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Strategic Planning for Information Systems: *Quo Vadis*?

By now, it should be clear that information technology (IT) has today assumed great prominence in most organizations. Thanks primarily to the hype that has accompanied the Internet, particularly that surrounding e-commerce and the dot.com phenomenon, IT has become an important item on the agenda of senior business management. Following the run-up to the millennium, which was dominated by investment to deal with the 'Y2K' problem, a combination of latent demand and Internet-based opportunism resulted in a very significant increase in spending on IT as management bought into anything with the 'e' label. However, for many organizations, the economic returns from this spending have not been forthcoming. The recent McKinsey[1] study of IT and productivity noted that 'contrary to conventional wisdom, widespread application of IT was not the most important cause of the post-1995 productivity acceleration.' The report went on to note that 'where IT did play a role, it was often a necessary but not sufficient enabler of productivity gains. Business process changes were also necessary to reap the full productivity benefits ...' Clearly, technology on its own, no matter how leading edge, is not enough, which may seem an obvious statement to make, but this lesson has yet to filter through to many management teams. There is now a danger in some organizations that IT may lose its position on the management agenda as it is seen, yet again, as having failed to deliver on its promise.

Rangan and Adner[2] diagnosed this prevailing situation when they noted, 'while the powerful technology of the Internet opens the way to new opportunities (new markets, new customers, new products and new ways of doing business), it carries in its wake the threat that the pursuit of opportunity will be driven by what is technologically feasible, rather than

what is strategically desirable.' This, unfortunately, is often what has been occurring and lies behind many of the problems that organizations have been experiencing regarding their IS/IT investments. Buying technology solves no problems; in fact, it tends to create more. It does enable new opportunities; but those opportunities can only be realized from its business application within a strategic context.

The high-profile failure of online sports and fashion retailer boo.com is illustrative of the 'irrational exuberance' that surrounded IT investment in the late 1990s. As *The Economist* observed at that time, 'boo.com went bust not because it was a dot.com, but because it was a badly run business. Its management was inexperienced, over ambitious, guilty of serial execution errors and uninterested in controlling costs. On-line or off-line, that is a rap list long enough to sink most firms.'[3] So, despite using some very sophisticated technology, boo.com failed for fundamental business and management reasons.

While business imperatives must dominate most decisions regarding IS/IT, there is one constant that ensures that organizations will never remain static: that is change. No matter whether the economy is shrinking or growing, and regardless of industry sector, organizations will always be under pressure to change. For many years, it was enough for IS/IT investment to keep up with business change and for the IS function to provide effective support services to the business. In the mid-1980s, the strategic information systems era arrived with the emergence of the use of IT for competitive advantage. Yet, nearly 20 years later, competitive advantage from the use of IT has proved elusive for most organizations. The majority, however, through lack of IS/IT investment, are at a competitive disadvantage. As we have illustrated throughout this book, the roles of IS/IT, the IS function and the CIO have also changed significantly during this time. The IS function and the CIO must not only keep up with business strategy but are increasingly expected to inform, and even drive, strategic thinking.

In this book, we have shown that the conventional view that business strategy drives IS strategy, which in turn drives IT strategy, is not sufficient for this expanding role of IS/IT. Such a perspective effectively ensures that IS/IT investment will always lag behind business strategy. It can also limit strategic options by denying senior managers insight into either the opportunities offered by new technology or the reality of what IS/IT can actually deliver. If IS/IT is to make a genuine contribution to business strategy, a different model and logic is required that allows the capabilities of IS/IT to be an intrinsic component of strategy rather than one of its consequences. While we have presented an approach and tool kit for IS strategy development and emphasized that it is a continuous process, there is still a danger that it is seen as a once-off activity and that,

once completed, senior managers can get on with their 'real' jobs. In addition, the approach presented also shows how organizations can seek out opportunities for IS/IT—a strategic information systems era perspective. Even with well-thought-out IS/IT strategies, we have seen organizations fail to deliver business benefits. The strategic management of IS/IT must therefore be expanded. Our research is pointing us toward the emergence of a fourth era in the evolution of IS/IT in organizations. But, before elaborating on this emerging new era, a resume of some of the key ideas from the earlier chapters follow—to summarize the situation today. It also considers what has happened in the past six years, since the second edition of the book, and how these developments have affected the IS/IT strategy field.

A BRIEF RESUME OF SOME KEY IDEAS

As a significant organizational activity, strategic planning for IS/IT is now 20 years old. Whatever processes are being successfully developed and adopted today have to be considered against the backdrop of an erratic evolution of IS/IT in most organizations, the increasing business pressures faced by organizations, and the opportunities and constraints presented by the technology and our understanding of how to use it.[4] All these are changing faster than ever before, hence the IS strategy process and management approaches need to evolve and respond to a more challenging environment and organizations need to learn from experience how best to develop an IS/IT strategy and execute the plans. Carrying out IS/IT strategic studies can help reorientate the IS/IT strategy process in many organizations, but, as has been said already, IS/IT strategy formulation and planning is an ongoing process, not an event, and repeated studies do not offer a smooth path to success.

Comparing the development of IS strategies to the development of business strategies offers some insight. Tools and techniques of business strategy are continuing to develop and processes are changing—especially in devolving to and involving more of the business expertise and knowledge that is spread throughout the organization. At the current stage of IS/IT development, organizations still have to think explicitly and overtly about IS strategy, and, for all the understanding of the need for integration with the business strategy, it seems it may still be some time before it becomes intuitively included in day-to-day strategic thinking. The IS/IT strategy process must continue to evolve to become a natural part of business strategic management both in concept and in practice. This needs to happen soon, given that, in most industrial, commercial and public sector environments, IS/IT is steadily but surely changing the

products and services, trading structures and relationships of firms in many industries, and the nature of business activities, organizational structures and how people work.

During the 1990s, theories of business strategy and competitive advantage also evolved. As described earlier in the book, resource-based theory, when compared with previous theories, perhaps offers a better explanation of why some organizations achieve and sustain advantage over an extended period. This is of particular relevance to the role of IS/IT, given that it is an increasingly significant business resource, available to more and more organizations as technology economics improve. Throughout this edition, the basic tenets of resource-based theory (as well as research findings from others who have explored its relevance to the subject) have been referred to in order to explain, where possible, why the strategic management of IS/IT is more successful in some organizations than others. The latter part of the chapter returns to this theme when the future of IS/IT strategies is considered.

It is unrealistic to attempt to summarize all the contents of the 11 preceding chapters. However, there are some basic ideas or models that are core concepts in any approach to IS/IT strategy formulation and planning. Foremost is its relationship with the business environment and business strategic management. As Figure 12.1 shows, there are five key relationships, as described in Chapter 1, and can be summarized as follows:

a. technology can support the strategy of an organization (alignment of business and IS/IT strategies);
b. technology can also define the business, shaping the business strategy (competitive impact of technology);
c. competitor moves influence and affect the organization and the markets in which it competes;
d. strategic plays made by the organization influence the market and competitor moves;
e. technological innovations can have a disruptive impact on industries, often redefining the boundaries of traditional industries.

Understanding the implications and achieving the appropriate impact is obviously a complex and difficult process due to the need to react quickly to a range of changing circumstances, and to plan ahead to actually obtain and implement the applications and supporting infrastructures. Organizations have limited resources and the key to effective strategy is deploying them on the activities that deliver most value to the organization.

