Chapter 1

The challenges of IS/IT projects

Information systems and technology (IS/IT) are now essential components of the majority of businesses, allowing them to achieve greater efficiency of operations, increased agility in responding to changing market demands and the ability to develop innovative products and services. Equally, almost all public sector organizations could not deliver their services effectively and economically without the extensive use of IS/IT or ICT, as it is generally called in the public sector. However, despite the consensus about the strategic importance of IS and IT and the considerable investments that organizations continue to make in their purchase and implementation, the realization of benefits remains challenging. Our own research discussed in Chapter 5 (Ward and Daniel, 2008) has found that, in the majority of organizations we surveyed (57%), less than half of the projects they undertook delivered the expected benefits. This is consistent with earlier studies that show the majority of IS/IT projects are judged to be unsuccessful in terms of the benefits achieved.

> 'Companies currently spend about 5% of their revenues on IT. While there is a large variation in that number, there is an even greater variance in the benefit that companies get out of their IT.'
> *Upton and Staats (2008)*

We would suggest that the bald statistics hide a number of more subtle issues:

- Organizations are implementing more complex and sophisticated information systems and other IT applications, which require increasing levels of managerial and employee skill to deliver and use effectively.

- Expectations created by the IT industry are not realistic in terms of proven benefits or the time it takes to realize them. Despite this, many senior executives tend to believe the promises of instant success they read about in business magazines or hear being promoted by suppliers and consultants.
- The applications are often enterprise-wide and impact more people inside the organization and also relationships with external trading partners and customers. One organization cannot prescribe how others will conduct their business, and achieving benefits relies on the active cooperation of a wide range of stakeholders.
- The types of benefit that IS/IT can deliver are increasingly diverse and less easy to identify, describe, measure and quantify. Uses of IS/IT have increased the volume and quality of information available, but it is still difficult to explicitly value the contribution many of its uses make to organizational success.
- In many cases, it is difficult to relate business performance improvements to specific IS/IT projects, as they usually result from a combination of improved technology and other changes in the ways of working.
- The prevailing focus of many organizations on achieving a short-term financial return from their investments prevents many of the longer-term benefits of a coherent and sustained IS/IT investment strategy from being achieved.
- As will be discussed in various parts of this book, organizations do not consistently undertake benefit reviews at the end of projects and transfer lessons learned to future projects. Our research has found that this is the key differentiator between organizations that are more successful in delivering benefits from IS/IT projects and organizations that are less successful.

At the same time the commercial and social contexts in which those investments are made are changing rapidly, both in terms of globalizing industries and the extensive use of IT in individuals' lives. Organizations not only have to align and synchronize their IS/IT projects with evolving business strategies, but also meet the expectations of ever-more sophisticated customers and, in the public sector, citizens. The volume of information now held electronically, in combination with legislation, has increased the need for greater security of the data stored to counter the threats from fraud and 'leaks', as well as to protect organizations' assets and individuals' rights.

While these challenges largely result from the rapidly evolving use of technology and the complex problems associated with the scale and

scope of deployment, there are a number of management issues that are critical to successful investment.

Strategic intent and actions required

Employees often report that their organizations are continually undergoing change, and that the rate of change is increasing. This is often a result of senior managers developing strategies in order to respond to internal pressures on the organization. However, whilst managers are aware of the pressures and can decide on apparently appropriate responses, they are often unaware of the implications of those responses for the staff, ways of working and systems within the organization. Expressed another way, it could be argued that 'the devil is often in the detail'.

The public sector, in particular, often suffers from disconnects between strategic intentions and the actions that must be undertaken to achieve them. Politicians make announcements on policy or service changes, which often include significant IS/IT projects, without understanding the implications of implementing those systems at the local level. For example, new healthcare systems in the National Health Service (NHS) in the UK usually require implementation across a large number of providers, either Hospital Trusts or Local Health Economies, all of which are at different levels of experience and sophistication with their current systems. The realization of benefits when many separate parties are involved, all of which are at different starting points, is highly challenging.

