



**SWP 16/98 WHOSE JOB IS IT ANYWAY?
ORGANISATIONAL IS/IT COMPETENCIES
FOR VALUE CREATION**

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Whose Job Is It Anyway?: Organisational IS/IT Competencies for Value Creation

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ABSTRACT

Research highlights that business managers are continually dissatisfied with the value which they perceive they are deriving from their IT investments. The dominant perspective of the IS literature and business practice is that creating value through IT is primarily the responsibility of the IT organisation. Accordingly, to address this chronic malaise attention focuses on the IT organisation with proposed prescriptions ranging from re-skill the IS professional to re-engineer the IT organisation to the ultimate sanction of outsourcing. This paper examines this problem of value creation through IT from an organisational as opposed to a functional perspective. Drawing on the Resource-Based View of the firm the paper argues that the effective deployment and exploitation of IT should be viewed as a "strategic asset". As such, organisations must develop IS/IT competencies and that these competencies are distributed across the organisation and not solely in the IT organisation. Through a multi-methodological approach these organisational IS/IT competencies are identified, defined and validated. The resultant competencies are then evaluated in the context of a single organisation. The paper ends with some conclusions and further research directions and opportunities.

Key words: Resource based view of the firm, IS/IT competencies, value creation, IT organisation

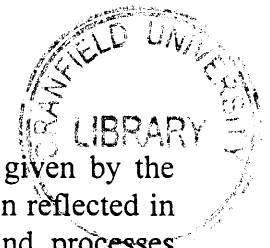
Whose Job Is It Anyway?: Organisational IS/IT Competencies for Value Creation

A recent case study in *Harvard Business Review* eloquently captured the dilemma which many organisations face in regard to information technology (Reimus, 1997). This fictitious case concerns an insurance company that had invested millions of dollars in a new system which had yet to be implemented and used by front line staff. Indeed the application development which began three years previously, months ahead of any of their competitors, was now significantly behind schedule and any advantage which the organisation may have derived had been lost. While the dialogue in the case centres around a discussion between the Chief Executive Officer (CEO), Finance Director and Chief Information Officer (CIO) concerning the status of the project but the case opens up a whole range of issues regarding the management of IS/IT and the development of the appropriate competencies within the organisation. A critical item in the debate is in relation to where responsibility for IT lies and in particular the responsibility for delivering value and benefits from IT investments.

The simple argument is to say that IT is the responsibility of the CIO and the IT organisation and by association that the delivery of benefits and value from IT is also the responsibility of these incumbents. While appealing, practice and research has proved that this is not the case (Anonymous, 1995; Boynton *et al.*, 1992; Dutta, 1996; Rockart, 1988). If we take the view that technology is an enabler of more effective information management we see a somewhat different picture emerging.

While responsibility for marketing, accounting, production or other organisational activities can be assigned to specific individuals and functions, the management of information is unique. Information management is a role that all business managers share; information is pervasive, permeating the whole organisation and is used by all organisational actors, from senior management to front line staff to back room operatives, in the performance of their job. For example, although marketing and production are business functions they both demand the processing of information from customers, suppliers, regulatory authorities, financial institutions, etc. Whereas organisations tend to plan other resources little effort is generally devoted to planning the type of information needed, when used, where it is to be collected and stored, how it will be used or who is responsible for it. Although IT provides a powerful vehicle for processing information this has merely moved the focus away from the real issue of managing information to the delivery of technology.

The history of IT management in organisations is littered with disappointment. It is not that the technological systems have not been built but that in many organisations they have consistently failed to deliver business benefits and value (Strassman, 1990; Willcocks, 1994). Some scholars have alluded to the “productivity paradox” where despite the vast sums of money spent on IT, productivity improvements have not been forthcoming (Brynjolfsson,



