of the business's objectives. They may include areas where the company is experiencing performance problems. Performance measures are developed for these processes. The measures may be focused around cost or quality, customer service, delivery performance or other product-related characteristics. It is very important that the appropriate performance measures, that reflect the competitive strategy of the business, are selected.
- 2 *Selecting benchmark partners* These are organisations that are regarded as the best performers in particular areas; they are not always in the same industry.

### LO10

#### LEARNING OBJECTIVE

#### benchmarking

a process of comparing the products, functions and activities of an organisation against external businesses, to identify areas for improvement and to implement a program of continuous improvement

#### best practice companies

businesses that are high performers in relation to a particular practice or process

## Influencing performance through electronic monitoring

Many managers believe that ‘what you measure is what you get’, and so attempt to design measures that will encourage employees to behave in certain ways. Electronic performance monitoring of employees is becoming common in many areas of business in Australia and overseas, and may influence performance, although not always in a goal-congruent way, as shown in these examples:

- Some grocery distribution companies use a sophisticated computer program to determine the standard time for an employee to process a particular customer order. Employees log into the system and enter their employee number and customer order number, which then activates the time clock. Employees’ actual performance is compared with the standard performance, and if they fail to meet the standard, they may be counselled and disciplined, or, over time, even dismissed!
- In Telstra’s customer service division, a computer is used to monitor employees’ activities. At the end of each day, team leaders receive printouts of performance information on each of their team members. This details the precise time spent on incoming and outgoing calls, and the time taken for meal and toilet breaks. Weekly reports rank relative performance for each work team, which is benchmarked against best practice standards to encourage employees to speed up their responses to customer enquiries.
- A common measure of productivity in the call centres or customer service centres of banks and other companies is the time employees take to answer a telephone call, and the time spent on each call. Shorter times indicate improved efficiency. However, these measures may inadvertently encourage employees to provide poor customer service by cutting short calls, or even abandoning calls. This in turn can lead to reduced customer satisfaction, which can have a negative impact on profits.



Joe Bloggs meets the operator of the year

Courtesy of the Australian Broadcasting Association

Sources: Crowe (1996); Long (1996)

- 3 *Data collection and analysis* Visits may be made to benchmark partners to examine their performance measures, and to study their processes and practices—the means to achieving their best performance. Many benchmarking visits are undertaken by teams that include employees at all levels, not just managers. This is consistent with ideas of employee empowerment, and often results in extensive improvements. Those closest to the operations are in the best position to learn and implement improvements. Indirect sources of benchmarking data may include information obtained from customers, trade journals, annual reports, company publications and public seminars. The objective of this phase is to identify **performance gaps**, which are the extent to which a business needs to improve in order to reach *best practice*.
- 4 *Establishing performance goals* This involves planning new processes and practices to achieve performance goals and narrow the performance gap.

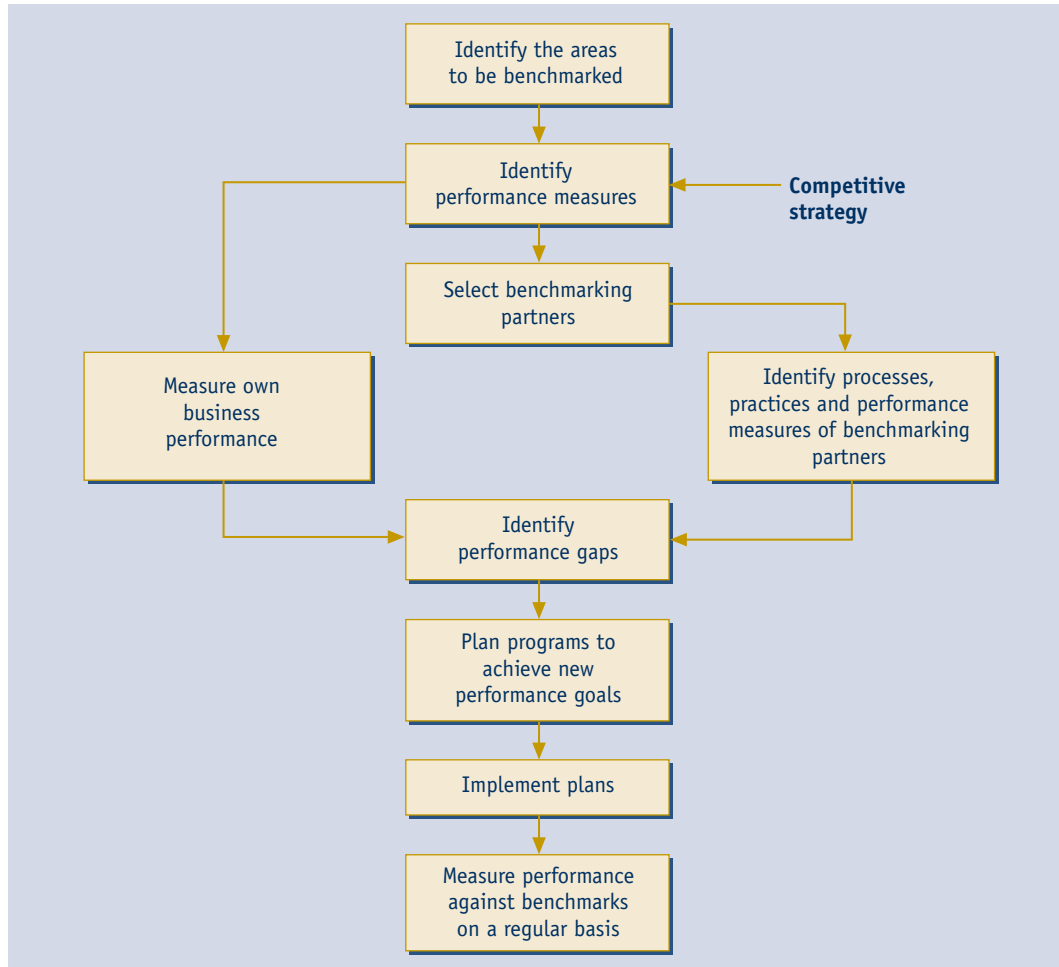
**performance gap**  
the extent to which a business needs to improve in order to reach *best practice*

real life

- 5 *Implementing plans* Implementation of improved practices requires frequent measurement of performance to assess the extent of the performance gap, and taking corrective actions to improve performance where necessary.

These steps are outlined in Exhibit 14.7.