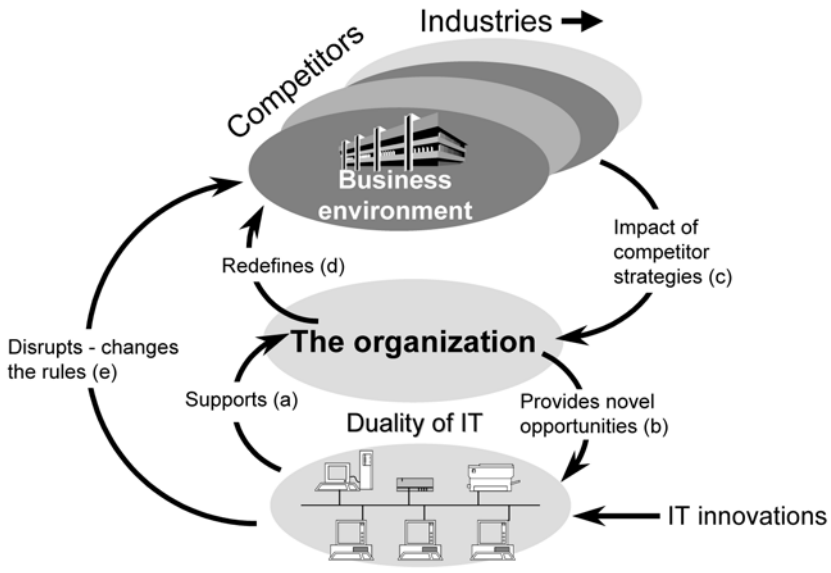

Figure 12.1 *The influence and impact*

In order to enable an ongoing IS/IT strategy process that allows for evolving circumstances, the main inputs—the external and internal business and external and internal IS/IT environments—have to be reviewed continually. The importance and implications of each have been discussed in Chapter 3. The eventual result of the assessment and analysis of these is the application portfolio required or possessed at any point in time by the business. That portfolio of business applications and its supporting information and IT infrastructure will be contributing more or less successfully to the business in relation to its environment and its strategy. This implies that applications should be managed according to their value or contribution to the business. One important feature of the portfolio approach is that it allows for the products of both 'top-down', formal strategic analysis and creative, informal strategic thinking. By managing the whole portfolio in relation to the way the contributions of applications can change (a life-cycle view), the best aspects of formal and informal planning are blended together. In practice, this reconciles the views of those who argue the merits of strategy 'formulation' (by analysis) or strategy 'formation' (by emerging synthesis).

Any IS/IT strategy process must be capable of rapid and partial reuse to interpret changes in any of the inputs and adapt the strategy appropriately. This implies a framework for quick and accurate inter-

pretation, in IS application terms, of changes in the environment. The framework is effectively the 'logical' steps in the strategy process whereby techniques can be adopted and applied in a coherent yet focused way. Following discussion in Chapters 4 and 5 of the various techniques—derived from IS/IT and business strategy formulation and planning approaches—such a framework is described in Chapter 6.

The portfolio merely represents a target for the business, how it can be delivered needs to be expressed in more detail, in terms of the development and beneficial operation of applications, and the provision of resources and technology. Without doubt, the most important and hence challenging area of the portfolio for business management is the strategic quadrant. The nature of strategic information systems was described in Chapter 1, where the new management challenges involved in these applications were outlined. Strategic applications involve changing the way business is conducted, either externally or internally, and consequently require a degree of involvement by senior management not traditionally expected and not easily made possible. How the organization chooses to organize and govern the IS activities and how roles and responsibilities are allocated will have a significant effect on whether or not it can devise and achieve the optimum set of applications, as discussed in Chapter 8.

The other major components of IS/IT strategies, each of which has to be managed effectively within the overall strategy, were considered in more detail in the latter part of the book. These components, the *3i's*—investment, information and infrastructure—were each considered within the overall concepts of the portfolio. High-level, 'generic', IS/IT application management strategies were described in Chapter 7; they provide the guiding principles that lead to consistent decision making and relevant ways of managing each of the 3i's above, once more regarding the existing or intended contribution to the business. These implementation 'strategies' can be related sensibly to the different approaches to planning that are likely to define the need for applications (see Figure 7.6). This suggests a natural alignment between the means by which decisions are made on *what* is required and *how* best to satisfy the requirement.

Any IS/IT strategy will be the result of many compromises. The issues that affect where and how those compromises should be made will change due to external, as well as internal, factors and the processes of IS/IT strategic management must ensure that the net effect of these compromises is not detrimental to the business strategy. As organizations become more dependent on IS/IT for business success and development, the compromises will be made less and less due to supply-side issues, although the problem of compromising the long-term plans to satisfy

short-term business issues will remain. The decisions are business decisions and the strategy should provide at least the basis of understanding the implications and guidance as to the best trade-off.

IS STRATEGY FORMULATION AND PLANNING IN THE 1990s

If the 1980s were characterized by the emergence of desktop computing and the acceptance that IS/IT could deliver competitive advantage, the 1990s could be characterized by:

- An emphasis on alignment between IS/IT and business management across a number of dimensions, as described by Venkatraman and others, in order to balance the influence of IS/IT on business development with the need to deploy IS/IT to improve performance. The influential Venkatraman and Henderson alignment model, described in Chapter 1 (Figure 1.8), is reproduced again as Figure 12.2.
- The rapid increases in connectivity available through IT at all levels—global, industry, interorganization and within organizations and between people—has made providing, accessing and exchanging information easier or cheaper than ever before, opening up new options for every organization and creating opportunities for completely new organizations to enter industries and provide new information-based products and services. Although many had flawed business models or little competency outside building web applications, the dot.coms created an enormous awareness of the potential

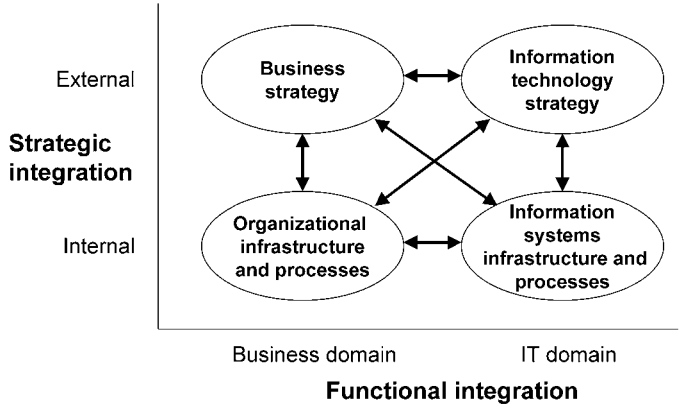

Figure 12.2 *The strategic alignment model*

of IT (or 'e') among business managers. As we write, business-to-business (B2B) e-marketplaces or e-hubs are having less actual impact than pundits predicted in 2000, mainly because the forecasts were quite ridiculous, but also because the potential improvements to industry performance take time to be understood, in addition to the not insignificant time required to implement new processes and systems among trading partners and assimilate the changes.

- Equally, rapid developments in the IT 'supply chain' are enabling more and more of an organization's requirements for IS/IT to be sourced from external suppliers. Increasing the options available is only an advantage if the organization knows *what* it is trying to achieve and *why*, otherwise *how* it does it will be a constraint to its strategy, whether its IS/IT requirements are sourced internally or externally. *Smart sourcing* is easy to prescribe, but not that easy to achieve successfully, as discussed in the previous chapter.
- The widespread implementation of business re-engineering initiatives in organizations recognized that, potentially, more benefits from IS/IT investment would emerge through the redesign of processes to make use of the capabilities provided by technology, compared with simply deploying IT to improve existing processes.

During the 1990s, some writers expressed scepticism about the value or even the feasibility of producing strategic IS plans in the increasingly dynamic IT and business environment. Much of that scepticism was based on the apparent lack of success in many organizations of implementing the strategies they had developed. However, the reasons for this 'failure' could be due to three factors:

1. the appropriateness of the IS/IT strategy formulation and planning process given the particular circumstances of the organization;
2. the feasibility of achieving the objectives of the IS/IT strategy process;
3. the relevance of the output from the process to the business situation.

It is the last of these that can be observed and described in terms of success and failure, but it is wholly dependent on the other two factors, which is where the problems usually lie. The quality of the output will only improve if expectations are based on achieving a realistic IS strategy from an appropriate process. The real need is to manage IS/IT strategically over an extended period, ensuring that IS/IT delivers the maximum possible benefit to the business. IS/IT strategy formulation and planning is only one component of strategic management. It would seem unwise to suggest that IS/IT strategy formulation and planning is not valuable,

based on the often overambitious objectives set and the inappropriate processes that many of the organizations have employed. Earl's work, in particular, demonstrates the need for an 'organizational' approach to IS strategy formulation and planning in the complex environment of today. The research evidence available shows that only a minority of organizations appear to have adopted an adequately 'organizational' approach to IS strategy.

It has also been argued that the IS strategy process has not kept pace with the impact, complexity or expectations of information systems and technology. Some have likened the early 'formulative' IS planning methods to 'structured methods' for IS development and they suffer from similar limitations. Fink,[5] Ciborra,[6] Checkland[7] and others suggest that, just as 'soft systems' methods offer a more 'organization-friendly' counterbalance to structured methods, an equivalent 'softer', iterative organization-wide ability to think and learn about the impact of IS/IT is needed to complement more technique-based planning processes. The issues of IS strategy development, as discussed earlier, can be separated into impact and alignment aspects. Since many of the impact issues will need more dispersed, organic and iterative processes for assessment, this also has implications for improving the alignment of IS/IT strategies, both in their development and their implementation.

When the second edition of the book was published in 1996, the final chapter attempted to predict how IS/IT strategic planning might develop in the coming years. In particular, two emerging themes were explored:

- organizational development based on IS/IT;
- industry development based on IS/IT.

