

8 Management Information Systems

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INTRODUCTION

The message from the preceding chapters is clear: the focus of management accounting must move beyond the provision of summary, financial measures if it is to maintain its central role of evaluation and control. A fully integrated information system embracing both financial and non-financial indicators is required if the needs of all stakeholders are to be satisfied.

In manufacturing operations, for example, process parameters provide the means of exercising minute-to-minute control, performance measurement, forecasting and budget-setting, usually through on-line monitoring systems. The absence of comparable systems to monitor cost information will be a serious deficiency, leading to the generation of alternative work-effectiveness performance measures in service and non-process areas in order to gauge the likely impact of variations in procedure and practice.

The original purpose of management accounting was to provide a decision-making tool for management with any data considered relevant. But the requirements of financial accounting and external reporting have effected a retrograde change of emphasis, a change that must be addressed through the provision of relevant and timely information in an appropriate package.

NON-FINANCIAL INDICATORS

The declining relevance of traditional management accounting systems is attributed by Johnson and Kaplan (1987) to three types of failure:

- *Use-type*. A failure to adopt flexible budgets, to evaluate discretionary expenditures or to adopt appropriate measures to control fixed costs.
- *Relevance-type*. A failure to develop quality control and factor productivity measures or to highlight opportunity costs.

- *Control-type*. A failure to consider non-financial factors, through undue emphasis on short-term financial performance indicators and financial accounting considerations in most calculations.

Each of the three types can be overcome by the use of NFIs as measures which improve the decision-usefulness of management accounting information and facilitate evaluation and control. The accounting system should capture indicators which are good predictors of long-term success, measured in terms of consistency with the overall objectives of the enterprise. This may necessitate a preference for non-financial measures over traditional, standard costing and analysis of variance. Whitt and Whitt (1988) suggest a framework for NFIs extending over four aspects of a firm's performance – product, market, employee and customer – equally applicable to both manufacturing and service environments:

- product innovation, leadership and quality;
- market share and growth;
- employee skill, morale and productivity; and
- customer service, loyalty and delivery times.

An alternative framework based on the measurement of total performance in terms of the three Es (efficiency, economy and effectiveness), and devised by Gosling (1988), focuses on the use of resources and the success in achieving the intended results:

- 1 *Efficiency*. Work performance measures, covering:
 - (a) process – efficiency, productivity, overtime and waste;
 - (b) constraints – safety and environmental impact; and
 - (c) temporal efficiency – milestone dates and elapsed time.
- 2 *Economy*. Resource measures, dealing with issues such as input levels and 'budgeted versus actual' performance.
- 3 *Effectiveness*. Product measures concerning:
 - (a) quantity – units and percentage completion;
 - (b) quality – reliability, availability, obsolescence and safety; and
 - (c) temporal effectiveness – delivery.

This classification amplifies the earlier, product-based classification. A combination of the two frameworks allow the development of a more comprehensive matrix, facilitating the calculation of NFIs which provide for more effective control over total performance.

Table 8.1 gives such a matrix, detailing 60 NFIs drawn from the relevant literature and from personal observation of accounting practice in manufacturing industry (Smith, 1990). The spread of performance measures is wide-ranging, embracing production, marketing and customer-orientation aspects. This is unsurprising, since the precise combination of performance measures appropriate in each case is industry- and strategy-specific.

Where output quality is seen as a key objective, it can be measured in a variety of ways. Thus, for instance, in a hospital, it might be measured by the number of on-ward accidents or the percentage of corrective surgery (patient reworks); while in an alumina refinery a key indicator of product quality might be found in the percentage of impurities, in an index of acceptability to smelter customers, or the community response towards rehabilitation of the environment. However, the potential exists for both

inappropriate choices of NFIs and inaccurate and unreliable measurement – or worse, both! Weaknesses must be considered and behavioural implications evaluated prior to effective implementation. We must identify the key result areas in the provision of a particular product or service and ensure that those indicators selected for monitoring reflect the degree to which strategic objectives are being met.

Where direct labour hours measure costs, and the emphasis is on throughput, new measures such as managed hours per unit might be introduced, so that non-productive activities like maintenance and repair can be incorporated and appropriate actions taken to reduce this measure to an optimum level. Attention to equipment and machine efficiencies is aided by a focus on preventive and corrective maintenance measures in an effort to reduce the likelihood of their appearance in the breakdown maintenance statistics. By tracking machine performance and equipment histories, routine maintenance is facilitated and throughput time reduced.

Many authors argue that current methods of accounting for labour consume a cost out of all proportion to its significance in total product costs, and traditional utilization and efficiency measures do not provide good indicators of performance in just-in-time and world-class manufacturing environments.

It is important to avoid a myopic focus on equipment and labour productivities to the exclusion of all else. Where productivities are pursued as goals in their own right, rather than being seen as tools in the achievement of higher goals, throughput can be reduced and production costs increased. Where the emphasis is on keeping both men and machines busy at all times, work in progress will increase beyond economic levels, especially where insufficient attention is devoted to the random fluctuations and process dependencies inevitable within a manufacturing system.

Table 8.1 provides a useful framework for directing attention to the common measurement areas: product, market, employee and customer. It may be that as few as half a dozen NFI measures may be sufficient to give management the ‘feel’ that it requires for a status report on its current position with respect to its mission or with which to construct a model of performance. Their identification provides an opportunity to communicate and compare like measures throughout the organization, and motivate employers towards their achievement.

The choice of an optimum set of NFIs is inextricably linked to the goals of the organization. A given set of NFIs must provide measures consistent with the achievement of corporate goals. Where the goals change, the optimum set of NFIs will change too, and a system should be in place which is sufficiently robust to reflect these changes over time.

Said et al. (2003) provide empirical evidence to suggest that the adoption of non-financial measures of performance impacts positively on current and future stock market performance; however, they find only partial support for an associated improvement in accounting performance. A number of studies (e.g., Banker et al., 2000; Ghosh and Lusch, 2000; Hughes, 2000; Foster and Gupta, 1999; Behin and Riley, 1999; Perera et al., 1997; Amir and Lev, 1996; Barth and McNicholls, 1994) have shown that non-financial measures are useful leading indicators of financial performance. In particular, Banker et al. (2000) demonstrated a positive relationship between non-financial performance measures and future accounting performance for a hotel chain, while both Foster and Gupta (1999) and Ittner and Larcker (1998a) demonstrated an association between customer

TABLE 8.1

Matrix of NFIs

	Focus of measurement	NFI
Input	<ul style="list-style-type: none"> • Quality of purchased components • Quantity of raw material inputs • Equipment productivity • Equipment failure • Maintenance effort 	1 Zero defects
		2 Actual versus target units
		3 Actual versus standard units
		4 Downtime/total time
		5 Time between failures
		6 Time between overhauls
		7 Time spent on repeat work
		8 Mean time to effect repairs
		9 Total time in backlog jobs
		10 Number of production units lost through maintenance
		11 Number of repeat jobs
		12 Number of backlog jobs
		13 Number of failures in planned jobs prior to schedule
		14 Percentage of failures: planned/unplanned jobs
		15 Preventive maintenance/total maintenance
		16 Corrective maintenance/total maintenance
		17 Breakdown maintenance/total maintenance
Work performance	<ul style="list-style-type: none"> • Overtime • Waste 	18 Overtime hours/total hours
		19 Percentage of deficit items
		20 Percentage of scrap
		21 Percentage of rework
		22 $= \frac{\text{Return per factory hour}}{\text{Cost per factory hour}} = \frac{\text{Return}}{\text{Total cost}} \times \frac{\text{Time available}}{\text{Time on key resource}}$
Product	<ul style="list-style-type: none"> • Production flexibility • Product complexity • Quantity of output 	23 Set-up time
		24 Number of components
		25 Actual units
	<ul style="list-style-type: none"> • Quality of output • Safety • Reliability • Availability • Obsolescence • Commitment to quality 	26 Percentage completion: actual versus target
		27 Percentage yield
		28 Index of key product characteristics
		29 Serious industrial injury rate
		30 Warranty claims/costs
		31 Percentage of stock-outs
		32 Percentage of shrinkage
		33 Percentage dependence on post-inspection
		34 Percentage conformity to quality standards

TABLE 8.1 (cont.)