**EXHIBIT 14.7** The benchmarking process



## Forms of benchmarking

Formal benchmarking can be classified into four types (Reider, 2000; McNair & Leibfried, 1992):

- 1 *Internal benchmarking* involves benchmarking between business units within the same company. For example, the Lipton tea plant at Mulgrave in Victoria benchmarks its key processes with other manufacturing plants that are part of the global Lipton group. This is the simplest form of benchmarking, as access to benchmarking partners is easy to establish. However, it may not provide the *world's best* benchmarks, as companies outside the business group, including competitors, may be better performers.
- 2 *Competitive benchmarking* involves a company identifying the strengths and weaknesses of competitors, to assist them to prioritise areas for improvement. The objective is to catch up or surpass the competitors' performance, using continuous improvement

processes. However, formal benchmarking access may be difficult to arrange with direct competitors. Companies must rely on other external sources for data, including trade journals; newspaper reports; conference presentations; consultants; industry experts; public reports, such as annual reports; patent records; consumer reports; and material on the Internet. An example of competitive benchmarking occurs when a manufacturing company collects data relating to its main competitors to determine how those competitors are able to manufacture and deliver a product to customers within 3 days of the customer order.

3 *Industry benchmarking* is broader than competitive benchmarking as it involves comparing a company against companies that have similar interests and technologies, to identify performance and trends within an industry. The advantage of this form of benchmarking is that there may be technological processes and market characteristics that are common to both the business and the benchmarking partners. This means that performance measures and practices are directly comparable. For example, a retail bank may gather benchmarking data on the new forms of automation used in the financial services industry, and the various processes used to manage customers within the branches. Direct access to companies may be possible if those companies operate in the same type of business, but compete in different markets. As industries become more globalised and directly compete in the same markets, opportunities of this nature diminish.

4 *Best-in-class or process benchmarking* involves benchmarking against the best practices that occur in any industry. For example, measures of the percentage of deliveries made to customers on time, or percentage of rejects, are of interest to managers in many different types of businesses, as are safety practices and measures of human resources practices. The difficulty with this approach is that many characteristics of *best practice* businesses may not be common to other companies. For example, a best practice company may achieve 98 per cent of its deliveries to customers on time because it has only a few major customers who place orders many weeks in advance. Also, the company may have only a few products and state-of-the-art technology that assists it to achieve such high performance. Thus, these performance measures may not be directly comparable with those in another company that does not have the same advantages.

**Normalisation** refers to the practice of removing the effects of factors outside the control of the organisation, so that narrowing the performance gap is achievable. However, some managers do not normalise data, despite differences in technology or processes, as the benchmark is still the level of performance that the company needs to strive for in order to achieve greater competitiveness.

**Normalisation** the practice of removing the effects of factors outside the control of the organisation, so that narrowing the performance gap is achievable

It should be noted that, while many Australian businesses claim to be engaged in benchmarking, they do not always follow the steps described in Exhibit 14.7. Benchmarking may be practiced as a much more informal process, and may sometimes consist of no more than measuring performance against a difficult target, determined *within* or *outside* the organisation.

## Benchmarking against competitors' cost structures

It is important for most businesses to reassess continually the cost competitiveness of their products and processes, particularly if their competitive strategy is focused on minimising cost. This requires an understanding of *competitors'* cost structures. Benchmarking provides a methodology for assessing performance gaps between a firm's costs and that of competitors (or other best practice companies), and examining the processes and practices used by those other firms to achieve their high levels of performance.

Can a firm directly determine competitors' costs? Competitors' costs can be inferred by using publicly available information, such as sales volume, market share, product mix, cost of goods sold, raw material costs, labour costs and overhead costs (Chalos, 1992). However, the resulting product costs are likely to be very imprecise.

In Australia, the opportunities for assessing competitors' cost structures are increasing with the emergence of some industry-sponsored databases, and the development of benchmarking databases by consulting firms. For example, the Australian Paint Manufacturers' Federation Inc. provides general statistics, including costs, about competitors in the paint industry. Company research reports prepared by stockbroking firms also contain costs within an industry and for specific firms. However, these need to be used with caution, as sometimes the costs are only estimates. Some consulting firms offer benchmarking data, which includes costs, to clients. Benchmarking groups or networks are sometimes formed by a group of organisations, to compare processes and activities, and membership is by invitation only.

FMRC Benchmarking is an Australian organisation that generates benchmarking data on 98 industry sectors. Consulting firms, accounting firms and other organisations may purchase this data to enable them to assess performance in the area of costs and in other areas, such as market share and sales growth. FMRC has data on industries as diverse as butchers, tiling contractors, caravan parks, coffee shops, hairdressers and electrical supply businesses (Thomas, 2001).

Despite the difficulties in estimating competitors' costs, it is clear that some companies routinely estimate this type of information. For example, the managers at an Australian manufacturing firm were surprised when they received an unsolicited approach from a South Korean manufacturer who had correctly estimated the current manufacturing cost of the company's main product and was offering to manufacture that product at 70 per cent of the cost. Clearly, the Australian firm was operating at a distinct cost disadvantage to the Korean firm—and the Korean firm was aware of this! (Dunphy & Stace, 1992)

## Benchmarking activities in Australian businesses

Benchmarking activities can encompass many diverse areas of operations, as illustrated by the following examples:

- In the 1990s, Dulux Australia undertook several benchmarking exercises. A multidisciplinary team visited four Asian paint companies to benchmark their safety, health and environmental practices. Another team visited companies in the UK, Germany and Japan to examine innovative production processes that could be used in planning the construction of a new paint plant. Another team visited 12 Asian companies, operating in many different industries, to examine their innovative human resource management practices.
- At the Sheraton Airport Hotel in Sydney, employees formed a series of benchmarking teams in areas such as housekeeping, front office, and food and beverages, to identify and improve critical elements of service procedures. These procedures were flowcharted and the outcomes were measured. Teams then identified benchmarking partners against which performance was compared. The 'front office team' benchmarked check-in and check-out operations against Qantas reservations, which was achieving 96.9 per cent correct reservations. By changing the information-gathering process, the front office team was able to achieve a nine-second check-in for return guests, which resulted in a 98 per cent customer satisfaction rating in the first quarter of implementation (the prior quarter customer satisfaction was 87 per cent). Procedures were improved further over the next few years to achieve close to 99 per cent correct reservations.

## Warning signs of an inadequate performance measurement system

How does an organisation know when its performance measurement system is inadequate? Managers need to be aware of several warning signs that may indicate that their system needs review (Vitale, 1995; Eccles, 1991; Meyer & Gupta, 1992).