While these have proved to be important to many organizations, the detailed evolution has not perhaps followed the predicted path. Some further implications of these still-evolving aspects of the role and impact of IS/IT are considered below.

ORGANIZATION DEVELOPMENT BASED ON IS/IT

Perhaps the predictions of Drucker,[8] embodied in a quotation from his thought-provoking article, are, to some degree, occurring in almost every organization. He wrote: '*we are entering a period of change—a shift from the command and control organisation, to the information-based organisation—the organisation of knowledge specialists ... it is the management challenge of the future*.'

The downsizing and delayering that has occurred during the past decade has changed the nature of organizational structures, with an emphasis on matrix or 'team-based' structures in the deliberate intent of both achieving 'more with less' and changing the way the business is operated and managed. Whether this can be said to be based around the 'organization of knowledge specialists' is less clear; however, these changes have in turn produced significant effects on the way IS/IT is used and managed.

In parallel with these changes to structure, brought about primarily by economic and competitive pressures, many of the forecast implications of the changes in the economics and capabilities of IT put forward by Zuboff[9] and others have also occurred. Zuboff talked about 'informating' the workforce, whereby job scope is extended due to the information available to the clerical and professional staff, 'empowering' them to make more decisions without the need for functional separation and control of activities. This again leads to team-based structures rather than hierarchical ones. The combination of an infrastructure of powerful workstations on every desk, now also in most briefcases and homes, and mobile personal digital assistants (PDAs), linked through web-based networks—both fixed and wireless—in addition to advances in software functionality and ease of use, have made new ways of working possible. They are not, however, always to the benefit of the individual who is now able to stay connected to his or her work 24 hours a day, leading inevitably to organizational expectations of staff working longer hours.

Handy[10] considered the whole subject of how future organizations will be 'structured', if at all! Like others, he suggested that 'intellectual capital' is the critical strategic resource of many organizations in achieving advantages.[11] The technology employed in systems of information and knowledge management will be the key enablers to release this new 'capital'. He correctly predicted that IT would change what people do, where and how they do it and the organizations they do it for or in! IT, combined with social changes, changing demographics and the economic consequences, will mean that organizations will have to use information systems and organizational knowledge better, not only to remain competitive but also to be able to obtain and keep highly skilled staff.

Both Handy and Drucker suggested how organizational structures will continue to change, becoming flatter, more federal and more flexible, comprising a management or professional critical core of people, a largely subcontracted set of specialist skilled resources and a flexible, part-time distributed low-skilled workforce, all linked through IT-based systems to plan, allocate and control the work to be done.

All this implies that businesses and organizations may be built around

information structures rather than IS being used to make a business or organization structure work more effectively. It could therefore be argued that 'organizational design' rather than 'organizational fit' should be a key consideration in IS/IT strategy.[12] Strategies for dealing with the organizational relationships, job and people issues will become more important. In current IS/IT strategies, the potentially far-reaching implications on organization structuring and job roles are only really just being considered. However, many reorganizations of structures, activities and the roles of individuals have destroyed information and knowledge structures, and have meant that IS/IT investments are prematurely obsolete and have to be replaced or simply decay into uselessness.

Others suggest that reorganization is less feasible because of constraints imposed by systems (or even technology), which is at least a realization that IS/IT and the organization are interrelated. Obviously, IS/IT use can be made more responsive to organizational and personnel changes by better design. However, in the future, management should consider how it can develop the organization to exploit IS/IT before making the changes. This will require a far better understanding of the impact of IS/IT on organizational relationships, job roles, use of knowledge, etc., which in time will provide new techniques of analysis to add to the strategic tool kit. While organizations seem willing to invest large sums in technology, they seem less willing to invest in educating and training their staff to use it effectively.

While rapid advances in IT have enabled more and more types of information (documents, images, voice, video, etc.) to be captured, stored and processed and exchanged more efficiently and usefully, the plethora of ways in which IT is employed could either reduce the overall benefit or even create significant future business problems. A word of warning was sounded in the conclusions of the Massachusetts Institute of Technology's 'The Corporation of the 1990s' research program.[13] Two of the conclusions were:

1. integration, both internally and with external partners, provides the main opportunities for improving business effectiveness through IS;
2. information (asset) management will remain a major problem and limit the rate at which business changes can be made.

This implies that major challenges remain for IS/IT strategy if maximum organizational and business benefit is to be obtained from IS/IT. Managing the 'information (and knowledge) assets' of an organization has emerged as an area of significant concern, as discussed in Chapter 10.

Industry Development Based on IS/IT

As early as 1987, Robinson and Stanton[14] proposed a developmental model of the increasing opportunities presented by what has become known as e-commerce. They identified four main types of potential benefit:

1. *process automation* (e.g. exchange of orders, invoices, etc.);
2. *boundary extension*—integrating processes carried out among trading partners and probably changing the way these processes are carried out internally in each partner;
3. *service enhancement*—sharing more or different types of information with trading partners to improve the performance of the value chain;
4. *product innovation*—providing products and services that customers require based on information.

We have, of course, seen all these opportunities extend to business-to-consumer (B2C) relationships with the commercialization of the Internet.

The consequence of this is that organizations are now focused on developing new relationships with both customers and suppliers; implementing customer relationship management (CRM) systems being one example of this trend. Rockart and Short[15] suggested that five forces are causing organizations to enter mutually-dependent relationships that—without effective support from IS/IT—will not always be successful. The forces are:

- *globalization*—in terms of both markets and sources of supply;
- *time to market*—the ability to develop and deliver new products quickly requires cooperation with suppliers and channels of distribution;
- *risk management*—in order to understand and share risks across trading partners by sharing information about changing market demand;
- *service*—being able to provide service excellence by bringing together resources and knowledge to meet more demanding customer expectations;
- *cost*—carrying out essential value-adding processes at the lowest cost, based on where in the industry the tasks can be carried out most economically.

They argued that IT provides the essential 'wiring together', or connectivity, of individuals and organizations to meet these demands. This becomes ever more important as organizations focus on 'core competen-

cies' and rely on others to provide the complementary resources and services required. They also recognize that this 'value chain integration' of external information-based relationships requires internal changes and a realignment to external-facing processes from functional structures. This in turn requires a reorientation of internal systems and (from yet another direction!) the need for systems to support team working—both internal and in collaborative teams with people in other organizations. All of this implies that a key role for the IS function is to establish the infrastructure to make this possible, by working closely with their counterparts in partner organizations.

Many of the predictions of Malone and colleagues[16] regarding electronic marketplaces are turning into reality, albeit more slowly than predicted. They argued that electronic markets will make fundamental changes to how some firms conduct their business. They predicted that firms would move away from vertical integration within the value chain and toward specialization in one process within the value chain. Trading exchanges between consumers and the firms in the chain, as well as among those firms, have become more widespread and more efficient, reducing the potential economic advantages of the firm carrying out a number of processes in the chain. The focus on organizational 'core competencies' as a source of advantage also suggests a similar evolution for perhaps different reasons.

An obvious conclusion that can be drawn is that a key input to many organizations' business strategies should be the potential changes in business relationships and market and industry structures that IS/IT investments are creating. This increases the importance of including IS/IT in the earliest stages of business strategic thinking, to understand the potential impact. Given the relatively unpredictable way electronic markets and electronic commerce have evolved to date, it becomes even more important to have a process that enables new strategies to emerge and be blended together with existing strategic intentions, as described in Figure 3.2.

THE ORGANIZATIONAL COMPETENCIES TO MANAGE IS/IT STRATEGICALLY

In previous editions of this book, a structural model of the relationships among business, IS and IT strategies was at the core of the alignment concerning *what* had to be done and *how* it could be done. That model (see Figure 1.6) is still important, given that many organizations fail to realize that the IS strategy is the essential link between business strategy and the use of IT. However, it does not really represent the continuous

Figure 12.3 *Information systems competencies*

nature of strategy formation and its implementation. As has been said earlier, having strategies is not enough—the organization must be able to deliver the benefits those strategies predict, to all relevant stakeholders and be able to adapt the strategies quickly and effectively as circumstances change. This implies the existence of organizational competencies that enable continuous interaction among the key components of strategic management—establishing the strategic vision and direction, planning and implementation. These are no longer sequential steps but, particularly in the case of IS/IT, need to interact and be changed as options or constraints emerge.

Based on our research, which, as described in Chapter 8, built on the work of others who have studied information, systems and technology-related competencies, a more appropriate model that represents the world of IS/IT strategy was described. That model is reproduced in Figure 12.3.

