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Strategic Management of IS/IT: Organizing and Resourcing

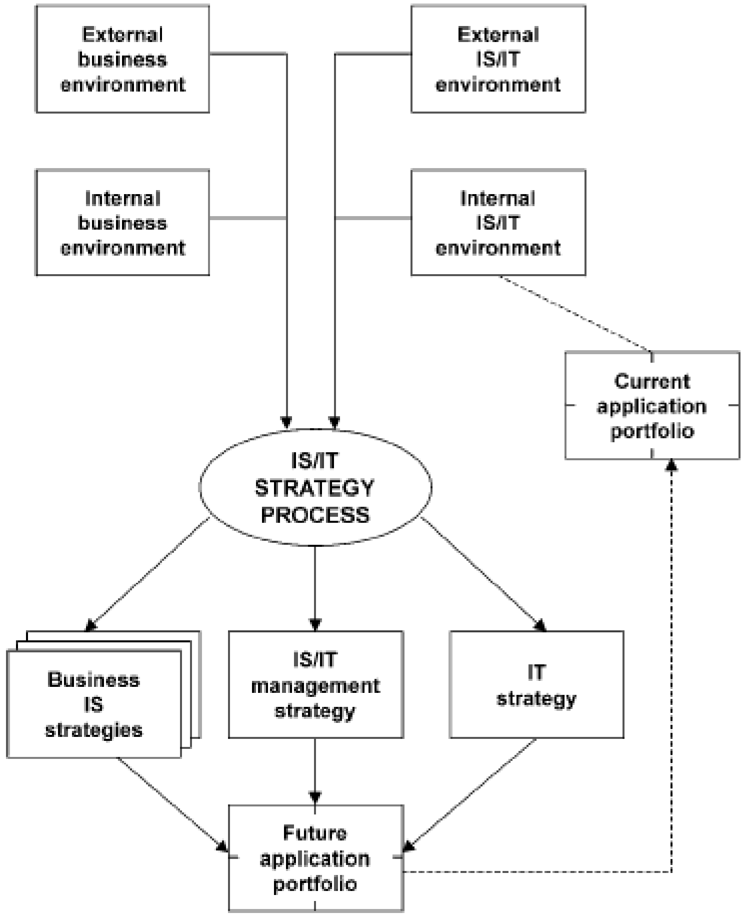


Figure 8.1 The IS/IT strategic model

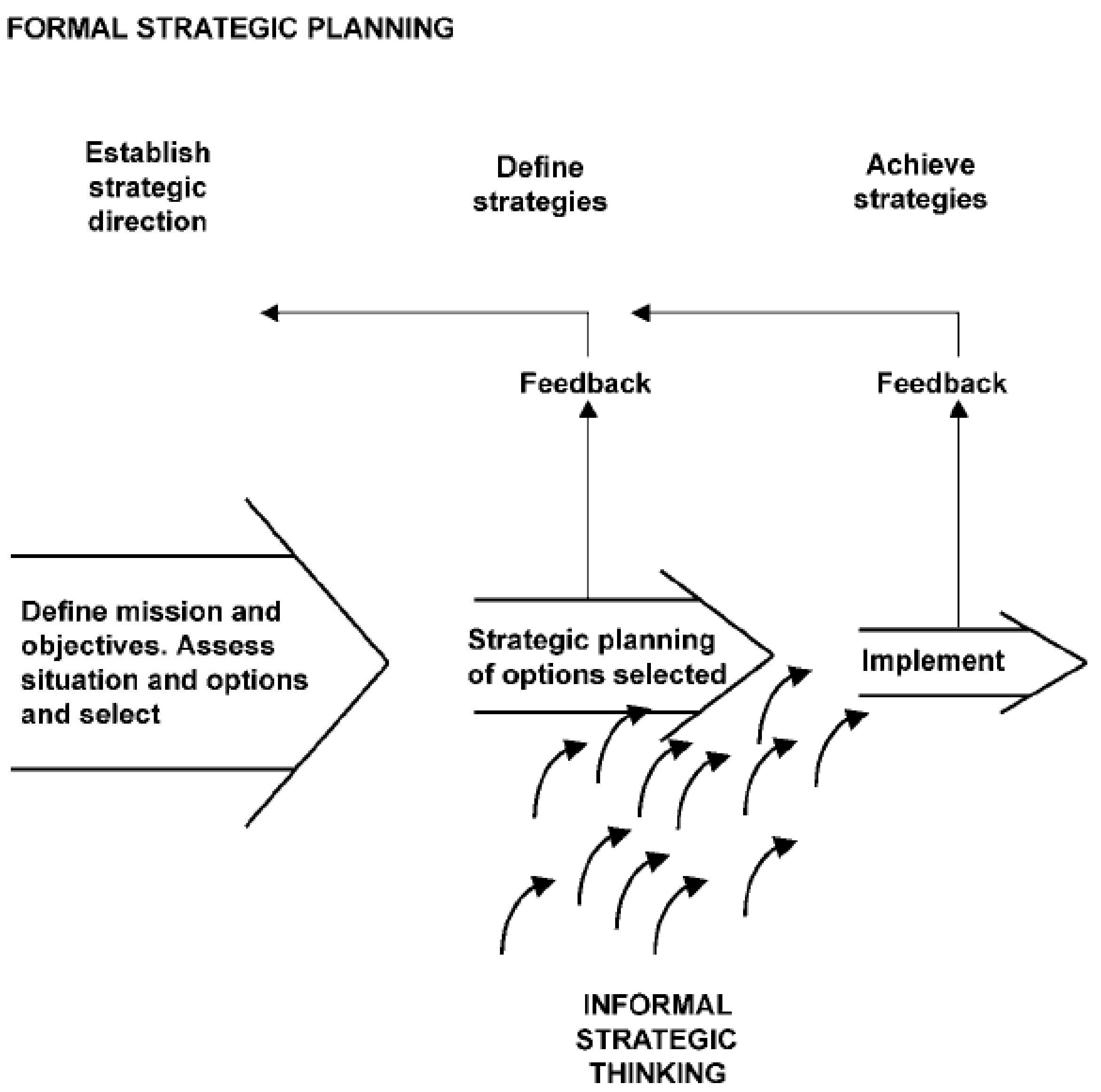


Figure 8.2 Strategic management processes

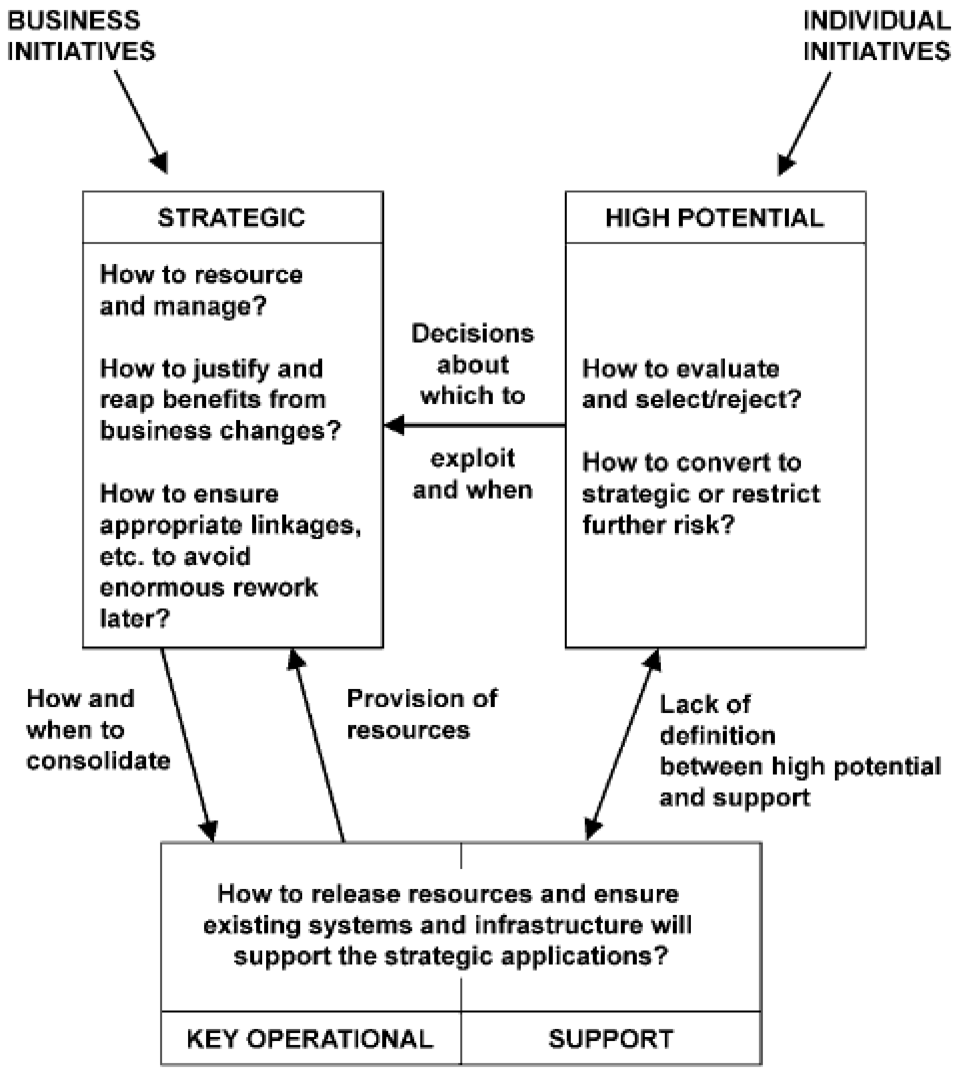


Figure 8.3 *Avoiding the disintegration of the applications portfolio*

Table 8.1 *Requirements of strategic management*

- To ensure IS/IT strategies, policies and plans reflect business objectives and strategies.
- To ensure potential business advantages from IS/IT are identified and exploited.
- To ensure strategies, etc. are viable in terms of business risks.
- To establish appropriate resource levels and reconcile contention/set priorities.
- To create a 'culture' for the management of IS/IT that reflects the corporate culture.
- To monitor the progress of business-critical IS/IT activities.
- To achieve the best balance between centralization and devolvement of IS/IT decision making.

It is not easy to produce a general statement of the ideal organizational arrangement for IS/IT resources. A number of factors will always have to be weighed for any organization:

- the organization's dependence on IT;
- its stage of maturity in terms of its application portfolio;
- the geography of the enterprise, especially for organizations with a global presence;
- its business diversity and rate of change of the types of business and competitive pressures in each business;
- the potential benefits of synergy between businesses in both trading goods and services and information exchange;
- the economics of resourcing, obtaining and deploying skills.

Table 8.2 *Division of responsibility: IT architecture management (source: after La Belle and Nyce)*

Function	*Central IT group*	*Business unit operations*