**L011**  
LEARNING OBJECTIVE

- 1 *Performance is acceptable on all dimensions, except profit.* Non-financial performance measures, such as those related to quality, delivery time and cycle time, may be showing considerable improvements. At the same time, profits may not be increasing. How can this happen? There are several possible explanations. First, the non-financial measures may not relate to the organisation's strategies. If delivery responsiveness is not of strategic importance, because it is not what customers require, then improving this measure may not translate to increased sales and profits. Second, resources that may have been freed up by improvements in areas such as cycle time or reject rates may not have been utilised to improve profitability. This was explained in an earlier section. Third, there may be a lag between improving drivers and improving profits. How long does it take for improved delivery performance to be turned into increased sales from existing customers and sales from new customers?
- 2 *Customers do not buy, even when prices are competitive.* If sales have not improved, even when performance measures indicate that quality, costs and delivery have improved, it may be that *relative to competitors*, the organisation's performance is still not good enough. Wherever possible, performance in critical areas should be benchmarked against 'best practice'. It is not enough to know that performance is improving; the test is whether performance is improving relative to that of competitors.
- 3 *No one notices when performance reports are not supplied.* This is a clear indicator that reports are considered of no use by managers—the reports are not giving managers any information that they can use! This can occur because managers consider that the performance measurement system focuses on the wrong things. The reports may be too detailed, or not detailed enough, or arrive too frequently, or not frequently enough. In particular, performance reports may provide *no new information to managers*.
- 4 *Significant time is spent debating the meanings of measures.* This can occur when measures are not clearly related to strategy, or when they are too aggregated, so that the signals provided by the measures are subject to different interpretations. For example, an increase in customer satisfaction may be due to many factors. Unless these drivers are also measured, the causes and hence the means for improving customer satisfaction will not be apparent.
- 5 *The measures have not changed for some time.* This may mean that the system is out of date, and unable to assist in managing within the continually changing business environment.
- 6 *The business strategy has changed.* A change of strategy provides a signal, or a welcome excuse, to review the organisation's performance measurement system. Over time, it is very common for organisations to add new measures to their systems as they encounter problems, so measures can proliferate throughout the business. This can confuse those employees who are required to meet an ever-increasing range of performance targets.

## Designing an effective performance measurement system

### L012

#### LEARNING OBJECTIVE

Over the last decade, we have seen major changes in the types of performance measurement systems that organisations use. There are many alternatives to financial performance measures, and strategic performance frameworks, such as the balanced scorecard, may help managers focus on what is important for the business in both the short term and long term. However, many organisations get it wrong! Earlier in this chapter we recognised that improvements in non-financial measures may not translate into improved financial measures because of an inadequate performance measurement system.

Designing and implementing a good performance measurement system is very difficult. It is not sufficient to merely select a range of non-financial performance measures to support the four perspectives of a balanced scorecard, or to support critical success factors. Designing a performance measurement system requires careful analysis and frequent reviews, and an understanding of how people behave and react to particular performance measurement systems. It is not simply a case of replacing or supplementing financial performance measures with non-financial performance measures. In this section we identify the characteristics of good performance measurement systems, consider how to build continuous improvement into performance measures, and discuss the behavioural implications of new performance measurement systems.

### Characteristics of good performance measurement systems

Good performance measurement systems should have the following characteristics:

- *Link to strategy and the goals of the organisation* This helps to promote goal congruence and ensure that employees are encouraged to focus their efforts in the right direction. Contemporary frameworks, such as the balanced scorecard, use this principle.
- *Be simple* Measures should be understandable and easy to communicate to employees. Employees who are using, or being evaluated by, a measure must be able to understand how the measure was calculated and what they need to do to improve their performance in this area. In operational and administrative areas, performance measures are often displayed graphically, close to work areas, to help employees identify with the performance measures, to encourage them to discuss performance and to motivate them to achieve further improvements.
- *Recognise controllability* When employees are responsible for achieving certain performance measures, these measures should relate to activities and processes that are under their control. In Chapter 12 we saw that this was the principle used when separating divisional managers' performance from their business unit performance. Similarly, in Chapters 10 and 11, responsibility for standard cost variances was assigned to employees based on controllability.
- *Emphasise the positive* To motivate improvements, performance measures should be expressed in positive rather than negative terms. It is considered more motivational to express delivery performance as 80 per cent on time rather than 20 per cent late, or to measure customer satisfaction at 78 per cent, rather than customer dissatisfaction at 22 per cent.
- *Be timely* Performance measures should be reported as close as possible to the period to which they relate. This gives immediate feedback to employees and managers, and allows timely corrective action to be taken.
- *Include benchmarking* To lift performance to meet the demands of the customer and competition, it is important that performance measures are benchmarked to high external standards.



- *Embrace participation and empowerment* To encourage managers and employees to accept performance measures as fair, it is important that they are involved in their formulation and operation. At the operational level, employees may be empowered to identify their own performance measures linked to the business's strategies and to take actions to improve performance.
- *Include only a few performance measures* Too many performance measures can confuse and obscure real performance. A rule of thumb that is sometimes used is that no person should be held responsible for more than four or five measures.
- *Link to rewards* Many companies believe that performance measures are more motivational if they are linked to reward systems. Reward systems were discussed in Chapter 13.

## Designing measures for continuous improvement

To become and remain world-class, an enterprise must strive for **continuous improvement**, which refers to the ongoing search for improved methods to reduce or eliminate waste and improve performance in areas such as cost, quality and customer service. In many organisations, employees play an active part in continuous improvement activities. In today's fast-paced environment, customers continually upgrade their requirements and competitors continually improve their performance. This means that organisations have to continually improve their performance to remain competitive.

Continuous improvement can be built into performance measurement systems by:

- 1 *Selecting relevant performance measures* The emphasis on continuous improvement means that, as changes are made throughout the business, some performance measures should be dropped and others added. Some companies focus their improvement efforts on problem areas, and then move on to other areas when performance has improved.
- 2 *Defining and redefining the measure* In Exhibit 14.2 we saw that there are many measures that can be used to monitor quality, cost and delivery. Continuous improvement can be built into our selection of the appropriate measure. When a new performance measure is first introduced it may be defined loosely. For example, if prompt delivery to customers was very poor, then we could define *on-time delivery* as orders delivered to the customer within a specified period from the time the order was placed. Initially, performance may be only 45 per cent on time. Over time, as employees achieve high performance on this measure, of say 98 per cent, on-time delivery can be defined more tightly, for example as complete orders delivered to customers within a specified time period. Note that in the initial measure, we did not ascertain whether the *complete* order was delivered—if an item was missing, employees might have delivered it a few days later. When the new tighter measure is adopted, performance may immediately slip to, say, 70 per cent, but over time, there is the opportunity to improve that performance. Why would a company design the loose measure initially? If the measure is perceived as not too difficult, employees may be motivated to achieve this measure. As their performance improves, there becomes little room for improvement, so the measure is made more challenging to provide a new improvement cycle.
- 3 *Making the performance target more challenging* Employees may be set performance targets that increase in difficulty over time. Continuing our on-time delivery measure example, employees may have been given a series of monthly targets, which, once they were achieved, were increased in difficulty.

## Behavioural implications of changing performance measures

Performance measurement is undertaken to encourage goal-congruent behaviour, and any selection of performance measures should include an assessment of their behavioural implications. The issues of resistance to change, discussed with reference to implementing

**continuous improvement** the ongoing search for improved methods to reduce or eliminate waste and improve performance in areas such as cost, quality and customer service

activity-based costing in Chapters 8 and 15, also apply to implementing performance measurement systems.