This model illustrates the organizational competencies required for IS/IT to make a sustained contribution toward strategic objectives and continuously deliver value to the organization. The *strategy* competency is the ability to identify and evaluate the implications of IT-based opportunities as integral parts of business strategy. *Defining the IS contribution* refers to the ability to translate business strategy into an IS strategy. This includes the ability to plan process and systems changes in such a way that they match business priorities. *Defining the IT capability* involves translating strategy into information architectures and IT infrastructures

that will serve business needs effectively over the long term. *Exploitation* is the competency to maximize the business benefits realized from IS/IT investments through the effective utilization of business information, software applications and IT services. *Delivering solutions* is the organization's capacity to develop, implement and operate IS/IT solutions for the business that exploit the capabilities of available technologies. Finally, the *supply* competency involves creating a resource capacity and supply chain for maintaining business information, applications and IT infrastructure.

The main purpose of the model as a strategic management tool is to enable an organization to identify the reasons why it is more or less successful in managing IS/IT. Those reasons are based on its ability or otherwise to carry out, consistently well, each and all of the 26 IS competencies described in Chapter 8. The view presented in this model balances the need to have resources from both the IS function and the rest of the business deployed in a way to both identify the best IS/IT investments and gain the full benefits from them. In today's environment, and we believe even more critically in the future, any organization that does not possess the full range of competencies, in-house or provided by proficient external suppliers, will be seriously inhibited from gaining many of the benefits available from IS/IT.

While there has been much criticism of the 'competencies' of IS functions and IS/IT professionals by many writers, other studies show that merely improving the quality and calibre of IS/IT resources achieves little if the organization is not capable of utilizing them effectively. The example quoted in Chapter 8 and depicted in Figure 8.12 is typical of the situation found in many organizations.

In a recent survey,[17] a cross-section of IT directors/CIOs and business managers, from a range of industries, were asked to assess their organizations' actual level of performance of each area of IS/IT competency, in relation to the level essential to achieve long-term sustained success. While not generalizable, the results were unerringly consistent across all the organizations in the survey. Only those competencies that 50% or more respondents deemed inadequate are included in the list below, with the top three being deemed inadequate by over 80%. Figure 12.4 shows the positioning of the areas of weakness on the competency model:

1. *business strategy*—an *inability* to ensure that business strategy formulation identifies the most advantageous uses of information, systems and technology;
2. *benefits delivery*—an *inability* to monitor, measure and evaluate the benefits delivered from IS/IT investment and use;

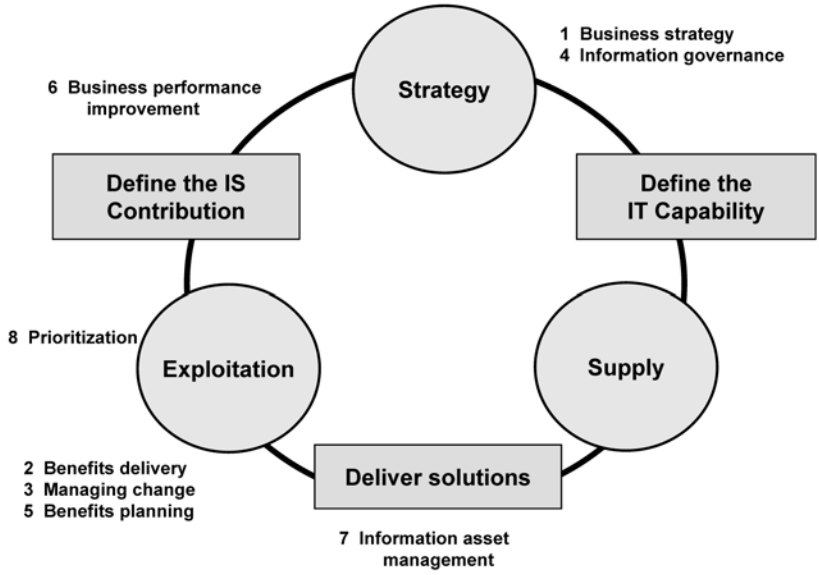

Figure 12.4 *Information systems 'in competencies'*

3. *managing change*—an *inability* to make the business and organizational changes required to maximize the benefits without detrimental impact on stakeholders.
4. *information governance*—an *inability* to define information management policies for the organization and the roles and responsibilities of general management and the IS function;
5. *benefits planning*—an inability explicitly to identify and plan to realize the benefits from IS investments;
6. *business performance improvement*—an *inability* to identify the knowledge and information needed to deliver strategic objectives through improved management processes;
7. *information asset management*—an *inability* to establish and operate processes that ensure data, information and knowledge-management activities meet organizational needs and satisfy corporate policies;
8. *prioritization*—an *inability* to ensure that the portfolio of investments in applications and technology produces the maximum return from the resources available.

It could be argued that these are the 'eight imperatives' for strategic IS management in the same way that others have proposed 'eight impera-

tives for the IS function'! It is not a coincidence that, in this book, large sections of many chapters are devoted to approaches and techniques of direct relevance to these particular eight competencies. Interestingly, *all* the competencies in the framework under the heading 'exploitation' were deemed to be inadequate (i.e. Benefits Planning, Change Management and Benefits Delivery).

The respondents to this survey were predominately from the IS function, thus giving an unbalanced view. However, having carried out IS competency assessments in many organizations when business and IS managers evaluated their situation together, the same eight areas of relative 'incompetency' are consistently in the top ten.

Of course, there are interrelationships among both competencies and incompetency. A lack of ability in one competency can produce inabilities elsewhere, and it is important to identify these relationships. For example, in a large bank, it was concluded from the analysis that the inability to set and sustain priorities was the root cause of many apparent inabilities elsewhere. No processes or mechanisms existed for agreeing and setting priorities and the almost continuous reprioritization, and the organizational conflict that resulted, undermined the overall strategy and disrupted many major investment programs. In a travel company that had ventured into selling on the Web via an almost independent Internet channel, it was concluded that serious problems in the Information Asset Management competency, resulting in higher costs across all retail channels, were preventing any net benefits from the new channel. Eventually, a reorganization was deemed the only way to reintegrate information management both across all channels to market and with core operational systems. In a telecommunications company, it was agreed among business and IS/IT executives that incoherent Information Governance was creating serious ambiguities in roles and responsibilities across the business and IS function. In particular, responsibility and accountability for benefit delivery was seen by business managers as the responsibility of the IS function—clearly something they could not achieve. New governance mechanisms combined with new investment management, benefits planning and delivery processes were introduced to achieve more appropriate, clearly-defined roles and responsibilities.

These are just a few examples of how an analysis of the level of IS/IT competency or incompetency can identify key problem areas and be used to instigate corrective action. Our conclusion is that organizational inability to make effective use of IS/IT and the associated resources is as much a result of inadequate competencies in the business functions as the calibre of the IS/IT resources it has available. Greater understanding of the organizational causes of these inabilities, and how they can be

remedied, is an aspect of IS/IT strategic management that has only just begun to be explored.

A BUSINESS CHANGE PERSPECTIVE OF IS/IT

A core observation from this discussion is that one way of thinking about the strategic potential of IS/IT is to view it as requiring IS competencies that can be leveraged to deliver strategic business initiatives. From this perspective, the strategic contribution of IS/IT will emerge from senior management's awareness of how different IS competencies in the organization can be exploited to satisfy market needs and how the IS competencies themselves contribute to enabling new strategic initiatives. Creating business awareness and understanding of IS competencies is something that the IS function itself must learn to do. Recent research conducted at the Information Systems Research Centre at Cranfield School of Management suggests that this understanding is best achieved by viewing IS/IT in the context of integrated change projects, where IS competencies are deployed alongside the other essential ingredients of organizational change. This requirement to shift emphasis from 'IT projects' to 'change projects' and programs, if business benefits are to be forthcoming, is a recurring finding from our research.

The extent and calibre of an organization's IS competencies will either increase or limit its options for change from the use of IT. From this perspective, the IS competencies define the organization's ability to identify and deliver successfully IS/IT-related changes, in relation to the demand-side drivers that cause the changes the organization has to make or wants to make (see Figure 12.5). 'Incompetency' in any aspect of IS/IT management can severely impact an organization's ability to determine, make and assimilate IS/IT-enabled change. Developing a realistic strategy involves managing supply and demand so that change initiatives work toward a common direction and competencies are developed according to business requirements.

The first part of this book addressed the issue of engagement in the strategic 'conversations', and the latter part considers the development of the competencies required to enable the results of those discussions to bear fruit.

