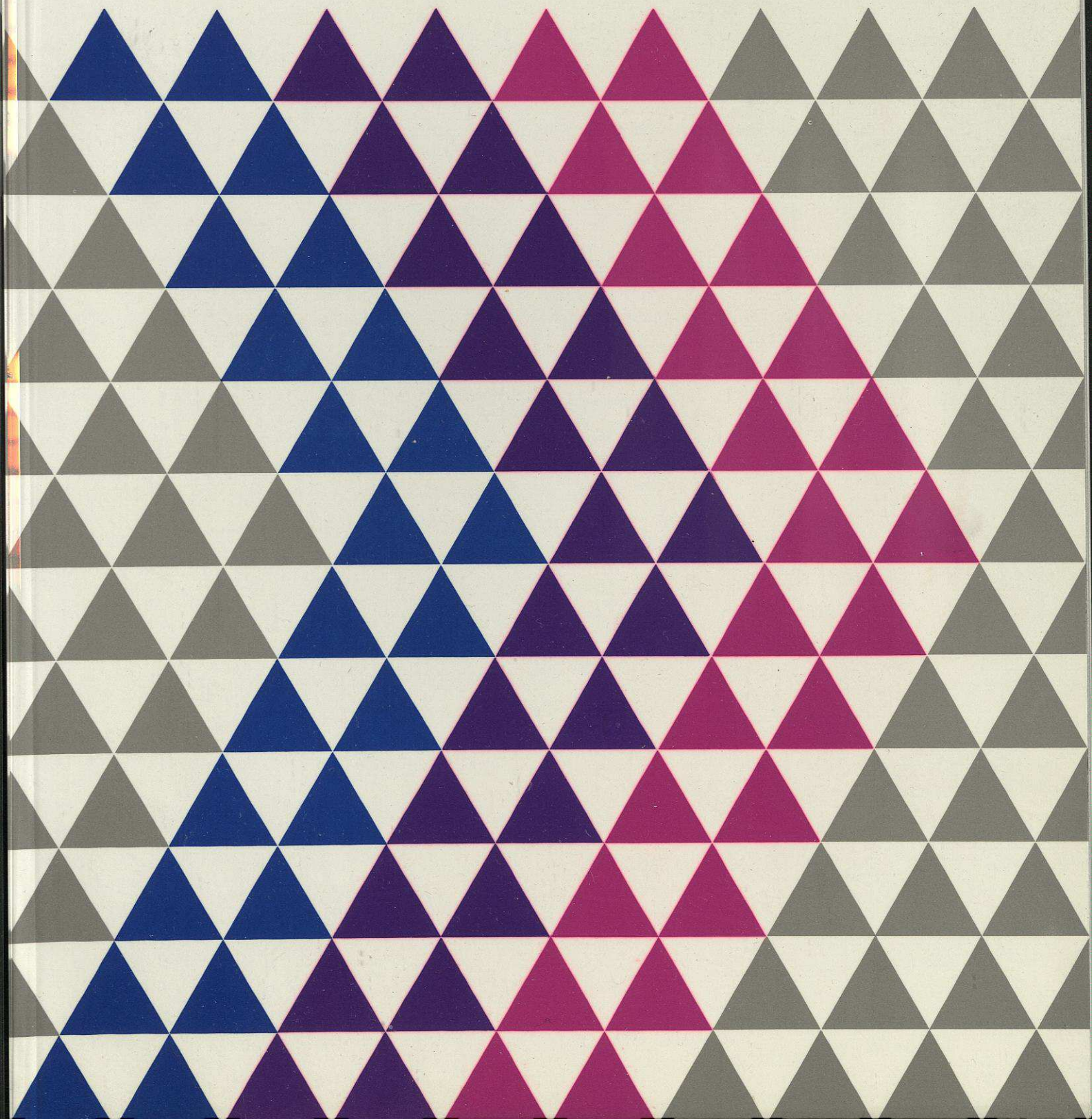
Management Conference
Session Summaries

BUTLER COX
FOUNDATION

Value from Information Technology: The Business Perspective
The Belfry, Wishaw
3-5 June 1990



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Introduction

The 1990 United Kingdom national conference was held at The Belfry in the United Kingdom. This document contains summaries of the presentations made at the conference. While the full benefit of the presentations will have been gained only by those who attended the conference, the purpose of this document is to allow all UK Foundation members to share in the insights and messages of the conference.

The summaries were prepared by Butler Cox consultants during the conference. They are not a verbatim transcript, but present, as faithfully as possible, an interpretation of the main points made by each speaker. For the sake of brevity, some points have been condensed or omitted. Where appropriate, the summaries include a selection of the visual aids used by the speakers.

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Contents

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Investment strategy in the 1990s

Peter Morgan, Institute of Directors

Peter Morgan is director general of the Institute of Directors (IOD). Prior to joining the Institute in July 1989, he enjoyed a distinguished career with IBM where his most recent position was director of corporate services for IBM (UK) Ltd.

Introduction

Peter Morgan began his presentation by summarising what he believed to be his three key qualifications for giving the opening address:

- He was deeply involved in customer investment decisions for most of his 30 years with IBM.
- As a director of IBM in several capacities, he was a party to IBM investment decisions for nearly two decades, with direct responsibility for investments aimed at improving the productivity of the white-collar workforce.
- At the IOD, he discusses the IT investment plans of member companies, usually small and medium-sized enterprises.

From this experience, Peter Morgan is thoroughly convinced that the success of the British economy in the 1990s depends in very large measure on the propensity of businesses to invest in machinery, equipment, human resources, and particularly, IT.

In order to set up a broad framework for the conference, his presentation was structured in five parts:

- The purpose of investment.
- The need for investment.
- The framework for investment.
- Observations on investment in the 1990s.
- Conclusions for IT executives.

The purpose of investment

The primary purpose of investment is to safeguard shareholders' interests. These interests include long-term *dividend* growth, based on profit growth, and long-term *capital* growth, which is a multiple of earnings underpinned by assets.

While some companies may seek short-term capital growth by spotting takeover situations, ultimately, the focus should be on *organic* growth, giving long-term dividend growth ahead of inflation, and capital growth better than savings accounts.

The idea of sustainable dividend growth is easy to understand conceptually, but in practice, is very difficult to achieve. The primary task of a board of directors is to recognise the tendency to fail, and to reverse it in such a way that not only is survival ensured, but earnings growth is achieved as well.

There is plenty of evidence of company failure, either *absolutely* (where a company has gone out of business) or *relatively* (where a company has tumbled down 'The Times 1000' ranking). Of the original 30 firms that made up 'The Financial Times Industrial Ordinary 30 Share Index' in 1935, only seven are still autonomous, independent businesses today. It is the propensity to fail that provides the stimulus to invest. There are many possible causes of failure and therefore many different reasons to invest.

Peter Morgan has found the *ratio sheet* concept to be extremely useful. This is a simple method of looking at margins and of understanding what needs to be done to maintain and improve them. The ratio sheet includes:

- Gross sales revenue.

- Gross revenue less the cost of sales, giving gross profit.
- Gross profit less marketing and sales expenses, and administrative and distribution expenses, giving net profit before tax.

This analysis allows a firm to see how profit is arrived at, and to compare the ratio of each factor as a proportion of gross sales. In an ideal world, gross sales revenue *rises* from year to year, while costs and expenses remain as a *fixed* or *declining* percentage of gross sales, giving a *fixed* or *improving* net profit before tax.

It is easy to see why businesses have the propensity to fail. Sales of a product or service will peak and fall away because of competition, market saturation, or other changes in conditions.

In Peter Morgan's last 15 years at IBM, from the mid-1970s onwards, IBM's ratio sheet was particularly aggravated by the decline in technology costs and in selling prices. The compound effect over five years made the company quite unrecognisable at the end of this period. Not surprisingly, IBM became the largest user of IT in the United Kingdom, in both absolute and relative terms.

Throughout the process, two consistent measures were used to check out the value of the IT investments:

- The percentage *ratio* of each line on the ratio sheet to gross revenue.
- The *overall* return on capital employed in the business.

The *absolute* amount spent on IT was never an issue. The primary concern was that, after investing in IT, the various functions could hold their costs and expenses as a percentage of sales.

In summary, an investment should be designed to turn challenges into opportunities.

The need for investment

The changes that make it necessary for all industries to invest include:

- Straightforward initiatives by competitors.
- Advances in science and technology, giving a stream of new products, new materials, and new production processes.
- Changing customer preferences, which are a large sales variable.
- Environmental considerations.

Also involved are parliamentary legislation, regulation and deregulation, changes in demography and industrial relations, improvements in transport and communications, leading to global businesses, global customers, global suppliers and global competition, and financial impacts, including interest rates, exchange rates, wage and price inflation, and so on.

Industrial-relations issues dominate investment strategy in many manufacturing industries — investment does not go ahead where productivity cannot be underwritten by the unions.

Some companies have to 'go back to basics' to work out what business they are actually in, so that they can reconstruct a viable ratio sheet and make the investments necessary to support it. Many of these investments will be in IT, and may be directed at either increasing sales and productivity, or containing costs and expenses.

In summary, all businesses face constantly changing external forces. If nothing is done, the business will deteriorate, but with appropriate investment, the survival of the business and its subsequent growth can be assessed.

IT investments will normally be an important part of the overall investment strategy. It is a grave mistake to try to handle them on a standalone basis — they should not be divorced from the ratio-sheet imperatives that they support.

The framework for investment

It is difficult, if not impossible, for the IT function to sponsor and carry through a strategic IT project. Unless the *total* business is committed and involved, the IT exercise tends to fail. Strategic business planning is the essential framework for investment, especially IT investment. This involves forward planning, at least as far as changes in the particular environment can reasonably be anticipated, and as far forward as the time it takes to make the necessary business changes or investments.