	Focus of measurement	NFI	
Market	• Market share	35 Local, domestic or world volume	
		• Market leadership	36 Percentage research and development expenditure
			37 Percentage of new product innovation
	• Growth	38 Percentage increase in market share	
		39 New clients/total clients	
	• Strengths	40 Index of competitive value	
		• Competition	41 Index of vulnerability
	Employees	• Employee skills	42 Index of educational attainment
			43 Percentage training costs
			44 Percentage of staff turnover lost to competitors
• Employee morale		45 Age or experience profiles	
		46 Percentage absenteeism	
		47 Cost of employee downtime	
		48 Leadership impact (e.g., percentage cancelled meetings)	
• Employee productivity		49 New staff/total staff	
		50 New support staff/total staff	
		51 Direct labour hours per unit	
	52 Managed labour hours per unit		
	53 Labour effectiveness		
	= $\frac{\text{Standard hours achieved}}{\text{Direct + indirect hours worked}}$		
	54 Output efficiency = $\frac{\text{Output}}{\text{Payroll cost}}$		
Customers	• Customer awareness	55 Percentage approval rating	
		56 Percentage service calls/claims	
		57 Number of complaints	
		58 Percentage of repeat orders	
	• Timeliness	59 Number of overdue deliveries	
		60 Mean delivery delay	

satisfaction and future profitability. The human relations literature (e.g., Becker and Huselid, 1998; Huselid, 1995) suggests that it is 'systems of NFIs', rather than individual measures, which are the more reliable indicators of firm performance.

We now present a case study concerned with the provision of a management information system (MIS), built around a series of NFIs. The focus here is on the provision of a system where currently very little of the available 'data' is collected and analysed by management in order to be turned into useful 'information'. We then turn to the use of NFIs within a balanced scorecard environment.

CASE STUDY

Whitlew Transport: NFIs for a management information system

This case concerns a company whose sales and client base have grown encouragingly, but whose MISs have not grown accordingly. It now faces external pressures from customers and the competition to improve its operations.

Whitlew Transport was founded in north Warwickshire in the late 1970s by Robert Whitmore and his brother-in-law, Richard Lewis. They started from humble beginnings, with two lorries that they drove and maintained themselves and in which they transported coal from open-cast workings to the nearby electricity generating stations at Rugeley and Hams Hall. Now there are more than 300 vehicles in the fleet, annual turnover is nearly £40 million and they have long since ceased to drive themselves.

The company's key activities are transport and warehousing. It provides a service to clients by storing goods, which arrive in bulk from overseas, and then delivering these direct to the customer in the agreed shipment sizes. The major costs incurred by Whitlew are, therefore:

- wages (for drivers and warehousemen);
- diesel fuel for the vehicles;
- maintenance costs for vehicles; and
- overheads necessary to operate the warehouse function.

Whitlew Transport has achieved a prominent position in the marketplace through delivering a satisfactory service whilst maintaining a low price. The pricing has been achieved through providing a service based on combining different clients' delivery and storage requirements, rather than dedicating vehicles and warehouse space to particular clients. As a result the storage peaks and troughs of individual clients can be smoothed, and on delivery several small orders for particular delivery points can be combined on one vehicle, yielding economies of scale, up to the size of a trailer.

The clients demand service of the highest quality which embraces:

- accurate receipt and checking in of their product. This information is then swiftly supplied to them so that they can process supplier payments.
- due care to maintain the quality of the product while warehoused, including the accurate rotation of date-sensitive food items. Any damage to stock through careless handling, or failure to rotate sell-by dates effectively, can lead to claims on Whitlew to the value of the inventory concerned.
- accurate picking and delivery of orders to their customers. Failures in this regard involve Whitlew in the costs of bringing the wrong products back to the warehouse – with even more opportunity for damage due to excessive handling – and of organizing emergency deliveries to correct mistakes.
- delivery of product to the customer, as ordered, and in a manner which meets the customer's satisfaction (and hence the client's

CASE STUDY (cont.)

satisfaction). Since most retailers operate tight stock control procedures (and many JIT procedures in some sense) failure to deliver on time results in lost sales. Major retailers impose penalty charges on their suppliers for delivery failures and, where this is the fault of Whitlew, the charge is passed on. Even if there is no penalty charge, then the costs of making an emergency delivery to correct the situation will be incurred.

- accurate return of information clearly advising product delivered, for invoicing purposes. Any failure to record accurately, or communicate clearly, will result in discrepancies between the physical stockholding and the client records. Any shortfall is the responsibility of Whitlew as the warehouse keeper.

Any failure to meet the client's requirements means that additional short-term costs are incurred, and may mean long-term costs associated with loss of business.

Up to now Whitlew has been more concerned with the long-term costs associated with loss of reputation than with the short-term costs associated with slack operating procedures. Robert Whitmore believes that this attitude is no longer acceptable, indeed that a lax way of doing business is both losing the company money and damaging client relationships. He has therefore instituted a company-wide investigation targeting cost savings, inventory control, error elimination and improved customer service and focusing on the introduction of suitable controls in the twin areas of concern, those of transport and warehousing.

TRANSPORT

There are two major areas of potential waste in transport: vehicles making deliveries with less than a full payload; and vehicles moving empty, following delivery, to collect the next payload. In the long term computerized planning software will alleviate this waste, but its implementation is at an early stage, and is being faced by widespread dislike among the transport operatives. However, the information required to run such a system is already available and is already collected from drivers' time sheets for payroll purposes. It would be a relatively simple task to use this same information for different purposes.

The costs currently associated with this waste are suspected to be high, from direct fuel costs, wear and tear on vehicles, and tax and depreciation overheads. The savings from introducing new working methods are potentially great, but it is difficult to gauge precisely how well Whitlew is performing or whether it is improving over time. Without adequate measurement and monitoring of vehicle utilization it is possible that transport costs could quickly become out of control.

WAREHOUSING

Any spare capacity in warehousing cannot be charged to clients and is, therefore, not generating revenue. In order to utilize as

CASE STUDY (cont.)

much space as possible the warehouses are designed to offer total accessibility together with computer-controlled random location storage. But there are still two major factors which cause lower than acceptable utilization:

- low periods of demand (particularly in January and February). Additional business could be sought to fill the gap, but Whitlew would then run the risk of having insufficient capacity to cope with the demands of existing clients during their busy period (particularly in the run-up to Christmas).
- the mix of contracts across the country mean that it is easy to fill the premium central sites, but less easy for the outlying northern locations. Another leaseholder for the latter would allow smaller premises to be sought which could offer a transit delivery service to the less populous parts of the country.

A computerized stock control system, recording all activity through the warehouses, provides the basis for client feedback, and an information system against which Whitlew's performance can be judged. It is important that the information system provides Whitlew with the data necessary to protect itself too, against claims for stock loss, as far as is possible. In the past the inventory control system has been managed in a casual manner, with liaison with clients allowing the resolution of minor issues without any loss to Whitlew resulting. However, current market pressures and the squeeze on clients to achieve increasingly tighter margins mean that now virtually no stock loss whatsoever is considered acceptable. Whereas in the past minor pilferage at the point of delivery, and 0.5% stock losses relative to turnover, due to minor damage, were accepted, now all minor losses must be accounted for. Far greater detail is therefore required in the recording of stock discrepancies, a level of detail which the Whitlew information systems have difficulty in accommodating.

In the past Whitlew has kept clients in the dark about details of inventory control procedures, relying on its reputation and a sensitive handling of customers. In this way a vague approach has helped hide failures in service and facilitated the presence of inaccuracy in the control system. Now clients are much more aware of inventory issues and related problems; they demand attention to detail, making vagueness unacceptable. Losses to Whitlew are resulting as follows:

- Approximately 1% of goods despatched from the warehouses are refused at the point of delivery for one of a variety of reasons (usually damage in transit, goods not ordered, or the wrong goods having been sent). In the past, it has been assumed that these goods have been returned to the originating warehouse, returned to stock and made available for redelivery. These assumptions are no longer valid. However, it is not the goods that *are* received back in prime condition that are the problem; it is the goods which return in unsaleable condition, or never return at all, which must be traced. This involves much more time and effort spent on checking and recording the returns than has previously been the norm, and there is increasing client

CASE STUDY (cont.)

pressure for tighter controls on the product which they have consigned to Whitlew for safe-keeping.