Recognition of organizational factors

The promises made by the vendors of information technology suggest that all an organization needs to do to improve its performance is to implement a given application or set of hardware – often termed the 'silver bullet' approach to IT deployment. However, considerable research has shown that such implementations should not simply be exercises in technology deployment, but, to be successful, should also be accompanied by complementary changes in processes, the working practices of individuals and groups, the roles of individuals and even the culture of the organization. It is the investment in these

organizational factors that is often missing, and this is why benefits are not being realized.

Finding a fair balance of benefits

The increased adoption of enterprise-wide systems, as noted above, means that a wider range of users will have access to or be required to use information systems. The investment in such systems is often predicated on the benefits that will be realized by the organization; however, as noted by Jurison (1996), realizing those benefits depends on achieving:

> 'a fair balance of benefits between the organization and its stakeholders. The issue of gain sharing is of critical importance . . . with no apparent benefits to them, stakeholders are likely to resist the changes.' *Jurison (1996)*

A common understanding

The different stakeholders associated with many new system projects result in a variety of perspectives on what the system is expected to achieve and how changes could be made to deliver these benefits. Unless all the stakeholders understand why change is needed and can agree an approach to achieving the necessary changes, it is likely that individuals and groups will pursue multiple different, potentially conflicting, approaches that can waste time and resources, resulting in difficulty in realizing the expected benefits.

Dissatisfaction with current approaches to benefits delivery

In 2006–2008, we undertook two surveys (one in collaboration with Vlerick Leuven Ghent Management School in Belgium and the other with Cutter Benchmarking Consortium) of senior business and IT managers, in order to explore the activities involved in the delivery of benefits and satisfaction with those activities. In total over 200 responses were received from organizations in over 30 countries. The overall results were almost identical from the two surveys and showed few differences when analysed by geography, type of organization or

Table 1.1: Satisfaction with benefits management activities

	Not satisfied with their current approach
Identification of project costs	43%
Project prioritization	59%
Identifying benefits	68%
Development of business cases	69%
Planning the delivery of benefits	75%
Evaluation and review of benefits realized	81%

respondent. The findings relating to satisfaction are summarized in Table 1.1 and show that, in most areas, the managers surveyed were not satisfied with their current practices.

Table 1.1 shows that respondents were most satisfied with their identification of project costs. However, whilst some organizations take a comprehensive approach to identifying costs, the survey found that this is not always the case, with many organizations failing to include internal costs associated with achieving business changes, with the implementation of systems and with new ways of working once the system is operational. Without an understanding of the full costs involved in an IS/IT project, it is impossible to be clear on the overall financial value of undertaking the project.

The resources available for new projects are finite within any organization and, in difficult trading conditions, can become very limited. This results in organizations needing to be able to compare projects and identify those that they wish to undertake or, if they are not willing or able to refuse projects, to be able to identify their optimal order and timing. For those undertaking some form of project prioritization, the most frequently cited reasons given were:

- to align the objectives of each project with the strategy of the organization (92%);
- to avoid over-commitment of limited resources (87%);
- to set priorities across different types of investment (82%).

However, despite having clear intentions for the prioritization of projects, as shown in Table 1.1, the majority of respondents were not satisfied with their organization's approach.

Respondents were also dissatisfied with their approach to identifying the benefits from IS/IT projects. Only 35% felt that they were successful in identifying all the benefits arising from a project and only 31% believed that they quantified the benefits adequately. As discussed earlier, the success of projects often relies on a fair share of benefits being realized by all the stakeholders involved. Without such a distribution of the benefits, it is likely that some of the stakeholders will have little interest in the success of the project. Worse still, if they are going to be disadvantaged by the project, often described as receiving *disbenefits*, then they may actually resist the implementation.

