PERFORMANCE MEASUREMENT AND EVALUATION

Block 1 Introduction
Unit 1 Performance indicators and management control
Course Team

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Unit 1  Performance indicators and management control

Prepared for the Course Team by Jenny Lewis

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Aims

- To explain the breadth of focus of the course material.
- To introduce the themes of the course.
- To introduce some conceptual frameworks.

Objectives

After studying this unit, you should be able to:

- Define the four Es – economy, efficiency, effectiveness and equity.
- List some simple performance indicators in use at your workplace, or one with which you are familiar.
- Use simple control loops and diagrams to illustrate and analyse management control systems with which you are familiar.
- Use Ouchi's matrix of types of management control to classify organizations, or parts of organizations.
- Diagnose your previous experience of performance measurement at work.
1 What the course is about

The full title of this course should really be 'Managing Performance Measurement and Evaluation for Improved Management Decision Making'. This unit will explain why this is so, as well as introducing the basic concepts of performance measurement and management control.

We will take the term 'performance measurement' to signify the approach to management that is more usually known as management or organizational control. Too often, this area of expertise is presented as an accounting speciality, because measurement is involved, but we shall argue that this view is too narrow: an interdisciplinary perspective is essential. In addition, we will present the broadest possible view of organizational performance as a subject, extending it beyond organizational boundaries. The rationale for this approach is that, after all, major decisions taken by managers of large organizations and institutions often have considerable repercussions for the wider community.

In focusing on performance measurement as a crucial part of the managerial role, the course combines all the areas of performance that are essential to the organization into a comprehensive framework. We will argue that the effective performance profiles needed for making strategic decisions can best be designed through applying knowledge of academic research techniques, both quantitative and qualitative, to a detailed analysis of an organization and its strategy.

This first unit explains why managers need to understand performance measurement, and distinguishes the necessary elements of the 'performance indicator' concept that we so readily use. As well as defining economy, efficiency, effectiveness and equity, we review the theoretical basis for the design and development of performance measurement systems. Links are made to the MBA course Strategic Management (B881).

1.1 Every manager uses performance indicators

Any elementary management textbook will present you with a long list of what managers are supposed to do. You will have met the research of Mintzberg, who has developed an empirically based classification of what managers actually do all day, in terms of three clusters of roles: interpersonal, informational and decisional. How you achieve successful integration of these roles depends on your type of organization and your status and responsibilities within it. Whatever your particular balance between the roles (and however frequently this may change), we will assume that for you the relevance of performance measurement lies in the degree to which you can find out whether specific expectations, objectives and goals are being attained by individuals, groups or the organization as a whole.

You will want to measure progress against appropriate objectives and goals, yet this will be frustrated if the organization can only supply irrelevant information. Instead, you want answers to questions like 'How is our organization doing?' and 'How are my activities contributing?' You want to know for practical reasons, to solve problems rather than to satisfy the abstract intellectual curiosity of the academic.
Activity 1: Part 1

Choose an organization in which you would like to have a management responsibility. Think about how differently you might investigate the question 'How is it performing?':

(a) if you were advising a large company about a proposed takeover or
(b) if you were thinking of applying for a management job in it, at your present level of responsibility or slightly above.

Spend about five minutes on each section of this question.

Comment

Doubtless you thought of several ways of finding an answer to the questions.
(a) You probably thought of financial performance indicators such as ROCE, assets and gearing. You might have thought of less tangible strengths that you could assess, for example areas of staff expertise, such as new product development. You might also have thought about the organization's position in the market in relation to that of the potential buyer.

(b) As a prospective employee you might look at labour turnover, particularly at your management level, at reward systems compared with similar organizations and at other aspects of human resource planning and management. You might seek out the opinions of managers working there already, or assess the public profile of the CEO, and of market trends in that sector.

All these factors are performance indicators (PIS), and many are based on relatively subjective judgements rather than strictly quantifiable measures.

Activity 1: Part 2

In the fairly likely event of obtaining contradictory answers when investigating these PIS, think about how you would decide their relative importance.

(c) Make your criteria for ranking your PIS as explicit as you can, and list them. Consider why some PIS appear contradictory and how in practical terms the problems that might arise from such contradictions might be resolved. Do not assume that all conflicting evidence can be resolved, because you will be measuring different aspects of the organization, but try to spend about five minutes on this exercise which illustrates one of the fundamental difficulties of performance measurement.

(d) Given a choice, and freed from concern over how they might be obtained in practice, what other PIS would you like?

Comment

Here are a few examples that we thought of. Yours are likely to reflect your own experience and may well be more appropriate to your own situation.