- Where damage occurs within the warehouse there is no reliable procedure for its accurate recording. Warehousemen are concerned that they will be blamed for the damage, but the company connives in a policy of concealment, since clear reporting of the damage to the client will quickly attract an invoice! In so doing, Whitlew loses a learning opportunity, both of getting a clear appreciation of stock losses in this area and of motivating employees to reduce the costs associated with such damage. There is very little cost awareness within the warehouse. Pallets of goods typically vary in value between £400 and £20,000, but there is no recognition of the differing value of individual items, nor in the potential loss to Whitlew.
- Inaccurate picking of orders puts stock at risk; when a customer is short-delivered against an invoice they will quickly make a claim – but they are unlikely to provide comparable information for over-deliveries. When too much product is issued from stock, there is no customer feedback and that stock is lost.
- Client pressure on details of activity is being felt across the organization. In the transport department clients demand increasing levels of detail on delivery performance against agreed criteria and explanations for failure of on-time delivery.

Robert Whitmore recognizes that stock control procedures must be improved and new performance measures put into place. He agrees with the adage that ‘what is measured is what is important’ as a means of promoting improvement in key areas of the business, but also accepts that responsibility for Whitlew’s present difficulties is ultimately his. The way in which the corporate culture has developed and the way that jobs get done both reflect the lax attitude that pervades the organization.

Historically there has been a lack of attention to detail unless the client specifically demands it. This lax attitude pervades the whole organization but can most easily be pinpointed in stock control. Any matter is not an issue until it becomes a problem; it only becomes a problem on receipt of an invoice, and a loss to Whitlew. It has suited Whitlew to maintain a slack attitude to systems because discrepancies can always be attributed to the paperwork rather than the delivery itself. Clients no longer accept such a rationalization, but the culture of ‘vagueness’ still pervades reporting procedures. Accuracy of operation is still not a vital issue to Whitlew, and too often inaccuracies in paperwork are regarded as merely a job for the pen-pushers to sort out.

The mission of the organization has become both diffused and confused since its inception. In its entrepreneurial phase profit maximization was paramount, to guarantee survival and to provide capital for growth. But the growth of the business from a ‘no frills’ haulage contractor to a provider of warehousing and distribution services has created confusing signals so that it is unclear whether ‘low cost’ or ‘high-quality service’ is now the top priority.

CASE STUDY (cont.)

The company remains internally focused, despite its role as a service provider whose reputation is judged relative to that of similar providers. Most of the Whitlew employees have been with the company for many years – some for the whole of their working lives and since Whitlew began. Their external experience is very limited and their interests often do not extend beyond those of the immediate client portfolio. There is little recognition of the marketplace or the actions of competitors; there is certainly no benchmarking against the performance of other companies, inside or outside the logistics industry. Warehousing is aware of the costs of lost stock; transport is aware of the costs in excess delivery charges; customer services are aware of the complaints from clients for failure to meet their requirements. However, the real costs of these failures are not collated, and many remain hidden completely within operating costs, without even being recorded. If the real cost is made clear to senior management, then the appropriate action will follow.

We are required to devise a strategy which will lead to the establishment of a management information system which will meet the current and likely future requirements of Whitlew Transport.

CASE ANALYSIS

Changes in customer expectations as to levels of service, and competition in the marketplace, have placed great pressure on Whitlew to provide 'quality' at a low price. The company's internal control systems have not grown to match turnover, so that the consequences are now being felt. The growth from being a 'no frills' provider to one offering a complete warehousing and distribution service, with associated infrastructure investment, has meant that the strategic direction of the company has become confused. There is currently no clear overarching company strategy, no means of measuring performance against standards, nor any opportunity to view the business as a whole, rather than the sum of its component parts. An MIS will provide Whitlew with a holistic view of the company, and provide a co-ordinated and systematic approach to information access and analysis of operational activities, which will allow more effective decision-making to take place. Critical to the successful development of any information system is commitment from senior management and the active involvement of all staff. This implies the existence of clear strategic goals to provide a focus for the setting and monitoring of performance standards.

Three key actions need to be taken in the establishment of the MIS:

- Establishment of a clear company strategy. Whitlew's days as a low-cost, no-frills transport company are long gone. The new strategic direction should make it clear, both to customers and employees, that Whitlew's new challenge is to provide a 'high-quality service'.
- Identification of core areas of concern. Whitlew needs to focus on five key areas to achieve its company objectives:

CASE STUDY (cont.)

transport; warehousing; benchmarking; customer expectations; and corporate culture.

- Identification of specific performance indicators to measure, monitor, and control outcomes and behaviours in these areas.

The outcomes of these three actions should provide solutions to current problems, and address any pockets of resistance which might provide barriers to the establishment of the MIS and its further development. These are addressed in more detail below.

Transport

An effective transport policy requires low operating costs, high-quality customer service, and efficient scheduling to reduce the inventory holding costs associated with goods in transit. There are currently two major areas for concern: vehicles operating with less than full payloads on delivery runs; and vehicles moving empty, following delivery, to collect the next payload. Throughout the business there is a general lack of awareness of costs and resistance to the accurate recording of data relating to time and costs. This makes Whitlew vulnerable in the short term to 'surprise' movements (e.g., an oil price hike) which will impact significantly on their operations. These surprises might embrace: fuel costs, vehicle maintenance and depreciation of vehicles. Systems for recording and managing these costs better will help to reduce this vulnerability. While Whitlew has made some investment in new technology, there are further improvement opportunities. In the transport area, a GPS-type vehicle surveillance system could precisely locate vehicles and potentially facilitate return loading and alleviate the problem of empty vehicles.

Warehousing

There are two significant areas of concern for the warehousing operation: poor inventory control, resulting in damaged and lost stock, and inaccurate record-keeping; and large variations associated with occupation, related to the high and low periods of demand, and geographical differences. The warehousing operation could benefit from information systems to address specific issues:

- Fluctuating demand for warehouse space (with excess capacity in January and February). Offers of long-term storage discount rates might help to minimize the peaks and troughs in demand for warehousing.
- Difficulties in filling space in the outlying northern locations. The premium central warehouse sites can always be filled, but the northern excess capacity might be addressed by subletting the space allocation outside of peak periods
- Stock losses which are no longer being tolerated by customers.
- Information systems which are creaking, and incapable of dealing with complex customer stock requirements and reporting requests.

CASE STUDY (cont.)

- Errors in the despatching of goods to clients which are then returned, at no cost to the customer.
- Damage to stock whilst in storage.

In the warehousing area better stock control technology would reduce double-handling and improve the administration of the large amounts of goods in storage. Improvements in staff training are essential here too, so that such systems are correctly implemented. Then the maintenance of accurate stock data would avoid the current problems experienced with attribution of 'blame' for damaged and misplaced goods.

Benchmarking

Whitlew needs to look at external factors to get a better appreciation of the market. If possible the company should seek to benchmark its performance against that of other similar companies. Such data will help in the establishment of a competitive pricing structure, and as a motivating tool both to recognize existing performance levels and to highlight improvement opportunities. Many of Whitlew's employees have worked for the company for the whole of their working lives, so that their external experience is very limited. Consequently, they have a limited appreciation of how their actions affect other areas of company or its competitiveness.

Customer expectations

Customers' expectations have changed greatly since the company's inception, and now customers are demanding higher levels of service and information regarding deliveries and inventories. Stock losses are no longer tolerated, and customers expect timely reporting about the condition and nature of their inventory. Attention to detail has become critical – the standards required are higher than the current information systems are capable of achieving.

Better data should enable Whitlew to develop an improved appreciation of customer profitability, so that they are able to vary the allocation of their own limited resources to fit customer variations. An adequate customer database might allow customers to be classified as 'high cost' or 'low cost', depending on their service-level requirements. A review of pricing structures may also be due, one that involves the specification of a standard service level. It is likely, for example, that the current pricing structure does not reflect some of the activities that customers have come to expect (such as the rotation of perishables and the provision of urgent and partial deliveries). A premium might be charged for such 'extraordinary' service, while discounts are offered to encourage full payload delivery quantities.