The vast majority of respondents (96%) to the survey said they were required to develop a business case in order to justify investment in IS or IT projects. But, as can be seen from Table 1.1, the majority of respondents (69%) were not satisfied with their approach to business cases. While there is a recognition that information system investments are made to yield benefits to the organization, traditionally business cases have not been explicitly stated in these terms. In many organizations, the business case that is required is essentially a financial assessment. This emphasis is likely to make projects where the benefits are difficult, if not impossible, to express financially hard to justify. However, they may be projects that contribute directly to those areas of the business that are most important to the organization's future, for example customer care or employee satisfaction. The dominance of a financial mindset within business cases will tend to favour cost-cutting or efficiency projects, which, although worthwhile, may be less beneficial investments than those that improve effectiveness or enable innovation within the organization.

> 'Benefits are typically delivered through extensive changes to business practices and decision making. There is a growing consensus that organizational factors are far more critical to successful IS implementation than technical considerations.' *Markus et al. (2000)*

The surveys showed a clear correlation between higher levels of IS investment success and a wide range of benefit types included in the business cases. In particular, benefits associated with sharing knowledge, collaborative working, team effectiveness and individual job satisfaction were far more common in those organizations' business cases. The less successful tended to focus on efficiencies from process improvements and cost savings.

Delivery or implementation planning involves identifying and planning the activities needed to ensure benefit delivery from the IS/IT project. Whilst most organizations (64%) indicated that they planned technology implementation, far fewer (31%) had clear plans for the organizational changes necessary to realize benefits, for example how staff were organized and how they carried out their work. Again, as discussed earlier, considerable research has shown that, to be successful, technology deployment must be accompanied by complementary changes in processes, the working practices of individuals and groups, the roles of individuals and even the culture of the organization. These changes require as much, if not more, planning and effort in executing the plans as the technical and system elements of projects.

Finally, the area where there is the least satisfaction with current practices is in the evaluation and review of benefits realized. The vast majority of respondents said their organization reviewed the cost of projects (90%), on time delivery (89%) and technical quality (73%). However, only 49% reviewed the delivery of benefits. In addition to not setting aside sufficient time for such reviews, respondents indicated that they felt it was difficult to undertake reviews if the expected benefits had not been clearly set out in the business case at the start of the project. Another reason that organizations may be reluctant to carry out post-implementation benefit reviews is that, perhaps surprisingly, 38% of respondents were honest enough to say that when benefits are identified at the start of a project, they are routinely overstated in order to ensure that the project is approved.

As will be discussed later, further analysis of the survey findings, and subsequent research, has shown that undertaking benefit reviews is directly associated with organizations that are more successful with realizing benefits from their IS/IT projects. This is for a number of reasons. First, reviews allow them to identify unrealized benefits and to instigate further actions to realize those benefits. Reviews also allow the organization to pass learning from one project to another. Finally, if staff know that there will be a review of benefits, they are likely to be more realistic and robust in their identification and quantification of the expected benefits when preparing a business case at the start of a project. Consistent with this, the research found that routine benefit reviews resulted in the preparation of better business cases, resulting in projects that yielded few benefits being identified earlier and not pursued, allowing even greater focus on the worthwhile projects.

The need for a fresh approach: benefits management

The expressed lack of satisfaction with current approaches to the management of benefits suggests the need for a better way. As with any project, it is important to get things right from the outset or considerable time and cost can be wasted in reworking activities already undertaken. A new approach should therefore commence with improved project identification and planning. It should also address the other limitations already described, such as the lack of inclusion of planning and costing for the business change elements of information system projects and the lack of review mechanisms after implementation.

Starting in the mid-1990s, an extended research programme was undertaken by the Information Systems Research Centre (ISRC) at Cranfield School of Management to address the limitations of existing approaches. The research programme, which originally lasted three years but has since been the focus of further research and development activity, was undertaken in conjunction with a number of major private and public sector organizations. The process and tools resulting from this work have been extended and refined from experience gained from the many organizations that have adopted the approach in the last seven to ten years. Key elements of the approach are now in regular use by well over 100 organizations across the world including the UK, Europe, USA, Australia, India and the Far East.

The overall approach developed, called *benefits management*, can be described as:

Definition: Benefits management

The process of organizing and managing such that the potential benefits arising from the use of IS/IT are actually realized.