1993). Reasons promoted for this failure include lack of strategic direction given by the business to IT investment decisions (Earl, 1989; Ward and Griffiths, 1996) often reflected in a mis-alignment between IT strategy and processes and business strategy and processes (Henderson and Venkatraman, 1993); inappropriate management of IT related change (Benjamin and Levinson, 1993; Benjamin and Markus, 1997; Ward and Elvin, 1998); lack of formal “benefits management” approach (Ward *et al.*, 1996; Farbey *et al.*, 1993); inability to leverage existing IT infrastructures (Weil, 1993; Broadbent and Weil, 1997); ‘paving the cow paths’ rather than capitalising on innovative ways to organise for work (Hammer, 1990); the ‘gap’ between the IT organisation and rest of the business (Grindley, 1993; Peppard and Ward, 1998; Schein, 1992; Ward and Peppard, 1996); not availing of the marketplace to provide IS/IT applications and services through a strategy of selective sourcing (Cross, 1995; Earl, 1996; Lacity *et al.*, 1996; Quinn and Hilmer, 1994). Indeed, we would argue that the disappointing results which many organisations have achieved through outsourcing is due to the treatment of IT as something which can be abdicated to third party vendors to manage, without explicitly considering the wider organisational role in leveraging value from IT.¹

Recognising the imperative to generate value from IT, organisations often engage in an examination of their IT organisation and many have looked towards the re-engineering of this function (Boar, 1998; Brown and Magill, 1998; Clark *et al.*, 1997). However, what such restructuring is merely addressing is the supply of technology into the business: the organisation becomes better at building applications. However, these applications may not be contributing to the achievement of organisational goals and objectives. Information technology has no inherent value in itself; just having technology on desks does not confer any value. This value must be unlocked. In short, the ‘T’ of IT has become the focus of attention rather than the ‘I’. Organisations must redress the balance in favour of the ‘I’ if value is to be created, but the crucial question is: Whose job is it? Information is a Cinderella with few champions whilst the ‘T’ has lots of mercenaries (the IT supply industry, IT departments and technology groups, outsourcing organisations, to name but a few). Yet the irony is that information is a factor of production (Bell, 1981) while technology is a cost of business.

This paper argues that creating value from IT is an organisation wide capability and not something which can be assigned to a single functional area, which tends to be the IT organisation. For most organisations the effective exploitation of IT is a “strategic asset” (Dierickx and Cool, 1989) which few have recognised and even fewer have managed to develop. Most still view value creation through IT as a technology delivery issue. Even in organisations who are enlightened and seek to align IS/IT investments with business strategy, business management generally sign-off soon after leaving the IT specialists to develop and implement the required systems.

In this paper we present the results of a research project in which we have been engaged over an 18 month period that seeks to define organisational competencies for creating value through IS/IT. We begin by examining the competency focus in the management literature. Much of this research has its theoretical foundations in the resource-based view (RBV) of the firm, and in the language of this genre the ability to effectively exploit IT is a strategic asset. Having outlined the research approach we then present the research framework which is used to position and identify the competencies. The process of defining and validating these

¹ See Strassman (1995) for a more disparaging argument.

competencies is then described and this competency framework is subsequently operationalised. A case study analysis structured around the competency framework is then presented. The paper finishes with conclusions and future research directions.

Competency focus in management literature

Throughout the late 70's and 80's there was a steady stream of articles and papers on the theme of IT and competitive advantage (Cash and Konsynski, 1985; Earl, 1987; McFarlan, 1984; Rockart and Scott Morton, 1984). In general, these articles were predominately descriptive and illustrated how companies were applying IT in ways which gave them a competitive advantage in the market place. Recently, the sustainability of IT as a source of competitive advantage has been examined by a number of authors (Kettinger *et al.*, 1994; Mata *et al.*, 1995; Powel and Dent-Miscleff, 1997) with the overall conclusion that technical wizardry does not give sustainable competitive advantage. In fact, technology has become such a commodity that it now has become a solution available to all. The general conclusion and recommendation from this stream of research is that organisations should focus less on IT *per se* and more on the process of organising and managing IT. The prescription is that organisations need to create an internal ability to leverage and exploit information to create value and benefits for the business.