Develop and maintain information architecture	• Monitor process; provide assistance if requested	• Complete business architectures defining business (within sectors) by location • Complete translation of strategy into technology requirements • Define information architecture
Develop and maintain application architecture	• Set standards, monitor process • Review architectures and report on adequacy to Technology Committee • Ensure appropriate commonality	• Define requirements and develop architecture • Coordinate between units for common businesses
Develop and maintain data architectures	• Coordinate development/ establishment of common database management process • Create/maintain corporate databases	• Define requirements • Develop in accordance with standards
Develop and maintain hardware/operating system architectures	• Monitor development/ implementation within sectors • Develop and maintain architecture for corporate users-support operations	• Develop in accordance with corporate standards and business requirements • Request variances as appropriate; make change recommendations
Develop and maintain telecommunications architectures	• Develop in accordance with standards and business requirements	• Define requirements • Report performance/ responsiveness problems

Imperatives for the Management of IS/IT

Rockart *et al.*[16] have suggested a number of imperatives for the 'new' IS function to take account of the changing business and technical environments. They are:

1. achieve two-way alignment between the business and IS/IT strategy;
2. develop effective relationships with line management;
3. deliver and implement new systems;
4. build and manage IT infrastructure;
5. reskill the IS function with new competencies and knowledge;
6. manage vendor partnerships;
7. redesign and manage the federal IS organization.

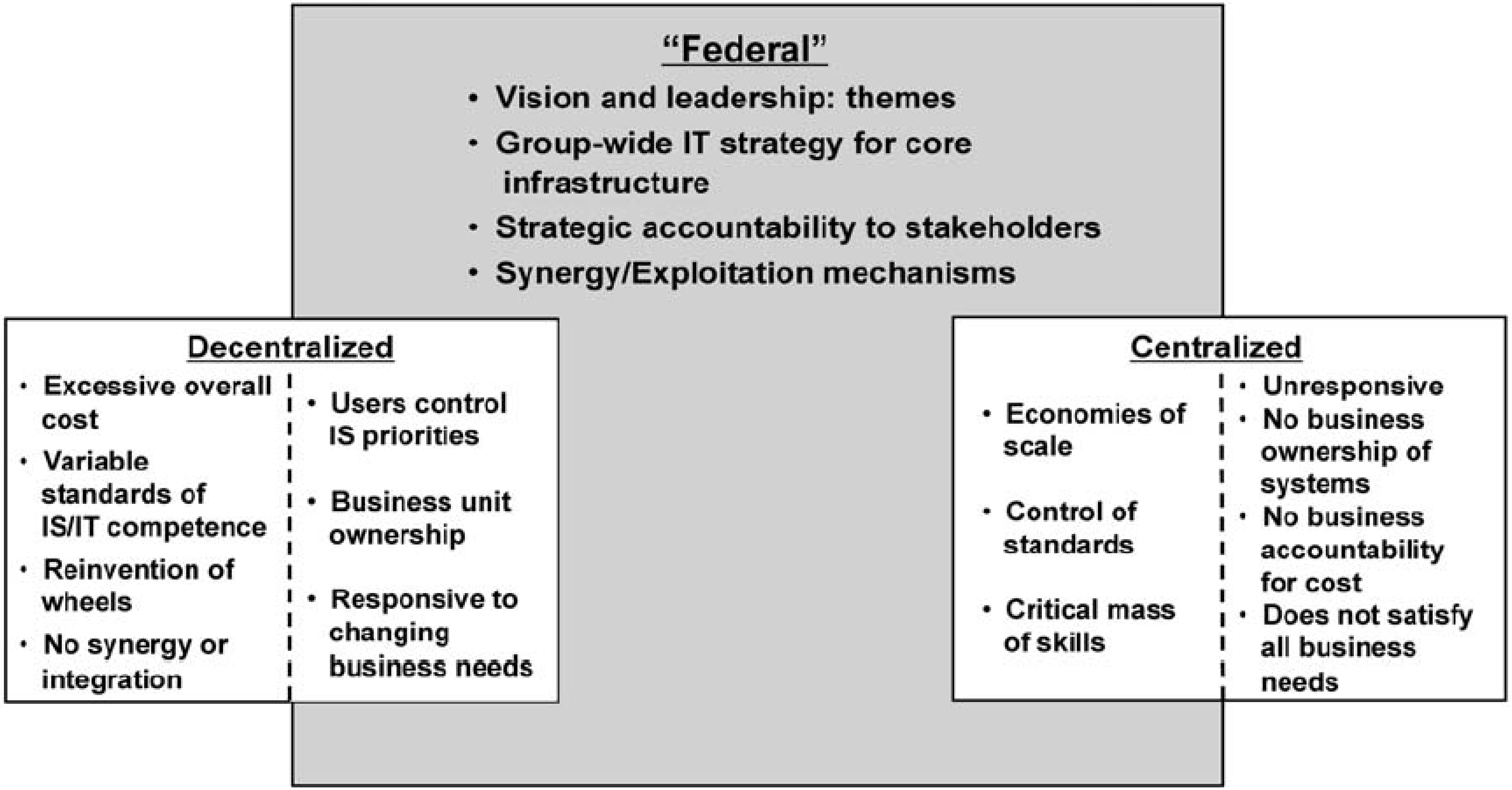


Figure 8.4 *The 'Federal IT Organisation'* (source: *after Hodgkinson)*

Table 8.3 *Summary of structural arrangements for IS function in multiple business units*