The approach is based on a life-cycle process: a set of linked steps to guide the identification, scoping, justification, planning and implementation of IS projects, such that the available benefits from those projects are achieved. The key steps of the process are formulated as interrelated tools or frameworks that can be used to guide and structure the activities and actions needed to implement a project successfully.

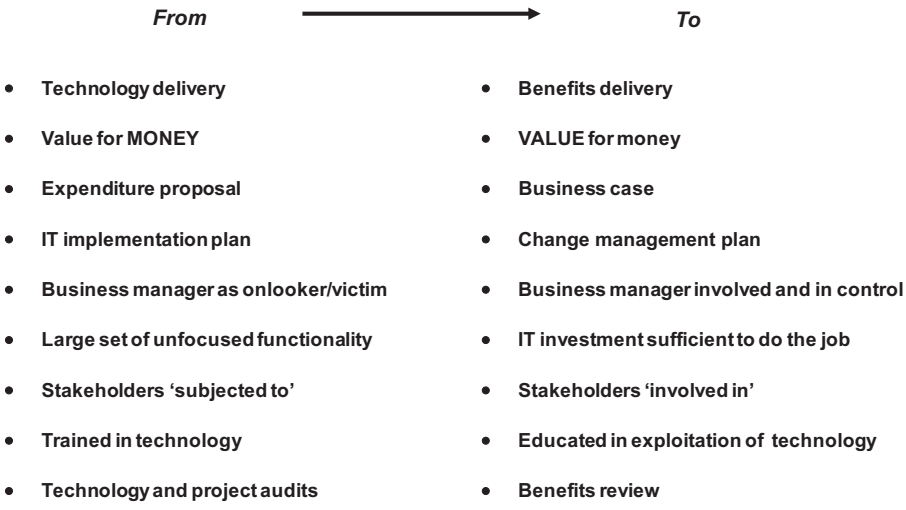

Figure 1.1: Comparison of benefits management with traditional IS project approaches

The subsequent chapters in this book explain and illustrate, with practical examples, the benefits management process and its underlying tools and frameworks. Before addressing the detailed stages of the process, it is worthwhile considering how the benefits management approach compares with traditional approaches to IS projects and the improvements that it has been shown to yield. This comparison and the improvements resulting from the benefits management approach are shown in Figure 1.1. While we would not argue that the activities on the left-hand side of this diagram are wrong or unnecessary, experience from the use of the benefits management approach shows that on their own they are insufficient to deliver many of the anticipated benefits.

Benefits delivery

Central to the benefits management approach is the identification of and focus on the potential benefits that can arise from the investment, a focus that is continuous throughout the project, from the initial planning stage, through appraisal and implementation, to the final review of the project. Technology delivery remains a key part of the project

and, as described later, robust project and systems development methodologies should be adopted to ensure that this part of the project is successful. However, too often technology delivery becomes the *raison d'être* of the project at the expense of the benefits the system will deliver to the users and the organization. Many implementations of customer relationship management (CRM), enterprise resource planning (ERP) and e-business systems have been driven as much by the promise of vendors and a fear of being left behind by competitors, as by a clear statement of the benefits they will yield to the organization. Too often, project managers find themselves required to implement the chosen application without a clear understanding of the expected benefits and the organizational changes that will be required.

A focus on value

Money is the language of business and translating all projects, not just IT projects, into a financial case allows senior business managers to believe that they understand the 'value' of the project. While they do not need a detailed understanding of technology or the workings of a system, the continued reduction of business cases to financial numbers and ratios reduces those managers' understanding of the role IS or IT can play in their organization and the types of benefits it can provide. Given also that the financial approach is unlikely to give a full picture, since more qualitative benefits are likely to be excluded from the case, this lack of understanding is likely to be exacerbated.

It is often easier to identify the costs associated with a project than the benefits or value that it will yield. This leads to statements commonly used to describe projects that focus on their cost, rather than their value, to the organization:

- 'we are investing £2.5 m in our new online purchasing system';
- 'our £36 m global HR database';
- 'the IT development budget for 2012 is £10 m'.