This thinking is in line with a research stream in the strategy literature which is focusing on organisational resources as sources of competitive advantage. The basic premise of this resource-based view (RBV) of the firm is that unique resources of both tangible and intangible nature are the real source of competitive advantage. With the RBV theory, corporations are viewed as a collection of resources that are heterogeneously distributed within and across industries. What makes the performance of a firm distinctive is the unique blend of the resources it possesses (Rumelt, 1991). A firm's resources include not only its physical assets such as plant and location but its competencies and capabilities. Within this genre, management of IT for benefits and value is a "strategic asset" which requires development and cultivation. The importance of building up competencies that allow organisations to successfully take advantage of IT in their specific contexts has been noted even if these competencies are not generalisable and cannot be articulated (Sauer and Yetton, 1997).²

Capability and competence

There has been some debate in the strategy literature as to the distinction between capability and competency. Prahalad and Hamel (1990; Hamel and Prahalad, 1994) who popularised the concept of 'core competency' see the two as one and the same. Stalk *et al.* (1992) however, make a clear distinction between the two, portraying capability as a higher level construct. This paper views organisational capability at this highest organising level and as being outward-oriented (i.e. directed towards the strategic purpose of the organisation). From this perspective, organisational competencies are a subset of capabilities and are concerned with developing, managing and deploying resources. Such competencies comprise personal skills and organisational processes that are often affected by the culture of an organisation. It

² Recently, Swink and Hegarty (1998) have identified "core manufacturing capabilities".

is through effective competencies that an organisation can develop differentiating capabilities by uniquely deploying its assets and resources.

There has been a burgeoning of theoretical and empirical research in economics, industrial organisation, marketing and strategic management that provides models and frameworks to understand the concept of organisational capability (see Collis and Montgomery, 1995; Peteraf, 1993; Wernerfelt, 1984; Winter, 1987). Much of this research suggests that the ability to leverage distinctive internal competencies relative to environmental situations ultimately affects the performance of the business (Ginsberg and Venkatraman, 1995). Hence, specific capabilities are achieved through the unique combination of organisational competencies.

In the strategy literature two major paradigms for explaining the concept of organisational capability emerge. The first draws upon the concept of industrial organisation and economics. Traditional industrial economics emphasises barriers to competition and takes the position that industry effects will explain the greater part of persistent above-normal returns. Particular industries are more or less attractive because they contain 'structural impediments to competitive forces' and thus allow participating firms to maintain competence (see, for example, Teece *et al.*, 1991). The second paradigm suggests an alternative perspective - that firms are fundamentally idiosyncratic - and that over a period of time organisations develop unique combinations of resources that allow them to ingrain distinctive competencies in themselves (Rumelt, 1991). A resource is strategic when it amounts to a significant portion of the investment base of a firm and is not freely available on a competitive resource market. Currently there are few 'structural impediments' in buying IT and related systems; but organisations require competencies to leverage value their IT investments.

Although much has been written about developing organisational capabilities and core competencies that are necessary for gaining competitive advantage, there is little by way of a conceptual framework to underpin the idea of organisational competence. The literature in this area falls broadly into two camps. First are those researchers who have considered the concept of competence at the level of individual skills (for example, Boyatzis, 1982; Klemp, 1980; Woodruffe, 1991). Second are the researchers who have stressed the importance of developing organisation wide competencies (for example, Andreu, 1994; Ciborra, 1994; Hamel and Heene, 1994; McGrath *et al.*, 1995; Prahalad and Hamel, 1990).

Researchers who have restricted the concept of competence to individual skills define it as the underlying characteristics of a person that results in effective and/or superior performance in a job. Boyatzis (1982) uses Klemp's (1980) conception to describe these 'underlying characteristics' in terms of motives, traits, skills, aspects of one's self image and roles. The argument is that such traits have a bearing on causal relationships that leads to the effective performance of people. Boyatzis also highlights the importance of understanding human actions, their 'relevance within a systems and the emergent behaviours'. He therefore emphasises the organisational context that may enhance or restrict individual effectiveness.

The main concern for the researchers who have considered competencies at an organisational rather than an individual level has been to develop core capabilities within organisations. Andreu (1994) for example, postulates the development of core capabilities through a fundamental transformation process. Such a process uses and combines standard resources

available in open markets (where all firms can acquire them). When these processes get integrated into an organisations context and its routines, they become a source of competitive advantage. Hence the challenge for managers is to identify, develop, protect and deploy resources and competence in a way that provides the firm with sustainable competitive advantage and thereby, a superior return on capital (Amit and Schomaker, 1993).