Most businesses are actually or potentially *commodity* businesses. Every organisation has

to position itself as a producer or a distributor of these commodities, deciding what range of commodities it is going to be involved with, and to what spectrum of customers those commodities are going to be sold. In order to differentiate itself, a company does a lot of brand-building and develops services to lock in its customers. The computer is fast becoming such a commodity — the customer spends more and more of his total budget on software and services.

The definition and redefinition of the business is a continuing activity, since the ratio sheet is always under pressure. For example:

- In the financial-services sector, banks, building societies, and insurance companies are seeking to define their role as either a 'supermarket' or a 'niche' player.
- In the electricity industry, the new companies are seeking to differentiate their roles in the supply of a rather basic commodity while looking for new business opportunities to increase shareholder dividends.
- Retailers are constantly searching for new formulae and new images.
- Manufacturers are seeking to reposition themselves in the value-added chain and to differentiate between their core, value-adding capabilities and other activities that they could contract out.

From time to time, most organisations tend to make very strategic departures from their continuing plan. IT investments need to underpin these strategic redirections — they should not be dedicated to solving *yesterday's* problems.

Within such a strategic vision, there still have to be improvement plans for each line on the ratio sheet:

- Plans to improve volumes and gross profit margins, and to reduce costs and expenses.
- Plans to enhance productivity in all blue-collar and white-collar areas.
- Plans to improve customer service.

The cost of IT should be 'buried' by the improvements targeted on each of these lines. Net of the IT investments, the ratios must improve.

It is usually best if the subsidiary businesses or the functional heads take responsibility for the investment projects and their yields. That does not mean that IT does not itself have a functional strategic plan, but this plan should principally be concerned with systems infrastructure, networks, databases, and the development of human resources.

What is needed is an IT infrastructure and an IT architecture that can respond to business priorities in business timescales and that is sufficiently modular to allow specific problems to be solved without 'bringing down the whole pack of cards'. If a business sets a new strategic direction, it is almost certain that IT should be set one as well.

Observations on investment in the 1990s

Four major factors will influence the investment scene in the 1990s:

- *The environmental issue*, particularly carbon emissions (with the impact on the energy industries, or energy users, and on the pattern of transport) and waste and pollution (with the consequential reformulation of products, changes in packaging, and the growth of recycling).
- *1992 and the continued globalisation of business*. This will have a particularly marked impact on four groups of industries: *energy production* and energy distribution, manufacture of *transport equipment* and operation of *transport companies*, *communications and computing equipment* industries and the operations of telecommunications networks and broadcasting networks, and *finance and insurance*.
- *Innovation*, particularly in electronics, biotechnology, and new materials.
- *Politics*, which created so much chaos in the last decade and which will continue to do so in this decade, both from Westminster and from Brussels.

Against this background, there are three points to make:

- 'UK plc' has seen a tremendous renaissance by British industry and commerce in the 1980s. In the last three to four years, there has been an incredible investment boom, particularly in larger companies, and this needs to be completed for smaller and medium-sized companies.
- The United Kingdom has not yet satisfactorily responded to the challenge of becoming a 'first-world' country in the 21st century. Such countries are characterised by the extremely high level of skills and aptitudes in the workforce (the United Kingdom currently has the second-worst education and training system of all 'first-world' countries), and a highly automated environment with very sophisticated equipment, allowing the products of manufacturers to provide the highest added-value, thereby satisfying the needs of the discriminating 'first-world' user.
- The key for 'UK plc' is a significant investment in equipment, people, training, and productivity.

Contrary to popular belief, most financial institutions do *not* take a short-term view, but are interested in investments to maintain the ratio sheet in good shape. The main question they might have, however, is whether the management of a company is *capable* of pulling off the ideas it is discussing. Such companies should certainly communicate their intentions to the institutions.

Conclusions for IT executives

By looking at the *purpose* of investment, the *need* for investment, and the *framework* for investment, Peter Morgan demonstrated that companies fight for survival by investing. In effect, a board of directors is continually engaged in reconstructing its business to meet the challenge of change.

A concept such as the ratio sheet allows us to see how all the functions contribute to the bottom line — it also shows where investments need to be made to keep the ratios in line.

IT investments should meet the usual return-on-capital criteria, but these should be in the functional or business context. What really matters is that, as a result of investing in IT, the ratio sheet stays in shape or improves. In this context, it is not the *cost* of IT that matters, but rather the *benefit*.

Because of this 'bottom line' effect, investments must be functionally driven or business-driven, since change can rarely be carried through to maximum effect by IT alone. IT executives must be very concerned to ensure that their own function is properly aligned with the business structure and business processes. It must be able to respond at the speed with which the business itself is conducted.

Clearly, the more that IT investment improves the ratio sheet, the more the business will benefit, the more the IT function will benefit, and the more the IT executive will benefit.

The ultimate test of the effectiveness of the IT executive is the extent to which he or she is successful in building bridges to the other business functions so that maximum benefits are delivered.

Focusing on business processes to direct IT investment

G Scott Brown, Dow Europe

Scott Brown is European information systems director for Dow, a major multinational chemical company.

Impact of IT on the business

Dow did not begin by searching for value for money from IT. There was a much more pragmatic driving force — unhappy management. Senior managers could not see how IT affected them or the business. Return on investment for projects was important, but they were concerned with understanding the overall impact of IT on the business. They needed a context within which to evaluate the major projects being proposed to ensure that they fitted into the overall business. They also wanted a means of setting priorities for the list of projects being proposed, to be sure that the right projects were being implemented.

Business process concept

Working closely with Dow's quality-performance function, the systems department became aware of the concept of the 'business process'. Business processes are defined as a group of logically related, cross-functional, repeatable activities that have measurable inputs and outputs. They serve as a basis for analysing work activity at the task level, to determine weaknesses and waste, and to select and implement solutions, thereby improving quality and productivity. The overall aim is to enable business people to understand how processes relate to their business and to allow the IT function to use processes as a systematic approach to data flow.

The application of the business-process concept involves two phases — the architectural path, and the systems connection.

Architectural path

Scott Brown described a five-step process to identify the architectural path. This is illustrated in Figure 1. Step 1 requires each business to define its critical success factors (CSFs). These are not systems-related.

Step 2 involves identifying the major business processes for the company. In Dow, this required an intensive one-week workshop involving a team of senior managers from around the world. The outcome was a list of 10 business processes, ranked in order of business priority for support by systems, and the information flows and relationships between the processes. This is illustrated overleaf in Figure 2.

Step 3 involves the appointment of an owner/custodian of each process. This person's responsibility is to ensure the 'health' of the process across all functional boundaries. The owner performs a very important function and must be a business professional.

Figure 1 Applying the business-process concept — Phase 1: the architectural path

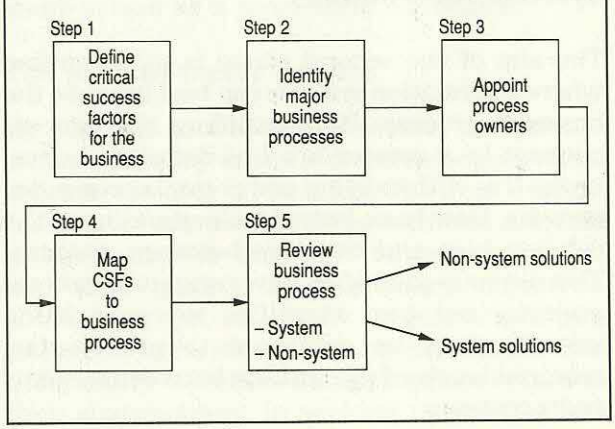
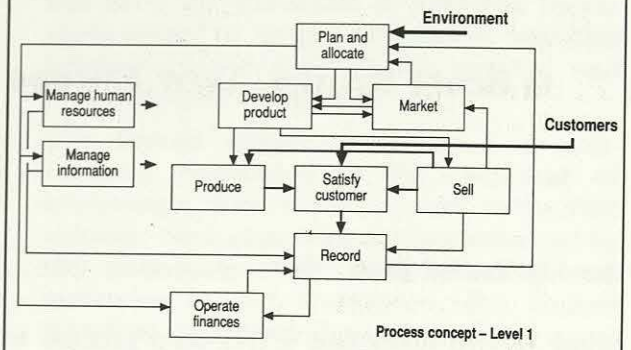


Figure 2 Dow's 10 major business processes



Step 4 involves the mapping of the CSFs to the business processes, the definition of the tactical actions required by the business to fulfil the CSFs, and more specific improved business definitions of the CSFs as a statement of business goals.

Step 5 involves setting business priorities for the tactical actions, assessing the probability that computer systems will assist in carrying out the tactical actions, and assessing how well existing computer systems address each action. This approach identifies potential areas both for computer systems solutions and for non-systems solutions.

The major benefits achieved at the end of this phase are a clear understanding of what the business wants, the CSFs, and the weaknesses of the current computer systems.

Systems connection

The aim of the second phase is to determine where information systems can best improve the business process. By expanding the process concept to a greater level of detail and overlaying this with existing and potential computer systems, Dow has a better understanding of the relationships and overlaps between systems. This not only identifies new computer systems projects, but also identifies where existing systems must be enhanced to provide the required levels of integration between systems and processes.

Current status of the business-process approach

The major outcome of adopting the business-process approach in Dow has been enthusiastic support by Dow Europe's management for both the approach and the major projects identified.

A major new project is underway to improve the order-chain process. A major enhancement project is being carried out to improve the processing and recording of financial transactions. Development manpower has been re-allocated to the priority processes.

Dow's preferred information systems strategy can be summarised as:

- Buy package solutions, unless there are strong arguments to build in-house.
- Operate major applications at one location, unless there are strong arguments for multiple-site operation.
- Change the emphasis from regional developments to process-area developments.
- Provide an infrastructure to enable applications to be integrated across Europe.