It is becoming increasingly common for reward systems to be linked to achieving certain performance targets, to encourage goal-congruent behaviour. However, it is important to realise that performance-based reward systems can also decrease goal congruence. This can occur if inappropriate performance measures and targets are emphasised. For example, if employees are held responsible for achieving performance targets that are considered unfair or unachievable, this could decrease goal congruence. Also, changes to performance measures may be resisted if they are believed to adversely affect an individual's pay.

In general, new performance measures are most likely to succeed if they are supported across the entire organisation. Although many of the new performance measurement methodologies begin at the top of the organisation with the identification of business strategies and critical success factors, a bottom-up approach can be used to identify the drivers of these factors. The development of a balanced scorecard may have some appeal to people at various levels of the organisation. Many of the non-financial measures will not be new, but now they will be seen as a logical inclusion in a comprehensive performance measurement system rather than an 'add on' to an inadequate performance measurement system.

## Measuring performance in the service sector

### L013 LEARNING OBJECTIVE

So far, our discussion of performance measures has concentrated on manufacturing organisations. Although balanced scorecards can be used in service businesses, we need to remember that the outputs for service businesses are very different from manufactured products, and that service organisations therefore need different types of performance measures (Fitzgerald et al., 1991).

Exhibit 14.8 lists some of the performance measures identified in a survey of state-of-the-art performance measurement systems used by some service enterprises in the UK. Notice that this exhibit focuses on outcome measures and drivers. The emphasis placed on each dimension depends on the nature of the service business, its competitive environment and its strategic objectives. The main difference between service and manufacturing performance measurement systems is in the types of measures. For example, the quality of a service depends on factors such as responsiveness, friendliness and courtesy, while the quality of a manufactured product depends largely on physical attributes that can be monitored by measures such as the number of defects and warranty claims.

A difficulty in service firms is the qualitative or intangible nature of outputs. Consider how difficult it is to measure courtesy, accessibility and responsiveness. Of course, some manufacturing measures, such as customer satisfaction, relate to both the goods and services provided by the business.

**EXHIBIT 14.8** Performance measures in service businesses

	Dimensions of performance	Types of measures
<b>Outcome measures</b>	Competitiveness	Relative market share and position Sales growth Measures of the customer base
	Financial performance	Profitability Liquidity Capital structure Market ratios

*continues ...*

	Dimensions of performance	Types of measures
<b>Drivers</b>	Quality of service	Reliability Responsiveness Aesthetics/appearance Cleanliness/tidiness Comfort Friendliness Communication Courtesy Competence Accessibility Availability Security
	Flexibility	Volume flexibility Delivery speed flexibility Specification flexibility
	Resource utilisation	Productivity Efficiency
	Innovation	Performance of the innovation process Performance of individual innovations

Source: Adapted from Fitzgerald et al. (1991)

## Chapter summary

In this chapter we considered contemporary approaches to designing and managing performance. Key points include:

- Performance measurement systems are systems that measure performance by comparing actual results with some form of benchmark.
- The five main purposes of performance measurement systems are to:
  - communicate the strategy and plans of the business and align employees' goals with those of the organisation;
  - track performance against targets;
  - identify problems areas;
  - evaluate subordinates' performance as the basis for rewards; and
  - guide senior managers in developing future strategies and operations.
- Conventional performance measurement systems are financially-based, and many organisations broaden their performance measurement systems to include non-financial measures.
- The problems with conventional financial performance measures include the following:
  - measures are not actionable;
  - they emphasise only one perspective of performance;
  - they provide limited guidance for future actions; and
  - they encourage actions that may decrease both customer and shareholder value.
- Contemporary performance measurement systems consist of a mix of financial and non-financial measures, have a strategic orientation, utilise external benchmarks, and focus on continuous improvement.
- Non-financial measures offer several advantages over financial measures. These include:
  - non-financial measures are the drivers of financial performance;
  - they are more actionable; and
  - they are more understandable and easier to relate to.

- Non-financial measures also have their problems:
  - it is difficult to select measures from such a wide choice;
  - the development of such measures can be ad hoc and undirected;
  - using such measures involves trade-offs;
  - measures may lack integrity; and
  - it may not be easy to translate those measures into financial outcomes.
- The balanced scorecard (Kaplan & Norton, 1996) identifies and reports performance from four perspectives: financial, customer, internal business processes, and learning and growth. Within the four perspectives, there are causal linkages between objectives and measures, as well as between lag measures (outcome measures) and lead indicators (drivers of those outcomes measures).
- A Du Pont chart can be used to link non-financial measures with financial measures and financial performance.
- Benchmarking provides a process of comparing the products, functions and activities of a business against external business, to identify areas for improvement and to implement a program of continuous improvement.
- There are five steps in a formal benchmarking process:
  - identify the functions or activities to be benchmarked, and performance measures;
  - select benchmark partners;
  - collect and analyse data;
  - establish performance goals; and
  - implement plans.
- Warnings of an inadequate performance measurement system include:
  - performance is acceptable on all dimensions, except profit;
  - customers do not buy the product, even when prices are competitive;
  - no one notices when performance reports are not supplied;
  - significant time is spent debating the meaning of measures;
  - measures have not changed for some time; and
  - the business strategy has changed.
- Good performance measurement systems:
  - have measures linked to strategy and goals;
  - are simple;
  - recognise controllability;
  - emphasise the positive;
  - are timely;
  - include benchmarking;
  - embrace participation and empowerment;
  - include only a few measures; and
  - link to rewards.
- Continuous improvement should be a part of all good performance measurement systems.

In the following two chapters we will consider the role that performance measures play in the management of cost and time, and the management of suppliers, customers and quality.

## Key terms

balanced scorecard  
 benchmarking  
 best practice company  
 continuous improvement  
 critical success factors

Du Pont chart  
 lag indicators  
 lead indicators  
 normalisation  
 performance gap

performance measurement  
 system  
 productivity  
 setup time  
 total-factor productivity

## Cybersearch

- 1 Find web sites with examples of organisations that use balanced scorecard approaches to manage their businesses.
  - (a) Compare the features of their balanced scorecards with that of the Kaplan and Norton model.
  - (b) Outline the advantages that the balanced scorecard has provided for the organisation.
- 2 Locate some web sites of agencies that offer benchmarking services.
  - (a) What type of benchmarking data is provided?
  - (b) Does the agency provide benchmarking of processes and procedures?