(a) For the takeover consultant: a measure of City sentiment towards the company and its industrial sector; realistic provision for bad debt; assessment of the technological capacity of the company in relation to major competitors.

(b) For the potential employee: creativity (number of patents); likelihood of takeover (rumours in the financial press); workplace ambience; salary profiles of staff; prospects for substantial growth in activities.

To answer the question 'How is the organization performing?' you probably responded with a sub-set of questions. Before you apply for a job in an organization, you want to know whether you will like it there, so you would include
questions such as 'Will I get promoted/like the people/want to live in that area?' You have to decide what evidence you will accept to indicate that these aspects of the organization's performance in relation to its immediate environment are acceptable to you, given your lack of access to as much information as you would ideally like. For each question, you are devising your performance indicators (PIs).

The purpose of the activity was to remind you that it is often hard to be explicit about all your criteria, and therefore about your PIs. From each of the two quite different perspectives you were able to devise a wide range of PIs, with little or no overlap between the two.

A final note on the activity: however thoughtful you were about the job change question, do you think that your actual decision whether to move or not would necessarily be highly rational?

PIs are in fact deceptively simple. Think about being sent into a section of a large organization as a trouble-shooter. You would feel confident at starting your investigations in familiar areas of activity, but what about gathering together a coherent view of the whole operation? If you have specialist knowledge of production, you could assess factors such as JIT (just in time) or CAD (computer-aided design), as you will know something of the costs and benefits. If you are accountancy-trained then you will readily develop views on cash flow management and auditing routines. If you are a personnel specialist you may quickly identify a need for a better appraisal system linked to performance-related pay.

You are most unlikely to find it easy to grasp an overall picture, or to produce a plan for changing several areas of activity together and at once. We think this is because to do this well requires a holistic approach, even though paradoxically the gathering and understanding of much verifiable detail is essential for successful management. The systems view discussed in Unit 2 is just such a holistic approach which can help you see how all these changes might interact. Some of the difficulties of improving performance across a whole organization are dealt with in the Reader article discussed in Section 2.1 of this unit.
2 Controlling performance

As the activities and examples so far show, we always look at indicators of performance to help make a decision. Decisions are about adjusting and controlling activities. Adjustment is simply another way of saying control. Note that a deliberate decision not to adjust anything is also a form of management control. Good managers are proactive agents of change in organizations, not constantly fire-fighting in response to events. Performance measurement is an essential part of any management control system.

A control system should tell us whether or not we are achieving our targets. Control as a concept has had a bad press, and in common use the word 'control' has overtones of coercion and manipulation. The images underlying it are negative. Considering its converse, 'out of control', however, we can appreciate its importance in the management area. We regard control positively, as the potential to make useful decisions.

The academic study of control known as cybernetics teaches us that the aim of control is to reduce the variety of possible outcomes and so restrict the behaviour of a system to those outcomes that are considered favourable. Control is just the limitation of variety. However, the word cybernetics is derived from the Greek for 'steersman', which retains a more creative flavour, reminding us that managers can use control systems imaginatively to develop their organizations, rather than restrictively to stifle change and initiative.

The idea that control is used to achieve organizational goals and outcomes, and that the control process consists of a three stage cycle, is shared across the fields of organization theory, accounting, and business policy. Beyond this general definition, however, the conceptual and research base from each discipline offers a distinct contribution to our understanding of management control.

(Daft and Macintosh in Asch and Bowman, 1990, p. 410 - the set book for B881 Strategic Management)

Asch describes the three-stage cycle of the control process as follows:

... business activity is controlled by establishing plans, normally based on an assessment of the future, which are then implemented and measured. The actual results are compared to the plan—a process of either control through feedback which leads to reaction, or feedforward which leads to the amendment of plans in the light of experience.

(Asch in Asch and Bowman, 1990, p. 398)

These authors agree that, while conceptually management control can be represented by a simple control model, there are significant difficulties in implementing such a model. Not least among them is the difficulty of obtaining reliable, meaningful and incorruptible measures of performance.

Asch (1990, p. 398) lists three important points about the control model that are applicable to management control, at any level in an organization:

- determining what to measure is crucial
- standards of performance need to be established
- managers must be able to act to correct deviation from standards.

The third point relates to the difficulties in correcting the situation if performance measures show that targets are not being achieved. Asch continues by discussing
various types of strategic control and emphasizes that establishing appropriate targets is inevitably problematic. The fuller implications of the simple control model will be discussed in detail in Section 4.1 of this unit.

2.1 Performance measurement across the whole organization

Next we suggest that you read the article ‘The Performance Measurement Manifesto’ by Professor Robert Eccles in the Reader. You may find it a useful reference point if at any time during the course you want to think back over why we are studying this topic in this way. We suggest that you make notes on the key points. You may also find the following commentary useful.