Previous work on IS/IT competencies

Exploring competencies in the context of the management of IS/IT is a relatively recent development in the evolution of the IS discipline. Culnan (1986; 1987; Culnan and Swanson, 1986) in her co-citation analysis of IS makes no reference to the concept of competencies as a subfield which constitutes MIS research. Swanson and Ramiller (1993) reviewed the nature of manuscripts submitted to *Information Systems Research* and none fall within the thematic area of competencies. Indeed, the *MIS Quarterly* keyword classification scheme (Barki *et al.*, 1993) does not explicitly refer to IS/IT competencies although the category would probably fall under D. Organisational Environment.

The predominant strand of research in this area of study has been restricted to individual competence in the form of IT skill sets rather than organisational competencies. The focus has been on the IT supply side skills emphasising the requirement for IT specialists to have not just 'technical' skills but also 'business' and 'inter-personal' skills (Cross *et al.*, 1997; Lee *et al.*, 1995; Todd *et al.*, 1995). More recently, 'change agency' as a skill for IT professionals has been proposed (Markus and Benjamin, 1996). The implication of this literature is that the solution to the 'problem' with IT can be solved by equipping IS specialists with appropriate skills. By association, the problem is portrayed as being IT in origin.

Some organisations have created a 'liason' role between the business and the IT organisation in order to improve the relationship between the IT organisation and the rest of the business. The hybrid manager (Palmer and Ottley, 1990; Skyrme, 1992) initiative was an attempt to develop an individual with broad business knowledge and technical IT skills. The reality was, and still is, that in isolation they could achieve little particularly where there was a lack of strategic and senior management leadership of IT, inadequate structures and processes, lack of a service mentality and an over-arching belief in the organisation that IT was not strategic but merely an administrative expense to be managed (Peppard and Ward, 1998). In a similar vein, some research has addressed what MBAs, the future captains of industry, should know about IT (Silver *et al.*, 1995; Smith Slater *et al.*, 1995). Yet 'knowing' about IT and having organisational IS/IT competencies are not the same.

Sambamurthy and Zmud (1994; 1997) were probably the first researchers who explicitly looked at IS/IT competencies in an organisational wide perspective. In their research they identified 7 categories of IT management competencies: Business deployment, external networks, line technology leadership, process adaptiveness, IT planning, IT infrastructure, and data centre utility. Each of these categories contained a number of competencies, giving 29 in total. A weakness of this research is that the inter-relatedness of these competencies has not been illustrated.

Ross *et al.* (1996) contend that to apply IT to enhance competitiveness lies in the development of an effective IT capability. Their research suggests that this capability derives from careful management of three key IT assets³: a highly competent IT human resource, a reusable technology base, and a strong partnering relationship between IT and business management. This research does not explicitly address the detail of this capability, rather it gives us glimpses of its effectiveness. For example, what makes IT human resources competent?

Feeney and Willcocks (1998) have also addressed the issue of competencies but predominantly from the IT supply perspective. They have identified nine core IT capabilities: IS/IT leadership, business system thinking, relationship building, architecture planning, making technology work, informed buying, contract facilitation, contract monitoring and vendor development. With the exception of business system thinking these competencies are firmly grounded as competencies for the IT organisation. No explicit reference is made to those competencies required to creation value through the exploitation of IS/IT.

These studies have proved to be useful platforms to ground our research and we have attempted to build upon them. Three weakness in particular which we have sought to address are: to focus not just on the IT supply side issues; to explicitly define a set of IS/IT competencies; and to illustrate the relationships between the various competencies and how they contribute to the creation of value.

The research process

This research project, which sought to identify IS/IT competencies for value creation, ran for 18 months and was driven by three central objectives. The first was to help organisations exploit fully their current and future investments in IS/IT. The second was to identify the organisational competencies required to achieve this. The third was to develop an approach for evaluating current competency performance against that required.

The research process was divided into two stages. The first was to identify the set of IS/IT competencies required to deliver value from IS/IT. The second stage involved an investigation into the application of the outcome of the first stage of the research within a single case study.