For a list of useful web sites to help you with these exercises visit the Online Learning Centre at [www.mhhe.com/au/langfield](http://www.mhhe.com/au/langfield)

cybersearch

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## e-student



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## Self-study problem and solution

### Performance measures

Super Chicken operates a chain of takeaway chicken shops. The company is operating in a very competitive market, and it is difficult to gain and maintain market share. Management believes it is important to monitor competitors' actions closely, and to continually offer new products and special promotions to create high visibility among customers. The management team has recently reviewed its mission, which is: *To be a caring and environmentally responsible company, providing fresh and nutritious meals at an affordable price.*

#### Required:

Consider the four perspectives of Kaplan and Norton's balanced scorecard. For each perspective, develop objectives and a series of performance measures. Consider both lag and lead indicators. Make sure that your objectives and measures support the mission of Super Chicken.

#### Solution to Self-study problem

Objectives	Performance measures	
	Lag indicators	Lead indicators
<b>1 Financial</b> Improve returns to shareholders.	Return on equity Product profitability	Number of new outlets opened
<b>2 Customer</b> Increase customer satisfaction.	Customer satisfaction measure	Number of new products released each quarter Number of customer complaints
	Market share	Number of customers participating in special promotion
	Increase in sales revenue	Average time to serve a customer Average price per meal
		<i>continues ...</i>

Performance measures		
Objectives	Lag indicators	Lead indicators
<b>3 Internal business processes</b>		
Maintain the quality of products.		Wastage in kitchen
Create new innovative products.	Number of products currently under development	Time to develop new products Number of promotions in process
Improve efficiency of production processes.	Average cost per meal	Cycle time Labour productivity
<b>4 Learning and growth</b>		
Improve employee satisfaction.	Employee satisfaction survey	Improvements in working conditions
Improve employees' knowledge of company systems.	Number of employees completing company training program	Number of employee suggestions Number of employees achieving 'gold star' status

## Questions

- 14.1 Describe the various ways in which performance measurement systems can support customer value.
- 14.2 Describe the major limitations of conventional financial performance measures.
- 14.3 Why do many operational managers develop their own non-financial measures of performance? What are the problems with this approach to performance measurement?
- 14.4 Does adding non-financial measures always improve a performance measurement system?
- 14.5 Describe the problems associated with non-financial performance measures.
- 14.6 What advantages do non-financial performance measures offer for managing resources and creating value, compared with financial measures?
- 14.7 Describe the Kaplan and Norton balanced scorecard approach to performance measurement.
- 14.8 Select a business that you are familiar with, and, for each of the four perspectives of Kaplan and Norton's balanced scorecard, select two performance measures that could be used for this business.
- 14.9 Explain why effective management of non-financial measures may not always flow through to improved financial performance.
- 14.10 Distinguish between *lead and lag indicators*. Provide an example to illustrate your answer.
- 14.11 What is a *Du Pont chart*? How can it help in managing performance?
- 14.12 Outline the characteristics of a good performance measurement system.
- 14.13 Describe the various ways in which continuous improvement can be built into a performance measurement system. Illustrate your answer with examples.
- 14.14 Outline the various warning signs that may indicate that an organisation has an inadequate performance measurement system.
- 14.15 Describe the meanings of *productivity*, *set-up time* and *machine downtime*. Which competitive strategies might these measures support?
- 14.16 How do performance measures for service firms differ from those for manufacturers?
- 14.17 Outline the features of contemporary performance measurement systems.
- 14.18 Outline the steps involved in benchmarking.
- 14.19 What are the advantages and limitations of the four types of benchmarking?
- 14.20 Explain the following terms, as they relate to benchmarking: *performance gap*, *normalisation*, *best practice company*.
- 14.21 What role can management accountants play in benchmarking activities?

## Exercises

### E14.22 Financial and non-financial measures

Classify each of the following statements as *true* or *false*. In each case give reasons for your answer.

- 1 Financial performance measures provide essential information in order to assist managers at the operational level to take actions to correct problems.



- 2 Non-financial measures assist managers to manage the drivers of future financial performance.
- 3 Both financial and non-financial measures can assist in communicating the strategy of the business and in encouraging goal congruence.
- 4 Financial measures provide an indication of how well the organisation has performed across a range of strategically important areas.

**E14.23 Non-financial performance measures**

For each of the following businesses, select three performance measures that could be used to support the competitive strategy of quality. Make sure that your measures are specific to each type of business.

- 1 A law firm.
- 2 A company that manufactures pool-cleaning equipment.
- 3 A firm that prepares personal taxation returns.
- 4 A company that sells fruit and vegetables.
- 5 A pizza and pasta restaurant.
- 6 A bus company.

**E14.24 Non-financial performance measures: manufacturer**

Scotch Thistles weaves fine wool, which it then manufactures into woollen clothing. The senior management team believes that critical success factors for the business are cost effectiveness, product innovation and product quality.

**Required:**

For each of the critical success factors, suggest three performance measures.

**E14.25 Financial and non-financial performance measures: service firm**

Canny Catering Ltd specialises in catering for office parties. Over the past six months, business has started to pick up, particularly as the number of ‘employee farewell’ parties has increased in the larger corporations. The prime control tool is the monthly performance report, which contains comparisons between actual and budgeted revenues and costs. Budgeted costs were developed last year, and now with the increased business activity, monthly cost variances are always unfavourable. The budget was based on an average of two parties per week, whereas the company is currently catering for three parties per week.

The manager of Canny Catering says she has little use for the monthly cost and revenue reports—they always show favourable variances. However, she has noticed that in the recent quarterly profit statement, the actual profit margin was 3 per cent, whereas the budgeted profit margin was 5 per cent. ‘How can this be?’ she asks.

**Required:**

- 1 How can monthly cost and revenue variances be favourable when the quarterly profit margin percentage is below budget?
- 2 Can you suggest how Canny Catering can improve its monthly performance reporting system?
- 3 Explain to the manager of Canny Catering the advantages of expanding the monthly performance reports to include non-financial measures.

**E14.26 Benchmarking: manufacturer**

Sleepy Time is a multinational manufacturer of herbal teas. The Australian plant, located at Hawthorn in Victoria, is currently attempting to lift its performance through benchmarking activities. The best performing plant in the Sleepy Time Group is located in Zurich, Switzerland. The general manager of the Hawthorn

plant has approved a benchmarking visit to the Zurich plant by a team of employees. The benchmarking team consists of the manufacturing manager, two manufacturing team leaders, a member of a third manufacturing team and the plant's human resources manager. The functions that the benchmarking team has identified for study include employment contracts, the operation of self-managed teams in manufacturing, and the processes that have resulted in high safety performance and short cycle times at the Zurich plant.

**Required:**

- 1 What type of benchmarking is the Hawthorn plant planning to undertake?
- 2 Explain the advantages and limitations of this type of benchmarking.
- 3 What are the advantages of forming a multidisciplinary benchmarking team similar to the one used by the Hawthorn plant?