Whenever you come across a term that you know you should really be clear about from your earlier studies, but which somehow you have neglected or forgotten, we strongly recommend that you make an effort to refer back as soon as possible so that you are sure of your ground.

Attention to detail is important on this course, as well as the ability to focus strategically.

Commentary

Throughout the article, Eccles emphasizes the need to start thinking about performance measurement from scratch, and to relate it to strategy. This approach is at the heart of this course, so we will return frequently to his three crucial questions.

- What are the most important measures?
- How do these measures relate to one another?
- What measures truly predict long-term financial success in our businesses? (Public sector students may prefer to omit the word ‘financial’ or to add a phrase about objectives.)

Note the sentence early on in the article pointing out that ‘What gets measured gets attention’. What gets measured, usually, is financial performance, giving rise to Stata’s quoted view that ‘When conflicts arise, financial considerations win out.’ Financial figures seem so much more tangible, precise and therefore reassuring than some of the measures that have been devised for factors such as quality. It is tempting to stick with the language of finance which seems universal and relatively unambiguous. But financial figures may not be as reliable as they seem. The phrase ‘creative accounting’ is now part of business terminology. Even where figures are accurate, they are very much better for recording history (‘looking in the rear view mirror’) than for estimating future performance. Eccles’ revolution can only be brought about by putting genuine efforts into achieving worthwhile measures for the more complex areas of performance, to be used alongside financial indicators.

Eccles insists that leadership and support at the highest levels are necessary to improve performance measurement. Earlier, Eccles argues that, in order to
develop their abilities to devise and use better systems of performance measurement, senior managers should cultivate 'a decided taste for ambiguity'. We would agree that all senior managers need this to perform well in a rapidly changing environment.

Finally, you should also remember that potentially 'Everything should be strenuously challenged'. Be prepared to challenge how things are done in your organization. Be prepared to challenge the theories that we present to you.

Eccles' article reminds us that 'Measures should evolve'. This course is designed to follow this approach, by covering relatively simple measures used in discrete functional areas before going on to the development of complete performance profiles. Unit 3 will spend more time on questions of customer satisfaction and how your organization can begin to measure it or to improve on current practice, as well as discussing competitive benchmarking. Incentives, appraisal and performance-related pay are all covered in Unit 4, while the challenges and snags involved in the interpretation of financial indicators will feature in Unit 6.

Two of the major course themes appear in Eccles' article: management responsibilities for quality, and information technology. Unit 7 is devoted to the quality movement and its close relationship with performance measurement. Information is vital to quality initiatives, as to all performance measurement. Here, Eccles is careful to distinguish between information architecture and the technology by which it is supported. The complex political relationship between information and power is discussed - 'Who actually generates the data? Who receives and analyses them? Who is responsible for changing the rules? Because information is an important source of power, the way a company answers these questions matters deeply.'

**SAQ 1**

Eccles mentions several possible constraints on the development of performance measurement. Try listing them and then drawing a force field diagram of the factors acting for and against the 'performance measurement revolution'. Include any extra factors that are relevant to your organization's sector that occur to you. Our very general answer is given for comparison at the end of this unit.

**Activity 2**

*Years of acquisitions and divestitures, technological limitations, and at times, a lack of management discipline have all left most big organizations with a complicated hodgepodge of definitions and variables - and with the bottom line their only common denominator.*

You could reflect on, and discuss in a tutorial or with a self-help group, how far this quote from Eccles applies to the UK (or wherever you are working) in the 1990s.

**Activity 3**

How are PIs used today?

Trawl through one or two Sunday broadsheet newspapers, the financial press or magazines and note articles that seem pertinent, i.e. those that mention some form of performance indicator.

For example, in the business section of the UK newspaper *The Independent* on 20 May 1990, there were features on characteristics of successful large UK firms; the performance of beef producers; economic policy and performance; pay rises and unemployment rates; regional economic changes; comparisons of unit trusts
and endowment funds; and some routinely produced financial statistics as well as advertisements for investment trusts giving earnings information.

You might like to complete a log of this type of information over the next few months, and compare it with those of other students at tutorials or self-help groups. You should comment on the appropriateness of each measure and its intended and unintended consequences. For example, setting customer satisfaction targets with financial penalties is claimed to have led to the cancellation of train services that had performed badly in the past and so were unlikely to meet their targets.
Although Eccles wrote his article for businesses in the private sector you may be surprised to find that it does not matter greatly which sector is under consideration when the principles and practices of performance measurement come under scrutiny. Performance indicators are still the building blocks, although criteria for success may become more complex the more stakeholders there are involved. We define stakeholders as any groups who have an interest in how the organization performs, such as employees, shareholders, suppliers, customers and policy-makers. The wider community may also have a stake.