The emphasis on financial value to justify investments also results in the use of financial measures to monitor the progress of projects. This has obvious appeal since it is relatively easy to monitor the expenditure incurred on a project as it progresses, but it gives no information on the progress towards achieving the benefits required from the project, the real reason for the investment.

This use of financial measures to track progress also extends to measuring the success of projects, which are often judged to have been successful if they were delivered on time and on budget, regardless of the impact of the system on the performance of the organization. While overruns in either of these would not be encouraged, a project that takes longer or costs more but delivers the intended improvements to the organization should not necessarily be judged a failure.

When asked how they judged the success of an IS/IT project, senior management said it was the 'value delivered to the organization', whereas the project managers put delivery to time, cost and quality above value (Nelson, 2005). Although these were considered important by senior management, delivery of the expected benefits was their primary concern.

A business case linked to organizational strategy

This focus on the financial case for IS investments, and the relative ease of assessing the cost of a project compared to the value of the benefits it will generate, results in the investment cases often being effectively an expenditure proposal, rather than a true business case – a rigorous argument for a worthwhile investment. To be comprehensive, the business case should state clearly how the intended project will contribute to the strategy and performance of the organization. An investment could be justified on the basis of cost savings alone, but others will provide new capabilities, such as additional channels to market. If the business strategy stated a need for significant cost reductions or to increase the customer base, these projects would be clearly aligned with the strategy; if not, then, although the projects sound attractive, other investments may be more important, especially when funds and resources are limited.

> 'Nothing seems more obvious than anticipating business-based risks and focusing on managing the needed business changes in IT-enabled projects. Yet nothing has been more difficult, more misunderstood and more neglected in practice.' *Gibson (2003)*

In the benefits management approach described in this book, the planning for a project and the subsequent development of the business case commences with an understanding of the current and expected strategic drivers acting on the organization and hence ensures that projects and benefits are tightly linked to organizational strategy.

The importance of change management

The lack of recognition of the importance of the social element to IS and IT deployment often results in the need for many of the changes to ways of working being overlooked. In particular, the tendency for such projects to be led by IS staff, rather than business staff, exacerbates this lack of recognition of the impact the system will have on individuals and groups. This may well not be intentional, but is often driven by inadequate understanding of how the business operates by those in the IT department. Many organizations are trying to address this issue by having individuals from within the business participate in IS/IT projects and even lead them. However, they may fail to release those individuals from their day-to-day responsibilities, whereby involvement in the project becomes an additional burden for which they have little time. This can result in participation in the early stages of a project, and then leaving it with the IT team until it is ready for delivery. Figure 1.2 shows an example of an organization that implemented its ERP system twice: the first time unsuccessfully for the reasons above, and, courageously, the second time having learned from the earlier failure.

If the project is more than six to twelve months in duration, it can be expected that many factors, both within the organization and in the wider business context, will change. Continued involvement of the business managers is required to identify the implications for the project and address the resulting issues as they emerge.

FIRST ATTEMPT - FAILURE	SECOND ATTEMPT - SUCCESS
IS led, with insufficient knowledge of the business function concerned	Business function led, by a newly recruited manager, experienced in the function, supported by IS
Belief that the requirements were simple and already known - just use the package to automate the current process	Site visits and reviews of other companies' procedures to establish best practice and system requirements
Belief that this was a low-risk and straightforward implementation	Knowledge that this would require some major changes
Lack of business buy-in led to both the new and old (mainly manual) systems remaining in place, and little move by the business to adopt the new system	New procedures completely replaced the previous system and all staff were required to use them; facilities for the old system withdrawn
Little business change	Organizational and business process changes
Bespoke amendment of package. Longer and more complex system build, and difficulty applying upgrades	Minimal changes to the package, and innovative use of built-in facilities. Shorter delivery timescale and easy future upgrade paths
Costs, no benefits	Benefits have exceeded expectations