There have also been two organisational implications for information systems. A business systems group has been created whose members have line responsibility to the business units and functional responsibility to the systems department. The group provides direct IT input to the business. A few IT-architect positions have also been created to support the process owners, particularly in the area of information flows and integration.

Conclusion

Scott Brown concluded by reminding delegates that the business-process approach provides the linkage between the business strategy and the information systems strategy. Top-management involvement and support is critical. Business processes must be driven by the businesses, with help from information systems. A start should be made by working with businesses to define their CSFs, and the information systems strategy should be built around these. The approach is neither simple nor fast, but has proved very effective in Dow.

Organisational culture: the effect on investment strategies

Andrew Pinder, Prudential Assurance Company

Andrew Pinder was recently appointed director of strategy and development with the Prudential Assurance Company. Prior to this, he held several senior positions with the Inland Revenue, where he was most recently director of information technology. In his presentation, he examined the effect of organisational culture on investment decisions, with particular reference to the impact that it has on the systems director.

The problem of IT investment

Andrew Pinder began by highlighting some of the complicating factors that cause decisions on IT investment to be more difficult for most organisations than they are for other forms of capital investment. He singled out the following:

- IT continues to develop rapidly, causing *uncertainty* in the minds of those deciding on investment strategies.
- IT investment generally results in organisational change. The process of *change management* is something that many organisations would rather avoid.
- The introduction of IT inevitably has implications for the *management of human resources*.

In essence, IT investments are generally unique, they are decided on the basis of improvised measurement techniques, and they therefore involve a high degree of risk. The most comparable investment decision is that taken when investing in equity.

The public-sector culture

While recognising that the public sector is currently undergoing considerable change, Andrew Pinder suggested that the most pervasive features of public-sector investment are that the aim is usually cost-reduction, that risk-taking is discouraged, and that long gestation periods are usually involved.

IT has been deployed effectively in the public sector to improve efficiency. However, an emphasis on efficiency tends to lead to a focus on costs (and cost reduction), not benefits. Furthermore, political pressures result in very short-term views of investment strategies and encourage a 'drip, drip' investment approach.

Political considerations discourage risk taking in the public sector. This attitude is reinforced by the Audit Office, whose role is to look for weaknesses in investment paybacks and expose them, rather than to encourage success.

Public-sector procurement policies can lead to gestation periods of up to a year on IT projects requiring significant investment. This acts as a block to entrepreneurial management. Investment decisions and implementations become traumatic and mechanistic.

Andrew Pinder suggested that most public-sector organisations are therefore essentially risk-averse. They tend to concentrate on quantification of investment cases, avoidance of failure, and selection of the cheapest investment option as a short-term expedient.

The private-sector culture

By contrast to the public sector, the private sector generally takes a more entrepreneurial attitude towards investment. The most evident features of private-sector investment are that its aim is success, that 'soft' benefits are valid, and that quality is a primary objective. Ultimately, private-sector organisations are measured in terms of their business ratios and their ability to deliver an appropriate return to their shareholders. In seeking to satisfy these

objectives, second best is insufficient, as are short-term solutions based on minimising investment. Instead, organisations look at their investment options in terms of how they will help to achieve high levels of success in business terms.

The relationship between business success and investment opportunities is not always directly evident or quantifiable. Organisations in the private sector are more prepared to make 'act of faith' investment decisions. It could be said that this is at the expense of analytical rigour, although Andrew Pinder argued that as organisations begin to use IT in more imaginative ways, so the need to make investment decisions based on 'soft' benefits will increase.

In contrast to public-sector organisations, private-sector organisations are not primarily concerned with cost minimisation in investment procurement. Instead, they place greater emphasis on quality as a means of achieving longer-term business objectives.

The ideal investment culture

There are strengths and weaknesses in both the public-sector and private-sector approaches to investment. The important point is that systems directors should be able to identify the dominant cultural aspects of their organisation and encourage it to adapt to move towards the 'ideal'. The ideal investment culture is one where rigorous analysis of investment opportunities is carried out, but at the same time, the organisation is prepared to take calculated risks. Investment in IT should be treated as any other investment, and be judged in terms of its ability to influence business success. An environment that encourages short-term cost minimisation is doomed, according to Andrew Pinder, who believes that the 'ideal' investment culture encourages quality in pursuit of longer-term payback.

In most organisations, the culture is largely fixed and the systems director must operate within the constraints that this imposes. Andrew Pinder cautioned against overselling the case for IT investment. He suggested that the attitude towards IT investment was more likely to be influenced by successful projects and, over time, by the existence of more 'hybrid' managers, experienced both in general management and in IT.

Managing information systems benefits for the 1990s

David Silk, Henley Management College

David Silk is currently a tutor in information management at Henley Management College, where he specialises in the strategic use of information systems. He began by reviewing the position reached in exploiting information systems in business. He said that IT is now too important to be left to systems professionals, and must be seen within the context of the general management of the enterprise as a whole.

He defined the manager's role as follows: "*Managers* direct *resources* to achieve *results*". Resources include the traditional ones (human, financial, materials, energy, and time) and, more recently, information. All of these, except information, can be measured. Information is intangible and its value is subjective, yet it is vital to the successful running of the enterprise. Because IT is competing with the other types of resource for investment, it is essential to understand the benefits that it can provide. Three generic benefits are often defined, each corresponding to an era of IT development. These are:

- *Efficiency* (1960s) — doing the same job better.
- *Effectiveness* (1970s) — doing a better job.
- *Competitive edge* (1980s) — improving the business by exploiting IT to support or drive strategic business change.

Today, the big savings of 'efficiency systems' have already been made, and most investment (85 to 90 per cent) is now in the area of effectiveness. This is reflected by the current views of general managers about IT. A survey of general managers by David Silk identified five major information-management issues of concern:

- The impact of systems on organisation.
- The need to link systems strategy to business strategy.
- Maintaining security of data.
- Managing the systems function.
- Justifying systems investment.

The relative importance of these issues over time is shown in Figure 1. There is a high and increasing level of concern about justifying investment in systems — an act of faith is no longer enough.

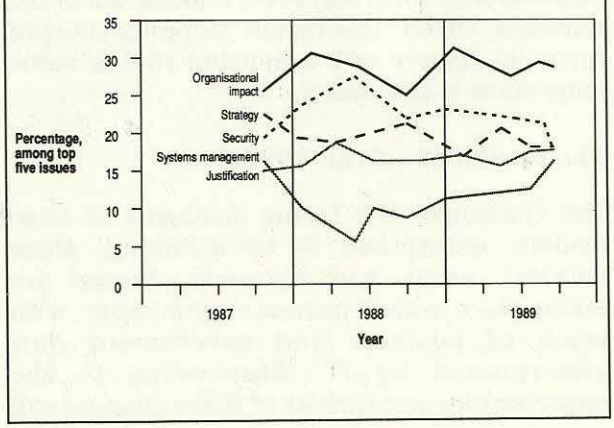
Justifying systems investments

Quantifying the benefits of systems is the core problem. The three generic benefits suggest corresponding financial measures:

- Efficiency: cost savings.
- Effectiveness: return on assets.
- Competitive edge: growth (of revenue or profit).

The problem today is that the nature of the benefits has shifted from the 'hard' cost savings

Figure 1 Major information-management issues



of the 1960s, to the 'soft' competitive benefits of the 1980s. This can produce polarisation within an enterprise between those who are uncomfortable with anything other than a quantified financial case and those who believe that the wider benefits of systems will be achieved only with some acts of faith stemming from strategic vision.

Few would disagree that the business case should be as sharp and as quantified as possible. Dr Silk postulated six types of justification, ranging from the soft act of faith to the hard money saving:

- *Faith*: justified on the judgement of senior management.
- *Logic*: the logic by which a business improvement will occur is identified (but not quantified).
- *Direction*: an observable benefit is identified, and can be measured to check whether the business has moved in the intended direction.
- *Size*: the size of the benefit is estimated and later measured.
- *Value*: the quantified changes are given considered value weightings.
- *Money*: each benefit has a tangible value that will be reflected in the financial statements of the enterprise.

In addition, there is the special case of 'must-do' investments, resulting, for example, from a legislative change. In this case, there is little point in formal justification.

The merit of the six types of justification is that they encourage managers to sharpen up the business case while still being realistic about the numbers. Often, this means stopping short of financial figures and admitting that a value judgement is necessary.

The challenge of the 1990s

The challenge now facing managers of large modern enterprises is breathtaking. Huge political, social, and economic changes are taking place in the business environment, with much of business and government now underpinned by IT. Responding to the opportunities and threats of these changes will create an unprecedented challenge for information managers. IT investments will be more important, and a more holistic approach will be required to manage them.

The strategic approach

A strategic approach is concerned with the long-term development of the organisation as a whole. It is within such a framework that systems investments will have to be justified. The three main questions to be addressed by a strategy are shown in the centre of Figure 2. The lower part illustrates how the implementation of a strategy should be monitored. Critical success factors are those things that have to be achieved if the strategy is to be successful, and individual performance indicators can be used to ensure success at each stage.

Benefit-level matrix

In the final part of his presentation, David Silk described a nine-cell benefit-level matrix that can be used to help categorise the benefits of systems investments (see Figure 3). One of the main features of the benefit-level matrix is that it can be used to plot the evolution of the use of systems. Thus, office automation systems were originally used by operational staff (typists) and were justified on efficiency (cost saving) grounds. Increasingly, they are now used by middle and senior managers to improve their effectiveness, but there is no indication that they will ever give rise to competitive advantage.