Many business managers still think of performance indicators purely in financial terms, as Eccles described. But because of various government initiatives such as the FMII (Financial Management Initiative, 1982) in the UK, parts of the public sector are advancing along a broader front. As soon as public sector managers hear talk of ‘performance indicators’ they are likely to think of the three Es – economy, efficiency and effectiveness but, as B887 Managing Public Services emphasizes, another E – equity – is also becoming important. In the private sector only two Es – efficiency and effectiveness – are likely to spring to mind, as paraphrased by the cliche ‘doing the thing right versus doing the right thing’. In a similar vein, economy becomes ‘doing it cheap’ and equity becomes ‘doing right’.

If you are even slightly vague about the definitions of any of the three Es, please read the following paragraphs carefully!

**Basic definitions**
- Economy is how cheaply inputs can be obtained.
- Efficiency is the relationship between input and outputs.
- Effectiveness is the relationship between the final results of the organization and its objectives.

*Economy* is the simplest criterion. It refers to how cheaply the inputs can be purchased. The most economical organization is that which can obtain its inputs at the least cost. Thus the definition accords with normal usage of the word; the economical organization shares the characteristics of the economical household. If this is the only criterion to be considered, the most successful examples may not necessarily be the ones in which you or I would choose to live or work. Economy is seldom considered to be a dominant criterion either by a business or by a public sector operation as it only measures inputs. However, it becomes prominent and newsworthy when cuts in income threaten the performance of statutory functions.

*Efficiency* is the more usual focus of performance measurement. It means the relationship between inputs and outputs, usually expressed as a ratio. Most people would be pleased to be described as efficient at their work (as long as the context of the statement did not imply any lack of human qualities). An organization becomes more efficient if it produces more with the same resources, or if it produces proportionally more from less resources. If a hospital employed 10% more nurses but cared for 25% more patients, or if a firm employed the same number of sales staff but they achieved 20% more sales revenue than in previous years, then the efficiency of both organizations would have improved.
Naturally, where both public and private money is concerned, there is a constant pressure for management to maximize efficiency, and yet devising appropriate ratios to measure efficiency is not necessarily as easy as our simple examples suggest. You might wonder whether the extra patients were cared for satisfactorily. Was the recruitment and training of the new nurses the best way to use the money available? Did the sales staff sell more because the designers had improved the product, or because of unseasonal weather? Nevertheless, efficiency is usually easier to measure and assess than the third E, effectiveness, and it has been the focus of the majority of public sector initiatives.

Effectiveness has a wide range of meanings. Colloquially it means trying to find out whether the organization is actually doing what it sets out to do; in fact, whether it is meeting its objectives. For most modern, complex organizations defining these objectives is not straightforward, as you may have seen in B881 Strategic Management. Objectives can be ill-defined or can change rapidly in response to internal or external crises.

Effectiveness can therefore be defined as how far the final outcomes and impacts of the organization match its objectives. Note that here we are subdividing the outputs into two categories: outputs and eventual outcomes. For example, the provision of a new medical treatment in good faith at economical cost to the majority of those in need of it within three months may be very efficient. But if it turns out that the patients’ conditions recur frequently, or that they would have recovered with rest anyway, this treatment process may not be the most effective way for the hospital to improve the health of its catchment population within its budgetary constraints. The immediate output was the result of the hospital transformation and this was satisfactory in that it provided relief for the majority of patients. But the longer term outcome was unsatisfactory in both cases quoted because either the ‘cure’ was not permanent or there was a cheaper treatment with no side effects, that is rest. The distinction between outputs and eventual outcomes is very important in measuring effectiveness, as we shall see in future units.

In the private sector, effectiveness needs to be judged by the whole range of indicators that Eccles identifies in his article, and not purely by the ‘bottom line’. Effectiveness indicators will be required for the long-term aims and objectives of a company.

In the public sector a fourth E, equity, is often proposed. Equity refers to whether the organization treats its clients or consumers equally when they are in similar situations. Thus the National Health Service in the UK is intended to treat everyone who is injured in a road accident according only to the severity of their injuries, and to disregard the patients’ income or the degree of blame for the accident. It is feasible to check whether this is in fact happening. Equity could be regarded as a subcriterion of effectiveness because when a public organization is seen to be inequitable it is probably not fulfilling its policies. But it is argued by some commentators that separating it out as the fourth E emphasizes its importance when public money is used in a democracy.