Matching the development and availability of IS competencies with the business's demands for change requires understanding of the underlying philosophies of strategic decision making. Although the nature of strategic decision making varies among organizations, there are some broad similarities. In the Anglo-American business culture, strategic change has tended to be target driven. Typically, this begins with a definition of

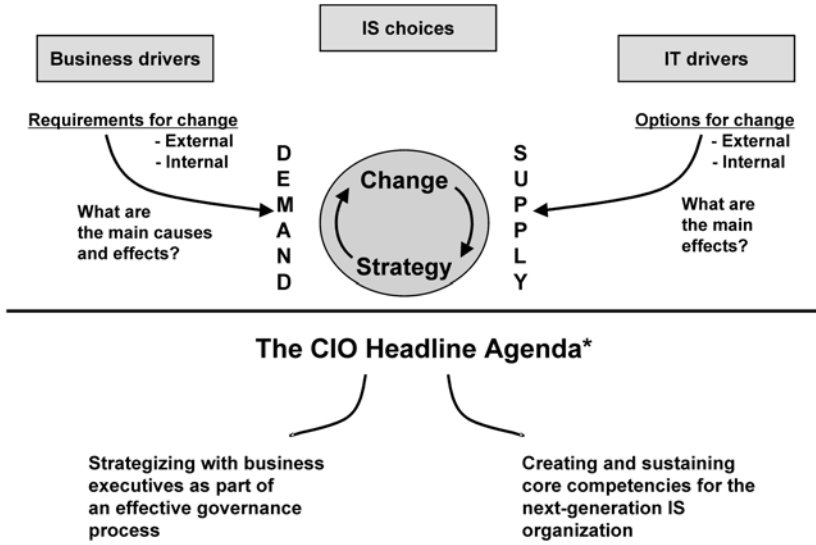

Figure 12.5 *Strategy as the management of change (*Shaping CIO Agendas in an 'E' World*, GartnerGroup, Stamfort, Connecticut, 2002))*

desired outcomes—the *ends*—and then works backward to find ways of achieving them and to determine the competencies and resources required (see Figure 12.6). This approach assumes that, regardless of the demands made by strategic change projects, the business will be able to find the necessary ways and means to achieve them. When this proves impossible, a change project will, at best, be only partially successful. The strong focus on measures in relation to strategic objectives can also create problems in the Anglo-American model. In particular, if the links between objectives and measures are not entirely clear, people will tend to focus on what is being measured, sometimes to the exclusion of equally critical but hard-to-measure elements of the change project or program.

The Japanese model of strategic change has traditionally been the reverse of the Anglo-American version. Rather than working top-down from a strategic plan or vision, strategy has been driven bottom-up by identifying opportunities to exploit existing competencies and resources—the *means*. Consensus is reached as to what is possible from the existing resource base—Japanese manufacturing techniques are good examples here. While this has proven effective in outmanoeuvring competitors over the short to medium term, the lack of long-term vision and objectives created its own problems, as the stagnation of the Japanese economy during the 1990s and into the 2000s demonstrates. Evolving

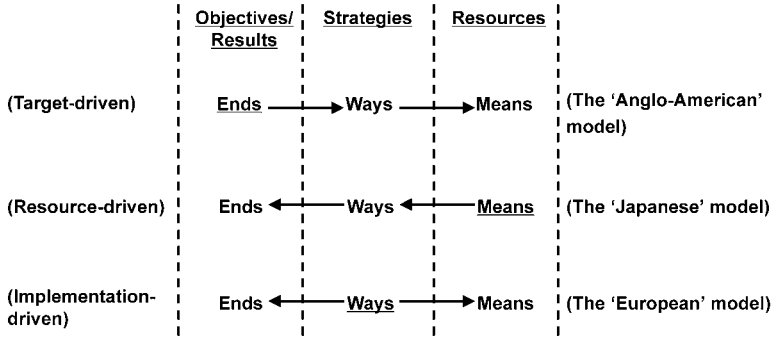

Figure 12.6 *Different strategic philosophies*

competencies and resources on a tactical basis, without some form of long-term direction, can prevent organizations from developing new competencies required in a changing environment.

The European model differs again. It is driven primarily by implementation—the *ways*—rather than objectives or available resources. The focus on implementation as a way of reconciling means and ends probably makes this model better suited to today's environment of rapid and unpredictable change related to either ends or means. As business conditions change and new enablers of change emerge, the implementation emphasis of the strategy process provides continual balancing of change capabilities and demands for change, while remaining responsive to short-term opportunities.

IT is a key resource of today's organizations—a key enabler of change—as are the skills and competencies it has to use the technology. The *ways* an organization chooses to deploy technology and the associated resources (the *means*) are the strategies, which in turn will determine the results (or *ends*) the organization can achieve. It is suggested that the focus of IS/IT strategic management should first be on the ways the organization can conduct its business using IS/IT and the ways IS/IT can enable it to change—rather than business objectives or the capabilities of IT. For example, customer relationship management (CRM) software is a resource; how an organization decides to deploy the software and change the ways it manages customer relationships will determine what it can actually achieve.

IS Competencies and Organizational Dimensions

The differences between the three strategy philosophies show that effective and workable strategy arises from a balanced understanding of ends,

Figure 12.7 *Information systems competencies and the organizational ingredients*

ways and means. The traditional Anglo-American model, however, places most of its emphasis on the ends (i.e. business objectives). Far less attention is paid to understanding the resources and competencies available and the level of change that can be used to either effect or achieve. Understanding IS competencies and their potential contribution to defining and implementing strategic change can help, provided the organizational reasons for the relative levels of competency can be understood.

In addition to the six areas of competency described earlier, this model shows five organizational dimensions that, from our research, affect either the development of a competency or its deployment. As illustrated by the five 'organizational ingredients' in Figure 12.7, problems with any of the competencies may be associated with leadership, structures and processes, roles, relationships and behaviours—these aspects were introduced in Chapter 8. An analysis of the inadequate IS competencies in relation to these five factors can reveal causes of the lack of competency in an organization and, consequently, what action can be taken to overcome those weaknesses and improve the ability of the organization to deliver a visible and significant business contribution from IT-enabled change programs. Again, from our experience in applying the assessment technique in many organizations, inappropriate *structures and processes*

and *roles* are most commonly the root cause of weaknesses, although ineffective *leadership* is often not far behind. The other two dimensions—issues in *relationships* and *behaviours*—are rarely the cause of problems, but are often the visible effects of problems elsewhere.

The IS/IT Contribution: Creating Business Value

Any organization ultimately makes investments in IS/IT to create value for its stakeholders, whether they are shareholders, customers, employees or others with a vested interest in sharing in its success. In the late 1980s and early 1990s, studies reported a 'productivity paradox'[18] and fueled a quest for economic analysis to determine whether links existed between IT investment and productivity and IT investment and profitability. A significant body of research has explored the relationship between IS/IT investment and business performance—between the means and ends—and the results have been diverse. At an industry level, results have been inconclusive. At an organizational level, where the findings are more meaningful for management, the results have illustrated the obvious: some organizations have achieved benefits from their investments, while others failed to achieve much from their spend! Conducting this type of research is fraught with difficulty, as it is a complex task to isolate the IT variable and determine whether or not it actually contributed directly to the outcome.

Even if a positive relationship between IT investment and performance improvement can be demonstrated to provide the case for making an investment, it gives little guidance regarding the value-creation process. Indeed, it does caution against placing too much emphasis on investment proposals that only define the expected return on investment. Whether benefits that justified the investment actually occur is less certain; an issue that the Benefits Management process introduced in Chapter 9 seeks to resolve. Moreover, IT value does not occur at a point in time, but rather unfolds over time through the effective use of the applications and the infrastructure.

Economic studies, although valuable in illustrating the apparent payoff or otherwise of IT, provide inadequate explanations of how IT value is actually created—the ways. One thing is certain: business value is derived from business change, whether through better processes, improved products or services, access to markets, enhanced decision making, greater efficiency or better resource utilization. More recent research[19] has suggested that investments in complementary assets (e.g. management skills and user knowledge) are critical to delivering the return on IT investment. Investments in other areas such as training,

process redesign and change management programs enable the benefits from IS/IT to be obtained.

The most helpful theoretical model to date explaining the steps involved in IS/IT value creation (i.e. linking IS/IT investment to business performance) has been proposed by Soh and Markus.[20] Illustrated in Figure 12.8, the model captures the major ingredients of the recipe for transforming IS/IT investments into improved organizational performance. The recipe suggests the necessary processes and the sequence that leads to success: organizations spend on IS/IT and, subject to varying degrees of effectiveness during the management of IS/IT, obtain IS/IT assets. 'Quality IS/IT assets, if combined with the process of appropriate use, then yield favourable impacts. Favourable IS/IT impacts, if not adversely affected during the competitive process, lead to improved business performance.'