Figure 2 The components of a strategy

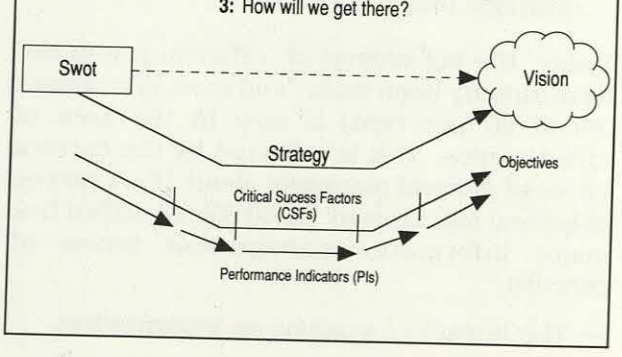
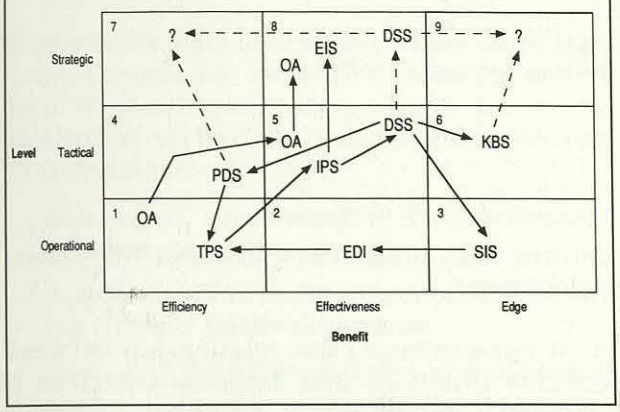


Figure 3 Benefit-level matrix



The figure also illustrates how some technologies evolve through a cycle. For example, decision-support systems, originally installed to improve effectiveness at a tactical level can, if successful, result in higher levels of business activity. The functions provided by such a system are then incorporated as routine features of transaction-processing systems in the efficiency/operational cell. The cycles illustrate an important lesson for management: strategic advantage from IT is short-lived — competitors catch up quickly. To succeed, a business must continue to invest.

A second lesson from the matrix is that not all the cells have yet been filled (the dotted lines indicate some possible entries). It could be that efficiency and competitive-edge benefits at the strategic level are simply not possible; it could be that the application of IT is only now sufficiently advanced to allow it to have an impact at a strategic level.

David Silk concluded by stating that IT has no special claim for scarce investment funds. Justifying such investment, in business terms, will be an increasing priority for systems professionals in the 1990s.

Managing investment in information technology: a review

Charles Chang, Butler Cox

This presentation was based on the Butler Cox Foundation's research study on the same subject, due to be published shortly after the conference as Report 75, *Getting Value from Information Technology*. Charles Chang is a principal consultant with Butler Cox, who has been concerned with value for money and systems strategy issues for over a decade.

He suggested that an appropriate subtitle of his talk was: *How do we know we are getting value for money from our IT investments?* From its research, Butler Cox found that senior business managers and systems directors both ask this question. However, there are subtle differences between the concerns of the two groups, as illustrated by the following two quotes.

Sir Denys Henderson, Chairman of ICI, is reported as saying: "I still worry enormously, both about the amount we spend on IT, and about the increasing difficulty of justifying that expense in terms of the bottom line."

A typical systems director, on the other hand, is likely to say: "I'm convinced we are delivering value for money from our IT investment, but how do I demonstrate this?"

Value for money from IT investment is an important issue because IT is pervasive, costly, complex, and often the key to business success. Dependence on IT is increasing, and the awareness of users and senior managers is also increasing. They are confused, however, because they know that while the price/performance ratio of silicon chips is falling, IT is often the largest single item in the organisation's operating budget. The situation is further complicated by the changing role of users in exploiting IT: the trend is to devolve IT to user units, and the role of the user is now crucial for most new applications. Indeed, in some organisations, there is more IT under user control than under the control of the central department.

As a consequence, the relationship between systems functions and business functions is changing. Increasingly, there is a formal commercial (or quasi-commercial) relationship, and a willingness to enter into facilities-management contracts. It is therefore essential to find an answer to the question: "How do we know we are getting value from our IT investments?"

The Butler Cox research was initially based on the assumption that there must be a way of measuring the value from IT investment. Extensive research, however, revealed that this assumption is not necessarily true. What emerged is that there is *no proof* that IT investment leads to better business performance. Professor Hubert Heyvaert of the University of Louvain in Belgium said so in 1984 at the Butler Cox Foundation conference held in the Hague, and in 1989, repeated his assertion, based on further studies since that time. Gus van Nievelt of the PIMS-based Strategic Planning Institute said the same thing at the Hague conference in 1984. More recently, Paul Strassmann (the well known writer and speaker on IT management issues) declared at a conference held in London in October 1989 that there is a lack of correlation between IT investment and the return from that investment.

Butler Cox agrees with these findings in general, but notes that practically all the studies were based on an analysis of multiple industry sectors, and often, many countries. There was an implicit assumption that there would be no marked differences between sectors and countries. Clearly, this is not the case. Furthermore, traditional methods of measuring value concentrate on return on *investment*.

Investment implies the technology itself, which then becomes the point of focus. Instead, the focus should be on the *information*, and on the value derived from its use.

Butler Cox's main conclusion is that there is no magic formula for measuring value for money from IT investment, but that there are several things that can be done to assess the value from IT investment:

- Relating IT investment to complementary business measures.
- Appraising IT investment proposals according to their business purpose.
- Managing the IT investment and allocating responsibility for achieving the benefits.

Relating IT investment to complementary business measures

In order to ensure that value for money is achieved, IT investment needs to be related to complementary business-oriented measures. The main point is that a whole set of measurements, in combination, is needed, although certain of the measurements will be more important than others at a given time, depending on the question being answered.

External intra-industry performance comparisons are useful, but can be misleading, so they must be used with great care. For example, IT expenditure per staff member is extremely varied for different industry sectors (see Figure 1). There are also differences in IT expenditure related to the scale of the business.

A recent survey showed that IT expenditure as a percentage of annual turnover in the United Kingdom is around 1.2 per cent as a whole, but for small businesses, it is as high as 13.5 per cent, for medium businesses, it is around 2 per cent, and for large businesses, it is less than 1 per cent.

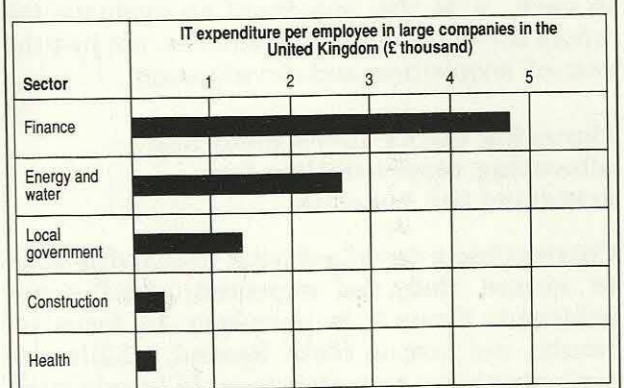
Internal measures of the systems department's performance often measure efficiency but not effectiveness. Even so, they can be extremely useful. For example, the Butler Cox Productivity Enhancement Programme (PEP) provides an internal benchmark as well as comparisons with external norms in the area of systems development productivity and quality.

Systems service quality and user satisfaction are also valuable measures. Measuring performance against service-level agreements is particularly important as a more commercial relationship develops between the systems department and its customers. Customer- or user-satisfaction surveys are also valuable, both as a performance measure and as a public-relations exercise.

Finally, *IT expenditure must be related to business parameters* if the performance of the systems department is to be measured (see Figure 2). There are four main kinds of business parameters:

- *Size of business* which, apart from number of employees, is different for different sectors. For an airline, size would be measured in terms of revenue. For a local authority, the size of the business is

Figure 1 Cross-industry sector comparisons are misleading



(Source: Pedder Associates/Computer Users Yearbook)

Figure 2 IT expenditure should be related to business-performance measures

Business-performance measure	Example from an airline
Size	Revenue Number of employees
Operating expenses	Operating expenses
Business volume	Number of passengers carried Tons of cargo carried Number of kilometres flown Number of flights
Key business indicators	Seat loading factor Aircraft utilisation Number of advance bookings

determined by the size of the population served and the gross community charge. For a provider of telecommunications services, size is measured in number of lines.

- *Operating expenses.* For different sectors, operating expenses could include or exclude specific items. For instance, to calculate operating expenses in recent years, multinational banks have deducted a large sum from total revenue for the provision of bad debts from third-world countries.
- *Business volume*, which is also sector-specific. For an airline, it would be the number of passengers carried, number of flights flown, and so on.
- *Key business indicators.* For an airline, these might be seat-loading factors, aircraft utilisation, and advance bookings. For a retailing chain, revenue per square metre of selling space is a key business indicator; for a PTT, revenue or employees per line; for an automobile manufacturer, man-hours per car produced.

Even here, one must be careful to relate IT expenditure to the relevant business parameters, and to interpret trends in the ratios in the light of current business priorities.

Appraising IT-investment proposals according to their business purpose

Charles Chang said that a key conclusion from Butler Cox's research was that it is essential to align IT investment to its business purpose. It is also necessary to be aware of the business culture and management style of the business, and to ensure that IT planning is an integral part of business planning, not an after-thought. Butler Cox's advice is that the starting point should be to classify IT investment proposals by five types of business purpose (see Figure 3):

- *Mandatory investments* are required to satisfy regulatory requirements (administration of the community charge in local government, for example), to meet internal organisation requirements (consolidating several offices into one building, for example), or to provide systems that are a competitive necessity (for example, the need to join a sector-specific EDI service).

Figure 3 IT investment category is defined by the business purpose

IT investment category
Mandatory
Performance improvement
Competitive edge
Infrastructure
R&D

- *Investments to improve business performance* aim to reduce the cost base, or to increase revenue.
- *Competitive-edge investments are designed* to gain a sustainable advantage over the organisation's competitors.
- *IT infrastructure investments* enable benefits from other IT investments to be realised.
- *IT research* investments are made to ensure that the business is not left behind when what is future technology today becomes commonplace.