Structural arrangments for the IS Function	*Strategies for managing IS/IT activities*	*Advantages*	*Critical management issues*
Independent IS/IT activities in business units	• Business units pursue independent system initiatives	• Business units have ownership • Users control IS/IT priorities • Responsive to business unit's needs	• Integration • Lack of quality control of data • Variable standards of IS/IT competency • 'Reinvention of wheels' and duplication of effort • Little synergy across business units • Managing cost
Centrally-driven IS/IT activities	• Corporate wide IS/IT solutions imposed on business units	• Scale economies • Control of standards • Critical mass of skill	• Politics • Unresponsive • Does not meet every business unit's needs • Effect on customer
Informal cooperation in IS/IT activities across business units	• Informal social networking between the centre and business units • Usually brought about by movement of key IS/IT personnel across business units	• Awareness of IS/IT issues across the enterprise	• Coordination and direction setting • Leaving too much to chance
'Federalism' (integrated IS/IT)	• Balancing central control and business unit autonomy without losing the advantage of global coordination and integration	• Group-wide IS/IT strategy and architecture with devolution where appropriate	• Complexity • Execution • Timing • Defining 'where appropriate'

Strategic Role of IT

- The *cost centre* has an operational focus that minimizes risks with an emphasis on operational efficiency. Cost-centre activities are good candidates for outsourcing.
- The *service centre*, although still minimizing risk, aims to create an IT-enabled business capability to support current strategies.
- The *investment centre* has a long-term focus and aims to create new IT-based business capabilities. It seeks to maximize business opportunity from IT resources.
- The *profit centre* is designed to deliver IT services to the external marketplace for incremental revenue and for gaining valuable experience in becoming a world-class IS function.

The clear message is that the organization and management of IS/IT resources are going to get more complex. GartnerGroup[18] contends that sharper demarcation between centralized and decentralized IS activities, specialization in centres of excellence, process-based work and outsourcing will lead to what they refer to as *IS Lite* (see Figure 8.5). With this structure for the management of IS/IT, much conventional IS/IT work is either outsourced or embedded in the business, with the IS function remaining as an intermediary to perform an important value-adding service between suppliers, on the one hand, and users, on the other. In addition, the IS function concentrates on driving IS/IT-based innovation in the business. Similarly, Earl and Khan[19] note that the key change in the role of the IS function in the so-called 'digital economy' is that it has become a key contributer and builder of the business, particularly as business processes become even more dependent on IT, distribution channels become electronic and products become digital.

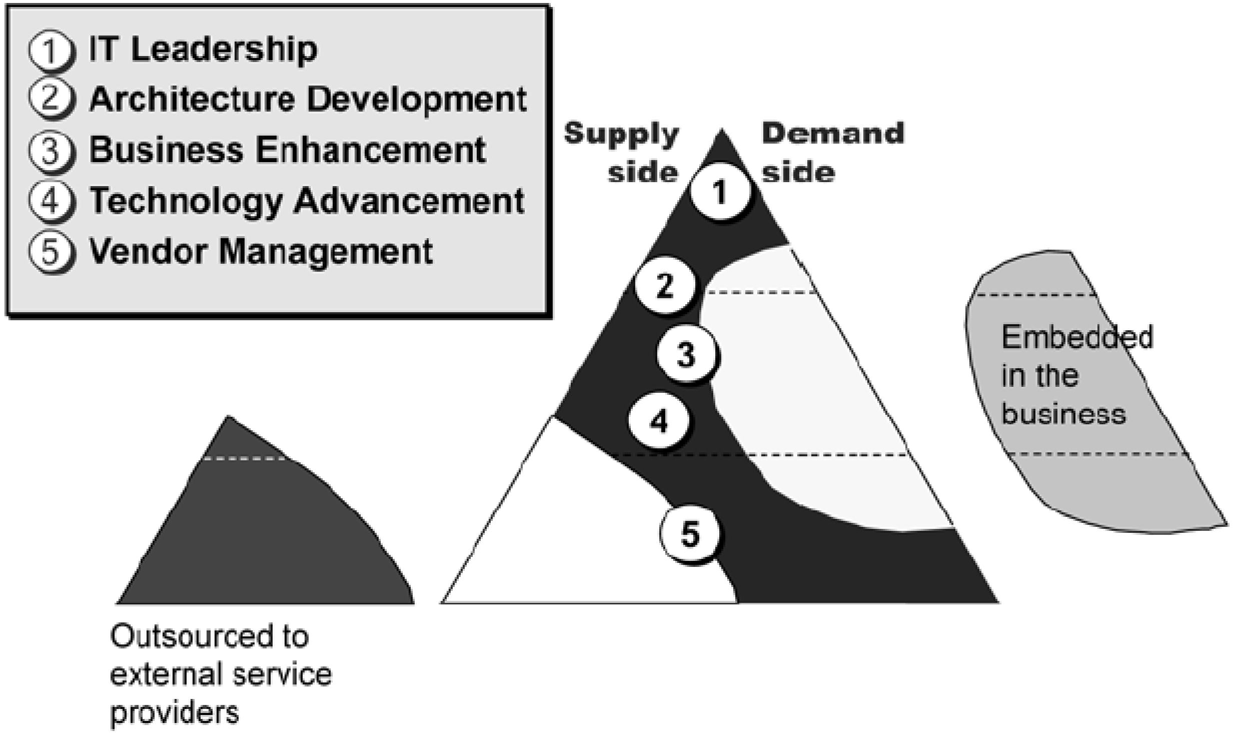


Figure 8.5 *IS Lite* (source: IS Lite: The Future, *Research Report, GartnerGroup, Egham, UK, 1999, also Stamford, Connecticut)*

Gartner have identified the five key competencies of this cut-down IS function, IS Lite, as:[20]

1. *IT leadership*, which includes IT envisioning, fusing IT strategy with business strategy, and managing IS resources.
2. *Architecture development*, which is concerned with developing a blue-print for the overall IT technical design.
3. *Business enhancement*, which includes business process analysis and design, project management and managing relationships with users.
4. *Technology advancement*, which is application design and develop-ment.
5. *Vendor management*, which includes managing and developing rela-tionships with vendors and suppliers, negotiating and monitoring contracts and purchasing.

Table 8.4 *Examples of IS activities*

Strategy and planning services

- IS strategy development
- IT strategy development
- IT planning and resource development
- New technology options 'evaluation' (technology road map)
- 'Account' management
- Consultancy/business analysis
- Contingency planning
- Capacity planning
- New service development

Application development services

- Systems analysis
- Systems design
- Package evaluation
- Systems implementation
- Programming and software development
- Software acquisition
- Project management
- Information management

Table 8.4 *Examples of IS activities*

Application and technical services

- Training
- Application maintenance and change control
- First line user-support/problem resolution
- Advice centre
- Security/Access control
- Information 'procurement' (from external sources, etc.)

Technology delivery and maintenance services

- Installing, PC, servers, cables
- Keeping network running
- Maintenance of hardware
- Upgrading software/version control
- Supplier and contracts management