The implementation of new systems, to better satisfy customers' expectations and provide them with more timely and accurate information, might also be used as a justification for changes in price.

CASE STUDY (cont.)*Corporate culture*

Employee support and input is crucial to making sure the whole MIS functions appropriately. Attitudes are currently very relaxed and there is little cost awareness, or understanding of the needs of those involved in other parts of the business. This culture has developed over a number of years, and will not be easily changed, but it is essential that changes are made here if Whitlew is to preserve its long-term competitiveness. Of critical importance is the resistance to change, when implementing the MIS, that must be addressed by senior management. Such resistance is inevitable, and may be widespread, driven by lack of understanding of the motives for change, fear of redundancy, fears of additional workload, and, for customers, fear of increased prices. Communication and participation will be necessary if this 'fear of the unknown' is to be overcome among the stakeholders to the business. When staff have an appreciation of the benefits of a MIS they should recognize that it will facilitate their doing a better job.

Specific performance indicators

Whitlew is already collecting a large amount of data from various areas of the business. However, the 'silo' mentality means that it is not successfully sharing this information within the business. The successful integration of this information is vital for the successful establishment of an MIS. Thus, Whitlew first needs to review how it can make better use of the data it already possesses. For example, raw data already exist in the form of consignment notes, delivery dockets, and drivers' timesheets, but they are used in isolation and no collective data analysis takes place to generate information for use in performance, productivity and efficiency monitoring.

These areas of concern allow the specification of particular performance measures to help monitor and control Whitlew's operations. These are detailed in Table 8.2.

Review and evaluation

The final stage in the MIS implementation process is the monitoring and review of the system. Improvements will need to be made which facilitate its adoption, and routinization, across the company. Such a review will ensure that the MIS:

- produces outcomes consistent with company objectives;
- employs performance measures which are aligned with corporate strategy;
- is based on accurate, reliable and timely data, collected in a cost-effective manner;
- appropriately incorporates feedback from employees and customers in the further development of the system.

TABLE 8.2

Performance indicators at Whitlew Transport

Focus	Measure	Data source
Transportation	% of full payloads	Driver timesheets
	Number of late deliveries	Client feedback
	% jobs completed on time	Consignment notes
	Fuel economy (mpg)	Manifests
	Maintenance time per vehicle	
	Jobs lost though maintenance	
Warehousing	Preventive and corrective maintenance compared with general maintenance	
	Number of incorrect deliveries	Client feedback
	Number of stock discrepancies	Staff timesheets
	% of space used by month and by warehouse	Claims paperwork
	Time spent on fixing errors	
	Time spent on managing stock per customer	
	Claims for lost stock	
Market	Claims for damaged stock	
	% of state and national market share	Industry statistics
	% increase in market share	Sales data from accounts
Competitors	Index of competitor services offered	
	Index of competitor pricing	Company websites
	List of major contracts held by competitors	Competitor marketing material
		Word of mouth
Productivity		Staff timesheets
	Direct labour hours per completed job	
	Ineffective labour hours (relating to errors made)	
	Completed jobs compared to payroll costs	
Morale	Staff satisfaction	Internal surveys
	Awareness of company goals	Employee feedback
	% of absenteeism	Word of mouth
	Staff turnover	
Customers	Amount of reports and information requested	Customer surveys
	Amount of time spent generating reports for clients	Invoice payments
	No. of complaints	Customer database
	Customer satisfaction	
	On-time payments by client	
	% of total business by client	

THE BALANCED SCORECARD

A number of authors have argued over the last 30 years that management accounting information systems cannot rely on financial measures alone. They have suggested a combination of financial and non-financial indicators to give a more balanced impression of the overall performance of the enterprise. In Chapter 2 we discussed a number of alternative frameworks, from the original 'tableau du bord' to the more recent 'performance prism'; here we focus on the balanced scorecard. Kaplan and Norton (1992, 1993, 1996, 2004) give prominence to a 'balanced scorecard' originally developed from observing performance measurement in 12 large US companies. They emphasize the following points:

- Traditional accounting measures like return on investment and earning per share can give misleading signals when we are seeking continuous improvement or innovations.
- It is unrealistic to expect managers to focus on operational measures, such as cycle times and defect rates, when they are being appraised on the financials.
- A balance is required between the financials (results of actions already taken) and operational measures of innovation, internal processes and improvement activities.
- Managers need to be able to view performance across several dimensions simultaneously, dictating a multivariate approach.

The balanced scorecard therefore looks at performance from four perspectives:

- financial – how do we look to shareholders?
- customers – how are we viewed?
- internal – what must we excel at?
- innovation and learning – how do we continue to improve and create value? It then generates four groups of goals and a corresponding set of performance measures. A parsimonious set of measures is required and the example in Table 8.3 yields 15 key measures.

Although much of this information is available internally, the remainder has to be gleaned from elsewhere through customer surveys, benchmarking and inter-company comparisons. Different market situations, product strategies and competitive environments will require different scorecards – all will potentially suffer from the deficiencies common among traditional systems: lack of relevance and timeliness, unfriendliness and lack of communication throughout the organization.

Performance measurement of the kind advanced in the balanced scorecard has been suggested as a means of overcoming 'short-termism' – the tendency for companies and managers to pursue short-term profit and short-term stock price increases because they are of the greatest benefit to the individual (manager or shareholder).

Anthony et al. (1992) reiterate eight measures originally suggested by GEC:

- profitability (measured by residual income);
- market position (measured by market share);
- productivity (of capital and labour, compared to that of competitors);

TABLE 8.3

Typical goals and performance measures for a balanced scorecard

	Goal	Measures
Financial	Survival	Cash flow
	Success	Sales growth
	Prosperity	Market share
Customer	New products	% sales from new products
	Responsiveness	On-time delivery
	Customer partnership	Number of co-operative efforts
Internal	Technological edge	Competitive comparison
	Manufacturing excellence	Cycle time
		Unit cost
		Yield
Innovation and learning	Design productivity	Engineering efficiency
	Technological edge	Time to develop innovations
	Manufacturing learning	Process time to maturity
	Product focus	% products = 80% of sales
	New product innovation	Time to market compared to the competition

- product leadership (measured by existing and new product development);
- personnel development (linking recruitment and training to future needs);
- employee attitudes (motivation);
- public responsibility (measured by ethics, environmental and community awareness);
- balance of long-range and short-range goals and strategies.

They highlight the dangers of adopting a short-term approach which focuses on financial measures alone, and advance a more realistic approach, where a longer-term perspective is adopted and the importance of non-financial measures appreciated.

Lewy and du Mee (1998) note that 70% of scorecard implementations fail and put forward their 'ten commandments' for success based on balanced scorecard implementations in the Netherlands. Their basic principles are consistent with those from other sources, when viewing the likely success, or eventual abandonment, of management accounting innovations:

- 1 Use the scorecard as the basis for implementing strategic goals, since its visibility makes it the ideal vehicle for doing so.
- 2 Ensure that a strategy is in place prior to the development of the scorecard, since *ad hoc* development will reinforce the wrong behaviours.
- 3 Ensure that there is sponsorship of the implementation from among the senior management of the company, and that senior managers are committed to its success, since it is important that the initiative is not seen just as the responsibility of accountants.
- 4 Implement a pilot stage to learn valuable lessons.
- 5 Introduce the scorecard gradually to each business unit after ensuring that the version of the scorecard being used will indeed serve their needs.

- 6 Do *not* use the scorecard as an extra level of top-down control, because there will be opposition to its implementation, rather than the collaboration and participation desired.
- 7 Do *not* adopt a standardized product; the scorecard must be adapted to the organization's needs and aligned with corporate strategy.
- 8 Do *not* underestimate the need for training and communication; the ideas may seem simple, but some people will need a lot of convincing.
- 9 Do *not* overcomplicate the scorecard by striving for perfection; it will never be 100% right, so do not delay its implementation by constant searches for 'better' indicators.
- 10 Do *not* underestimate the additional costs associated with recording, administrating and reporting the scorecard.