Given the focus of the first stage of the research a single research approach was deemed inappropriate. Despite the available advice for selecting an appropriate research methodology (c.f. Galliers, 1991) it was felt that the nature of the problem would be better addressed by adopting a multi-methodological approach. While the research was exploratory we did wish to identify, define and develop an initial set of reliable and robust competencies. Given these considerations, a research process incorporating a number of research methodologies was seen as the most appropriate approach to addressing the complex task established by the research objectives. These methods included focus groups (Greenbaum, 1998), case studies (Lee, 1989; Smith, 1990), action research (Baskerville and Wood-Harper, 1996; 1998) and pseudo-Delphi studies (Delbecq *et al.*, 1975). Figure 1 illustrates the structure of the research

³ Note that Soh and Markus (1995) has a somewhat different view defining IT assets as comprising “the applications portfolio, IT infrastructure and user skills”.

process. The second stage involved undertaking an indepth study in one organisation to assess the validity and relevance of the resultant competencies.

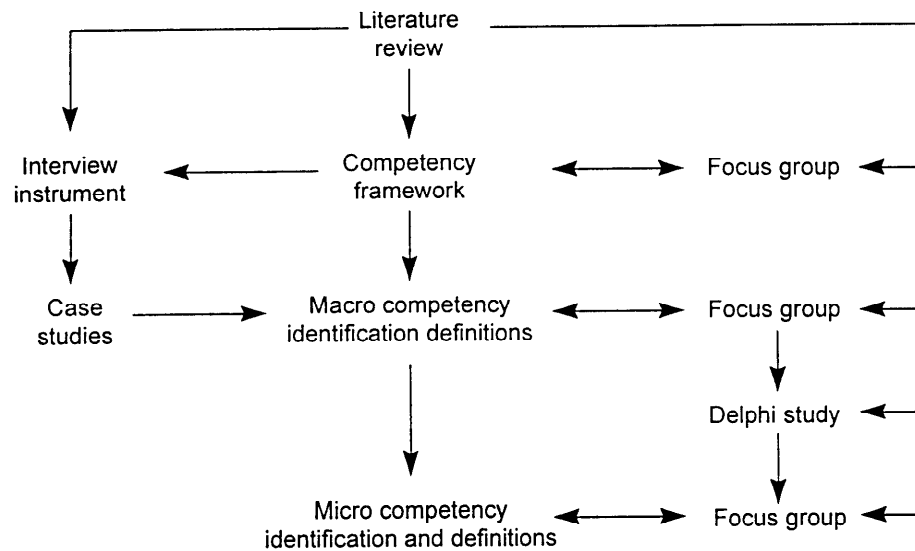


Figure 1 Overview of the research process.

A central tenet guiding the research design was the requirement to have the active involvement of organisational actors in defining the required competencies. A challenge faced was therefore to strike a balance between relevance and rigour (Keen, 1991). The relevance question was that a complete set of competencies would be identified and that these would be useful for those involved in the research process; the rigour was to ensure that these competencies were correctly defined and that they were comprehensive.

The overall research process for the first stage was framed by the Kolb (1984) learning cycle. This cycle, illustrated in figure 2, describes a four step process whereby experience is translated into concepts which in turn are used as guides in the choice of new experiences. The model points to four key stages: exploration, identifying issues, reflection and identifying ways forward. These stages are part of a continuous cycle guiding the learning process. By adopting this model it provided a powerful vehicle for guiding and structuring the conduct of the research process.

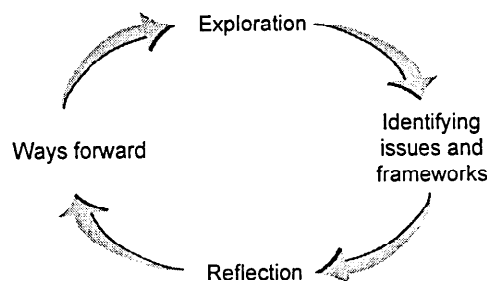


Figure 2 The Kolb learning cycle.

The research process was a continuous cycle of learning. Even the conduct of the focus groups was structured to reflect the Kolb learning cycle. Members of the focus groups were

senior IT and business managers. Each focus group meeting lasted from a half to one whole day and the agenda was constructed to reflect the stage at which the research process was at. Each focus group was fully documented and these documents were distributed to participants to ensure that they were an accurate reflection of deliberations. The Delphi study was a further extension of the focus group where the research team collected and collated the collective thinking of the group and send it to individual participants for refinement and comments in order to further develop the competencies developed in the workshops.