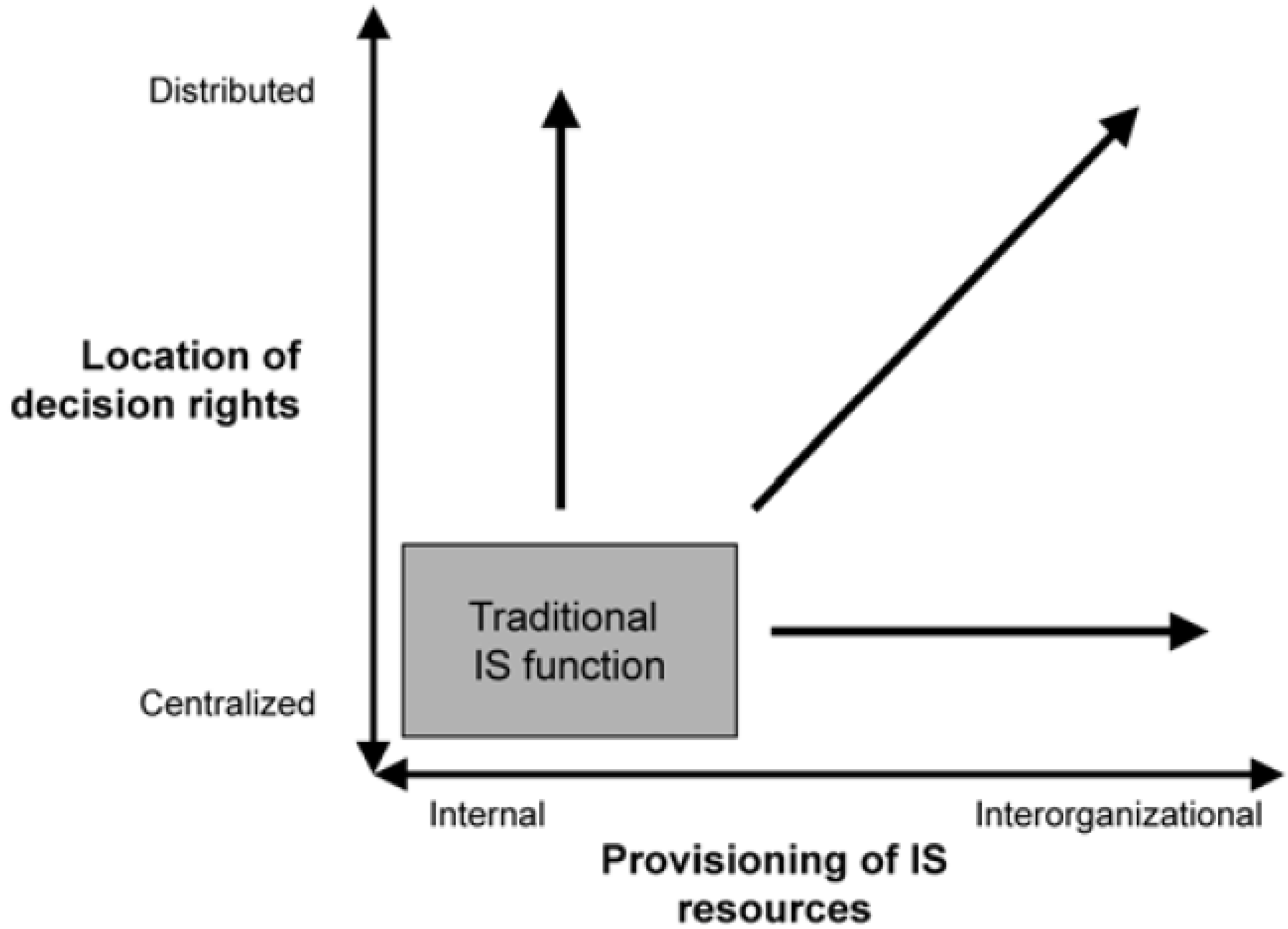


Figure 8.6 *Trade-offs in the organization and resourcing of IS/IT* (source: *based on an idea from N. Venkatraman and L. Loh, 'The shifting logic of the IS organization: From technical portfolio to relationship portfolio',* Information Strategy: The Executive's Journal, *Winter 1994, 5–11)*

Devolving IS/IT decision making into the business requires outlining authority and responsibilities, defining the set of rules guiding information, systems and technology decision-making areas, and managing the interdependencies across the range of decisions.

- *Content*—the decision areas that are being managed. Included here are decision areas about the whole realm of IS demand and IT supply—areas outlined in Table 8.4. Examples include resource allocation, systems development and maintenance, personnel, establishing project priorities, project management methods, disaster recovery, documentation, privacy and purchasing.
- *Authority*—the individuals or groups that have the power actually to make decisions in the various areas. They are ultimately answerable for the outcomes of the decision made. For example, some decisions may be made directly by the IT director, others by business managers; there may be other decisions that require ratification by a 'committee' or forum of some sort.
- *Responsibilities*—the individuals or bodies responsible for day-to-day execution in decision areas. The definition of responsibility needs to

- *Coordination*—essentially, the mechanisms and processes for ensuring coherence across all decision areas. It is concerned with defining the mechanisms (steering committees, management groups, etc.) for ensuring a coordinated approach to IS/IT decision making, including the roles to be played by both individuals and groupings. This aspect will be addressed toward the end of this chapter.
- *Policies*—statements of principles or actions defining acceptable behaviour. They provide a basis for consistent decision making and resource allocation. Policies may exist for security, development methodologies and the approach to IS/IT strategy development. Policies may define the extent to which common systems will be used across all business units; they may even specify that software be purchased from a particular vendor.
- *Control*—outlining the approaches to policing decisions, ensuring conformance across the organization. This might include the implications and procedures for non-conformance to policies or decisions. Also included are financial control and charge-out mechanisms.

Table 8.5 *Enabling and restraining policies*

Restraining policies		*Enabling policies*	
1	Technical compatibility standards	1	Making group-resourced services available to divisions
2	Standards for buying equipment and services	2	Negotiating volume discounts
3	Common systems mandate, if any	3	Managing supplier relationships
4	Disaster recovery, security and quality policies	4	Influencing behaviour through charge-out rules
5	Group systems standards (are purchasable and integratable components preferred over custom built or extensively modified products?)	5	Setting criteria for selecting common systems
6	Group job specifications	6	Funding shared assets
7	Any conformance to industry standards	7	Establishing tendering procedures
8	Outside revenue-earning ability of IS function	8	Developing common systems
9	Charge-out mechanisms and benefit reclaim	9	Using consultants
10	Ergonomic standards	10	Carrying out post-audit reviews
11	Staffing levels	11	Negotiating groupwide technology agreement
		12	Vendor selection procedures

PROVISIONING OF IS/IT RESOURCES

Deciding from where IS/IT resources should be sourced has become a critical issue for organizations. While most IS/IT resources have traditionally been provided in-house by a central IS function (commonly referred to today as *insourcing*), a wide range of sourcing options are now available. For a variety of reasons, many organizations have looked to the market to provide them with the IS/IT resources that the business requires, a practice generally referred to as *outsourcing*. Clark *et*

ISP

The arrival of the Internet and the rush to e-commerce has seen many companies look to outside vendors to supply necessary skills and competencies, as these are often not available in-house. Developing e-commerce applications can place great demands on companies, and managers often conclude that the only way to meet short deadlines for new technology projects is to contract for specialist services. In addition, engaging in e-commerce means that external parties will inevitably be involved, including telecommunication operators and providers, Internet service providers (ISPs), etc.

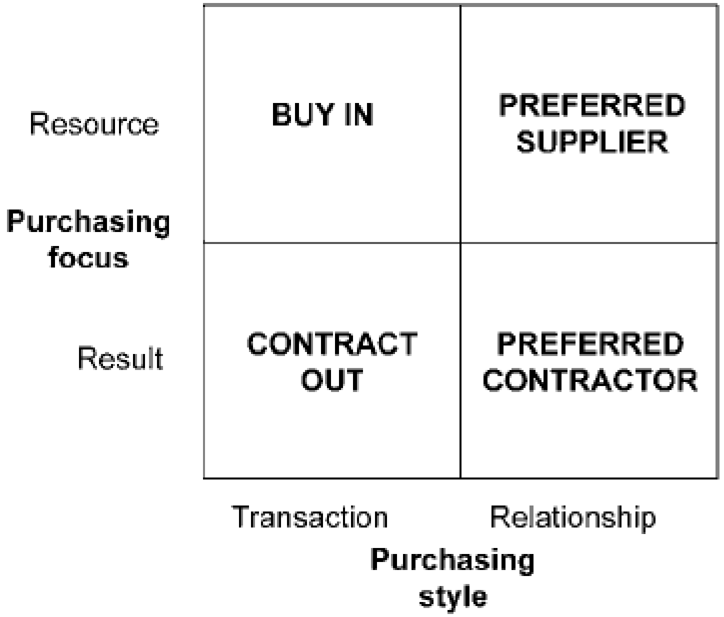


Figure 8.7 *Clarify sourcing options* (sources: *adapted from M.C. Lacity, L.P. Willcocks and D.F. Feeny, 'The value of selective IT sourcing',* Sloan Management Review, *Spring, 1996, 13–25; and M.C. Lacity, L.P. Willcocks and D.F. Feeny, 'IT outsourcing: Maximizing flexibility and control',* Harvard Business Review, *May–June 1995, 84–93)*

Only two of them—contract out and preferred contractor—are strictly outsourcing contracts:

- *Contract out strategy*—with this strategy the vendor is responsible for delivering the results of IT activity.
- *Buy-in strategy*—this strategy sees the organization buying in resources from the external market, often to meet a temporary requirement. Contracts often specify the skills required and cost, with the resources then managed in-house.
- *Preferred contractor strategy*—with this approach, organizations contract long term with a vendor to reduce risk, with the vendor responsible for the management and delivery of an IT activity or service. To ensure vendor performance, an incentive-based contract is generally constructed.
- *Preferred supplier strategy*—this strategy takes the buy-in approach further, with an organization seeking to develop a long-term close relationship with a vendor in order to access its resources for ongoing IT activities. The organization, not the vendor, takes responsibility for managing these resources.