Commandments 3, 8 and 10 in particular will be familiar concerns addressed elsewhere in this volume in connection with both ABC and TQM implementations.

Though the balanced scorecard is a widely adopted managerial tool for performance measurement and strategic control, it remains a controversial one. Although it provides an overview of organizational performance through a range of financial and operational measures of customer satisfaction and internal processes, doubts still exist about the validity of the supposed cause-and-effect relationships within the scorecard, as suggested by Kaplan and Norton (1992). According to Norreklit (2000), there is no absolute causal relationships among the specified measures, only a logical connection, for example, between customer satisfaction and financial performance. The relationship has still to be demonstrated empirically in a convincing manner, and indeed Ittner et al. (2003b) suggest that while users exhibit higher degrees of satisfaction with a balanced scorecard system, there is almost no association with improved economic performance. Empirical findings on the relationship between customer-related measures and the financial performance of the firm suggest that there is no clear relationship between customer satisfaction on the one hand and customer loyalty and financial performance on the other (Reinartz and Kumar, 2002; Garland, 2002; Scharitzer and Kollarits, 2000; Ittner and Larcker, 1998a; Soderlund and Vilgon, 1999).

The following case study provides the opportunity to devise a balanced scorecard and plan for its implementation in a small business environment.

CASE STUDY

Bolehall Manor Motors: A balanced scorecard case study

Bolehall Manor Motors began life in the late 1970s when the three Lawrence brothers, Frank, George and Harold, joined as partners in a petrol station. Then they worked three shifts to provide a 24-hour service – still something of a novelty in those days. Then, as now, margins on petroleum sales were thin and the business would not support three full-time incomes without diversification. The brothers went to the local college of further education to attend courses in auto-mechanics, welding and metalwork, so that they could add service, maintenance and smash repairs to the facilities offered to motorists. The returns from service and repairs quickly outstripped those from petrol sales, although the revenue from the latter was still

CASE STUDY (cont.)

justified on the grounds of the number of people it brought into the garage. Smash repairs grew into a sophisticated bodyshop, which justified the buying-in of damaged vehicles for rework and resale. The profits from rebuilt second-hand cars promoted another strand to the business with the purchase of vehicles, usually at auction, for resale. The business has grown to a turnover in excess of £4 million so that it now supports the three brothers and 14 other full-time staff. The four aspects of the business might currently be described as follows:

	Turnover (£m)	Profit (£m)
Petrol sales	0.6	0.018
Service and repairs	1.2	0.240
Bodyshop	1.0	0.150
Motor sales	<u>1.6</u>	<u>0.080</u>
	<u>4.4</u>	<u>0.488</u>

Each of the brothers is responsible for one of the chief profit-earning parts of the business – Harold (motor sales), George (bodyshop), Frank (service and repairs) – while Harold's wife, Joan, oversees the petrol sales side of the business and the general administration. Together they take the decisions which establish the future direction of the business.

Further expansion of the business on its current site is not possible, so growth will have to come from more efficient operations. The bodyshop could accommodate one more fitter, but this would be at the expense of operating efficiency; the service and repair department has four bays, sharing two hydraulic lifts, and could only accommodate more vehicles by digging pits. The success of the business in the past has been based on customer care and attention to detail. This has resulted in the employment of perhaps more unproductive staff than is wise, and in the provision of free services to customers (e.g., car loan and chauffeuring) which might have to stop. Overstaffing has become part of the family image, and all of the brothers are reluctant to retrench anyone in the cause of efficiency and cost-cutting.

George spends most of his time supervising and quoting on bodyshop work. His department contributes significantly to bottom-line profits and customer goodwill. He has a great deal of pride in the product of his part of the organization, but accepts that his focus on the bodyshop has probably been at the expense of his influence on the control and direction of the organization as a whole.

Analysis of the bodyshop operations reveals margins close to the industry average, and delivery time targets which are almost always met. Stock issues are not significant because suppliers deliver only as necessary. However, the performance of the three fitters is not measured against quoted delivery times because George fears that this intervention would compromise their morale. He has considered promoting one of them to foreman, to promote teamworking, but has yet to evaluate the cost impact.

Frank Lawrence is responsible for the service and repair centre and is concerned that the 'customer care' mentality is becoming

CASE STUDY (cont.)

counter-productive. Problems in the centre are causing disquiet among customers because too frequently neither their cars nor their invoices are ready on time. There are early signs, although nothing substantiated, that customers may be going elsewhere because of the delays. The service and repair department is the major profit centre of the business, and one of its most successful components. However, a number of areas for improvement have been identified associated with non-value-adding activities:

- poor work scheduling;
- rework;
- constant movement of cars to create space;
- waiting for foreman availability, for stock to be delivered, and for a hydraulic lift to become free.

The service foreman's time is at a premium. He sorts out problems on the spot and provides on-the-job training for the mechanics when unfamiliar engines are being serviced. Some of his time, and that of the mechanics, is spent on fetching and carrying customers once their vehicles have been dropped off for service, but it is doubtful whether the labour charge-out rate fully reflects such activity. He frequently feels that he is doing Frank Lawrence's job as well as his own!

The service department provides a pre-delivery inspection on all vehicles that are sold, to ensure that they are fit for purpose. Delays here have an impact on car sales, a factor of great concern to Harold Lawrence.

Frank is being pressured by his brothers to become more innovative and so increase the throughput of the service centre. George wants him to allocate mechanics to customers (rather than cars) to encourage them to take more pride in their work and to take pressure off the foreman. George believes that if the mechanics are serving a final customer – rather than the foreman – there will be more urgency and a greater effort to 'get it right first time'. He believes the bodyshop does this already. Frank has set up a computerized database detailing a history of all the cars that they service, including all transactions, repairs and replacements. He cannot get anyone to show any enthusiasm for it, despite the likelihood that its adoption would take some pressure off Joan and her multiple responsibilities.

Harold Lawrence spends over 60% of his time at auctions, buying cars for subsequent resale. He is, therefore, rarely on site to help out with the actual sales function. The margins on motor vehicle sales are lower than they should be because many cars are sold at a loss, which casts serious doubts on Harold's ability to appraise trade-in vehicles and his understanding of the costs of converting bought-in cars into sales. This side of the business is much more competitive now than it has ever been. Harold blames the absence of Sunday opening, too few salesmen, pre-delivery inspection delays and the lack of space for his department's relatively poor performance. He can only display a maximum of six cars for sale at a time.

CASE STUDY (cont.)

Although nominally the 'storeman', Reg Howarth has little stock to play with and no stock control systems. Most of his time is spent on other duties. The majority of parts are bought on demand by whoever is available – often the receptionist – resulting in upwards of eight deliveries per day. In emergencies Reg Howarth takes the van to pick up spare parts as required. The result is that stockholding costs are minimal, but delivery costs and the knock-on consequences create waste and incur costs:

- of management spending time sorting out problems;
- of customers not being attended to promptly;
- of uncertainty as to whether all purchases have been charged out properly; and
- of uncertainty as to how much time is wasted by the mechanics while they stand idle waiting for car spares to arrive.

Although, from the outside, administration looks to be the classic non-value-adding function, its support role for the three major profit centres cannot be underestimated. Joan Lawrence ensures that the antiquated computer system runs efficiently and her assistant, Diane Clegg, consistently meets her targets in updating their contents. However, they are only as good as the information with which they are supplied and the brothers (especially Frank and George) lack the vigilance to ensure the accuracy of the job-cards and other manual systems. Consequently, purchase invoices are not always passed on to administration, the credit note system has deteriorated, debt collection has fallen behind and the job-card invoice sequence system has some big gaps. Both Joan and Diane could spend more time clearing up these inefficiencies, but they seem to spend hours on the telephone chasing up jobs and complaints and trying to locate other personnel in the garage.

The management accounting system now in place provides detailed evidence of past performance broken up quite minutely, and is distributed to the management team (i.e., the brothers). It incorporates a number of indicators within each department, including:

- total on-cost of every car sold;
- total number of enquiries and conversion rates;
- lost time indicators in the bodyshop and service departments (per day per person);
- job-card and paperwork controls;
- daily turnover figures;
- debtor and stock analysis and trends;
- average charge-out rates.