We would argue that private sector organizations may also want to define and measure how equitably they treat their customers. A company might be favouring one wholesaler over another by accident if that wholesaler receives superior quality goods, or there might be a declared policy towards a major customer. This could be potentially damaging. Consumers are entitled to expect that branded products are the same quality wherever they are purchased, even though the purchase price and the delivery delay may vary. If consumers came to believe that certain stores were selling ‘Friday’ machines, the stores’ market share would surely suffer!
Two further Es – *environment* and *ethics* – are now being proposed by some auditors, to examine the social impact of taking resources from the environment and society and using them as inputs to an enterprise. Sophisticated measures are needed to judge the value of the outputs returned by the enterprise to society against such criteria.

The Es represent the overall performance criteria that are normally thought to be worth measuring when designing a control system. E targets are often expressed as ratios. In principle at least, targets for economy, efficiency, effectiveness or equity can be devised for any organization. Eccles stressed that they should be based on the strategic objectives of the organization. Many targets are also likely to be related to customers’ views on effectiveness and equity as part of quality, which will be discussed in Unit 7.

The problems of setting targets vary according to the complexities of the organization. Translating a mission statement into objectives and targets for a well established commercial organization is difficult enough, even though there may be few stakeholders. The problems are often multiplied in a large public service organization which has policies devised for a heterogeneous and often ill-defined community.
4 Management control: the research

Several leading management theorists have looked at organizational control, normally in large US corporations. In this course we will introduce you to the most exciting of their findings, whilst remaining rooted in the actual decisions that correspond with your main responsibilities and interests. By studying good research we can develop an overview of the field that can guide you as a manager in the choice of specific techniques, whether simple or complex, quantitative or qualitative.

Ouchi (1977, 1979) pointed out that the formal structure of an organization did not necessarily correspond to how it was actually controlled; a notion that no doubt will be familiar to you having worked as a manager under various structures and having read about the influence of organizational culture. Based on his research on retail and wholesale businesses, Ouchi proposed that there were conceptually only two ways of exercising management control:

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(Ouchi, 1977, p. 97)

Ouchi considered that a transformation process was under way in any given work situation involving people; for example, a department store or a distributor is buying and selling goods, while a production line is making them. Whatever the transformation, control was exerted by either:

(a) monitoring human behaviour as an input to whatever transformational process was occurring (input control)

or

(b) by monitoring at the output stage (output control).

Quite complex transformations were often involved, so that for example a store needed to be kept tidy and attractive, staff had to be trained and stock had to be renewed in time in order to sell successfully and make good profits.

Ouchi’s simple analysis may be more readily visualized using simple input-output diagrams (Figure 1 overleaf).

Ouchi and co-workers believed that their ideas could be extended to any other organizational sector. They developed a matrix to suggest how control was most likely to operate in various types of organization (Figure 2 overleaf).

It had been observed that, when the operation of the transformation process was poorly understood (as in predicting sales of fashion clothing), it was clearly easier to monitor the output (the turnover of goods in the shop) than to lay down strict rules for the behaviour of the store’s fashion buyers. We do not know enough about what will attract fashion-conscious purchasers to be able to create
Figure 1  Input-output diagrams

Figure 2  Control type and its antecedent conditions (Source: Ouchi, 1977)
sensible rules here. In a tin can factory, however, we know that either improving the numbers of operations performed per minute by each worker or monitoring the quantity of acceptable cans produced per hour can be used for management control purposes. The transformation process from raw materials to finished product is understood sufficiently, so control can be exerted either in one way or in the other, or of course in both ways simultaneously.

The cell of the matrix in Figure 2 that conforms to neither control type, where the transformation is not understood and no obvious agreed output measures exist, provides a problem for the original, simple, two-part framework. However, this is a real problem for many organizations currently struggling to institute rational management control systems where previously none existed.

The public sector has the most obvious problems with output measures; for example, a hospital does not exist to maximize bed usage (at least not on the part of the whole population)! Ouchi originally thought that, in these cases where there are no obvious control mechanisms, what little control existed was due to the careful selection of staff and a set of rules with no logical basis. He called this ritual control. Staff are an input and their ritualized behaviour is logical enough to keep the organization in existence.

As they studied more types of organization, Ouchi and others went on to develop a more sophisticated typology for three common types of managerial control: bureaucratic, market and clan. Of course, in practice organizations vary their controls, and most use more than one type, but the basic types are still useful in analysing how organizations are run. They are shown in Figure 3.

Market control occurs when price is used to evaluate and monitor outputs. It must be possible for a price to be assigned to outputs, and competition must exist to allow prices to reflect differences in value. A cost centre in a large organization is an example of market control, even though bureaucratic procedures may be involved in the pricing mechanisms. Market control is therefore the more fully worked out descendant of output control. It is still not necessary to understand the transformation being performed, as long as a market exists for outputs.