Most previous IS/IT strategy research has focused on the first and last parts of the model, essentially the means and ends. The middle process of Figure 12.8, connecting IT assets to their impacts—the ways—is the least well understood, particularly in areas such as defining what constitutes appropriate use, how use differs depending on the type of IT investment and the organizational competencies in using IT. These are essentially implementation issues.

Establishing the value derived from IS/IT spend remains an enduring question and one that has yet to be satisfactorily resolved. 'Value for money' from IT has traditionally focused on the money spent, which is relatively easy to calculate, rather than the value derived. There has been considerable study of the 'total cost of ownership' of IT, but only recently has the emphasis shifted to 'total benefits of ownership'. We have already noted that organizations are spending an increasing percentage of their IT budgets on IT services, rather than on traditional hardware and software. However, calculating the business value derived from these services still proves elusive. Further research is needed in this area if we are to be able to understand and assess the 'total benefits of ownership'.

A FOURTH ERA: THE IS CAPABILITY

We believe that, as IS/IT assumes even greater significance in every organization's day-to-day operations and its future strategy, the strategic information systems era introduced in Chapter 1 is being superseded by the requirement for a distinct IS capability. An IS capability was defined in Chapter 1 as the ability of an organization to deliver business value from investments in IS/IT continuously and suggested that this is now heralding the emergence of a new fourth era—what we call the IS

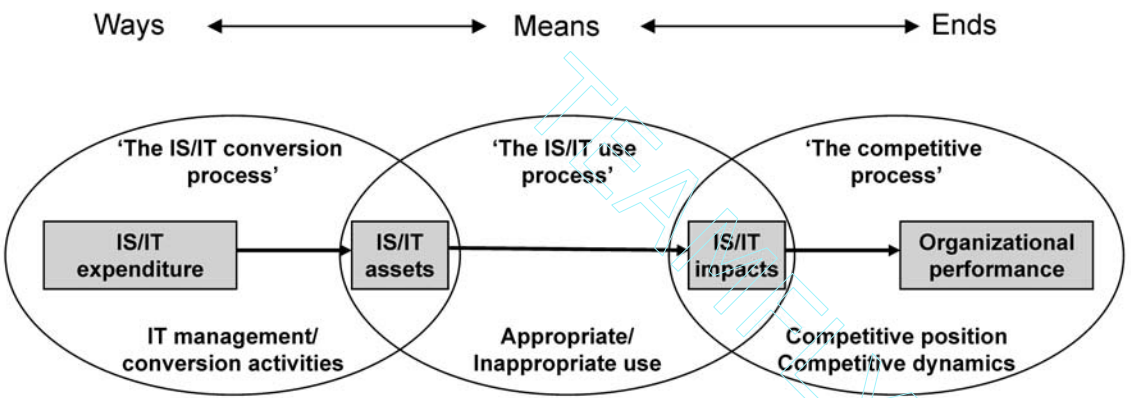

Figure 12.8 *How IT creates business value (*source: *adapted from C. Soh and M.L. Markus, 'How IT creates business value: A process theory synthesis', in* Proceedings of the 16th Annual International Conference on Information Systems, *Amsterdam, The Netherlands, December 1995, pp. 29–41.*

capability era. It is not necessary for all investments made in IS/IT to deliver business advantage—some may, others may just yield a good return from the level of investment being made, improving the performance of 'key operational' and 'support' processes.

This IS capability goes beyond seeking alignment or searching out for competitive opportunities from IS/IT. It is something that is built into the very fabric of the organization to enable it continuously to identify, obtain and sustain the benefits available from astute IS/IT investment. The closest analogy is perhaps the focus on quality that has become ingrained in the activities of many manufacturing and service organizations; it is just not questioned and occurs automatically and is part of the ethos of the company.

We saw in Chapter 1 that, while some organizations have managed to gain advantage from IS/IT, very few have achieved it on a continuous and ongoing basis. Technology is no longer proprietary and is 'freely' available in the open market to all firms competing against each other. Competitors will soon catch up through imitation or even overtake the organization either through a more innovative application or by deploying newer and cheaper technology for a similar purpose. There is now a perpetual requirement to innovate with IS/IT to effect change *and* to adapt business processes and practices to respond to change created by others.

By combining four views of how IS/IT contributes or otherwise to organizational performance, we suggest that the concept of an IS capability can become more than just a conceptual concept. The characteristics of an 'excellent capability' can be distinguished with a view to understanding and assessing the IS capability in an organization and finally, but not perhaps yet, defining strategic development routes to creating and improving this capability. The four views that we suggest can be synthesized are:

- the process theory of how IT can be used to create business value;
- the IS competencies required to enable a distinctive capability;
- the 'European' strategic philosophy that the ways in which we choose to manage and utilize IS/IT define what we can achieve and the resources required;
- the resource-based theory of the firm (which was described earlier in Chapters 1 and 2).

From our research, we see this capability as having three central dimensions: fusing business knowledge with IS knowledge, a flexible and reusable IT platform, and an effective use process (see Figure 12.9). These three dimensions must be working in harmony. The capability in

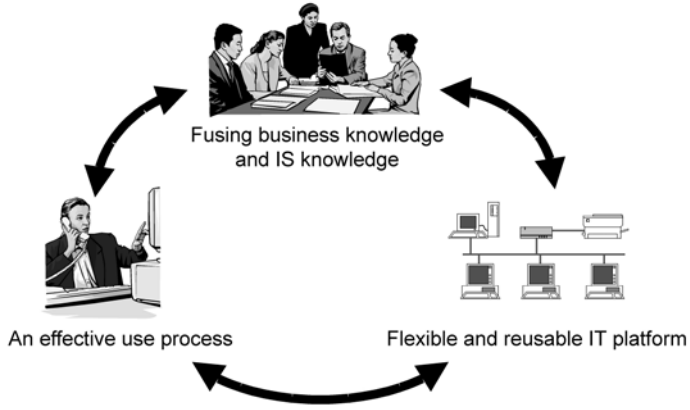

Figure 12.9 *IS capability*

turn is underpinned by the IS competencies. These three dimensions are discussed in more detail before examining the links between IS competencies and the IS capability.

Fusing IS knowledge and business knowledge to ensure the conception of strategies to utilize technological innovation, to seize opportunities quickly and to implement these strategies successfully, including managing change and making appropriate technology-sourcing decisions. It also involves knowing the extent of change that the business is capable of absorbing.

Managing IS/IT and delivering business benefits is essentially a knowledge-based activity. The management of IS is not one activity but a complex and multidimensional set of tasks and processes, incorporating many different but interdependent aspects. It involves integrating and coordinating knowledge from many different individuals coming from different disciplines and backgrounds, with different experiences and expectations, located in different parts of the organization. This obviously demands a close partnership between IS staff and business staff, each bringing their own knowledge and experiences to bear.

Of course, the wider the knowledge base being integrated, the more complex are the problems of creating and managing underpinning competences. Grant[21] believes that this integration is not possible without a structure for organizational competencies. This structure does not correspond with the organizational structure or hierarchy. Grant points out that the uniqueness of an organization's knowledge base makes it impossible to offer a specific form of organization for exploiting knowledge. However, organizations of differing knowledge bases and different structures can compete equally well.

In their research on outsourcing, Lacity *et al.*[22] found that 'numerous companies consider outsourcing partly for the access to greater IT knowledge it would bring.' But the challenge such organizations face is in integrating this knowledge with other internal resources, and perhaps it is the inability to exploit this combined knowledge base that explains why many organizations have experienced disappointing results from their outsourcing decisions. Indeed, Scarbrough[23] argues that outsourcing decisions could be usefully viewed in terms of the organization of knowledge. As noted earlier in the book, Earl[24] suggests caution regarding outsourcing when he noted that much learning about the capability of IT is experiential, and that organizations tend to learn to manage IS by doing, not appreciating the challenges until they have experienced them.

A flexible and reusable IT infrastructure provides the technical platform and resources needed to have the ability to respond quickly to competitor moves as well as the capacity to launch innovative IS applications supporting new process designs or business initiatives. This infrastructure is the technical 'supply side' component of the IS capability. Through the deployment of knowledge and skill, some of which may be bought in, the organization 'creates' an IT infrastructure that influences future options and speed of response and has a degree of permanency attached to it. So, if the senior IT management team of an organization changes for example, the infrastructure that they may have been responsible for shaping remains behind.