**E14.27 Performance Measures: manufacturer**

Juggernaut Industries manufactures mobile telephones, a product that has one of the fastest growing markets in Australia. The accountant of Juggernaut is considering designing a new performance measurement system for the company. As part of this process, the management team has established the following objectives for the company for 2003:

- To achieve 25 per cent market share.
- To achieve a return on investment of 15 per cent.
- To provide mobile phones that meet customers' needs for leading-edge design and performance at a reasonable price.

Management has taken each objective and established the following critical success factors: customer satisfaction, cost effectiveness and new product introduction.

**Required:**

- 1 For each of the three objectives, suggest another critical success factor.
- 2 Suggest two performance measures that would support each of the company's critical success factors listed in the question.

**E14.28 Performance measures in a service business**

Identify specific lead and lag measures that may be used in each of the following three businesses to measure

- (i) *quality*, and
  - (ii) *customer loyalty*.
- (a) a bank, (b) a school, and (c) a hairdresser.

**E14.29 Performance measures in a service environment**

The head of the Accounting Department at the University of Utopia wants to develop a performance measurement system to improve the performance of her department in both teaching and research.

**Required:**

You are hired as a consultant to identify performance measures for the Accounting Department. Suggest three objectives for the Accounting Department. List the performance measures that should be included and give reasons for each measure chosen. (*Hint:* As a customer of an Accounting Department, you should have some great ideas about how performance in teaching can be measured and improved!) What problems do you envisage in the implementation of these performance measures?

**E14.30 Key performance indicators and key performance drivers; Du Pont chart: service firm**

St Andrews Bank is currently redesigning its performance measurement system. Up until now it has relied heavily on monthly cost variance reports to control the costs

in each bank branch, and would now like to have a more comprehensive performance measurement system that can help the bank detect problem areas before they become significant.

The bank is committed to achieving a high return on investment for shareholders and believes that careful management of customer service and costs will help achieve that goal.

**Required:**

- 1 Identify some key performance indicators (KPIs) for the bank and some key performance drivers (KPDs) that could be used to manage operations at the bank branch level. Draw these in the form of a Du Pont chart.
- 2 Explain how continuous improvement could be built into the KPDs, to help encourage improved performance over time.

## Problems

**P14.31 Performance measures in manufacturing**

Joe Evans is a line supervisor in the Paint Shop of the General Australian Car Company (GACC). The GACC manufactures cars for the domestic and export markets. Jim Kent is the manager of the Finishing Department, which includes the Paint Shop. It is the end of the first week in May when Kent approaches Evans for help.

*Kent:* Joe, here are the results for our department for the month of April. I need your help to explain these variances at the meeting with the plant manager tomorrow. Just look at them. I'm in for a really hard time.

(Evans examines the performance report for the Finishing Department for April, which is shown below.)

*Evans:* Jim, why do you bother with these measures? They're not worth the paper they're written on. Tell those blokes at the top that when they introduce some decent measures they'll start to get some decent results!

---

**Finishing Department  
Performance Report for April**

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Direct material:	
Standard cost	\$115 000
Material usage variance	17 000 U
Material price variance*	3 000 F
Actual material cost	129 000
Direct labour:	
Standard cost	55 000
Direct labour efficiency variance	12 000 U
Direct labour rate variance	10 000 U
Actual labour cost	77 000
Variable manufacturing overhead:	
Standard cost	27 500
Variable overhead efficiency variance	6 000 U
Variable overhead spending variance	5 000 U
Actual variable overhead	38 500
Fixed manufacturing overhead:	
Standard cost applied	41 250
Fixed overhead volume variance	6 000 U
Fixed overhead budget variance	9 000 U
Actual fixed overhead	56 250

---

\* Material price variance is based on actual quantity used.

**Required:**

- 1 Outline the major criticisms of standard costing variances as measures of performance. (*Hint:* You may find it useful to review Chapter 11.)
- 2 Suggest some alternative performance measures for the Finishing Department that might be useful.

**P14.32 Designing a performance measurement system; Du Pont chart: service firm**

Fabrizzi's Cafe is a chain of coffee shops that has been operating successfully for the past two years. However, competition is becoming more intense, particularly in the trendier suburbs of the city. Mark Fabrizio, the managing director, no longer directly manages any of the shops and is interested in developing a performance measurement system that can help him to evaluate the relative performance of each shop and to anticipate any problems. It is important that he knows of any problems, particularly those concerning customers and profitability, as soon as they happen. He would like to know this information for each of his eight shops. In this type of business, customer loyalty can be short-lived and profits may be erratic.

**Required:**

- 1 Advise Mark Fabrizio on how he should set about designing a performance measurement system. In your answer, consider the various features of an effective performance measurement system.
- 2 Select some performance measures that may address the various concerns of Fabrizio.
- 3 Develop a Du Pont chart, similar to that in Exhibit 14.6, to show how the performance measures flow through to improving customer satisfaction and cost effectiveness, and ultimately profit.

**P14.33 Balanced scorecard: service firm**

Clean Living Ltd is a travel company that specialises in 'green tours'—package tours to environmentally sensitive destinations. These types of tours are growing in popularity, and while Clean Living has had little problem attracting customers, it has noticed a number of competing businesses have just commenced operations. Even some of the regular travel companies are starting to offer green tours.

Saffron Phelong, the managing director, has asked the financial controller, Clarence Kent, to design and implement a new performance measurement system that may help protect the business against competitors. Phelong has spent many years working for large multinationals and appreciates the value of strategic planning and a good performance measurement system. Recently she attended a seminar on balanced scorecards.

To provide the foundation for the new performance measurement system, all of the managers of the company participated in a strategic planning retreat. The managers used the Kaplan and Norton approach to outline a set of objectives to support the four perspectives of a balanced scorecard:

Perspectives	Objectives
Financial perspective	Increase return on investment. Improve cash flow.
Customer perspective	Increase market share. Improve customer satisfaction.
Internal business perspective	Improve office cost effectiveness. Have available a variety of different tours.
Learning and growth	Improve environmental skills of employees.

**Required:**

For each of the four perspectives, provide lead and lag measures that would support the objectives. Make sure that your measures relate specifically to Clean Living Ltd.