Bureaucratic control is the corresponding descendant of behavioural control as originally envisaged, but with considerable additions. The primary purpose of
bureaucratic procedures is to standardize and control behaviour, and they are used to some extent in nearly all organizations. Operating budgets, periodical statistical reports, performance appraisals and standard operating procedures are all examples of how bureaucratic control has developed. Rules are used to define what behaviour is acceptable as inputs, with the aim of reducing the variance between actual and planned inputs. Typically, some output control is also present, in that statistical reports and performance appraisal apply to outputs, but usually in practice much less attention is paid to these output measures than to the resource input controls. The transformations at the centre of the organization must be understood reasonably well for this system of control by rules to work, otherwise rules will proliferate to the extent of hindering performance.

Clan control is the successor to ritual control, providing a better description of organizational response to uncertain conditions. It also describes systems of control that are likely to be used in departments of professional staff, who share an ethos of autonomy with strong, shared values. Small, informal organizations and those with matrix management structures are likely to use clan control. Behaviour is controlled by shared values and tradition rather than by incentives devised by management, but such control is nevertheless powerful. In a sense, clan control is self control.

Activity 4

Using the three types described by Ouchi, what do you think would be the most appropriate way to exert control for either (a) counter operations of a bank that provides domestic financial services, or (b) a software house producing customized applications, or (c) an organization with which you are familiar?

Ouchi (1977, p. 840) compared the market and clan mechanisms of control to trout and salmon:

... each a beautiful, highly specialized species which requires uncommon conditions for its survival. In comparison, the bureaucratic method of control is the catfish—clumsy, ugly, but able to live in the widest possible range of environment.

He believes that this will make it dominant. You could discuss this belief with other students, given the need for increased flexibility in today's turbulent management environment.

4.1 Management control systems and feedback

The intellectual effort required to classify a department or an organization using Ouchi's ideas makes us focus on where intervention occurs: where performance is measured and by whom, with the consequent implications for where adjustment decisions are made, and by whom. We shall return to further discussion of Ouchi's typology of control in later units. Its use so far should have helped you think about where control is exerted and how, so that the possible results of any change can be considered.

The simple control loop (see Figure 4 for a reminder) involves feedback so that the process controlled produces the desired outcome. For example, a thermostat ensures that the temperature of a room will remain within a small prespecified
range, whatever the temperature fluctuations in the external environment. For convenience a single loop is shown, representing one closed feedback system.

Using the control loop as a thinking tool for non-mechanical processes such as accounting systems or ways of motivating groups of staff allows us to see where the most useful interventions might be made. So, if you have a straightforward production process, it may be clear that improving the supply of good quality raw materials (an input) should improve the output of finished product. Incentive schemes that inadvertently reward behaviour that reduces the competitiveness of a company may be harder to unmask, as for example when a poorly designed bonus scheme encourages the fulfilment of departmental objectives at the expense of company objectives.

The feedback control loop analogy reminds us that before making changes to exert management control we must measure performance. This is done by collecting performance indicators as evidence (data) and processing this into information, by sifting, interpreting and analysing it to turn it into useful feedback. Performance indicators can be thought of as the sensors of the management control system that produce performance data. Improving the sensors should improve the quality of the data and thus improve management control. We require complex sensors to measure aspects of human behaviour, sensors that advance beyond the mechanical level of observing and recording how many times a lever on a production line is operated.

**Activity 5**

What sensor(s) might you use for the performance of the most junior managers in your organization? Think carefully about what you want to ‘measure’ and the best indicators of this you can get. Are there ethical considerations involved?

**Comment**

The first question here is probably ‘Sensors of what exactly?’ What do we mean by performance? Do you know enough about what you think the junior
managers ought to be doing, or about what they are supposed to be achieving by their actions, to devise appropriate sensors?

You might also reflect on who 'owns', or has a stake in, that performance. What legal or moral rights would you have, for example, to use closed circuit television to monitor performance if employees did not know that it was there?

All of the following elements may be involved in the overall performance of an organization: individuals, work groups, divisions, business sector, tax treatment of investment, machinery; or in other words, people, money and machines operating as sub-systems of the whole organization. In its turn, the organization is an open system interacting with its environment. Which, in Ouchi’s terms, are the inputs, processes and outcomes of these subsystems?

For example, in a department store some of the inputs are goods, sales staff, premises, buyers, accounting systems and potential customers who enter the store. The outputs are turnover, customers with purchases and, in the longer term, the outcome will be the survival or otherwise of the store. How can we judge the respective performances of all the elements? What indicators do we need?