Having categorised an IT-investment proposal by business need, managers need to evaluate the proposal by using the most appropriate method, but also remembering to apply the appropriate degree of management judgement. Figure 4 illustrates the methods most applicable to each kind of investment category, and the relative importance of management judgement in each. It is also important to evaluate the whole life-cycle costs and benefits, not just the cost of acquisition and development.

Managing the IT investment and allocating responsibility for achieving the benefits

Charles Chang described what needs to be done to ensure that the expected benefits are achieved. First, it is necessary to focus on results, not just on costs. Second, middle and senior business managers need to be educated in IT issues. Third, the customers (users) need

Figure 4 Both formal methods and management judgement are necessary for evaluating IT investment

IT investment category	Formal evaluation aid			Importance of judgement
	Cost control	Cost/benefit analysis	Other	
Mandatory:				
– Regulatory requirements	●			✓
– Internal requirements	●			✓
– Competitive necessity	●			✓✓✓✓
Performance improvement:				
– Reduce costs		●		✓✓
– Increase revenue		●		✓✓✓
Competitive edge	●		Evaluation of risk	✓✓✓✓
Infrastructure	●		Performance standards	✓✓✓✓
R&D	●		Objectives within cost limits	✓✓✓

to understand that it is their responsibility to obtain the benefits, and to be seen to have done so. Finally, investment proposals should be assessed against the business parameters described earlier, using those that are relevant to the particular investment.

The responsibility for investment priorities should be carried out by an *effective* IT steering group. This group should have broad-level representation, take a top-down approach to investment decisions, with a strong business emphasis, and have decision-making and executive power delegated to it.

The responsibility for managing the investment and achieving results is shared between the systems department and the customers or users. The responsibility for achieving benefits (and controlling costs) definitely rests with the users. Forming an explicit commercial relationship with the systems department is one option. The increasing devolution of IT to business units forces users to accept their responsibility.

Functional responsibility for IT rightly continues to be with the systems department, which is in charge of the overall direction and implementation of the technical aspects of IT investments, and is responsible for providing professional estimates of realistic timescales and costs. Too often, however, in the mistaken belief that it is giving the customer his due right, the systems function has failed to give its view on these issues when the users are not competent to give them.

Finally, post-implementation reviews are a necessary ingredient in assessing the actual achievement of results, the delivery of actual benefits to the business, and hence, the value for money arising out of the investment.

Conclusion

Charles Chang concluded by warning that if the question "How do we know we are getting value for money from our IT investment?" is not answered satisfactorily, the systems department of today may well become extinct. However, if it can be demonstrated that the systems department is indeed delivering value for money, both in terms of improving internal efficiency and in terms of contributing directly and significantly to business objectives, the department's future is assured, and the careers of its managers will flourish.

Plenary session

At the end of the first day, delegates split into four syndicate groups, each chaired by a Butler Cox consultant, to discuss the four sub-themes of the conference:

- IT investment-assessment techniques, chaired by Roger Woolfe.
- Monitoring IT for value for money, chaired by Edward Vulliamy.
- Managing the IT resource, chaired by Valerie Cliff.
- The corporate investment culture, chaired by Tony Brewer.

During the plenary session, each of the session chairmen reviewed the findings of their syndicate and invited questions and comments from the floor.

IT investment-assessment techniques

This syndicate addressed three questions:

- How should investment proposals reflect corporate objectives?
- Should you distinguish between different types of IT investment?
- What assessment techniques should you use?

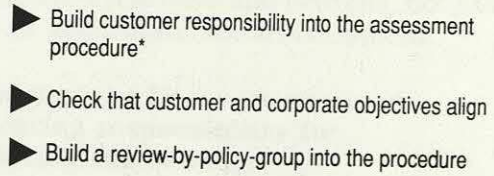
The findings of the group concerning the first question are set out in Figure 1. There was general agreement that, apart from infrastructure projects, it should be mandatory to make the 'customer' responsible for the business case in the assessment procedure. Doing this should ensure that the customer's objectives do align with corporate objectives. It is also important, and probably essential, for an IT policy group to review the proposals.

The group spent some time on the thorny issue of justifying infrastructure investments, but arrived at no conclusions or consensus. Bob Giddings, head of the information systems strategy unit at Surrey County Council, believes that infrastructure-investment decisions are dependent on the organisational culture. In his view, all systems, including infrastructure, have to have a corporate client. In Surrey County Council, the IT infrastructure, and other corporate systems such as personnel, finance, and property, are 'owned' by the chief executive's department, which has service-level agreements with relevant departments.

The group spent most of its time discussing the need to recognise that there are different types of project and evaluation techniques, and the need to match projects to techniques (although there is no clear-cut method for doing this). In making the business case, it is also necessary to balance the portfolio and allocate priorities to projects. The group quickly identified five main types of project: 'must-do', efficiency, effectiveness, competitive edge, and infrastructure/R&D.

In matching evaluation techniques to projects, it is necessary to relate the degree of subjective management judgement to the degree of

Figure 1 **Reflect business objectives in investment proposals by making customers responsible for the business case**



* Except infrastructure projects, which the systems department should justify for approval by the policy group

hardness/softness of the benefits. Figure 2 illustrates how the six types of justification identified by David Silk can be positioned in relation to these two dimensions. Although the styles are shown as discrete boxes, in practice, there is likely to be some overlap between them.

The view of the group about the choice of financial-evaluation technique (cost base, ROI, ROA, payback, IRR, DCF, NPV, and so on) is that the systems director has little choice but to use the one mandated by group policy. No-one was using Paul Strassmann's return-on-management technique.

The views of the group are summarised in Figure 3, which shows that, in moving from 'must-do' to competitive-edge projects, the benefits move from hard to soft. However, business managers are continually striving to pull the arrow to the left — requiring benefits to be as hard as possible.

This view was reinforced by Iain Lee of Glaxo Pharmaceuticals, who said that his finance function demands hard justifications. Glaxo is trying to develop new techniques, but there was a need to get the Institute of Chartered Accountants to recognise them. He quoted the example of a project designed to increase turnover. Because the increase could not be guaranteed, the accountants would not include it in the DCF calculations, which meant that the project could not be justified in financial terms. Fortunately, the board recognised the need for the project and authorised it.

The group debated the 'must-do' end of the spectrum most of all. The common view is that such investments have to be made at minimum cost, and that it is a waste of time to evaluate the benefits. There was some dissent from this view, however. George Dodsworth of the Training Agency said that, to get the best value for money, it may be better to spend more than the minimum to gain additional benefits. This was the consensus view of the group.

Roger Woolfe concluded by showing Figure 4, which shows the process for balancing the portfolio (as per David Silk's presentation) and allocating priorities to the projects as part of the assessment process.

During the ensuing discussion, the following comments were made:

Figure 2 Different evaluation techniques seem appropriate at different points on the hard-soft scale

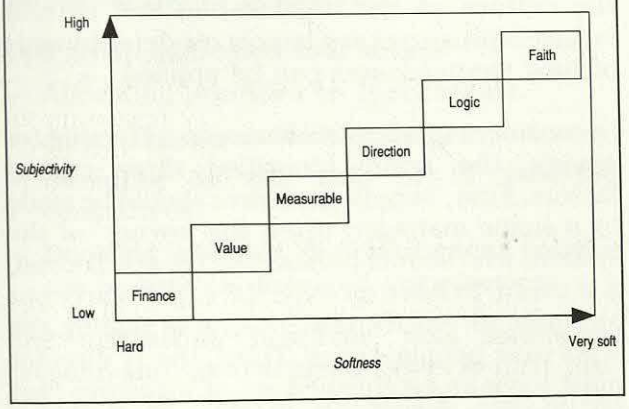


Figure 3 Matching evaluation technique to project type is rarely practised formally

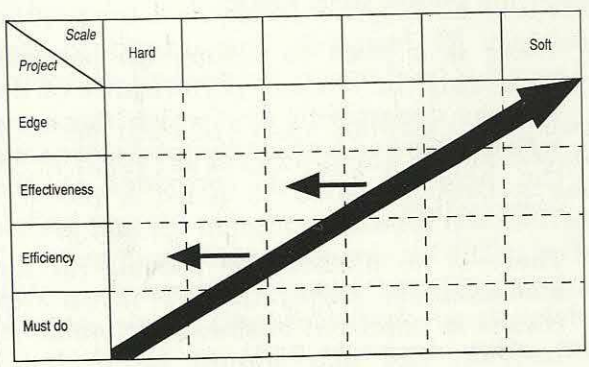
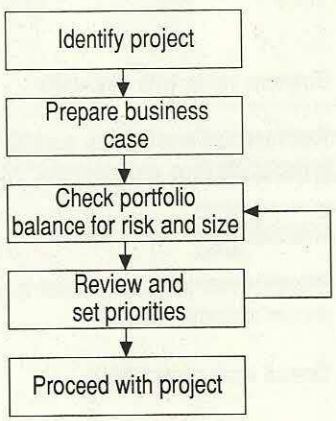


Figure 4 Balancing the portfolio and setting priorities is part of the assessment process



- Assessing individual projects and justifying infrastructure investment is easier if it is done in the context of an agreed overall systems strategy.
- Projects in the 'must-do' category must be carefully appraised to ensure that they really do fit into this category.
- Given a choice, business managers will authorise projects with hard benefits before those with soft benefits.
- One successful IT director disguises infrastructure investment as 'must-do' investment.