From: Achieving the Benefits from Software Package Enabled Business Improvement Programmes Best Practice Guidelines (IMPACT 1998)

Figure 1.2: 'Before and after' – how adopting a benefits management approach turned failure into success

Commitment from business managers

The rapid pace of change of IT, coupled with the technical language of IT staff, frequently causes business managers to feel that they do not understand IT in the same way that they believe they are familiar with, for example, marketing or other functions of the business. They therefore feel vulnerable when involved in appraising IS/IT projects, contributing to their preference to have such projects expressed in 'hard' financial terms. This feeling of vulnerability was expressed by business staff in those organizations which took part in the original research project as a feeling of being '*an onlooker or victim where IT is concerned.*'

The benefits management process addresses this issue by proposing tools and frameworks that both the business and IT staff use together, in order to ensure both communities contribute their knowledge and that the combined knowledge produces something neither group could have developed alone. The tools and frameworks are all intended to be used in workshop settings, to encourage participation from multiple individuals from both the business and IT groups. It has been found, through the extensive experience of using the process, that it encourages collaboration, more than the exchange of large, complex documents. Those involved also often actually enjoy the experience, something many of them say has not happened in previous IS/IT projects!

IS/IT sufficient to do the job

IS and IT vendors are keen to promote the many features of their products and, all too often, organizations believe that the list of features equates to a list of benefits that the systems will provide to their organizations. However, this is seldom the case and can result in organizations buying and installing systems that either do not meet their needs or are overly complex. As a result, those systems tend to be under-utilized and hence fail to deliver the expected benefits.

The benefits management approach looks at this issue from the other direction. Rather than starting with the features and functions of the technology or system, benefits management elicits what is causing the organization to consider the investment and hence the improvements the project is expected to deliver. It is only when this and any changes needed to make those improvements have been identified that the IS and IT required should be assessed, leading to a technology specification that is 'sufficient to do the job'.

'William Ockham, the medieval philosopher, said theories should be as simple as possible. The same principle applies to enterprise IT systems: they should be designed with as few standards (such as network protocols, operating systems and platforms) as possible – ideally one of each.' *Upton and Staats (2008)*

This does not imply that organizations should purchase under-specified hardware or software that would soon be insufficient to meet their needs. Rather it is to counter the emphasis of many vendors on the long list of features and functionality that they can provide, which can lead to incurring unnecessary cost. However, it is also often the case that vendors sell their products in packages or suites, so that it will cost little more to buy some additional functionality than the cost of the minimum requirements. The additional functionality should be evaluated to see if it contributes further benefits that would address the strategy or objectives of the organization. If it does not, it should not be purchased or, if bundled in, should not be implemented.

Involvement of stakeholders

Just as business managers may feel they are 'victims' in IS/IT projects, others who will be impacted by the system often believe that they are 'subjected to IS/IT', rather than feeling that they are contributing to and shaping the project. An important part of the benefits management approach is the consideration of the project from the perspective of a wide set of stakeholders, in part at least to address the *'what's in it for me?'* question most of them will be asking. At the heart of the benefits management approach is having 'benefit owners' who take responsibility for planning the actions needed to realize each benefit. If no one is willing to take ownership, this suggests that the benefit is either not wanted or not credible and hence will not be realized.

Ideally, many of those stakeholders or their representatives, if they are large groups, should be involved in scoping and planning the project, and in particular identifying the benefits and changes involved. They are then needed to be actively involved in making some of the changes and in tracking and realizing the benefits. In most projects, one group will have to make changes to deliver benefits to another group, and the two will need to work together. In addition to encouraging participation in planning and implementation activities from a wide range of stakeholder groups, the approach includes a particular set of

tools that specifically uncovers the views and concerns of each stakeholder group and identifies actions that may be needed to encourage or sustain their cooperation.