In our store, as Ouchi found, many factors contribute to high outputs. Judging departmental turnover which is recorded quantitatively by the accounting system is straightforward, although accounting indicators are far from perfect, as Unit 6 will remind us. Judging the performance of sales staff is far harder; some customers seek help, others prefer to choose for themselves but then demand instant attention. Your attempt to find performance indicators for junior managers was probably even more difficult.

Not only are some indicators far more difficult to devise and to read than others, for some there are no obvious comparators. If there is no comparator, why use a sensor at all? Collecting information that is not used is a waste of everyone’s time. Counting how much time each individual spends tidying the store may not be useful as long as the overall condition of the store remains acceptable to customers and staff.

SAQ 2

Asch (1990) lists some barriers to good strategic control in his article quoted in Section 2.1.

1. Difficulties in defining performance measures
2. Excessive complexity of control systems
3. Difficulty in reconciling diversity of variables
4. Fear of losing face
5. Organizational politics

Think about how each of these barriers could be reframed in control loop terms. Which part of the control loop has the problem? For example, are they all sensor problems?

NB Assume that the control loops being considered are potentially reasonably appropriate for their purposes and do not need to be completely redesigned. We are studying points for possible intervention and adjustment here. Unit 2 will consider the design of complete control systems.

Compare your answer with ours which is at the end of this unit.
Activity 6

Daft and Macintosh (1990) remind us that 'middle managers are in the murky middle ground of the organization where control processes are not designed or well understood'. Does this apply to you, whatever your management level?

For an organization with which you are familiar (or a department, if this is easier) write down a few problems of control that affect you. Can you think of a way of expressing these in control model terms? Is the problem caused by the sensing mechanism, the comparator, the target, the actuator, or the whole loop?
5 The picture so far

We have introduced the generic concept of performance indicators to cover all sensors of performance in a human/machine/money subsystem, at whatever level of the organization, in any sector. The common distinction between a performance measure and a performance indicator has not been used. In commonsense terms a measure is direct. Thus examination marks, rainfall figures and infant mortality clearly signify examination performance, amount of rainfall and how many of the population die very young. Indicators are proxy measures, hypothesized to be likely to tell us something about an underlying dimension. Thus infant mortality is often used as an indicator of the health care services of a country and rainfall figures are taken as indicators of holiday potential. The significance of this distinction will be addressed further in Unit 2. For the purposes of introducing the topic of management control systems such technical points are unnecessary. This unit has attempted to demonstrate that simple quantitative measures are not enough; far more sophisticated profiles built up of various types of performance indicator are necessary in order to move towards useful management controls. Professor Eccles' article illustrates this point.

Ouchi's typology of management control mechanisms was introduced to relate abstract feedback control ideas to real situations. Useful management controls address the criteria of the four Es – economy, efficiency, effectiveness and equity. Effectiveness in particular is closely related to the strategy of the organization, so performance indicators that contribute to its measurement are likely to improve decision-making. However, they are also likely to be the most complex to devise, obtain and interpret. Nevertheless, performance measurement is a fruitless exercise unless used to improve management control and decision-making. As Professor Peter Jackson of the Public Finance Foundation says:

A (good) performance indicator is provocative and suggestive.  
(Jackson, 1988, p. 11)

Good performance measurement requires management controls that will sense performance on dimensions that relate directly to, and can therefore be compared with, the targets set. If such controls could be perfected, the comparisons made would help to diagnose how best to alter the system being controlled in order to meet the desired targets. Obviously, in the real world of human beings, advanced technology and financial complexity such perfection cannot be achieved. Indeed, sometimes we might learn that the set targets cannot be met using the existing resources and transformations of our organization.

We need to look more closely at why problems such as the above failure to set or to meet realistic targets can arise, since that is the real challenge of performance measurement as a subject. It is also part of the reason why we did not call the whole course 'Organizational Control'. Somehow, the word 'control' suggests that managerial ends can be achieved much more easily than is in fact the case. The developed world is not full of examples of organizations that are, by any generally accepted standards, highly successful over long periods of time. Perfect measurement systems for human/machine/finance systems are extremely difficult to devise and operate. Completely appropriate data cannot normally be collected. In any case, a supply of excellent information does not always lead to effective decision-making. The measurement and control of organizational performance is not always a set of strictly rational and logical processes – in fact, it may rarely be so.
In the examples used so far we have kept to the simple closed loop control model. At this point I must make it clear that we are not saying that with a more careful study of control theory as applied to human systems all organizations would be excellently managed. If this were so it would no doubt have happened by now. What we are proposing is that a better understanding of how control loops apply in such human activity systems can improve management decision-making.