We have seen in Chapter 11 that the IT infrastructure provides the shared foundation of the organization's ability for building business applications. While many software applications are built to serve one specific business purpose, other applications and most hardware, networks, operating systems and databases are designed to be shared and to serve many business purposes. Yet, a major problem with IT infrastructure is that it is usually not adequately planned for. The IS function has generally been 'obliged to grow its IT infrastructure clandestinely, by small increments hung on the shirt-tales of particular applications for which a direct benefit can be demonstrated.'[25] It is generally accumulated rather than built to serve the business in times of change; consequently, it is often fragmented and technically incompatible.

As also discussed in Chapter 11, the IT infrastructure only defines the technological capability required to support the business and its strategy, if it adequately addresses the need for flexibility to deal with changing business priorities. Indeed, one of the reasons organizations often choose outsourcing is the belief that the vendor will provide them with this flexibility; research findings show that this may not always be the case.[26]

An effective use process to link IS/IT assets with value realization, through the application of the technology as well as creating an environment conducive to collecting, organizing and maintaining information, together with embracing the right behaviours for working with information.[27] The use process has two aspects: using the technology and working with information.[28]

Technology by itself has no inherent value; this value must be unlocked, a task that can only be achieved by people. While it might seem somewhat superficial to state, technology must be actually used for benefits to be delivered! This use takes place within business and management processes. Exploitation of the technology by deploying it to deliver business benefits requires knowledge and skills. Some threshold level of IS use must be achieved, before an impact can be observed, but, beyond that level, more use does not necessarily lead to more or better impacts.[29]

The use process is also concerned with information itself. We saw in Chapter 10 that Davenport[30] recommends organizations to place more emphasis on 'human-centred information management' or 'people-centred management activities' aimed at improving behaviours and values for more effective information use and at improving the way people behave with information. This line of reasoning softens the temptation of organizations to focus solely on technology implementation.

A MODEL LINKING THE IS CAPABILITY WITH IS COMPETENCIES AND RESOURCES

From our work with a number of organizations, we have constructed a model to represent the components of the IS capability. Illustrated in Figure 12.10, the model has three levels: the resource level, the organizing level and the business level. The *resource* level denotes the resource components that are the key ingredients of the IS competencies. In managing IS, resources are essentially people and their skills, knowledge and behavioural attributes. The *organizing* level is concerned with how these resources are mobilized and marshalled via structures, processes and roles to create IS competencies. It is, however, only at the *business* level that the capability actually manifests itself and is ultimately recognized in superior organizational performance. All organizations have an IS capability. For some, however, it is weak and severely affects that organization's ability to affect or assimilate IS/IT-related strategic change. Those with a strong IS capability can both leverage IS/IT-enabled change for business advantage and also absorb change.

In order to illustrate the link between resources and the IS

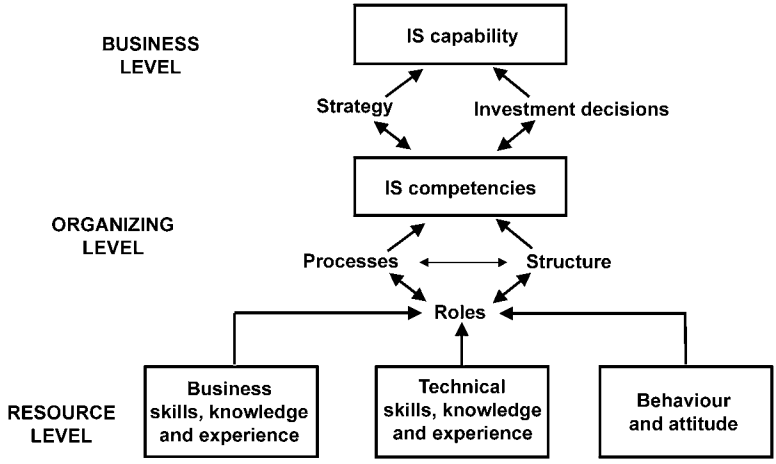

Figure 12.10 *From resource to capability*

capability, we first develop the relationship between resources and the IS competencies.

From Resources to IS Competencies

In an organizational context, competencies are embedded in organizational processes[31] and 'business routines'[32] and are bounded by the structure of the organization.[33] The expression of a particular competency in an organization depends on people applying their knowledge, integrating their knowledge, interacting with others and coordinating their actions—this they do by performing roles in processes. Consequently, people, as the receptacles of knowledge, are central to a particular IS competency manifesting itself, assuming that a conducive environment exists in the organization. Figure 12.11 illustrates that collective performance of IS/IT competencies contributes to the expression of the IS capability, highlighting that people, as resources, can contribute to a number of the IS/IT competencies.

Processes

The perspective of a process presented in this book suggested that viewing a process as 'a set of activities' has emerged out of manufacturing industry and is a fairly rigid viewpoint of the concept and may not be either appropriate or indeed applicable in all situations, particularly in knowledge-oriented environments. In such contexts, we have argued that it is more appropriate to view the concept of process in terms of roles, as

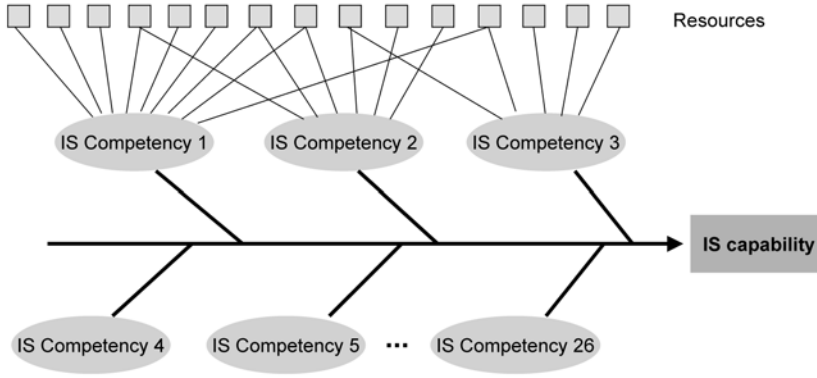

Figure 12.11 *Resources and competencies*

well as activities, with a process portrayed as 'a collection of roles collaborating and interacting to achieve a particular goal.' Such a view is of particular relevance in complex tasks or processes, where bringing together specific knowledge and skills is critical to the ability of the organization to perform the task.

Roles

The concept of roles and role theory is useful in understanding the behaviour of individuals in both groups and organizations. The history of role theory dates to the 1930s, when sociologists and anthropologists studied roles as a key to explaining the origins of social behaviour.[34] Since then, role theory has emerged as a recognized discipline. Building on the sociological roots of role theory, Graen[35] developed a 'role systems model' in which behaviour in a particular role is the result of organizational demands, social demands and personal demands. Katz and Kahn[36] applied similar ideas to their organizational role theory, which emphasizes organizational factors, interpersonal factors and attributes of the person.

In an organization, an employee's primary role is indicated by a position title and specified by a 'job description'. However, employees are likely to have to perform different roles at different times. In order that the organization can achieve its goals and objectives, the work of individual members must be linked into a coherent pattern of activities and relationships and this is achieved through the 'role structure' of the organization.[37] While roles can be tightly or loosely defined and have different degrees of discretion associated with them, they do encompass the expected behaviours attached to a position or job. Individuals may

perform many roles, operate within a number of processes and consequently contribute to many IS competencies.

Human resource management theorists describe a range of factors that distinguish the ability[38] of an individual to perform a particular role.[39] These are:

- Skills—*know how* of the job, which implies the physical ability to produce some action. This might be the ability to program in Java or draw data flow diagrams.
- Knowledge—*know what* of the job, the ability to understand what the role demands of the person. For example, knowledge of what is involved in constructing an IS strategy or in building relationships with vendors.
- Behaviours and attitudes—*know why* of the job, the personal attributes or aptitudes that make knowledge useful and enable skills to be acquired in the first place. Personal characteristics are important and indeed may be crucial in service-oriented roles; for example, IS staff having empathy with users in delivering many IS services, particularly those with a high degree of user contact.

Structures

Both processes and roles are framed by the organization structures. Structure is traditionally seen as being concerned with the systematic arrangement of people, departments and other subsystems in the organization. The structure of the organization can affect the performance of processes, particularly those that cross departmental or functional boundaries. The concept of business process re-engineering emerged as a consequence of the problems of functional organizations and called for a greater focus on process in designing organizations. We have already argued in Chapter 8 that resource elements of IS competencies are not located solely in the IS function, but are spread throughout the organization.

From IS Competencies to IS Capability

It is only at the business level that the IS capability actually manifests itself, reflecting the organization's ability to achieve sustained superior performance through IS/IT. As has been argued above, this requires fusing IS knowledge and business knowledge, establishing a robust and flexible technical platform and instituting an effective use process.