The second stage of the research process involved the conduct of an action research study in one of the participating organisations. The objective of this stage was to analyse this organisation in the context of IS/IT competencies, to determine whether they existed, to assess the relative performance vis-à-vis each of these competencies and to look develop an action plan to shore up any weakness.

The competency framework

The imperative to align the organisation's IS/IT strategy with its underlying business goals and objectives is well established (Earl, 1989; 1993; Henderson and Venkatraman, 1993; Peppard, 1993; Powel and Dent-Miscalf, 1997; Ward and Griffiths, 1996). A number of approaches have been developed which provide a mechanism for classifying and prioritising IT investments, as well as seeking opportunities for competitive advantage in the marketplace. Yet, too often organisations who develop IT strategies fail to derive any significant benefits from their investments; while an IS/IT strategy may be a necessary condition it is not sufficient. Put another way, having an IS/IT strategy does not guarantee success. The critical task is for the organisation to exploit this technological investment (Soh and Markus, 1995). Even alignment models (c.f. Henderson and Venkatraman, 1993) focus on the concepts of 'fit' and 'integration' rather than the organisation's ability to deliver benefits.

It is only through the exploitation of IT that value is created (McGrath *et al.*, 1995), a truism corresponding to "the IT use process" as defined by Soh and Markus (1995), as it is only in making use of the technology at an individual, process or organisational level that the necessary prerequisites for benefits can be met. Issues of IT supply are well addressed but often in isolation outside of the business context with few linkages to business strategy or the exploitation of the investment.

Building on the literature and through extensive focus group discussions it was determined that organisational IS/IT competencies fall into three broad categories:

- **Strategy and its development:** understanding the ways that information can impact an organisation's objectives and shape its strategic direction.
- **Supply of IS/IT resources:** managing the sourcing and supply of systems and technology within the business.
- **Exploitation of information and information systems:** using information and information systems to achieve strategic business objectives and to realise business benefits.

This categorisation, shortened to *strategy*, *supply* and *exploit*, extends the traditional business strategy-IT strategy linkage to explicitly incorporate the exploitation of the IT. Without exploitation there can be no benefits or value from the investment; just having the technology does not convey any value or benefits; these must be unlocked.

Macro competencies

In order to test the framework and to understand the issues faced by participating organisation more clearly, empirical research was undertaken in John Brown Engineering and the UK's National Health Service (NHS) and focus groups were held in CCTA, Glaxo Wellcome, Scottish Equitable, National Westminster Bank, and Zeneca. These empirical studies revealed that it is not sufficient to deal only with strategy, exploitation and supply, but also the *interplay* between them – and the competencies required to address this interplay – proved to be equally important.⁴ Figure 3 illustrates the competency framework showing clearly the linkages between strategy, exploitation and supply.

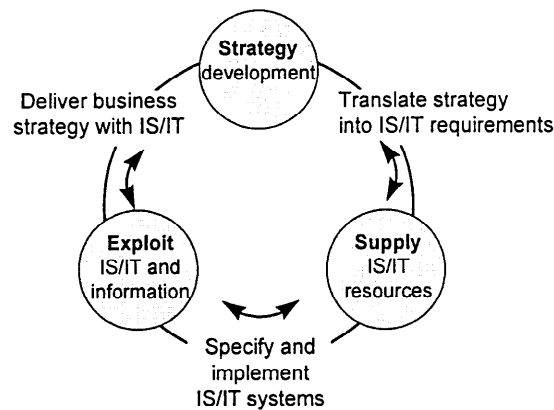


Figure 3 The competency framework.

The strategy-exploit competence describes the need to translate and communicate the business strategic vision into business processes, knowledge requirements and strategic performance measures. Without this linkage, there is a danger that the business strategy remains isolated from the IT organisation. The exploit-supply competence refers to the need to effectively communicate and deliver information systems solutions into the business and includes systems development, project management, change management and operational support. The strategy-supply competence describes the need to identify and justify the development of future IT resources, i.e., the development of future IT infrastructure including people, hardware and technologies. Historically, such developments have been piecemeal, often limited by a yearly budgeting cycle or only making investments when applications have been justified. The longer term nature of IT infrastructure development can only be justified when linked to future strategic business vision (Broadbent and Weil, 1997).