The remainder of this unit describes how our approach differs from the most common textbook versions of how to design performance measurement systems (i.e. management control systems). Unit 2 will begin to analyse problems of management control along two dimensions, namely the technicalities of measurement required and the degree of rationality involved in managerial decisions. The systems that need controlling as you take on more management responsibilities become more complex, contain many feedback loops, and are therefore harder to conceptualize as systems, especially if many people are involved. We will discuss how techniques such as the Systems Intervention Strategy (SIS) and other systems ideas can help by examining exactly which parts of the organization function as systems. Finally, we will reach the measurement dimension and how an understanding of measurement problems can contribute to improving organizational control.
6 Management control theories: history and context

The history of management control is concisely summarized in the following extract from a book called Critical Perspectives in Management Control by Chua, Lowe and Puxty.
We entirely support the sentiments expressed in the last paragraph. Accounting, as Eccles has shown, is only one of the disciplines that are relevant to management control. There are certainly systems models which can be helpful, as well as ideas from other disciplines. Throughout this course we have interpreted management control so broadly that we have drawn from the subject areas of systems theory and applied social science, to acquire more perspectives, and therefore to increase the frameworks through which practising managers can view their problems. As you would expect, there will be no one best framework, nor any easy answers. But by the end of the course you should be asking better questions about how organizations are and could be controlled, and managing more effectively because of your different approach to performance measurement.

(Lowe and Puxty, 1989, pp. 9–11)
7 Postscript: questions on previous experience

We expect that parts of this course will be familiar to you, but we cannot know which parts will be so for any given individual. By now in your MBA studies you should be adept at deciding how much depth is needed to improve your understanding in each area. To help you, this optional section contains questions to guide you in reflecting on your previous experience of performance measurement.

Many quite senior managers have substantial gaps in their knowledge of performance measurement, possibly because few managers experience all the management functions on their way up the career ladder. For example, we have seen marketing managers commissioning substantial market research contracts about the effects of their promotional strategies who have no idea that the work they were being offered would not have told them what they wanted to know. They did not understand that the statistics to be used were inappropriate and that, even if clear results had been obtained, which was in itself unlikely, such results would have been misleading.

Activity 7

Audit of previous experience
How much do you know already about performance measurement?

All of the experiences listed below require at least some elements of performance measurement expertise. If you participated in or were responsible for the design (or redesign) of the measurement system used, you will obviously have learned more than if you simply implemented an existing scheme. We have divided the levels of responsibility into three, which you may wish to modify to suit your circumstances:

A Designing or redesigning a measurement system from scratch.
B Participating in the design, helping to decide what should be measured and/or how this should be done.
C Recording measures and using them, as part of an existing scheme.

For each of the experiences in the following list, decide whether you have ever been involved, and if so at what level of responsibility – A, B or C.
### Involvement Management experience

- 1. Marketing audit
- 2. Performance appraisal of staff
- 3. Performance-related pay scheme
- 4. Production planning
- 5. Information system planning
- 6. Business planning
- 7. Internal audit
- 8. Total Quality Management scheme, or other approaches to organization-wide quality improvement
- 9. Accreditation for Standards, for example ISO 9000
- 10. Energy audit
- 11. Environmental audit
- 12. Other, e.g. consultancy or scientific assessment work

**Reflections on this exercise**

If the questions above were refined and tested for use with a large population of student-managers, so that scores could be obtained as indicators of how much relevant experience people had:

**(a)** Given that managers in general could be expected to become more used to performance measurement ideas in the 1990s, would a high score in 1995 necessarily mean the same by 1999, or might it by then only represent the average or below?

**(b)** Are these scores a measurement of a constraint – will those with a low score (those with little experience) find it more difficult to approach the course? Or does less previous knowledge mean fewer entrenched ideas and therefore enhanced creativity in using the concepts of performance measurement?
References

Argyris, C. (1952) The Impact of Budgets on People, Controllership Foundation.
Answers to SAQs

SAQ 1

Figure 5  Proposed answer to SAQ 1

1  Means that the sensor may not be appropriate. As a middle manager I cannot test whether something is present, or estimate how much of it there is at any given time if I am not sure what you as the control system designer are looking for.

2  There may be too many nested loops so unintentional effects between loops are not anticipated. Alternatively, separate systems that should affect each other may not be linked at all.

3  The comparator may be trying to compare like with unlike, so the results cannot make sense if the sensor has measured something which is not comparable with the target.

4  Problems with actuators not acting as the designer of the system intended.

&  Managers are usually the actuators but they do not always act to correct deviation, because they either do not wish to do so or have not got the power. They can be inefficient actuators.

SAQ 2
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Text


Figures