Educated in the use of technology

Surveys continue to show that firms invest little time and money in training their staff to use IT and IS. This problem tends to be particularly severe in the UK, with surveys showing that, compared to other European countries, organizations spend less per head of workforce on IT training, leading to reduced business effectiveness and personal productivity from IT use. Many projects are started with a defined training budget. However, this is often not sufficient to provide enough training for individuals to become familiar, let alone confident, with the new system (see Box 1.1). Even when a project does start with an adequate training budget, if it runs late or over-budget, it is often the training budget that is reduced to make up the shortfall elsewhere.

The iSociety report (2003) found that, all too often, training on new systems was left to informal, on-the-job training undertaken by colleagues. Even with formal training in place, such informal training is beneficial, since use of a system will depend on the details of a particular context. However, the existence of such informal mechanisms should not be taken as an opportunity for managers to abrogate their responsibility to provide basic systems, technology and even business skills training.

Box 1.1: The (in)adequacy of training budgets

The limited expenditure on staff training is highlighted by the activities of a major, worldwide professional services firm. The firm recently implemented a global financial system at a cost of tens of millions of pounds to improve the accounting, time recording and billing activities of the organization. All 15 000 staff in the organization are required to use the system to record their activities, if the expected benefits are to be realized. A significant budget was set aside for training staff to use the system. However, when the large number of staff and the average charge-out rate to clients of many of those staff are considered, the training budget equates to just 20 minutes per person!

While training staff in how to use technology and systems is important, this is often not sufficient in itself. To ensure projects deliver the full set of potential benefits, it is usually necessary not only to teach individuals which screens to access and which keys to press, but to demonstrate to them how the system can improve the role that they carry out for the organization. This training in the impact or exploitation of the technology should include an appreciation of how use of the system will impact others and other processes in the organization. Undertaking this education in exploitation will allow individuals to consider new ways of using the system or technology in their particular role, harnessing their experience and creativity.

Many systems today may not offer a net benefit to the individual. Rather, the major benefits accrue to the entire organization. This may include knowledge management and CRM systems, where individuals are expected to share their expertise or customer contacts. Without a clear understanding of how the use of these systems will benefit the organization, individuals will be reluctant to use them – particularly if it seems their role will be diminished. A lack of appreciation of the wider picture leads to individuals bypassing the new systems and continuing to store information on their local databases and personal devices.

Post-implementation benefits review

While many organizations have been keen to describe themselves as learning organizations, as shown in Table 1.1 few carry out post-implementation reviews, seriously limiting their ability to learn collectively from the experience gained from projects.

The benefits management process includes a post-implementation benefits review as an integral component of the project. This review should not concentrate on the use of technology or on the project management; rather, technology and project audits should be carried out separately. Instead, the benefits review should explore which of the planned benefits have been realized, whether there were any unexpected benefits arising and which planned benefits are still expected but may need additional attention to ensure that they are realized. Actions should then be put in place to enable these benefits to be realized.

The benefits review should also consider if, given what has been achieved so far, there is an opportunity for further benefits to be realized. It is often not possible at the outset of a large project to foresee

all the benefits that can be achieved when the system is in operation, and new or emergent benefits are often identified as business changes are implemented. Many of the current large-scale enterprise-wide system deployments are initially intended to overcome problems resulting from the use of a range of existing, often incompatible, systems. Once the organization becomes used to operating without these problems, it can then consider how the system can be used to improve overall performance across the organization and also how it could enable new, innovative ways of working.

The importance of a common language

Before undertaking an exploration of how the benefits from information systems might better be realized, it is worthwhile considering and clarifying the terms that are used in this field. The following section discusses major terms in common use and defines how they will be used throughout this book.

Information technology (IT) refers to the technology on which information systems operate or run. It refers specifically to the hardware, software and telecommunications networks that underpin information systems. Some commentators and organizations, particularly in the government and public sectors, use the term *information and communication technologies* (ICT), rather than simply IT, in order to stress the convergence of traditional hardware and software with the networks that characterize communications technologies.

Our definition of information systems (IS) is adopted from the UK Academy for Information Systems (UKAIS):

Definition: Information systems

Information systems are the means by which people and organizations, utilizing technology, gather, process, store, use and disseminate information.