The impact of this information has so far been limited. The lost time indicators in the service department did not highlight the reasons for last month's poor results. They should have highlighted reduced intake of work, repeat and poor workmanship, and poor management, but instead they impacted on the productive time

CASE STUDY (cont.)

figures and as a result the charge-out rate per productive hour dropped from £60 to £50.

It is apparent that the mechanics chose not to show the 'real' position. Did they realize by their action that they could have been seen as less inefficient? Do they care? Were they subconsciously matching workload to effort? In a similar period two months earlier they had achieved 33% more throughput, so the factors are consistent with their spreading the work to fit the available time.

The real problem, though, is why neither the foreman nor the manager (Frank Lawrence), who were responsible for recording the data, picked this up. The reason may have been lack of time, lack of interest, or lack of understanding of the purpose of the information system.

Performance indicators can only work if managed and if their purpose is known and properly communicated. This communication reinforces the intention. If used as a punishment, then data manipulation is likely to occur and so its purpose will be wasted. If not used at all (as in this case), only those mechanics who have any pride in their work will bother to make the effort to take it seriously. However, if used as intended, as a method to create a team spirit through regular meetings whereby opportunities can be identified, then perhaps the system may work, but it would be necessary to show that no interference to the mechanic's performance was underlying the implementation. Rewarding good performances may not be the answer either, since this may lead to manipulation of the incentive scheme.

None of the brothers is as young as he was. Harold is very set in his ways and sees no point in changing. He is the eldest of the three and will probably retire within the next five years. They realize that they have to streamline the business to make it more efficient, but are reluctant to bring in consultants to suggest solutions or solve problems. 'It's our business and we have to solve our own problems,' says Harold. The others nod in agreement. They meet informally throughout the day, most days, but rarely have formal meetings. Today they have done so to highlight weaknesses in current operations and improvement possibilities. They see the major weaknesses as:

- poor planning;
- poor paperwork controls;
- failure to monitor systems and indicators;
- failure to use the database;
- poor stock control;
- too much manual preparation of invoices;
- non-existent marketing systems, so that poor decisions result from lack of information;
- lack of space;
- independent operation of each of the departments.

CASE STUDY (cont.)**CASE ANALYSIS**

For Bolehall Manor Motors to survive and grow over the next few years, it needs to recognize that changes are necessary. Firstly, a more appropriate structure needs to be implemented. Secondly, a strategic management plan needs to be developed, based on the balanced scorecard. For the plan to be effective, there needs to be significant employee input.

Problems

The first problem faced by this business is that its structure is too informal. Decision-making is conducted on an *ad hoc* basis, and regular and timely reporting does not occur. A properly executed company structure is required. Shares would be issued to the Lawrence brothers as directors, with provision for employee shares to be issued as part of an incentive scheme.

Regular board meetings with a structured agenda should be held at least monthly. The formalizing of reporting functions will enable continual monitoring of the business. The implementation of a company structure would help to solve the succession problem associated with Harold's contemplated departure five years hence.

Secondly, there is no strategic management plan with goals, strategies, relevant performance measurements and evaluation procedures. The business is small, therefore everyone should be encouraged to participate in the planning and decision-making processes. The balanced scorecard is an appropriate format on which to base the strategic management plan. Total employee involvement is fundamental to the success of this approach. Employees must be given the right to make suggestions and decisions, to assist in the establishment of monitoring procedures and to take responsibility for their decision-making. Workforce participation can facilitate an enhanced work environment, lead to goal congruence and improved profitability.

Thirdly, a detailed management accounting system exists, but it has not provided reasons for the business' downturn. The performance measurements used are either not easily understood or do not provide meaningful information. A more sophisticated computer system is required. Presently the management information system provides only financial measures, based on historical data, to monitor performance. With one of the organization's main objectives being to provide customer care and service, measuring and analysing customer complaints provides a good tool to establish the nature of the complaints and why they are actually arising. A database recording these details should be incorporated into the MIS. Another deficiency is the lost time indicator; again a financial measure was produced with little benefit in regard to measuring real performance. The foreman for each of these departments should be able to better analyse the operational reasons for the delays – machine down-time, rework, poor work scheduling. This type of non-financial information should be recorded as these directly relate to the cause of the delays and ultimately the quality of service.

CASE STUDY (cont.)

Finally, each department operates independently, to the detriment of the whole business. It is apparent that managers across the organization do not communicate effectively with each other or their staff. Effective leadership has a key role to play in both establishing a performance-enhancing culture and organizing people in ways that meet and anticipate customers needs. In implementing the above improvements, management (Frank, George, Harold and Joan) should be able to spend more time in establishing and reviewing the strategic objectives of the business. Managers should be consulting with their staff to enable these strategic objectives to be translated into operational objectives to which employees can relate. This consultation process will help to motivate employees, which is a key ingredient to effective performance. Having a layered objectives/goals approach will ensure all employees are focused on the strategic goals of the business. With the implementation of a new MIS, managers should be able to receive timely performance measures at a departmental and individual level. Incentive schemes may work more effectively under this new system. It is also essential to have a review and feedback system in place to ensure strategies are still working towards business goals, especially in today's competitive environment. Regular management meetings and staff meetings are essential to ensure effective communication in the organization.

The Bolehall Manor Motors balanced scorecard

The balanced scorecard approach looks at the performance of the firm from four perspectives: financial, customers, internal, innovation and learning. This approach moves away from the traditional approach of measuring performance based solely on financial criteria, which tends to reinforce short-run thinking. Financial measures produce untimely information and overlook factors such as customer satisfaction, quality and employee motivation. A scorecard focuses on the long-run strategic objectives by looking to the future and translates the mission statement into actionable terms that have meaning for the employees.

Under this approach we must identify performance measures for each strategic area and for the managers at each level in the business. The SWOT analysis in Table 8.4 can help here. The 'strengths' of the business can be the starting point on which to build the mission statement. The 'opportunities' can be the goals in the scorecard, whilst the 'threats' can serve as a reminder of the implications of not implementing a measure such as the balanced scorecard.

There are three steps involved in producing a scorecard. A combination of these three steps will produce a scorecard similar to Table 8.3. When applied to the Bolehall Manor Motors scenario we generate Figure 8.1.

In step 1 we *identify key missions* – that is, develop a mission statement to reflect the philosophy of the business. A mission statement should express the philosophy of the business and provide a long-term outlook. For example: 'To be a customer-oriented

CASE STUDY (cont.)

TABLE 8.4

SWOT analysis for Bolehall Manor Motors

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Turnover in excess of £4 million 	<ul style="list-style-type: none"> • Lack of goal congruence 	<ul style="list-style-type: none"> • More efficient operations 	<ul style="list-style-type: none"> • Losing market share
<ul style="list-style-type: none"> • Customer care focus 	<ul style="list-style-type: none"> • No room to expand at the current location 	<ul style="list-style-type: none"> • Increase the customer base 	<ul style="list-style-type: none"> • Decreased staff morale leading to decrease in productivity
<ul style="list-style-type: none"> • Diverse business 	<ul style="list-style-type: none"> • Employees not consulted on decisions • Presence of non-value-added activities, e.g., multiple orders in one day, moving cars, waiting time for foreman, parts to be delivered • Outdated management accounting system in operation • No employee incentives 	<ul style="list-style-type: none"> • Increased repeat customers – can build loyalty • Implement total employee involvement (TEI), e.g., let the mechanics quote work times as they are closer to the operations • Increased profit 	<ul style="list-style-type: none"> • Decreased profits • With TEI, threat of building in 'slack time'

company that cares about the customer and pays attention to detail'.