Even with ‘complete outsourcing’, there are vital competencies that need to be maintained in-house in order to mitigate risks inherent in IS outsourcing. These have been identified by Willcocks and Lacity[28] as:

- the ability to track, assess and interpret changing IS/IT capability and relate them to organizational needs;
- the ability to work with business management to define the IT requirements over time;
- the ability to identify appropriate ways to use the market, specify and manage IS/IT sourcing;
- the ability to monitor and manage contractual relations.

Table 8.6 *Consequences of locating overall authority for IS/IT*

	Plusses	*Minuses*
IT directors	Technical expertise Accurate systems Sound technology Systems integration	IT not aligned Education omitted Information overload Technical solutions
Finance directors	Tight cost control Department coordination Training costs integrated Strict authorization	Not always best value for money Insufficient time to devote to IT Opportunities missed Short-term approach
Business-unit head	IT investments linked to the business direction Locally-focused systems Continuous development Shorter reporting structure	Systems not coordinated Incompatibility across business units Duplication of data Unnecessary costs incurred
Board of directors	Strategic direction Appreciation of broader impact of decisions Major problems tackled Funding allocated	Logistical details omitted IS/IT underexploited Infrastructure weak Slow to exploit technology

Dawn Lepore, *CIO Charles Schwab*, argues that the CIO position has long been misaligned as most people don't understand its true potential. At Schwab, she is a peer to the various business heads and has a great deal of influence on the company's strategic direction, organizational structure and culture. She recommends that the CIO position should be broadly defined, well understood throughout the organization and that the incumbent be a strong contributor to strategy discussions as well as marketing and financial decisions. Critically, she argues that the position should report to the CEO. In identifying a potential CIO, she would advise companies to look for someone who has a background in technology, but who can also take a general management perspective.

Jack Rockart, *director of the Centre for Information Systems Research*, *Massachusetts Institute of Technology*, believes that it is a fundamental mistake to predict a CIO-less future. As in the past, the functions of the CIO will evolve as changes in the business environment dictate major changes in IS/IT roles, structure and processes. He believes that, while today's CIO should be a technology executive who provides direction and counsel to other senior managers, they are business executives first and technologists second. However, one of the shifts he is seeing is their role in ensuring an effective IT infrastructure.

Michael Earl, *London Business School*, similarly sees a change in the scope and depth of the CIO role, with both expanding. He cautions that, despite these changes, CIOs retain visible operational responsibilities, 'If the operational performance of IT is below standard, the CIO is dead.' He poses two questions: What competencies are required of a new CIO? Can one person do it all? Required competencies include technical competency, management know-how to lead specialists and integrate the function with the rest of the business, business acumen and leadership skills. He suggests that in the future this role may split into two with a CIO who is responsible for strategy, change and information resources working alongside a chief technology officer who is responsible for technology policy, IT infrastructure planning and operations (essentially someone responsible for *demand* management and someone responsible for the management of *supply*).

Table 8.7 *The changing role of the CIO (sources: based in part on D.F. Feeny and J.W. Ross, 'The evolving role of the CIO', in Research and Discussion Paper, Oxford Institute of Information Management, Templeton College, Oxford, 2000; and presentation by O. Le Gendre, Vice-President of Gartner at IT Governance Forum, Paris, 11 June 2001)*

	Mainframe era	*Distributed era*	*Web-based and Internet era*
Applications portfolio	• Transaction processing—automation for efficiency	• Knowledge-worker support, interorganizational systems, ERP systems	• Electronic commerce, knowledge management, virtual organizations, supply chain re-engineering
Senior business executive attitudes to IS/IT	• IT for cost displacement and automation	• Increased involvement in IT issues and governance • Polarization of attitudes: IT as strategic asset or cost to be minimized	• IT, particularly the Internet, viewed as transformational • IT investments now more attractive in terms of costs and timescales • IS/IT now part of ongoing business conversation
Input to business	• Advisor on 'How to do', not 'What to do'	• Access to senior executives • Invited 'seat at table'	• Member of executive team having a 'seat at the table' • Helps define 'what to do'
Major tasks	• On-time delivery • Reliable IT operations	• Manage IS function • Provide infrastructure • Manage vendors	• Jointly develop business/IT model • Introduce management processes that leverage technologies, particularly the Internet
Role	• Functional head • Operational manager • Deliver on promises	• Strategic partner • Relationship builder • Technology advisor • Align IS/IT with business	• Visionary • Relationship builder • Technology opportunist • Drive and shape strategy

Table 8.8 *Profile of the CIO who adds value (source: after Earl and Feeny)*

1. *Behaviour*
   - Is loyal to the organization
   - Is open in management style
   - Is perceived to have integrity
2. *Motivation*
   - Is goal oriented
   - Comfortable as a change agent
   - Creative and encourages ideas
3. *Competencies*
   - Is a consultant/facilitator
   - Good communicator
   - Has IT knowledge
   - Able to achieve results through others
4. *Experience*
   - Sound experience in an IS development role (especially in systems analysis)

COORDINATING MECHANISMS FOR THE STRATEGIC MANAGEMENT OF IS/IT

As mentioned earlier in the chapter, the majority of organizations in both public and private sectors have established some form of 'steering group' and other coordinating mechanisms for IS/IT. They are called many things, but usually have the words 'policy', 'strategy' or 'planning' in the title. According to Earl,[35] 'steering committees appear to be an obvious necessity in managing IT.'

Most writers agree that the reasons for establishing such committees are (one or more of):

- ensuring top management involvement in IS planning;
- ensuring the fit between IS and business strategy;
- improving communication with top and middle management;
- changing user attitudes to IT.

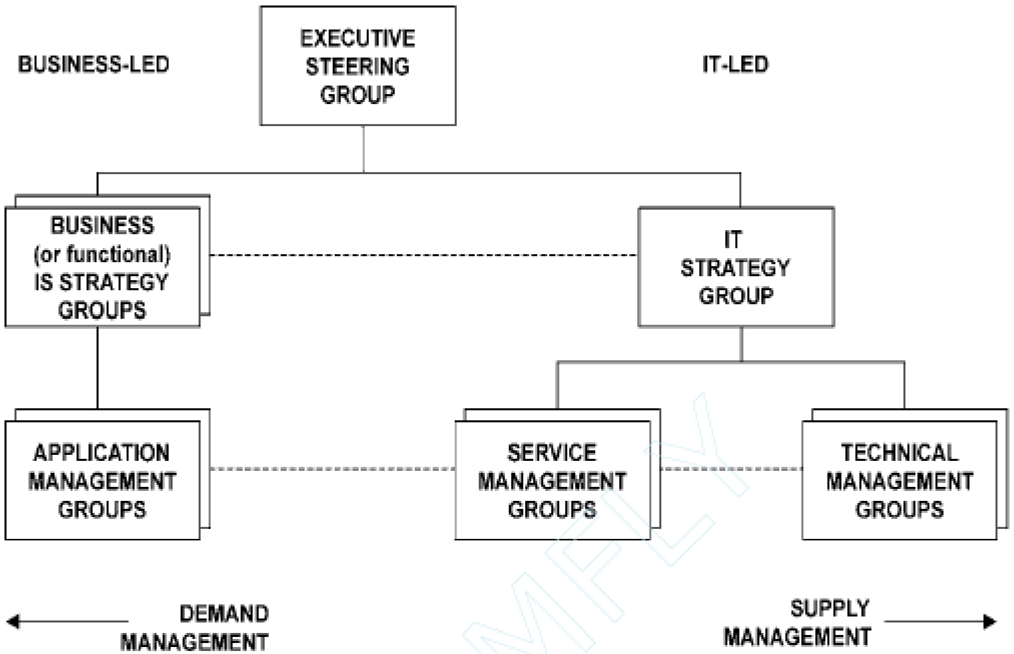


Figure 8.8 *Steering organization for IS/IT strategic management*

Table 8.9 *Responsibilities within the IS/IT coordination governance structure*

Executive steering group

- Interpreting business strategy and agreeing overall IS/IT policies
- Establishing priorities, agreeing resource and expense levels, authorizing major investments
- Ensuring that strategic applications (especially those that cross business areas) achieve their objectives
- Establishing the appropriate organizational responsibilities and relationships