**P14.34 Performance measures for operational control: manufacturer**

Australian Plastics Ltd manufactures a range of moulded plastic products, such as kitchen utensils and desk accessories. The production process in the Whyalla plant is highly automated. The plant uses a just-in-time production management system. An automatic material-handling system is used to transport products between production operations. Each month the accountant prepares a production efficiency report, which is sent to corporate headquarters. The data compiled in these reports, for the first six months of the current year, are as follows:

<b>Australian Plastics Ltd: Whyalla Plant Production Efficiency Report 1 January–30 June 2000</b>							
	Jan.	Feb.	Mar.	Apr.	May	June	Average
Overtime hours	60	70	75	80	85	105	79.2
Total setup time (hours)	70	70	65	64	62	62	65.5
Cycle time (average in hours)	20	20	19	18	19	17	18.8
Percentage of orders filled	100	100	100	100	100	100	100
Percentage of on-time deliveries	99	98	99	100	96	94	97.7
Inventory value/sales revenue	5%	5%	5%	4%	5%	5%	4.8%
Number of defective units, finished goods	80	82	75	40	25	22	54
Number of defective units, in process	10	30	35	40	60	60	39.2
Number of raw material shipments with defective materials	3	3	2	0	0	0	1.3
Number of products returned	0	0	0	0	0	0	0
Power consumption (kWh, '000s)	800	795	802	801	800	800	799.7
Machine downtime (hours)	30	25	25	20	20	10	21.7
Bottleneck machine downtime* (hours)	0	0	2	0	15	2	3.2
Number of unscheduled machine maintenance calls	0	0	1	0	2	3	1

\* The concept of bottlenecks is explained in Chapter 15.

**Required:**

- 1 Write a memo to the managing director of Australian Plastics Ltd, evaluating the Whyalla plant's performance. Structure your report by dividing it into the following parts:
  - (a) production processing and productivity
  - (b) product quality and customer satisfaction
  - (c) delivery performance
  - (d) raw material, scrap and inventory
  - (e) machine maintenance
 (Some measures may be relevant to more than one area of performance.)
- 2 Identify any areas of concern in your memo and suggest appropriate action for management.

**P14.35 Performance measures for operational control: manufacturer**

Medical Systems Corporation manufactures diagnostic testing equipment used in hospitals. The company practises JIT production management and has a state-of-the-art manufacturing system. The following non-financial data were collected every two weeks in the Elizabeth plant during the first quarter of the current year.

	Fortnightly measurement period					
	1	2	3	4	5	6
Cycle time (days)	1.5	1.3	1.3	1.2	1.2	1.1
Number of defective finished products	4	4	3	4	3	3
Customer complaints	6	7	6	5	7	8
Unresolved complaints	2	1	0	0	0	0
Products returned	3	3	2	2	1	1
Warranty claims	2	2	2	0	1	0
In-process products rejected	5	5	7	9	10	10
Average number of units produced per day per employee	410	405	412	415	415	420
Percentage of on-time deliveries	94	95	95	97	100	100
Percentage of orders filled	100	100	100	98	100	100
Inventory value/sales revenue	2%	2%	2%	1.5%	2%	1.5%
Machine downtime (minutes)	80	80	120	80	70	75
Bottleneck machine downtime* (minutes)	25	20	15	0	60	10
Overtime (minutes) per employee	20	0	0	10	20	10
Average setup time (minutes)	120	120	115	112	108	101

\* The concept of bottlenecks is explained in Chapter 15.

**Required:**

- For each non-financial performance measure, indicate which of the following areas of manufacturing performance is involved:
  - production processing
  - product quality
  - customer satisfaction
  - in-process quality control
  - productivity
  - delivery performance
  - raw material and scrap
  - inventory
  - machine maintenance
 (Some measures may relate to more than one area.)
- Write a memo to management commenting on the performance data collected for the Elizabeth plant. Be sure to note any trends or other important results you see in the data. Evaluate the Elizabeth plant in each of the areas listed in requirement 1.

**P14.36 Problems with conventional performance measures; strategy and performance measures: manufacturer**

Revor Mowers Ltd manufactures lawn mowers and grass-slashers. The manufacturing plant has three production departments: Metalwork, Mechanical Work and Assembly. The company uses monthly standard costing reports to

evaluate performance and control costs in the manufacturing areas. Typically, these reports are distributed to managers within two weeks of the end of the month.

**Required:**

- 1 Identify the performance measures that are likely to be included in the monthly standard costing reports. (You may need to revisit Chapters 10 and 11.)
- 2 How useful do you think this information will be for:
  - (a) the managing director?
  - (b) the manufacturing plant manager?
  - (c) production department managers?
  - (d) production line foremen and supervisors?

Explain your answer in each case.
- 3 Suggest strategic areas, apart from cost, where the company is likely to want to manage its performance.
- 4 Pick one strategic area that you have identified in requirement 3, and suggest an objective and two performance measures for each of the four management levels listed in (a)–(d) of requirement 2.

**P14.37 Balanced scorecard: service firm**

Rice Porterhouse and Company is a large chartered accounting firm. The company has four departments that work directly with clients: Auditing, Taxation, Management Consulting and Liquidation. In addition, the firm has an Administration Department. The managing partner uses the following measures to monitor the firm's performance:

	Performance measures
Overall business:	profit and return on investment
Client departments:	revenues costs percentage of available time charged to clients
Administration Department:	costs

At the end of each month the managing partner compares the actual results for these measures with budgeted results. Department managers are asked to explain any significant variances. Rice Porterhouse has always been successful, but recently its profitability has declined. The managing partner asks the Management Consulting Department to review the firm's performance measurement system.

**Required:**

Prepare a report for the managing partner that includes the following information.

- 1 Identification of the type of strategies that might be followed in a service firm such as Rice Porterhouse, operating in the modern business environment;
- 2 A review of the existing performance measurement system assessing:
  - (a) how well it measures performance to support the firm's strategies;
  - (b) any potential adverse effects that the existing system may have on performance;
- 3 A balanced scorecard system for the business that includes:
  - (a) objectives for the business, and each perspective;
  - (b) lead and lag indicators for each perspective;
- 4 An explanation of the advantages that the balanced scorecard offers over the existing performance measurement system.

**P14.38 Financial and non-financial performance measures: service firm**

You have been offered employment over the summer break by your uncle, who operates a large fresh-flower delivery service. The business makes about 400 deliveries per day, often to corporate customers. The company is currently evaluating the monthly performance of each of its divisions, using return on investment.

You are employed at the main depot, and over the past few weeks you have noticed that there appears to be a fair degree of wastage occurring. The business has been running at a loss, and customer complaints have been increasing. You have suggested to your uncle that one way of managing this problem would be to design a new performance measurement system.

To assist you in your task, you have been told that the critical success factors of the business are product quality, customer satisfaction and a wide product range. The managers believe that if these factors are focused on, sales revenue and profit will follow.

**Required:**

- 1 For each of the critical success factors, suggest two objectives and two performance measures for each objective that could be used. Make sure that your measures suit the particular products and operations of the business.
- 2 Explain how you could build continuous improvement into the performance measurement system. Use the performance measures developed in requirement 1 to illustrate your answer.
- 3 Non-financial performance measures, compared with financial measures, are better suited to monitoring the operations of a business and provide a more effective way of improving performance.
  - (a) Explain why some people believe the above statement.
  - (b) Outline the arguments against this claim.