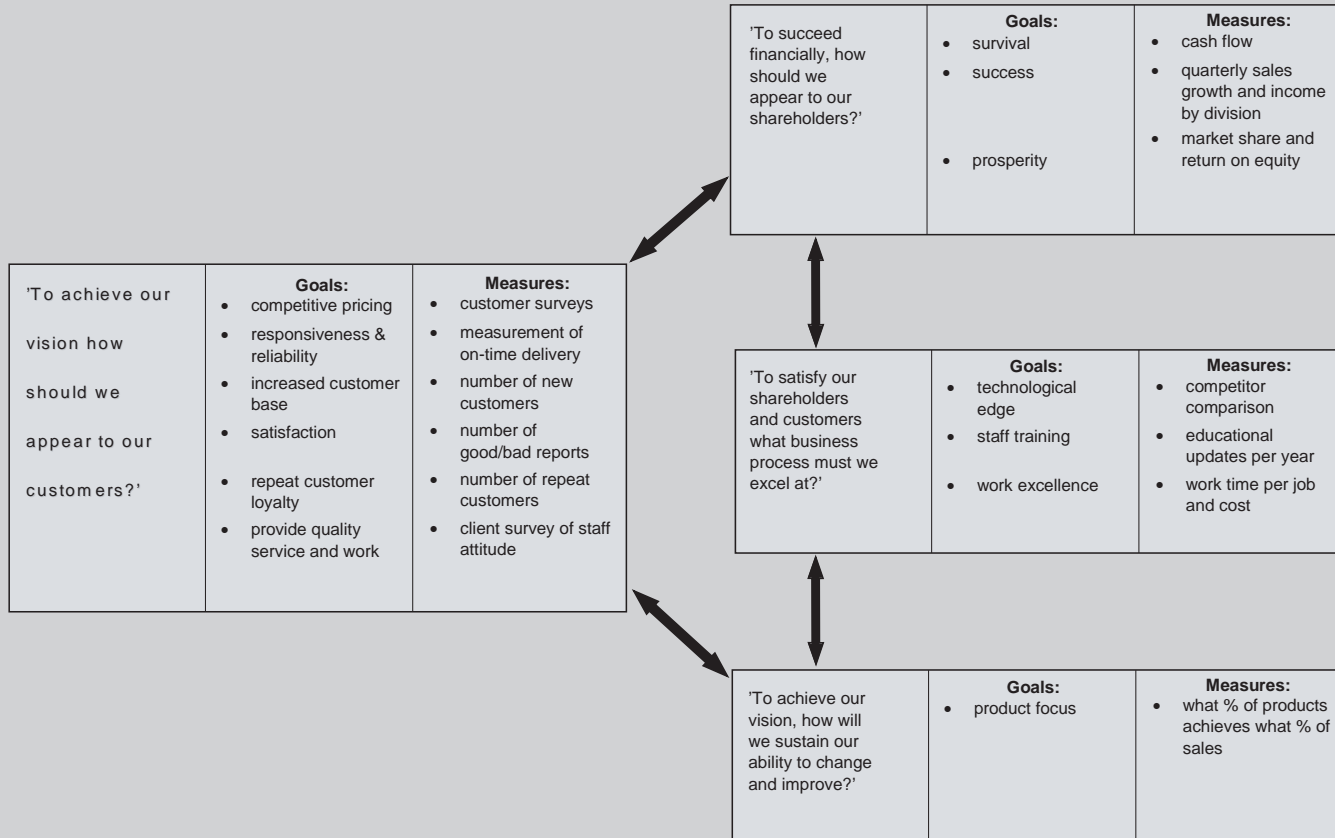
In step 2 we *identify the critical success factors* – those factors essential to the businesses continuing success. For example,

- customer satisfaction/responsiveness;
- quality of work;
- reliability;
- flexibility;
- acceptable use of finances.

In step 3 we *identify a set of performance measures* for each critical success factor and create the scorecard. The scorecard for the firm as a whole gives an overall perspective to the business philosophy. The main operational problems with the four areas of the business are:

- *Bodyshop*. The fitters need more direction; with no target to aim for they will not be encouraged to work at any set level.

FIGURE 8.1



Bolehall Manor Motors balanced scorecard

CASE STUDY (cont.)

TABLE 8.5

Balanced scorecard for each of the four areas

	Goals	Measures
Service and repairs	<ul style="list-style-type: none"> • efficient cash collection procedures • appraise mechanic performance • customer satisfaction 	<ul style="list-style-type: none"> • number of debtors in one week • questionnaire of each customer • follow-up call
Bodyshop	<ul style="list-style-type: none"> • increase throughput of cars • flexibility during busy periods 	<ul style="list-style-type: none"> • number of cars per week • attaining quoted times for repairs
Motor sales	<ul style="list-style-type: none"> • more efficient marketing plan • increase the sale of cars 	<ul style="list-style-type: none"> • survey on effectiveness • number of cars sold per month
Administration	<ul style="list-style-type: none"> • increase the efficiency of administration work 	<ul style="list-style-type: none"> • time spent on administration compared to time spent on non-value-added activities such as chasing staff

- *Service and repair.* Too often neither car nor invoice is ready on time.
- *Motor sales.* Many cars sold at a loss.
- *Administration.* Most stock is bought on demand which can result in deliveries up to eight times per day.

These problems are dealt with specifically and goals and measures are in force to give the employees strong direction of how to achieve their targets.

Table 8.5 develops the balanced scorecard for Bolehall Manor Motors. The scorecard is still incomplete; targets must be developed for each goal and measure, as well as incentives for achieving target. This can best be done by consultation with employees, by benchmarking, and by looking at the company's past performance.

The balanced scorecard links the mission statement and the goals and objectives of the company and reports on the company's performance in both the short and long term by using financial and non-financial performance measurements. The information necessary to evaluate the company's performance is contained in one report. The review process will easily identify which strategies are succeeding and recognize those which require change. It provides a learning mechanism that encourages ongoing modification for enhanced performance.

MEASUREMENT CHALLENGES FOR THE NOT-FOR-PROFIT SECTOR

Researchers have offered a variety of approaches for examining performance measurement and benchmarking across different organizations. The effectiveness of performance is traditionally measured in terms of the organization's ability to meet and exceed its objectives in each of a number of specified areas. However, this simple approach poses a number of problems:

- How do we accommodate inter-divisional comparisons where common objectives may not apply?
- How do we measure qualitative or intangible success factors? For example, corporate image, technological competence, learning, corporate culture, and employee morale.
- How do we express effectiveness in a relative manner in order to facilitate benchmarking, or a ranking of a company relative to its competitors?

Measurement in service industries is particularly problematical because many of the outputs are intangible and traditional success measures may be deemed inappropriate; service quality, for example, is notoriously difficult to measure. Dissatisfaction with the measurement difficulties associated with goal achievement modelling has led academics to investigate a number of alternatives, which include:

- contingency models (Burrell and Morgan, 1979);
- population ecology models (Aldrich, 1979);
- social justice models (Keeley, 1978);
- power models (Pfeffer and Salancik, 1978);
- political economy models (Nord, 1983);
- systems models (Weick and Daft, 1983);
- competing values models (Handa and Adas, 1996);
- analytic hierarchy models (Chan and Lynn, 1993).

However, the traditional 'goal achievement' model is the one that retains the most support. As long as we are aware of the difficulties associated with its implementation then it is still possible to make significant progress in the development of an acceptable measure of organizational effectiveness.

The management accounting and strategic planning literatures recognize the inherent relationship between formulating strategic goals and the identification of the key success factors for any organization. However, the critical factors for organizational success may be dependent on many variables, some of which are neither easily measured nor quantifiable. Where an overall integrated measure is difficult to achieve the focus of attention is frequently shifted on to a few quantitative measures, simply because the alternative is just too complex to be considered seriously. Innovation, for example, may be ignored for these reasons. In the area of financial performance, a simple earnings measure of effectiveness, like return on investment has been widely used. But is it good enough? Problems associated with life cycles and accounting methods will make comparisons difficult even within the same industry using such a measure. A large body of literature has suggested that measures which focus on

returns to shareholders alone are inappropriate, and that some consideration of the needs of 'stakeholders' is also necessary.

If we venture away from purely financial measures to include a non-financial influence, we might focus on the popular '3 Es' framework of efficiency, economy and effectiveness considered in Chapter 7. This classification is particularly helpful in facilitating the generation of a host of suitable NFIs. However, in doing so it demonstrates flaws in a number of aspects:

- It does not help in the measurement of qualitative non-financials.
- It provides no indication of the variable weighting which would allow an integrated overall measure to be formulated.
- Its focus is undeniably internal, in circumstances where we require a measure which also reflects competitiveness and external conditions.