The UKAIS notes that the use and study of these systems includes both the underlying technological and social aspects. Within the business sphere, this social dimension is concerned with how individuals, teams and even whole organizations adopt and use information systems and how this use, in turn, shapes those information systems. This means

that a consideration of information systems must take into account not only the technologies that enable them but also the inherent social implications. It can therefore be seen how the interchangeable use of these terms can lead to misunderstandings: with over-reliance on the term 'information technology' devaluing the importance of the social dimension, which, as has already been stressed, is critical to the realization of benefits.

Two other terms now in common usage are electronic commerce (*e-commerce*) and electronic business (*e-business*). Kalakota and Whinston (1997) define e-commerce as *'the buying and selling of information, products and services via computer networks'*, the computer networks primarily being the Internet. Hence, e-commerce refers to information systems carrying out trading activities focused outside the organization itself, for example with customers and suppliers. E-business, in contrast, refers to more general automation of information exchanges and organizations' business processes and transactions, both within organizations and with trading partners.

Another term that is often used when discussing information systems is *applications*. Applications are information systems that are used to accomplish a specific business activity or automate a particular process. Examples of simple applications are the word processing and spreadsheets found on virtually every PC. More sophisticated applications are used to carry out activities such as general accounting, production scheduling or warehouse management. Such applications are often now sold as *packages* or *suites*, comprising a number of separate applications. Recently there has been a trend to develop very large suites of applications that, when implemented, impact the activities of many processes or functions within an organization. These enterprise systems, which include ERP and CRM systems and enterprise portals, pose significant challenges for the realization of benefits, which will be considered throughout this book.

Organizations still face the difficult decision of whether to develop applications in-house to meet their specific needs, often termed *bespoke* or *customized* applications, or to buy a standard package from a software vendor. Prior to the 1990s, there was a tendency to develop bespoke applications, with the logic that little or no competitive advantage could be gained if a number of organizations in an industry used the same software package. More recently, the pendulum of opinion has swung in the direction of advising organizations to buy standardized packages, in which the vendors can embed best practices gained from their exposure to multiple organizations. As argued by both Carr

(2003) and Mata *et al.* (1995), it is not the software itself that will confer competitive advantage to any organization, but the skill that the management of the organization has in putting that software to work to address the objectives of their business and create changes to improve performance.

Summary

Given the continued reality of many IS/IT projects failing to deliver the expected benefits, there is a need for a fresh approach to how projects are undertaken. We suggest this should be a process approach that encompasses the entire life-cycle of the investment: commencing with the early exploration of the idea and planning the project, continuing throughout implementation and including a review when it has been completed. The focus throughout the project should be on the realization of benefits, since that, after all, is the reason the organization is making the investment.

A major feature of the benefits management process described in the following chapters is the recognition of the importance of the need for organizational and business changes to accompany the deployment of technology and how the realization of benefits is dependent on the successful achievement of these changes. Since a wide variety of stakeholders are likely to be affected by these changes, this suggests the need for a range of individuals to be involved throughout the project life-cycle in the benefits management activities, something that does not always happen with more traditional project management approaches.

As will be described, the starting point for the development of a benefits plan for a project is an understanding of the strategic drivers acting on the organization and its planned responses to these. An understanding of these drivers can show whether the investment being considered addresses areas that are important to the organization. It can also help in prioritization. As financial and management resources are finite in all organizations, deciding which projects not to do is often critical to being able to resource the ones that really matter. A number of tools and frameworks have been developed in the strategic and general management domain to help with the process of identifying and analysing possible strategies and making appropriate choices.

The importance of a well-thought-out and clearly stated strategy as the starting point for the realization of benefits from individual projects is underlined by the presentation and discussion of a key set of these

strategy tools and frameworks in Chapter 2. Once the business strategy for the organization has been determined, it is necessary to develop an IS and IT strategy. While the IS strategy should support the business strategy, there is also a recognition that IS can shape the business strategy. This dynamic interrelationship between these two activities is termed *strategic alignment*. The nature and role of IS and IT strategies is also discussed in Chapter 2.