**P14.39 Benchmarking: manufacturer**

Glamour Plastics Pty Ltd manufactures plastic kitchenware at its Castle Hill factory. Its manufacturing equipment consists of large plastic extrusion machines that were purchased 15 years ago. Glamour Plastics produces in small production runs, and although the machinery is old, it is reliable.

The company's products are much sought after by specialty gift stores and up-market department stores such as David Jones. They also sell their products to Saks of Fifth Avenue in New York. While Glamour Plastics has many products, among the most popular is the Puchi salad bowl and servers. This product is made of clear plastic with gold flecks, and competes very favourably with the latest Italian salad bowls.

Glamour Plastics has just begun its first benchmarking activity. It has subscribed to an international benchmarking group that provides benchmarking data specifically tailored to different industries.

The benchmarking data supplied by the agency, relating to the plastics industry, include product cost per kilogram of finished product, cycle time, reject rate, and direct labour and raw material costs per kilogram of product. The manufacturing manager, Pascale Grinwald, suspects that the benchmark data must relate to the famous Speedy Plastics, renowned as the world's best plastics manufacturer. This company is a mass-producer of multicoloured school lunch boxes and picnic cutlery, and uses high-speed computer-controlled plastic extrusion machines.

The management accountant of Glamour Plastics, Bruce Hogan, has prepared a report comparing the performance of Glamour Plastics with the benchmark data:



Performance measure	Glamour Plastics	Benchmark data
Product cost per kg of product	\$85	\$66
Direct labour per kg of product	\$30	\$10
Raw material cost per kg of product	\$45	\$10
Cycle time per 100 units	60 minutes	15 minutes
Reject rate	3.5%	3.0%

Pascale is concerned about the size of the performance gaps between Glamour Plastics' measures and 'best practice', and has asked Bruce to investigate.

**Required:**

- 1 Explain the concept of benchmarking and how it can be used to help a business improve its performance.
- 2 Should Pascale be concerned about the size of the performance gaps? In your answer, consider each performance measure.
- 3 Assuming the benchmarking data relate to Speedy Plastics, will they provide suitable benchmarks for Glamour Plastics? If not, can you suggest what types of data may be more suitable?

## Cases

### C14.40 Review of Chapters 13 and 14; financial performance measures; behavioural issues: manufacturing and service organisation

Youngblood International has its head office in Brisbane, and operates throughout Australia, New Zealand and parts of Asia. There are three main divisions:

- Brewing Division—this is the oldest division, and it operates major breweries in Perth and Brisbane.
- Newspaper Division—owns leading tabloid newspapers in several cities.
- Satellite Television Division—operates satellite television services in Asia and Australia. This is a high-risk, growing market.

Each division is headed by a managing director who has been given a high level of decision-making authority. Each managing director effectively runs his or her division as a stand-alone business, within the general policy guidelines provided by the board of directors in the head office. Each managing director agrees to achieve a series of targets: return on investment (ROI), market share and sales growth. These targets are developed as part of the annual budget-setting process. Intense lobbying takes place between each managing director and the board of directors to determine the most suitable targets.

Each managing director receives an annual cash bonus based on achieving the target divisional ROI. The company defines ROI as operating profit, before interest and taxes, divided by divisional assets (measured at original cost less accumulated depreciation). Senior managers are each eligible for a cash bonus of \$20 000 if they reach their divisional ROI target. If performance is above target, share options are awarded at the rate of 10 000 shares for every additional point over target. Thus, if the ROI target is 13 per cent and the division achieves 15 per cent, the manager would be awarded 20 000 share options. These options are at the prevailing market price on the last day of the financial year, and must be taken up within two years of the award. The market price of the company's shares increased

from \$2 on 30 June 2002 to \$3 on 30 June 2003. If the ROI target is not reached, there are no bonuses or share options, and the managing director has to give convincing reasons for the poor performance. As a consequence of the performance measurement and reward system, the managing directors are highly motivated to achieve, and exceed, their ROI targets.

Janice Cookson has just been appointed as the new management accountant in the head office, charged with redesigning the performance measurement system. As her first task, she has obtained the financial data for the past two years for each division. A summary of the financial information for 2002 and 2003, in thousands of dollars, is as follows:

	Operating profit		Sales revenue		Divisional assets		Target ROI	
	2002	2003	2002	2003	2002	2003	2002	2003
Newspaper	440	539	2588	2600	4400	4900	10	10
Brewing	950	1100	4750	4500	5000	6471	18	16
Satellite Television	200	350	1800	850	6660	7000	2	3

Leonard Smith, the managing director of the Brewing Division, is concerned that his market share, and hence his ROI, is likely to suffer in the current financial year, 2004, as his main competitor has recently purchased new brewing technology. While his own brewing equipment is only 10 years old, it is unable to produce the new variety of beers that customers are demanding, and maintenance and operating costs are increasing.

Smith is considering a proposal to invest \$10 million in new equipment. This will probably increase operating profit for his division in 2004 by \$1 million. Smith has analysed the future cash flows of this proposal, and the new acquisition will easily satisfy the minimum required rate of return of 10 per cent, for all new investments, that is set for the Youngblood Group. Without this acquisition, Smith expects his 2004 ROI to drop to 14 per cent.

**Required:**

- 1 Calculate the ROI for each division for 2002 and 2003, as well as the two components of ROI: profit margin and return on assets. Comment on the relative performance of the three divisions.
- 2 Calculate the bonus that each managing director would earn in 2002 and 2003.
- 3 Explain why Leonard Smith is reluctant to invest in the new brewing equipment. Provide calculations to back up your answer.
- 4 Janice Cookson is considering expanding the divisional targets to include a range of non-financial measures. She is interested in developing a balanced scorecard for each division. For each of the three divisions:
  - formulate objectives for each of the four dimensions of the Kaplan and Norton balanced scorecard;
  - suggest lead and lag indicators for these objectives.

**C14.41 Performance measures and reward systems; behavioural issues; benchmarking; continuous improvement**

Refer to Case 14.40.

Janice examined the performance-related pay system used to reward the managing directors and has prepared a report that recommends three changes:

- Add a more long-run emphasis to the bonus system.
- Base rewards on achieving company-wide as well as division-based performance measures.
- Include targets that are designed to specifically consider the competitive challenges facing the managers of each division.

**Required:**

- 1 Suggest how the three proposed changes could be included in the bonus plan for each divisional managing director. Consider each division and be specific in your suggestions.
- 2 Outline any difficulties that could arise in implementing the changes to the bonus system.
- 3 Janice has also recommended that the performance measurement system should make greater use of benchmarking and incorporate continuous improvement to improve overall company performance. Why would she recommend benchmarking? Suggest the specific steps that would need to be undertaken to introduce benchmarking at the Newspaper Division.
- 4 Suggest how continuous improvement processes could be incorporated into the performance measurement system at the Newspaper Division. Provide some examples of performance measures to illustrate your answer.