Reference to the particular problems of the service sector (e.g., Kraft et al., 1996) highlights some of the most pressing measurement problems, while providing indications of how they might be solved. A number of authors (e.g., Carlzon, 1987; Albrecht, 1988) have argued that performance measurement must more closely reflect a customer orientation, in order to encourage motivation and commitment among the workforce. In consequence they see 'satisfied customers' and 'motivated employees' as the true assets of the company. The latter is typical of the sort of measurement problem that arises here, and which is usually overcome through the use of proxy variables (in this instance the use of 'employee turnover' or 'level of absenteeism' would be common, if not entirely satisfactory, substitutes for 'employee motivation') and the adoption of rating scales, through which expert managers might provide subjective measurement of difficult variables.

Parasuraman et al. (1988) identify five dimensions of service quality:

- tangibles – physical appearance of facilities and personnel;
- reliability – ability to provide the promised service;
- responsiveness – willingness to provide a prompt service;
- assurance – ability of employees to inspire trust and confidence;
- empathy – caring and individual attention.

They develop a 22-item scale, called SERVQUAL, to measure the difference between consumer expectations and perceptions of the actual service received, so that 'service quality' increases when perceptions exceed expectations.

However, the problems of measurement already observed are suddenly magnified when we address the 'not-for-profit' sector. Such organizations include governmental departments, offices or instrumentalities that provide services and regulation, as well as private not-for-profit organizations. These private organizations are normally legally constrained from distributing residual earnings to those individuals who control the organization, but are not prohibited from earning profits or paying reasonable compensation to employees, though they must devote any surplus to the continuing operation of the organization. Wheelen and Hunger (2004) note that these conditions will generally exempt private not-for-profit organizations from the obligation to pay income tax under the jurisdictions within which they operate.

The importance of the not-for-profit sector should not be underestimated. In a recent study of not-for-profit organizations, Salamon and Wojciech (2001) found that this sector accounts for approximately one in every 20 jobs

worldwide; in nine specified countries they noted that not-for-profit sector employment grew, on average, by 23% compared to only 6.2% for the rest of the economy over the period 1990–95. In Australia alone, for example, the Australian Bureau of Statistics (2002) noted the existence of almost 700,000 private not-for-profit organizations, and this excluded those based solely on volunteer activity. The sector embraced, among others, activities in the social services (26%); education and research (24%); culture and recreation (21%); health (15%); and business associations, professional associations and trade unions (2.5%). However, this level of importance has not been reflected in the management accounting literature, which is still dominated by studies devoted to the for-profit sector; indeed, it is interesting to note the rapid increase in published studies devoted to once public services consequent upon their privatization.

Parker (2001) notes the scant attention in the accounting and management literatures to the not-for-profit sector and suggests the need for more research in the area. Chenhall (2003) notes the particular challenges associated with research in this sector. A number of authors have also emphasized the major social and economic impact of the not-for-profit sector in society (e.g., Holder, 1987; Parker, 2001; Wooten et al., 2003).

The pivotal role played by measurement systems in the development of strategic plans, control systems and performance evaluation is well documented in the literature (e.g., Ittner and Larcker 1998b; Merchant and Van der Stede, 2003). Not-for-profit organizations offer particular challenges in the measurement of organizational performance. We have noted elsewhere in this volume the levels of dissatisfaction with traditional financial performance measures (e.g., return on investment, earnings per share) and the movement towards non-financial performance measures, often within a framework such as that provided by the balanced scorecard. With not-for-profit organizations we have no equivalent financials to start with and need to look at alternatives.

Forbes (1998: 184), among others, observes that while performance measurement in not-for-profit organizations is frequently addressed, the outcomes are largely inconclusive because such organizations have difficulty in developing appropriate quantitative measures because their goals are unclear and the services offered are difficult to isolate.

The performance measurement literature appears to suggest that the not-for-profits will continue to follow the for-profit sector in seeking to develop scorecard-type frameworks for management and control. However, as with the for-profit sector, guidance on the measures to be employed may be of limited help, other than to suggest that a 'one size fits all' scorecard will not work, and that organization-specific frameworks need to be developed. Otley (1999), for example, suggests that there is simply not enough evidence available yet to justify the widespread establishment of a comprehensive framework of quantitative measures of performance; he warns that, at the very least, this will not be an optimum position, and that in many circumstances such an approach may be counter-productive. Ittner et al. (2003a) provide supporting empirical evidence (though from the for-profit sector) in their example of a retail bank which found the degree of subjectivity in its balanced scorecard framework to be so great as to cause its abandonment, and a return to short-term financials as the predominant measures of performance.

There is a consensus in the literature, however (e.g., Cameron and Whetten, 1983; Smith, 1998; Sawhill and Williamson, 2001), that given the diversity among not-for-profit organizations, no single set of measures will work for all of them.

CHALLENGES OF TECHNOLOGICAL INNOVATION

A comprehensive electronic commerce strategy will embrace e-mail, electronic data interchange, barcodes and electronic funds transfer to remove non-value-adding activities from all operations across the purchase cycle. Given that as much as 90% of any organization's information base currently exists in an unstructured form (usually in narrative documents rather than database records), electronic document management remains a key issue. With the advent of the internet, organizations must change the way they conduct their operations, and their management of electronic documents will feature prominently in this process.

The internet has provided a wonderful opportunity for electronic trading. It is user-friendly and a low-cost delivery channel for a multitude of business applications. Despite the set-up costs, and inertia in some small businesses, the internet will ensure that electronic commerce will substantially replace traditional means of conducting business. For this transformation to be complete, there remain a number of challenges for management accounting control systems to overcome. Blanchard (1997) identifies three:

- authentication problems – a system of on-line authentication is required to facilitate the provision and verification of electronic signatures which goes beyond traditional 'password' mechanisms;
- confidentiality issues – encryption technology needs to be advanced to provide a cheap and simple means of scrambling the contents of messages, documents and records whose confidentiality is paramount;
- integration issues – compatibility of alternative applications is essential if electronic transactions are to be integrated with alternative media formats without the necessity for error-strewn scanning or repunching of data.

O'Donoghue (1997) likens the advent of the internet, and the resultant growth in communications capabilities, as 'back to the future' for accounting software; many organizations are now offering outsourcing services in a throwback to the accounting bureaux of the 1970s prior to the take-up of PC-based accounting packages. The next stage is the provision of accounting application services by professionally managed information technology (IT) organizations to a large sector of small and medium-sized enterprises.

The growing importance of the internet in business, and the increasingly important role of internet and intranet technologies for information delivery, makes it essential for web access capabilities to be explored in data warehouse projects. Data warehousing has become a key part of IT strategy in many organizations as they look for technology to yield a competitive advantage. As well as improving the accuracy of the information used in the decision-making process, and facilitating access to useful information stored across the business, data warehousing offers the opportunity for significant cost savings. Gibson (1998) identifies four compelling reasons for organizations to embrace data warehousing technology:

- improved market knowledge – for managing customers and new product development;
- data to support business process re-engineering initiatives;
- data for trend analysis and more accurate business forecasting;
- an infrastructure for goal-focused, strategic and tactical decision-making.

There has been a wide adoption of electronic commerce by big business – on-line transactions in the banking, insurance, travel and entertainment sectors are particularly common. But small business internet sites are often still little more than on-line catalogues which require access to traditional communication media in order to place orders, thus losing the opportunity for instant transactions. Small businesses must discard their old management accounting systems to conduct business on-line, saving processing costs, increasing productivity and building customer loyalty through an improved service consistent with the new technology.

As telecommunications technologies and electronic commerce pave the way for the ‘virtual corporation’, the traditional concept of capacity may fade. Strategic capacity management will still matter in such an environment, even though the measurement of outcomes becomes increasingly difficult.

SUMMARY

The chapter has focused on providing useful information to aid decision-making among all stakeholders of an organization. Whereas previous chapters have concentrated on costs and other financials, this time the initial focus is on the non-financial indicator and the part it plays in building a practical management information system. The two approaches (financial and non-financial) are then integrated in a formal balanced scorecard, again with illustrations of how it might be implemented. The chapter concludes by addressing current developments in the electronic sourcing of information and the particular challenges that this presents.