Business (IS) strategy groups

- Identifying business needs, interpreting CSFs, assessing opportunities and threats and IS implications in that business area
- Prioritizing, planning and coordinating IS activities and expenditure in the area and ensuring planned benefits are delivered
- Ensuring appropriate user resources are allocated to projects and appoint application managers

IT strategy group

- Interpreting IT trends and developments in the context of the organization's business
- Ensuring resources are deployed to meet business priorities
- Developing IT resources and services in line with business IS plans and monitoring the performance of those resources
- Managing the supply of technology and specialist bought-in services
- Ensuring technical risks are minimized

Application management groups

- Identifying and specifying the needs, benefits, business resources and costs of applications to enable management to evaluate investments and set priorities
- Managing developments and ongoing use of systems to ensure benefits are maximized
- Ensuring business changes necessary to get the benefits carried out
- Ensuring that user resources are made available as needed and used effectively on projects

Service management groups

- Translating business needs into technical requirements and resource implications
- Selecting the optimum means of meeting the business needs
- Monitoring performance against budgets/service levels agreed with the business
- Ensuring technical solutions are tested and quality assured to avoid application failure
- Planning the development of services and resources to meet evolving demands

Technology management groups

- Understanding technology development, formulating options and communicating the implications
- Assessing the capabilities of the technologies against known and potential needs
- Planning and managing infrastructure developments and migrations to minimize the risk to business applications
- Resolving technical issues/problems with suppliers and ensuring service groups are effectively supported

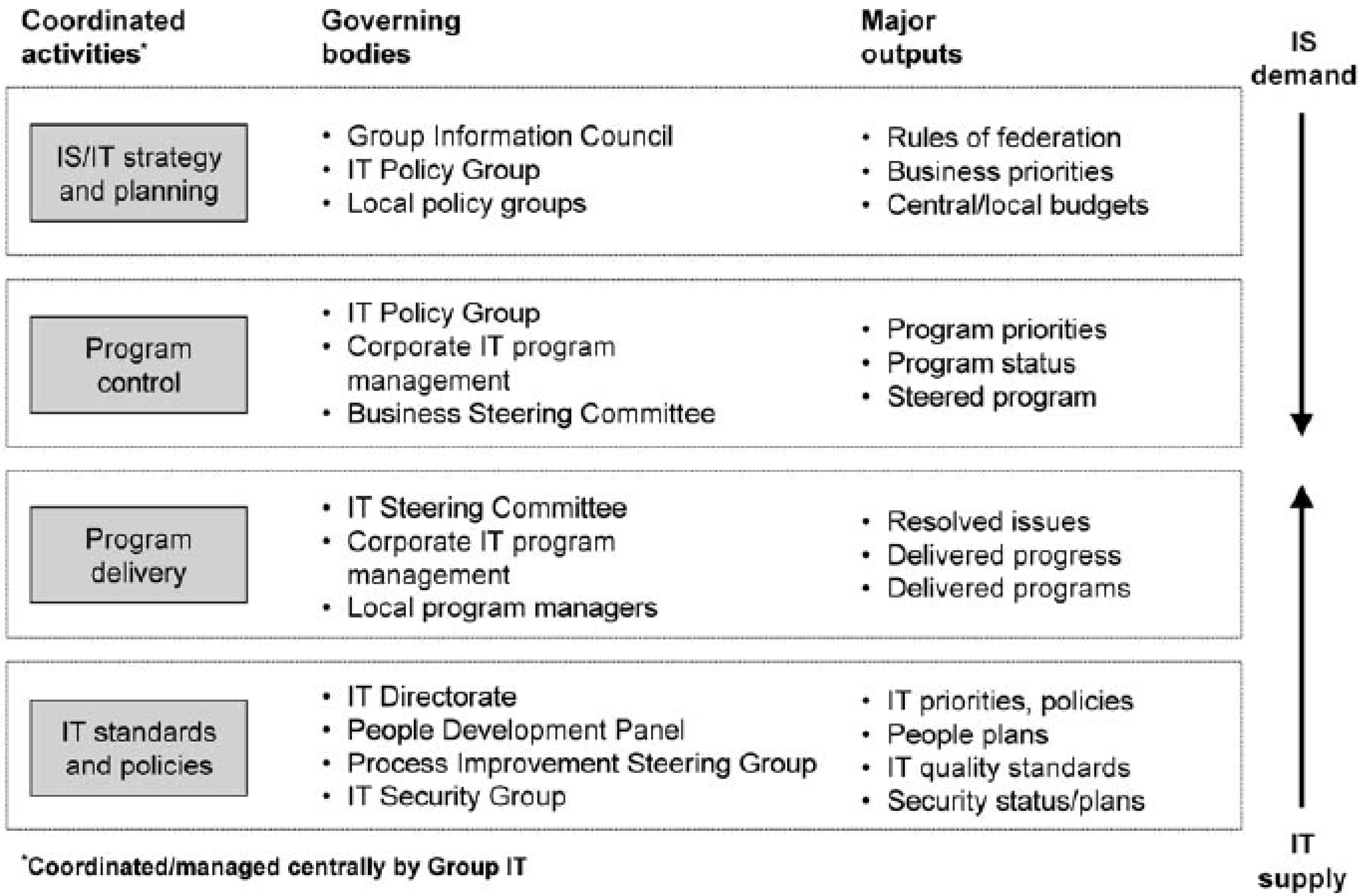


Figure 8.9 *IS/IT governance at a large European Automobile manufacturer*

Figure 8.10 *A framework for IS competencies*

1. *Strategy:* the ability to identify and evaluate the implications of IT-based opportunities as an integral part of business strategy formulation and define the role of IS/IT in the organization.
2. *Define the IS contribution:* the ability to translate the business strategy into processes, information and systems investments and change plans that match the business priorities (i.e. the IS strategy).
3. *Define the IT capability:* the ability to translate the business strategy into long-term information architectures, technology infrastructure and resourcing plans that enable the implementation of the strategy (i.e. the IT strategy).
4. *Exploitation:* the ability to maximize the benefits realized from the implementation of IS/IT investments through effective use of information, applications and IT services.
5. *Deliver solutions:* the ability to deploy resources to develop, implement and operate IS/IT business solutions that exploit the capabilities of the technology.
6. *Supply:* the ability to create and maintain an appropriate and adaptable information, technology and application supply chain and resource capacity.