Monitoring IT for value for money

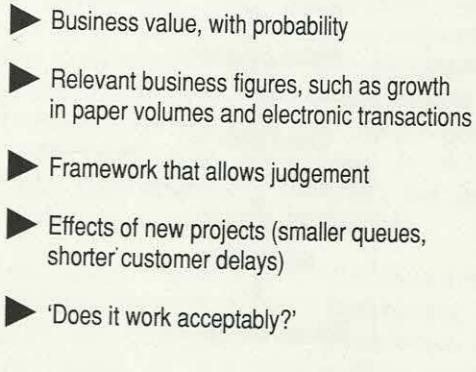
This syndicate addressed three questions:

- What should be measured?
- How should the measurements be applied?
- Who should do the monitoring?

Edward Vulliamy reported that the main messages to emerge from the group were that IT strategy must be tied in to business strategy and that IT measures must be tied in to business measures.

The findings of the group on what to measure are summarised in Figure 5. When assessing the business value, it is important to take account of the probability of success. Relevant business figures should be tracked over time. These could be tied to quality of work practices, and therefore, to morale. Too much paper, for example, could be detrimental to the business.

Figure 5 What can or should be measured when monitoring IT value for money?



Some form of quantifiable framework is needed to provide a rigorous method within which managers can exercise judgement. The business impact of new systems should be measured (shorter queues at check-out tills, or faster response to a customer request for service, for example). Finally, some form of user survey is required to check that the system does work acceptably from the customer's point of view.

In applying the measures, it is necessary to categorise the different types of system. Different measures apply in each case. The group identified four types: operational systems, maintenance projects, big development projects, and infrastructure projects. Post-implementation reviews are also important. Comparisons with others in the same industry, or with organisations of a similar size and a similar IT budget, can also be helpful. It is also possible to compare in-house costs with the charges that would be made by a systems house or facilities-management company for providing an equivalent service. The group also noted that the culture of the organisation and current business pressures are important determinants of how the measures can be applied.

In considering who should monitor IT value for money, the group identified three critical factors. First, benefit measures should be made by a single manager, often the 'owner' of the system, who should publish the results. Second, it is useful to have an external expert carry out an audit to ensure that no-one is pulling the wool over people's eyes. Third, the IT director must have an established set of measures that his business peers can relate to.

The conclusions of the group are summarised in Figure 6. In the discussion that followed, the following points were made:

- There is a need to distinguish between measuring the internal performance of the systems department (for which there are well established techniques) and measuring the benefits that IT provides to the organisation.
- There is no method for proving (in the mathematical sense) that IT investment results in improved business performance. Instead, the aim should be to build confidence in the minds of reasonable

Figure 6 Conclusions about monitoring IT value for money

- Must link IT to the business when making decisions about measuring and monitoring (focus on service, sales, and so on)
- Concentrate on future work processes
- Need management education, to get informed views on IT value for money and new areas of use
- Need accountants' education, to get more appropriate rules
- Trust me!

business managers, so that they will be more prepared to authorise investments on the basis of soft benefits. Part of doing this is to demonstrate that the systems department is itself operating efficiently.

Managing the IT resource

This group addressed four issues:

- Allocating priorities to applications.
- Allocating responsibilities for IT investment.
- Deciding on the role of IT steering committees.
- Deciding whether IT procurement policies are realistic in devolved organisations.

The discussion, however, was somewhat broader and unstructured (Valerie Cliff described it as 'lateral thinking'). The group recognised that the responsibility for IT investment reflected the business culture — in particular, whether IT resources (and budgets) were centralised or decentralised. Hence, the group spent some time looking at the pros and cons of central and devolved IT decision-making. Its findings are summarised in Figure 7.

Although there are more minuses than pluses on the figure, most of the group members were in a fully or partly devolved organisation and believe that the benefits spoke for themselves. They had found that there was no difficulty in finding a sponsor for systems that affect several business units. One drawback to devolved responsibility is that business units can sometimes be averse to taking risks because of their need to focus on short-term financial targets. Another disadvantage is that individual business units are fearful of the power that IT now has to reshape the whole organisation. A corporate-wide view is required if this power is to be harnessed.

The group also discussed the funding of infrastructure projects, noting that the scope of the infrastructure is increasing (a view that is shared by users). A significant proportion of the IT budget is now in the infrastructure area. Because infrastructure costs need to be incurred before future application benefits will be obtained, the group felt that it was necessary for someone to 'own' the costs of the infrastructure in the meantime. Often, it is the systems department, although many systems managers are not comfortable with this arrangement. In one company, the finance director 'owns' the infrastructure.

In considering the way in which priorities should be set for applications, the group presented the following findings:

- Priorities should be established with reference to an overall plan, especially in a devolved organisation.
- There were different views on the appropriate split between business-unit and corporate responsibilities. There was general agreement, however, that there has to be some element of corporate responsibility, particularly for infrastructure and competitive-edge investments.

Figure 7 Pros and cons of devolving IT to business units

+	-
Easier sponsoring	Only moving problems down the line
Easier priority setting	Does not solve problem of ownership of corporate technical architecture
	Inflexibility across business units
	Mitigates against business process approach
	Can lead to 'short-termism'

- The consensus view was that users should be responsible for IT investment and for setting priorities for IT applications. In particular, users know how much change they can absorb at any one time.
- There were polarised views on the role of charging. Some felt that it could encourage the effective use of IT; others held the opposite view.
- There is a need for a non-emotive, objective process for allocating priorities to applications.

The group also discussed the funding of maintenance, noting that there is a risk that the authorisation of maintenance work will bypass the normal justification path. A variety of approaches were being used to control maintenance expenditure:

- Include an estimate in the initial justification.
- Consider it as an infrastructure investment.
- Set a zero or fixed budget for maintenance.
- Justify on a project-by-project basis.

Comments made from the floor at the end of this presentation included:

- There is a temptation to look at the business as it is currently organised; instead, the business processes should be identified. These will stay the same regardless of the current organisation structure.
- Identifying the 'owners' of business processes may not be easy, and their relationships with line managers will have to be clarified.

Corporate investment culture

A diverse range of investment cultures were represented in this group, ranging from one where multimillion IT investments will be authorised with minimum justification and a smile, even though the board does not understand IT, to one where nothing is approved without a very detailed justification, and then only grudgingly. However, the group did identify certain common factors, which Tony Brewer presented as 'critical culture factors':

- Top management perception of IT: ignorant versus informed.
- Credibility of the systems function: good reputation versus poor.
- Perceived link of IT strategy with business strategy: integrated versus ad hoc applications.
- Quality of the partnership between the systems function and business.

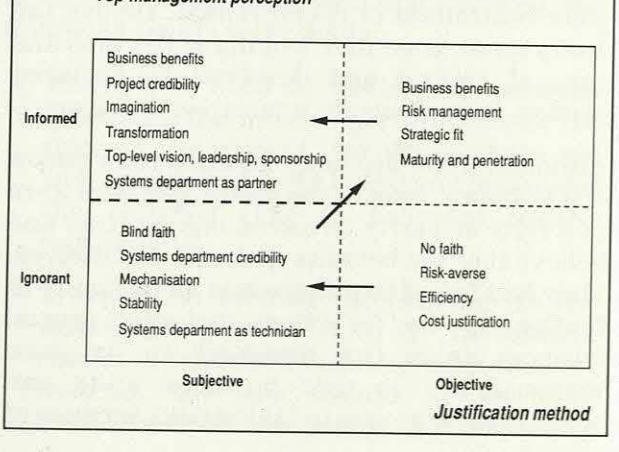
The most important of these is the range of top management's perceptions about IT. Tony Brewer noted that perceptions are relative. One board's high level of IT understanding could be regarded as ignorance in a different organisation.

The credibility of the systems department is also a key factor. A good reputation will help in getting 'acts of faith' projects approved; a poor reputation can hinder the authorisation of projects even where there is a cast-iron investment justification.

Tony Brewer summarised the deliberations of this group by presenting the four-cell matrix shown in Figure 8. The horizontal axis represents the degree of subjectivity in the justification method used, and the vertical axis represents top management's perception of IT. The words in each cell describe the investment culture in each cell.

In the subjective/ignorant cell, top management is prepared to authorise investment as an act of 'blind faith' because the credibility of the systems function is sufficient to overcome top

Figure 8 Investment culture matrix



management's ignorance. In the subjective/informed cell, investments are made on the basis of management judgement, and the emphasis is on project credibility. In the objective/ignorant cell, top management has no faith in the systems function and is highly sceptical about any IT investment proposals. Projects will be authorised only as a last resort. In the objective/informed cell, top management has a good understanding of IT, but also a healthy degree of scepticism.

The worst position to be in is the objective/ignorant cell; the best is the cell diagonally opposite — subjective/informed. The best way of moving there is also shown in Figure 8. The first move is to build credibility by doing something, and doing it well. To move to the objective/informed cell, there is a need to educate top management, and to increase both the penetration of IT, and the organisation's experience of using IT. The final step is to form a partnership between the systems function and business functions, and to expose top management to external events (such as a Butler Cox conference).

This series of moves removes the need to cross the most difficult barrier — the one between the subjective/ignorant cell and the subjective/informed cell.

In the closing discussion, one delegate emphasised that the key issue is how *comfortable* board members feel when discussing IT. His view was that most are uncomfortable. The fundamental problem is still the chasm of understanding between systems managers and the board. This difficulty will not be removed until board members begin to be directly involved in IT investment issues.

Using information technology to increase shareholder value

Gene Lockhart, Midland Bank Group

Gene Lockhart is chief executive UK banking and group operations at Midland Bank Group, having joined the bank in 1987 as sector IT director. He drew on the experiences of the bank over the past three years to illustrate the critical role of IT in improving Midland's shareholder value.

In the early 1980s, the bank embarked on a series of acquisitions that left it much larger, but at the same time, weaker. This was reflected in a lower share price, for five principal reasons:

- Non-performing loans, both international and domestic.
- Narrow lending margins.
- Falling fee income.
- High funding costs in the money markets.
- High cost base.