⁴ A full description of these cases can be found in *Organisational Competencies for Harnessing IS/IT: End of Phase One Report*, Information Systems Research Centre, Cranfield School of Management, April 1996.

The competency framework is a dynamic one with the forces at play in all directions. However, the business strategy provides the co-ordinating element focusing the IS/IT competencies in the process of creating value.

Utilising both focus groups and a pseudo-Delphi technique, this framework was then used to identify and establish the necessary competencies to enable its operationalisation. The actual competencies were identified and refined through both interaction and dialogue with IT and business managers from a number of organisations. In defining these competencies, we wished to ensure that the meaning which they conveyed was clear and precise. The resultant competencies are listed and described in table 1.

Competency	The ability to ...
Strategy.	...integrate the capabilities of IS/IT into the business strategy
Strategy-Supply	...translate the business strategic vision (IS and IT strategies) into required IS/IT supply capabilities
Supply	...develop and manage IS/IT resources for the supply of effective IS/IT solutions
Exploit - Supply	...specify and implement IS/IT enabled solutions to exploit information and information systems
Exploit	...exploit information and information systems to deliver business benefits
Strategy - Exploit	...deliver business strategy through the effective use information and information systems

Table 1 Macro competency definitions.

Micro competencies

The studies revealed that the macro competencies developed above were at too high a level of abstraction to be useful in any real organisational setting. While they do provide both the overall competency profile, in order to get a level of depth these macro competencies were further divided into micro competencies.

Again a pseudo-delphi approach was used to identify, define and subsequently refine micro competencies. This process began by brainstorming 'what are the critical activities which must be managed in relation to delivering value from IS/IT'. Then, through dialogue and debate with both IT managers and business managers in focus groups, these micro-competencies were refined. Table 2 lists out the micro competencies, positioning them within the domains of the 6 macro competencies, and highlights relevant literature.

Theoretical validity

While the process of competency identification and definition was inductive we wished to test the theoretical validity of these competencies. We used Rockart *et al.*'s (1996) imperatives for the IT organisation in order to assess whether there might be gaps between their prescriptions and the competencies which we identified. However, what this only served to highlight is the weakness of Rockart *et al.*'s prescriptions, particularly in the exploit and strategy-exploit competencies. We also plotted Brancheau *et al.*'s (1996) study of IS management issues against the macro-competencies to ensure that the competencies would

deal with the management issues raised in this study. The objective was to determine the appropriateness of these competencies in the management of these issues.

Finally, we identified relevant research studies and conceptual papers and mapped these onto the 25 micro-competencies. Table 2 lists out the micro competencies together with relevant literature sources which support both the need for and existence of these competencies.

Macro competency	Micro-competency	The ability to...	Literature sources
1. Strategy	1.1 <i>Business strategy</i>	... influence business strategy and its formulation to make the best use of IS/IT	Bowman and Kakabadse, 1997; Earl, 1989; Enns and Huff, 1997; Evans and Wurster, 1997; Sampler, 1998
	1.2 <i>IS strategic demand</i>	... align the IS strategy (applications) to the business strategy	Henderson and Venkatraman, 1993; Venkatraman, 1991; Ward and Griffiths, 1996
	1.3 <i>IT strategic supply</i>	... capitalise on the potential of IT in the delivery of IS and business strategies	Earl, 1989; Evans and Wurster, 1997; Ghosh, 1998; Ward and Griffiths, 1996
	1.4 <i>IS/IT management policies</i>	... define IS/IT management policies that enable effective delivery of the IS, IT and business strategies	Butler Cox, 1991; Broadbent and Weill, 1997; Davenport <i>et al.</i> , 1989
2. Strategy - Exploit	2.1 <i>Knowledge</i>	... understand which elements of organisational knowledge are critical to delivering the strategy	Grant, 1996; 1997; Von Krogh and Roos, 1995; Winter, 1987
	2.2 <i>Business strategy measures</i>	... develop and support business strategy performance measures	Earl, 1993; Ward and Elvin, 1998; Ward and Griffiths, 1996
	2.3 <i>Investment criteria</i>	... set appropriate investment criteria from a business perspective	Remenyi <i>et al.</i> , 1993; Ward and Griffiths, 1996; Willcocks, 1994
	2.4 <i>Innovative</i>	... identify and exploit the potential opportunities from innovative use of information within the business	Lockett, 1996; Sampler, 1998; Wiseman, 1985; Ward and Griffiths, 1996
3. Exploit	2.5 <i>Business processes</i>	... design and develop new business operations and processes required to deliver the business strategy	Edwards and Peppard, 1997; Kettinger and Teng, 1998
	3.1 <i>Success criteria</i>	... identify and measure IT performance	Farby <i>et al.</i> , 1993; Remenyi <i>et al.</i> , 1993; Ward <i>et al.</i> , 1996
	3.2 <i>Systems implementation</i>	... integrate IS/IT with the way the business operates, including new ways of working	Davenport, 1993; Powel and Dent-Micaleff, 1997
	3.3 <i>Information</i>	... identify and exploit the value of information and information systems	Parker and Benson, 1988; Sampler, 1998
4. Strategy - Supply	3.4 <i>Investment justification</i>	... monitor and evaluate the relative costs and benefits of specific project initiatives	Remenyi <i>et al.</i> , 1993; Ward and Elvin, 1998
	4.1 <i>Infrastructure</i>	... provide supply capabilities to meet current and future demands	Broadbent and Weill, 1997; Cross <i>et al.</i> , 1997; Feeney and Willcocks, 1998
	4.2 <i>IT environmental analysis</i>	... monitor and understand changes in the factors affecting supply considerations	Cross, 1995; Lacity and Hirschheim, 1996; Venkatraman and Loh, 1994;