The extent to which IS competencies contribute toward the IS capability is dependent on two aspects: the strategy and investment decisions. Both define whether the IS capability is a source of competitive

advantage, a mere necessity for competitive parity or, indeed, whether it is placing the organization at a competitive disadvantage. Although having an IS capability is a business imperative today, different organizations may choose to resource it in different ways, but almost all rely on a combination of internal and external resources and even some externally provided competencies.

Barney[40] refers to competencies as organizational characteristics that 'enable an organization to conceive, choose and implement strategies.' A firm could potentially identify an advantage by conceiving an innovative strategy that depends on IT, but successfully implementing such a strategy will be dependent on the current status of the IT infrastructure, the organization's ability to successfully deploy appropriate resources as well as to implement and operate new processes and systems.

Similarly, succeeding with Enterprise Systems (ES) is not as dependent on the technology and applications as much as it is on the organization's capacity to implement and manage change.[41] As discussed in Chapter 11, the first implementation of an ES normally involves recognizing current problems and constraints to progress that more integrated processes and systems will eliminate. This will undoubtedly cause many existing IS competencies to be reassessed and improved to enable the organization to be operated and managed as an integrated whole, using information and systems in new and quite different ways. As the end of the stage, if successful, the organization will have an improved business and IS capability that, through further changes in business practices in addition to innovative extensions of its systems, can produce new strategic opportunities. As outlined in Chapter 11, the evidence from research suggests that, while the problems and constraints exist, it is very difficult for organizations to envisage the potential that an ES-based capability provides.

From Capability to Improved Business Performance

An IS capability only delivers actual value through implementation, in terms of the way it is used in improving business performance. Both the intended improvement in performance and the way IS/IT delivers or creates that improvement should be explicitly stated in the business and IS strategies. Figure 12.12 illustrates how we see IS competencies fitting within an overall model of the organization and its performance. It illustrates the relationship between business strategy, IS/IT strategy, IT operations and services, business operations and performance. This model emphasizes that business performance ultimately derives from business operations—the configuration of people, processes, structure, manufacturing, etc.—not directly from IT, even though technology may be a core

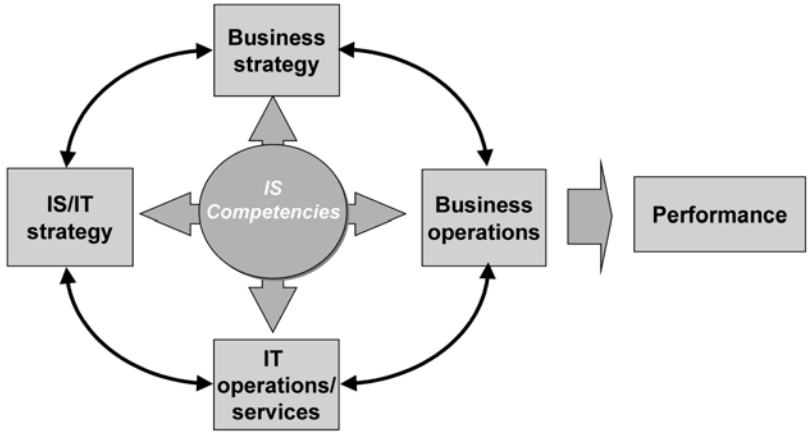

Figure 12.12 *The relationship between IS competencies and business performance*

component without which business operations could not be performed successfully.

Direction and purpose for business operations is given by the business strategy, which, while shaping the IS/IT strategy in terms of defining requirements, is itself impacted by opportunities provided via IS/IT. As we outlined in Chapter 1, the IS/IT strategy determines the *what* and *how* of IS/IT, and provides the blueprint for IT operations and services.

The IS competencies impact all four areas of the model. They determine the extent to which IT opportunities are incorporated in business strategy, the effectiveness of business operations, how well the IT infrastructure is designed and resourced, and the level of performance achieved by IT operations and the quality of IT services.

A weakness in any area of IS competency affects the overall IS capability and directly or indirectly impacts the business operations and ultimately affects business performance. We believe that the new IS alignment is concerned with how well the organization develops and utilizes its IS competencies in each of the four areas of the model. This implementation-based view contrasts with the traditional view that just considers the alignment of the business and IS/IT strategies or the structures and processes of the IS function and activities in relation to the business organization.

In a global reinsurance brokerage where we undertook research, the effectiveness of this new alignment was clearly evident. From our analysis, all the company's IS competencies were extremely strong relative to what was required given its business strategy, even though many of the resources and IT supply competencies were sourced exter-

nally. The company has recognized the value of information and its effective management to its competitive success. The IT director is a member of the Board of Directors and has a very strong partnership with the group CEO. They regularly attend IT conferences together. He is a key player in the business strategy decision-making process; one colleague noted, 'I think that he is forward-thinking enough to be looking at new technologies and that he is brave enough to take the decision to go with things,' and this often means driving the business strategy. A quote from its IS/IT strategy document best illustrates how IS/IT is deployed in the company: 'Information systems cannot afford to wait for a clear and detailed specification of "*strategy*" from the business and customers it is trying to serve. It is more a question of applying IS/IT foresight to the situation, in order to make reasoned assumptions to an appropriate course of action.'

There is also a close partnership between the IS function and the rest of the business. Indeed, this is probably helped as the IT director is responsible for both IT operations and most of the business operations (the exceptions being marketing and risk management). Roles are clearly specified, particularly in the delivery of IT services. The philosophy of the IS function was described by one IT manager as 'we help you to help yourself', in reference to the fact that they work closely with the business. The company has not set out to develop and nurture the 26 IS competencies explicitly, but they are present and they do provide an explanation of why the company has probably been the most successful player in its industry over the last 20 years and recognized by its peers as being innovative regarding the deployment of IT.

CONCLUSION

The discussion of a proposed 'fourth era', where an organization's performance will be significantly dependent on its IS capability, recognizes that IS/IT now plays an integral role in the majority of business operations. In previous eras, the focus of IS strategy was on selecting the most beneficial set of IS/IT investments to make and managing them successfully through to implementation. This in itself became more challenging as applications became both more complex and more strategic, demanding innovative thinking about IS/IT use and the ability to make increasing degrees of business change to deliver the benefits. However, there was an implication that any organization could achieve this by excellence in developing its strategy—excellence in the sense of astute assessment of the impact of IS/IT and accurate alignment of IS/IT strategies with business strategies.

The concept of an IS capability suggests that an organization will not be able continually to achieve both of them unless it has a track record of successful implementation, through which it develops a full set of IS competencies. This in turn implies a focus on *the ways* it decides on and deploys IS/IT, learning from success and failure, rather than concentrate on what technology can do (*the means*), or try to align IS/IT use to business objectives (*the ends*) that often arbitrarily, set the investment and change agenda.

Perhaps fueled by the hype that continually surrounds IT, management seem to be still hoping for the 'silver bullet'—that merely possessing a technology will deliver untold benefits. The recent relabeling of IS/IT as 'e' seemed to reignite that dream. The stock market boom in technology stocks and unsubstantiated claims for the 'new economy' increased that misplaced confidence for a time. However, to requote the Microsoft chairman, Bill Gates: 'I have a simple but strong belief. The most meaningful way to differentiate your company from your competition, the best way to put distance between you and the crowd, is to do an outstanding job with information. *How you gather*, *manage and use information will determine whether you win or lose*.'[42]

Taking advantage of all that technology offers requires an enduring ability within an organization to understand how systems and information use can improve its performance and create new options. This requires sustained investment in developing IS competencies that, once in place, enable the organization to exploit the technology, systems and information it has and with the knowledge acquired make further investments, each of which delivers explicit, measurable value. Balancing the need to innovate in IS/IT use with the need to exploit fully the organization's IS/IT resources and assets is one of the main reasons for having an IS/IT strategy. Strategic management is about making informed choices based on an understanding of the relative benefits of different options *and* having the ability to deliver those benefits.

Perhaps this book would be better entitled *The Strategic Management of Information Systems* since much of the content is not solely about devising a strategy but also about making it work. What is certain is that, although 'IT fads' will come and go, the use of IT will pervade more and more aspects of organizational activity and people's working and personal lives. It is here to stay. Therefore, if organizations are to enjoy the benefits that can be realized from its adept application and avoid the problems its inept use can produce, they will need to develop IS/IT strategies that are fully integrated into the business strategy and capable of being implemented successfully. There is still much to learn, and we have already commenced this quest as we prepare for the fourth edition!