Developing the bank meant increasing the assets through retained earnings and returning to the market for more capital. Neither is possible with a low share price. This downward spiral had to be arrested.

Midland is employing several business strategies to improve its performance

The potential for improvement in each of the five problem areas was examined, and business strategies were formulated to address them. This meant refocusing on core market segments, instituting stringent asset/liability management and, most significantly, restructuring the organisation of the core retail and lending businesses. The 'paper processing' operations were recognised as being, in effect, a giant factory, leading to investment in operations centres to get the benefits of scale, and a 50 per cent reduction in the number of centres and staff. Profit accountability was pushed down from area offices, which have seen a similar reduction in office space and staff, to branches. The emphasis at branch level was to revitalise and develop the sales culture and to adopt almost a 'franchise' approach. Rationalisation of headcount was possible only on a limited basis, in the absence of the necessary support tools.

It was clear that not only could many of the strategies to improve value be supported by IT, but that IT was fundamental to most of what the bank wanted to achieve. Each problem area was examined to determine the potential impact of IT, the nature of that impact, and the types of IT initiatives that could be developed, as illustrated in Figure 1. This raised the immediate question of how IT was currently aligned, and how it could be redirected.

Alignment of IT with the business has not been good in the past

A review of every area within IT, conducted personally by the IT director, revealed that IT personnel had five main false perceptions:

- In the past, there was perceived to be a broad-based growth of technology across all

Figure 1 IT is key to supporting Midland strategies

Problem	Potential for IT impact	Area of IT support				Example
		Service enhancement	Cost reduction	MIS	New business	
1. Non-performing loans	Low to moderate			✓		Global exposure and portfolio analysis
2. Narrow lending margins	High	✓	✓	✓		Corporate bankers' workstations
3. Reducing fee income	High	✓		✓	✓	Relationship profitability systems Payments businesses Network services
4. High funding costs	High		✓	✓		Group asset/liability models Real-time linkages
5. High cost base	High	✓	✓	✓		Branch/area automation Payments operations Customer information and programmed sales aids

banking sectors, but these technology investments were not aligned to value-creating potential. Matching the historic and planned IT expenditure to the return on equity of each business unit revealed a gross mismatch.

- It was perceived that, in the production area, computer systems were operating at the 'heart' of most banking businesses but that the technology foundations (age of systems, plethora of technologies) were weak in many key areas. This had a ratchet effect, as inefficient maintenance and production used up the resources available for discretionary development.
- It was perceived that large numbers of strategically important technological developments were planned and underway, but the word 'strategic' was being used to mask a lack of rigorous business justification. In practice, priority setting was a political art, and priorities were constantly shifting. This was partly due to the lack of measures of achievement, and partly to the fact that 90 per cent of sponsors were not in the same job when the project was delivered. Many high-risk projects were being conducted simultaneously, and applications viewed as 'non-strategic' joined a backlog measured in many man-centuries.
- There were conflicts and missed opportunities because of the lack of a 'Group' orientation. Gene Lockhart quoted the example of a customer wishing to make an international payment. At that time, the process took 16 days and involved 32 people because of discontinuities between systems. This has now been reduced to one day.
- It was perceived that IT had increasing visibility in the organisation, but in practice, technology remained poorly understood at all levels and there were no clearly defined measures of success.

IT in partnership with the business

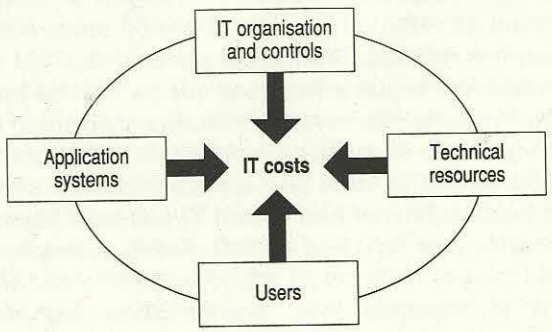
Midland is now refocusing and realigning IT on areas where value can be created, and a 'balanced' process of realignment and change management has been adopted. Gene Lockhart strongly commended the diagram, reproduced as Figure 2, which illustrates the factors that contribute to IT costs, and their interdependence. If any of these factors are out of balance with each other — for example, if the investment in people and hardware resources exceeds or fails to meet that required to support the application systems, or if the level of education of users is inadequate to equip them to make informed decisions on application systems — the result is increased costs.

This partnership has put users in the front line. IT plans were linked to business objectives, and the systems department would no longer carry out projects unless it was driven by these objectives. A fully dedicated business owner was identified for every project. Without this, IT projects would not proceed. Over a period of time, the Group IT Board was reconstituted so that two-thirds of the representatives were drawn from the business, and one-third from IT. The group was no longer chaired by the IT director. It has adopted the ownership of both the cost and value of IT, and takes this responsibility very seriously. The IT function abides by the decisions of the group.

The partnership has also put IT on the line. In the systems development area, staff were physically relocated within the business units. Their line-reporting structure is still currently to the IT function, but this is expected to evolve as users acquire the maturity and experience to take over direct management of large development projects. Every development team is judged on four key measures:

- Delivering on time.
- Delivering within budget.

Figure 2 A 'balanced' process of re-alignment and change management has been adopted



— Servicing a real business need.

— Producing high-quality and auditable results.

On the production side, the number of data centres has been reduced from 30 to 5. This has both improved quality and reduced costs, with absolute costs falling by 20 per cent, despite volume increases. The previous eight production networks have been consolidated into one, and the network-management function is now responsible for delivering an end-to-end service.

Other initiatives that have been critical in realigning IT in the Midland Bank Group include putting key people in key places to lead the business and IT plans, closely monitoring the achievement of these plans, defining an architectural blueprint and enforcing conformance with it, educating senior management in IT, and establishing a broad-based business/IT training programme throughout the organisation.

As a result, Midland is planning to implement a five- to seven-year strategy in three-and-a-half years, at 22 per cent less cost, with 29 per cent fewer staff. This means a trebling of the workload and will deliver 15 per cent of the Group's targeted savings while representing only 6 per cent of the Group's costs.

Key issues facing the Group IT function

A great deal of progress has been made, but there is still much to do. Operational service levels remain an issue, which needs to be tackled both by education and by use of appropriate tools. User demand still exceeds supply, despite the cancellation of third-level priorities and the devolution of tactical systems to users. While costs are increasing only slowly year-on-year, they are not being matched by a corresponding reduction in users' costs. Staff and management development and communication require constant attention.

Ensuring that the IT organisation adds value to the business

Gareth Williams, Marks and Spencer

Gareth Williams is the director at Marks and Spencer responsible for retail services, logistics, and information services. Marks and Spencer is one of Britain's largest companies by market capitalisation, with a market value of well over £5 billion. Group turnover in 1989 was £5.6 billion, of which £4.8 billion was generated in the United Kingdom. Pretax profits, at £604 million, were the highest of any British retailer. The company employs 76,000 people directly, and more than 100,000 indirectly in manufacturing.

Retailing today

The British retailing sector has changed rapidly in recent years, amid a flurry of bids and takeovers. Since 1982, there have been more than 150 mergers and acquisitions in the retail sector, totalling more than £10 billion in value. Competition between retailers has been intense, in terms of quality, value, shop locations, customer service, and operational efficiency. The face of the high street has changed. Most retailers have modernised their premises and updated their operations. Many have diversified into new areas and introduced new services. There has been growing competition from mail order houses and catalogue show rooms, and IT has made telephone and television shopping a reality.

The most important development has been the growing importance of convenience shopping — particularly the one-stop variety, with good access and cheap car parking. There are now nearly 500 out-of-town hypermarkets, of which 340 have been opened during the past 10 years.

Marks and Spencer is embarked on an aggressive programme of expansion. Today, as for the past five years, its six major priorities are:

- Expanding its chain stores in the United Kingdom.
- Modernising all of its stores.
- Improving physical distribution systems.
- Introducing financial services.
- Expanding significantly overseas.
- Developing information systems on a large scale through computer technology.

The role of information technology at Marks and Spencer

A recent survey showed that the company had failed to communicate adequately the ultimate benefits of its investments in IT. These investments have been aimed at improving stock availability and stock information, speeding up customer service at the till, and moving staff from administrative work to customer service.

The survey inspired a programme aimed at integrating IT systems into the organisation. This has been a significant challenge for Marks and Spencer, given its late start as a large-scale computer system user.

The company's first computer system, for payroll, dates back only to 1969, and for seven years, it was run as a bureau service. Marks and Spencer acquired its first computer, together with some 50 staff, when it bought the bureau in 1976. It was not until 1980 that the company had settled on the scope of a major investment in computer systems to cover the whole supply chain, from the manufacturers of merchandise to its own sales floors. The scale of this ambition meant that the IT teams had to understand the business in detail. Only when that was achieved did the company begin to create the technical systems architecture, and segment it into deliverable systems using a modular approach and clearly defined interfaces.

Today, the customer benefits are clear to see: a better selection of merchandise, and superior stock management; faster service, itemised receipts, cheque and chargecard printing; and better value, arising from the shared benefits of IT investment.

Not every company can claim such success in terms of return on its IT investment. Although there have been many successes, and some are well documented, there have also been many failures. The experience of Marks and Spencer suggests, however, that it is possible to be prescriptive in determining how and when to use IT in spite of industry-sector differences, and the business changes implied by these investments. Every company should ask itself three questions:

- Do the IT initiatives under consideration represent standalone IT applications? Investment that simply introduces IT without significantly altering or building on other elements of the business does not add significant value.
- Can the company use IT to derive other, non-technology-based competitive advantages, such as economies of scale or product differentiation? If so, and if executed effectively, the pay-off can be assured.
- Can IT be used to change fundamentally the way business is conducted? If so, powerful changes in competitive position and industry structure can result. Such investments, however, must be accompanied by major business changes.