Table 8.11 *IS competency definitions*

IS competency area	*Competency*	*The ability to ...*
1. *Strategy*	1.1 Business strategy	Ensure that business strategy formulation identifies the most advantageous uses of information, systems and technology
	1.2 Technology innovation	Incorporate the potential of new and emerging technologies in long-term business development
	1.3 Investment criteria	Establish appropriate criteria for decision making on investments in information, systems and technology
	1.4 Information governance	Define information management policies for the organization and the roles and responsibilities of general management and the IS/IT function
2. *Define the IS contribution (IS strategy)*	2.1 Prioritization	Ensure that the portfolio of investments in applications and technology produce the maximum return from resources available
	2.2 IS strategy alignment	Ensure that IS development plans are integrated with organizational and functional strategic plans
	2.3 Business process design	Determine how IS can deliver 'best practice' in the operational processes of organizational activities
	2.4 Business performance improvement	Identify the knowledge and information needed to deliver strategic objectives through improved management processes
	2.5 Systems and process innovation	Carry out relevant R&D into how IS/IT can be used to create new ways of conducting business and new products and/or services
3. *Define the IT capability (IT strategy)*	3.1 Infrastructure development	Define and design information, application and technology architectures and organization structures and processes to manage the resources
	3.2 Technology analysis	Understand technology developments and make appropriate recommendations for organizational acquisition of technology and associated resources
	3.3 Sourcing strategies	Establish criteria and processes to evaluate supply options and contracts with suppliers

continued

Table 8.11 (continued)

Macro-competency	Competency	The ability to ...
4. *Exploitation*	4.1 Benefits planning	Explicitly identify and plan to realize the benefits from IS investments
	4.2 Benefits delivery	Monitor, measure and evaluate the (net) benefits derived from IS investment and use
	4.3 Managing change	Make the business and organizational changes required to maximize the benefits without detrimental impact on stakeholders
5. *Deliver solutions*	5.1 Applications development	Develop/acquire and implement information, systems and technology solutions that satisfy business needs
	5.2 Service management	Define service arrangements and performance criteria to match the business requirements (including project management)
	5.3 Information asset management	Establish and operate processes that ensure data, information and knowledge management activities meet organizational needs and satisfy corporate policies
	5.4 Implementation management	Ensure that new processes and ways of working are designed and implemented effectively in conjunction with new technology
	5.5 Apply technology	Deploy new/changed technology in the most cost-effective mode to deliver application benefits
	5.6 Business continuity and security	Provide effective recovery, contingency and security processes to prevent risk of business failure
6. *Supply*	6.1 Supplier relationships	Manage contracts and develop value-added relationships with suppliers
	6.2 Technology standards	Develop and maintain appropriate standards, methods, controls and procedures for the use of IT and associated resources
	6.3 Technology acquisition	Develop and apply procurement policies and procedures for the organizational acquisition of infrastructure components and specialist technologies/services
	6.4 Asset and cost management	Ensure technology, information and application assets are effectively maintained and costs of acquisition and ownership are understood and managed
	6.5 IS/IT staff development	Recruit, train and deploy appropriate staff and ensure technical, business and personal skills meet the needs of the organization