Staffing and responsibility

Gareth Williams went on to counsel caution over the hybrid manager. He suggested the need to distinguish between individuals who have generalist skills and those who have highly specialised skills. It is a mistake to force one skill upon another, in an individual incapable of accepting both. It follows that blending people with the right skills into teams is a key to success: it is people skills, not technology, that encourage innovation and add value.

Gareth Williams stressed that if a company aims to exploit IT effectively in the long term, it has to control the technology and develop its own skills (Marks and Spencer has found this to be true in other fields, including producing shirts, chickens, jumpers, and recipes). IT is no different.

The customer-led approach is key in every industry today. Much has been said and written about goal- and objective-setting, outside the province of IT, but the same principles hold good within that arena. The key to success lies in developing skills within a company. Allowing people to become the creators and owners of change encourages innovation and helps to clarify objectives and career paths.

Gaining business credibility for information systems

David Eggleton, Butler Cox

David Eggleton joined Butler Cox recently as director of the UK Foundation. Prior to that, he was responsible for coordinating and developing systems strategy across the BP Group.

He began by reminding delegates about the sub-themes of the conference, each of which had been discussed by one of the syndicate groups, and summarised the main messages from the conference. During the second half of his presentation, he drew on his long experience at BP to explain how BP had tackled some of the problems highlighted during the conference.

Messages from the conference

The messages from the conference had fallen into two main areas: investment issues and measurement issues. Systems directors must realise that IT competes for funds with other business investments. When the oil industry in New Zealand was deregulated, BP bought 100 petrol stations. It was then faced with the choice of investing $5 million in a system to control the stations, or buying five more (it chose the system).

IT investment must also be aligned with business plans. In BP, each business plan must have a chapter on the IT investment required to support the plan (along with a chapter on human resources and research and development). The justification of IT projects must also be related to business goals, and David Silk had provided some useful indicators on how to do this. Top management must also be involved in the IT-investment process. If it is not, IT will not get its appropriate share of investment funds.

David Eggleton summarised the conference messages concerning measurement as:

- Measure in business terms.
- Use benefits as the basis for measurement.
- Use different measurements for efficiency, effectiveness, and strategic-advantage systems.
- Assess both hard and soft benefits.
- Involve business management, systems management, and suppliers.

There had been much discussion during the conference about 'soft' benefits. David Eggleton supported Gene Lockhart's view that an attempt must always be made to assess soft benefits in monetary terms.

The need for the systems department to improve its credibility had also been mentioned several times. The common perception among top management is summed up by this quote from a chief executive: ''The systems department is a black hole into which, each year, I am told I must pour more and more money, and from which I obtain little or no value in return''. In particular, the systems department is perceived as being unrelated to the business and unable to control projects or manage investments. This may be an unfair view, but it is many chief executives' perception of the reality.

Allocation of IT responsibilities in BP

In the remainder of his presentation, David Eggleton described how the systems function was organised in BP, and how this organisation had addressed some of the problems identified during the conference. BP is organised with a main board, to which the boards of the four main businesses (exploration, oil, chemicals, and nutrition) report. There are also group head-office departments, and supporting services that sell their services to the rest of the group. The operating companies, located throughout the world, report to the business headquarters. This

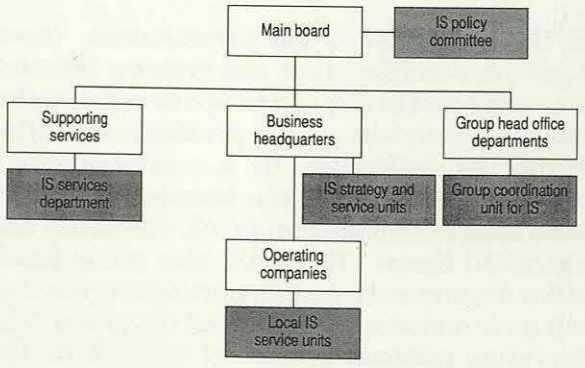
overall structure is shown in Figure 1, which also shows that there are systems responsibilities at each level:

- Operating companies may have their own local systems unit.
- Each business headquarters has its own systems strategy and service unit.
- One of the group head-office departments is the group coordination unit for systems (David Eggleton ran this group before joining Butler Cox).
- The systems services department sells services throughout the BP Group.
- There is an IT policy committee reporting to the main board. There are two main-board directors on this committee, four senior business managers (one from each of the businesses), and two outsiders (one from a US business school, and one from a European business school). The chief executives (not the systems director) of each of the businesses have to explain their IT plans to this committee.

Systems responsibilities are, however, pushed as far down the line as possible. Line managers, for example, are responsible for:

- IT literacy at all levels.
- The systems component of the business strategy.
- The business/local systems architecture.
- Management control of IT investments.
- The effectiveness of business applications.

Figure 1 In BP, information systems responsibilities are shared between head office and the businesses



- Procurement of IT services.

The group coordination unit for systems is responsible for:

- Policy and planning.
- Standards and guidelines.
- External regulators.
- Group architecture.
- Systems staff development.
- Group vendor relations, and exploiting the group's purchasing power.

The systems services department operates as a 'market led' business, competing with other IT service suppliers. It provides a wide range of services and is expected to be profitable.

The benefits found by BP of this devolved responsibility for IT are:

- There is a clear alignment of the systems function with the business organisation.
- An appropriate systems strategy for each business can be developed.
- Most IT investment is decided by the business boards.

Turning to the charge that systems professionals are poor at project management, David Eggleton quoted the example of one project, originally estimated to cost £9 million and take two years. It actually cost £20.7 million and took three-and-a-half years. The main cost overrun was in applications development and implementation (which cost three times as much as estimated) and in training (which cost twice as much). The increased training costs were, however, largely caused by the extended timescale. Nevertheless, the project has resulted in a successful application, and the chief executive of the particular business believes that it was the right thing to do. He does admit, however, that he would not have authorised the investment if he had known the true cost and timescale at the start.

David Eggleton offered the following advice on improving project management:

- Ensure that the purpose is understood by business and systems management.
- Spend time on design.

- Assess specification changes for cost, time, and value implications.
- Involve business management at all times.
- Employ trained project managers.
- Use good project-control systems.

David Eggleton closed his presentation by emphasising that systems directors must seek to demonstrate competence. Only by doing this will they build the trust in top management that allows IT investment decisions to be made in the way that best suits the business. He offered the following quotation as a guiding principle: "Seek to share the glory, but understand and accept the risk".

Delegate List

Abbey National	Norman Kybert Chris Wallage
AEA Technology	Bernard Gudgin
Allied Dunbar	Iain Bowden Geoff Fletcher Michael Payne
Allied Irish Bank	Barry Hession Michael Sweeney
Amdahl (UK)	Charles Abrahams Henry Steen John Wilson
Australian Mutual Provident Society	Ian Worner
Bank of England	Leslie Lloyd
Barclays de Zoete Wedd	Neil Everingham
Birds Eye Wall's	Peter Hewson Jo Spokes
British Coal	Anthony Baker
British Gas Northern	Bob Spokes David Wright
British Gas — North Thames	Kevin O'Brien
British Gas — South East	Graham Parris Steve Roche
British Gas Southern	David Taylor
British Steel — Strip Products	Mike Stone Tony Vickers
British Telecom	Chris Dawkins
British Telecom — Solent	Vernon Dover
Bull HN Information Systems	Dennis Chalk Ian Smith
Burton Group Financial Services	Chris Fisher Sue Perry
Cambridgeshire County Council	David Earle
Cardiff City Council	Roger Paine Mike Poulton

CCTA	Michael Osborne
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Department of Employment	Keith Thompson
Department of Environment	Roy Cheesman Michael Cook
Department of Transport & Communications (Australian Government)	Tom Arrowsmith
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Glaxo Group Research	Malcolm Mitchell Sandra Ward
Glaxo Pharmaceuticals	Iain Lee
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International Stock Exchange	Richard Beaven
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Lloyds Bank	Rodney Brass Jon Green
Lothian Regional Council	Michael Stephen
Marks and Spencer	Paul Bidos
Midland Bank	Mark Hibbard

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National Provident Institution	Tony Crooks
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National Westminster Bank	John Hutchinson
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PowerGen	Denise Plumpton
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FOUNDATION

The Butler Cox Foundation

The Butler Cox Foundation is a service for senior managers responsible for information management in major enterprises. It provides insight and guidance to help them to manage information systems and technology more effectively for the benefit of their organisations.

The Foundation carries out a programme of syndicated research that focuses on the business implications of information systems, and on the management of the information systems function, rather than on the technology itself. It distributes a range of publications to its members that includes Research Reports, Management Summaries, Directors' Briefings, and Position Papers. It also arranges events at which members can meet and exchange views, such as conferences, management briefings, research reviews, study tours, and specialist forums.

Membership of the Foundation

The Foundation is the world's leading programme of its type. The majority of subscribers are large organisations seeking to exploit to the full the most recent developments in information technology. The membership is international, with more than 400 organisations from over 20 countries, drawn from all sectors of commerce, industry, and government. This gives the Foundation a unique capability to identify and communicate 'best practice' between industry sectors, between countries, and between IT suppliers and users.

Benefits of membership

The list of members establishes the Foundation as the largest and most prestigious 'club' for systems managers anywhere in the world. Members have commented on the following benefits:

- The publications are terse, thought-provoking, informative, and easy to read. They deliver a lot of message in a minimum of precious reading time.
- The events combine access to the world's leading thinkers and practitioners with the opportunity to meet and exchange views with professional counterparts from different industries and countries.
- The Foundation represents a network of systems practitioners, with the power to connect individuals with common concerns.

Combined with the manager's own creativity and business knowledge, Foundation membership contributes to managerial success.

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