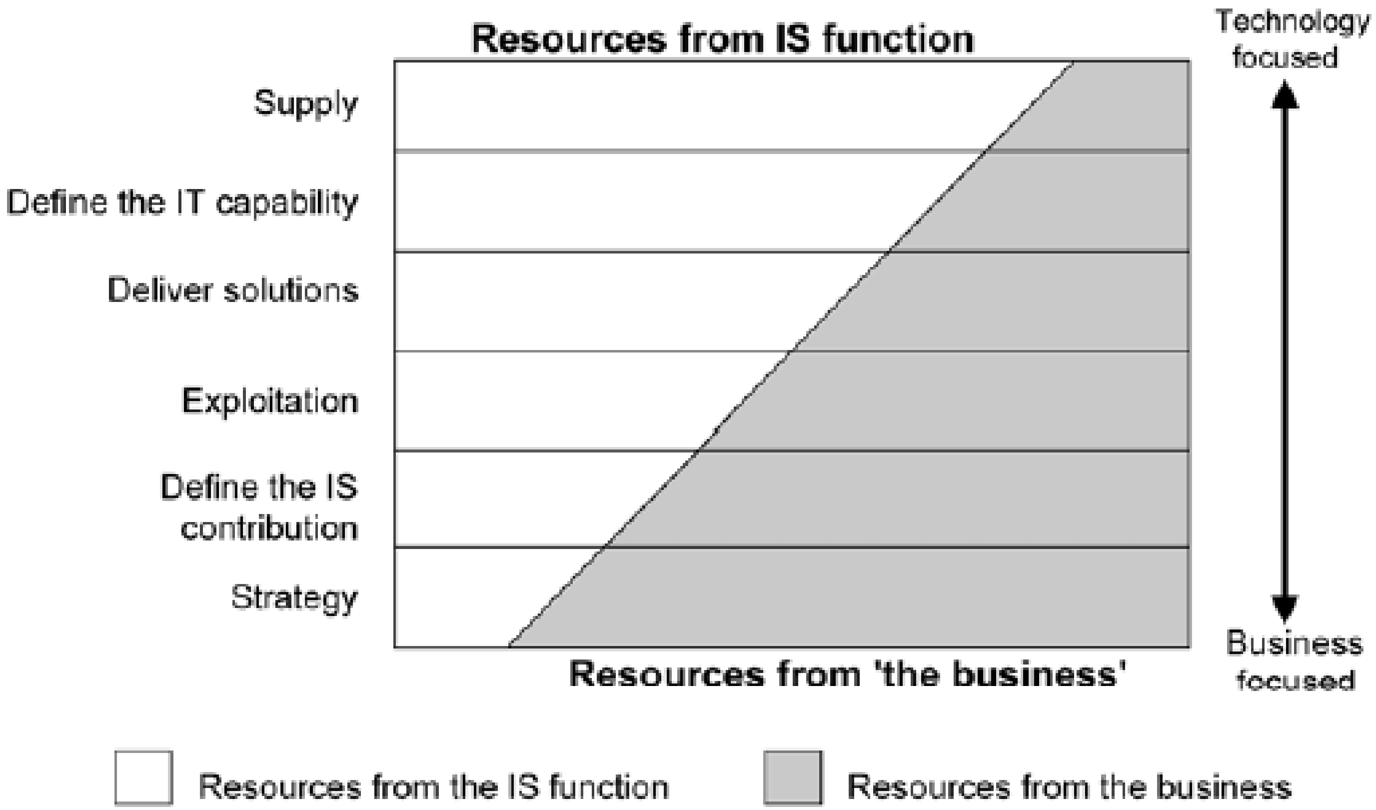


Figure 8.11 *Mapping location of resources against IS components*

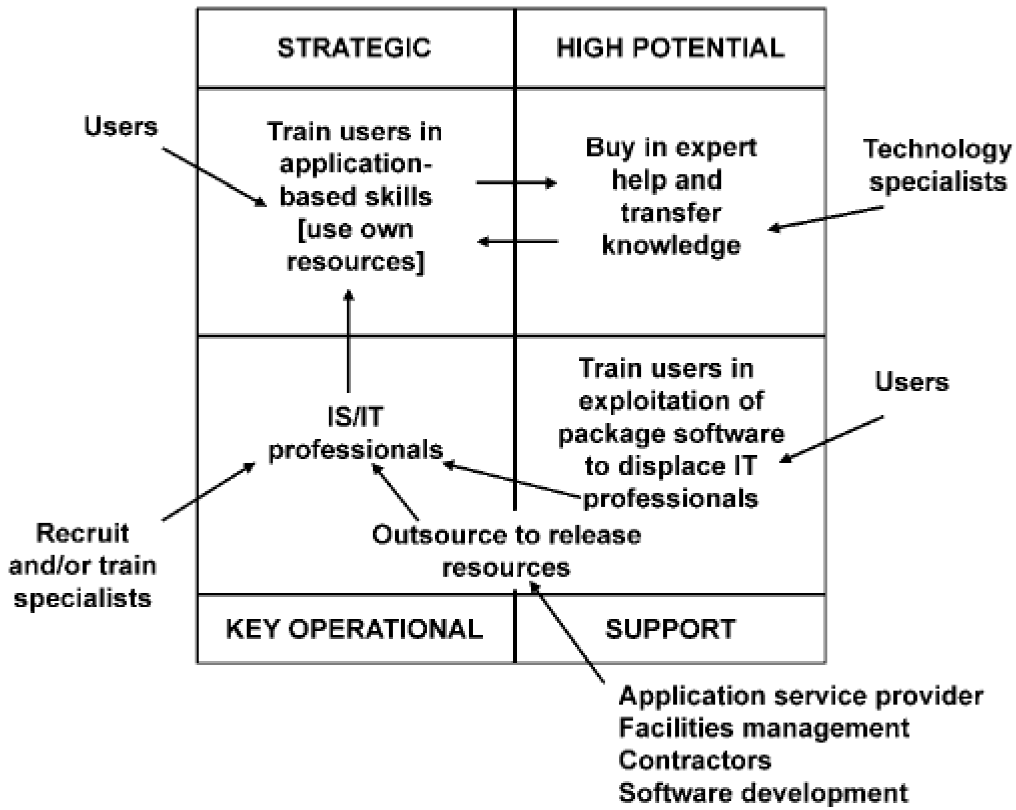
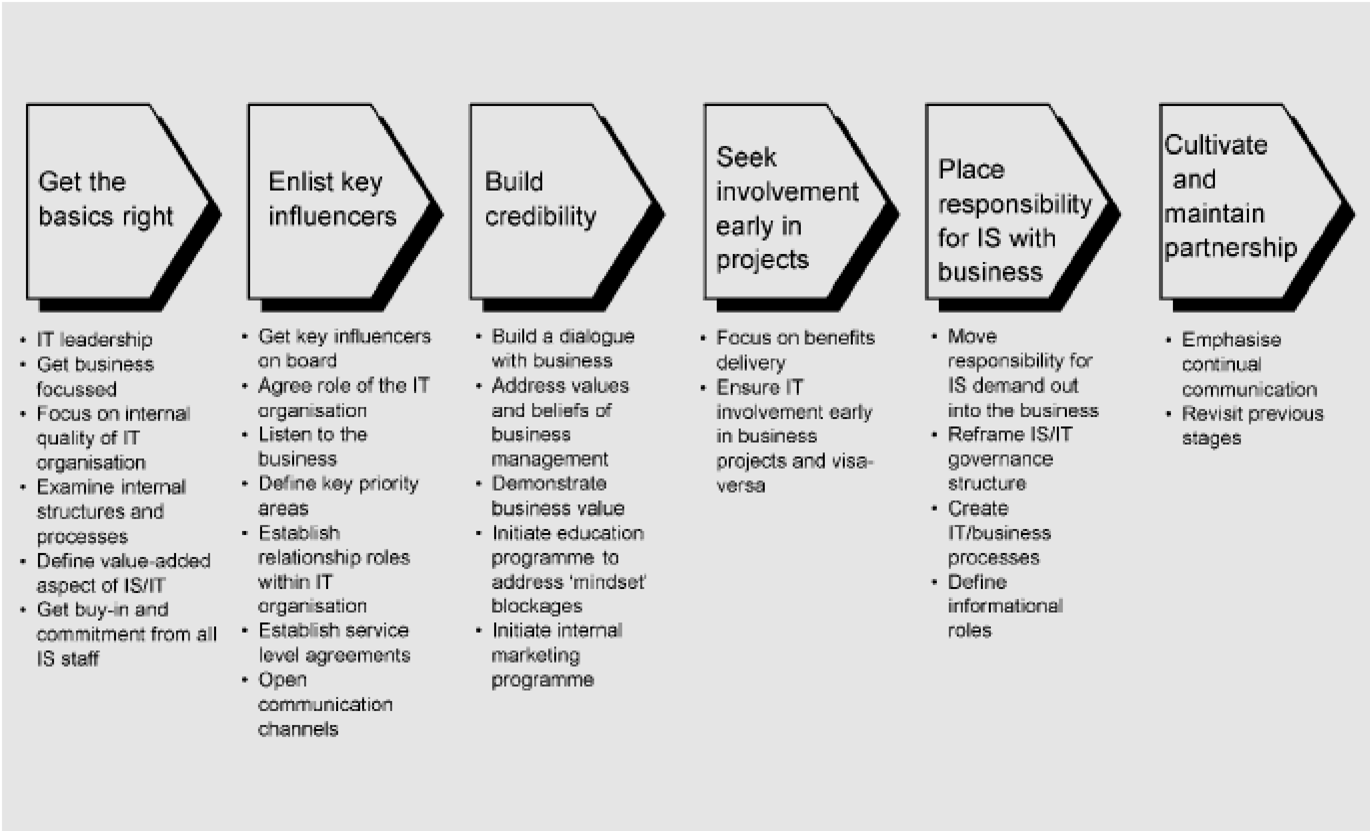


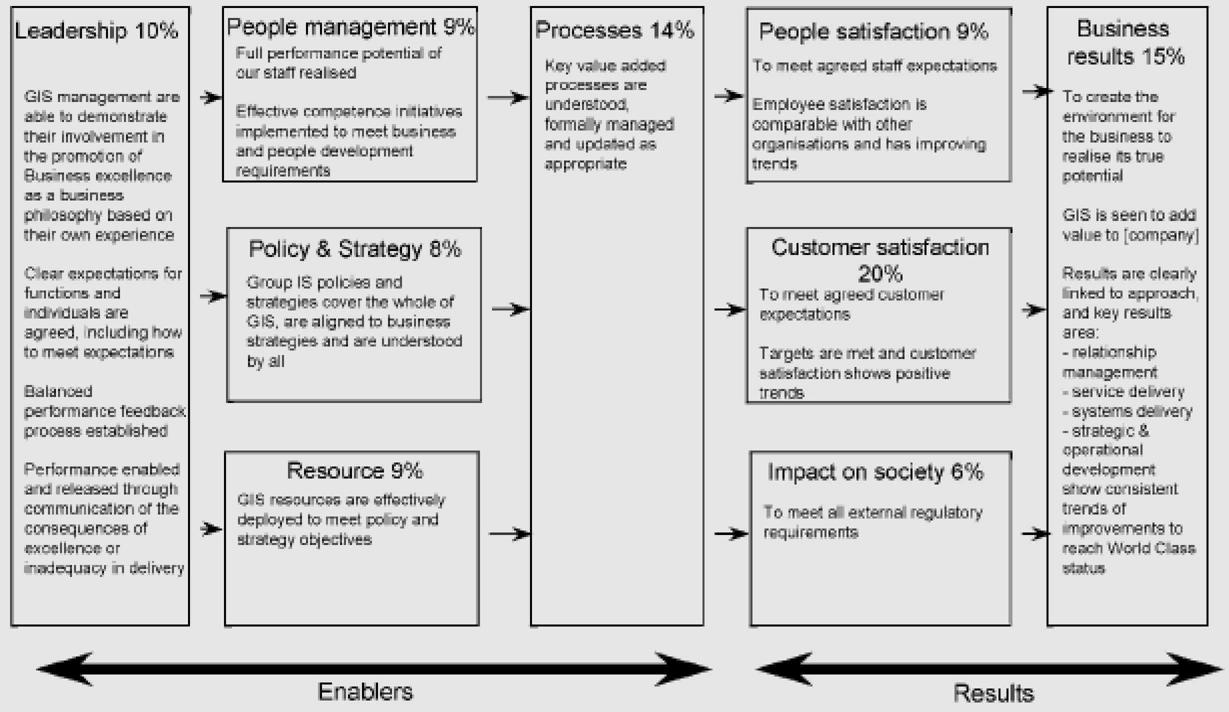
Figure 8.13 Use of resources

Table 8.12 *Summary of the staged model of Galliers and Sutherland*

Stage 1	Adhocracy	Very few, if any, shared values since the focus of IT is internal and they are unable or unwilling to seek a coherent relationship with the business. They relate more closely to IT suppliers
Stage 2	'Starting the foundations'	The 'priesthood' of IT begins to develop and IT staff perhaps cultivate a unique culture based on technology worship—often seriously at odds with the business
Stage 3	'Centralized dictatorship'	When IT management often reacts to business managers' concern over 'excessive spending' on IT and views of poor delivery performance by becoming defensive and exerting control over what it does to redress the balance
Stage 4	'Democratic dialectic and cooperation'	IT specialists recognize the need to work in cooperation with business managers toward achieving business goals, but still expect the business to cooperate with IT's set of values
Stage 5	'Entrepreneurial opportunity'	Recognition in the business that IT can deliver new, potentially strategic, benefits through innovative use often leaves the IT department looking after the legacy and struggling to provide any value to the newly 'liberated' users
Stage 6	'Integrated harmonious relationship'	Rarely achieved, due to the difficulties in reconciling differing values, overcoming historical precedents and prejudice, and requiring a new openness in all aspects of IT activity

Vendor Management





Business Excellence Model and transformation programme objectives

Q & A