Table 2 IS/IT micro competencies and associated literature references.

Macro competency	Micro-competency	The ability to...	Literature sources
5. Supply	5.1 Sourcing	... evaluate and determine the best mix of supply options	Cross, 1995; Cross et al., 1997; Earl and Sampler, 1998; Lacity et al., 1996; Willcocks and Lacity, 1996
	5.2 Supplier relationships	... select, evaluate, manage and develop suppliers of IS/IT	Cross, 1995; Weill, 1993; Lacity et al., 1996; McFarlan and Nolan, 1995; Powel and Dent-Micaleff, 1997
	5.3 Control mechanisms	... determine and maintain appropriate standards and control	Butler Cox, 1991
	5.4 Technical architectures	... determine, develop and maintain suitable technical architectures for the business operations and the IT strategy	Broadbent and Weill, 1997; Cross, 1995; Weill, 1993
	5.5 IS/IT staff development	... develop IT specialist resources and allocate roles and responsibilities	Boynton et al., 1992; Feeney and Willcocks, 1998; Lee et al., 1995
6. Exploit - supply	6.1 Service level definition	... identify and translate into service level terms the support needed to meet business requirements	Bytheway et al., 1997; Cross, 1995; Lacity and Hirschheim, 1995
	6.2 IT solutions	... develop and deliver IS/IT solutions to the business	Clark et al., 1997; Feeney and Willcocks, 1998
	6.3 IT training	... ensure that both business and IT specialists have the requisite skills to enable development and delivery of IT solutions into the business	
	6.4 Continuity/security	... plan and prioritise recovery in the event of disaster or failure	Baskerville, 1993; Dhillon, 1997; Dorey, 1991; Hutt et al., 1988
	6.5 Change management	... identify and manage the critical issues for successful change management and implementation	Benjamin and Levinson, 1993; Benjamin and Markus, 1997; Boddy, 1996; Markus and Benjamin, 1996

Table 2 continued IS/IT micro competencies and associated literature references.

A case study: competencies illustrated

Having defined the competency framework, identified the set of competencies and established that they were theoretically robust, we then set about to applying the framework in an organisational setting. One of the organisations involved in the research agreed to participate in this stage of the research process. The specific name and details of this organisation are irrelevant for the purposes of this paper; indeed the sensitive nature of both the discussions and findings also preclude its publication. The objective of this study was to assess the robustness of the competency framework and to diagnose areas of strength and weakness in the participating organisation. More specifically, from the perspective of the case study organisation, the research sought to:

- determine the existence or otherwise of each of the micro competencies
- assess current performance
- define those competencies which need to be either improved or developed (an “action plan”)

As organisations operate within different competitive environments, their success factors and required organisational competencies will also be different (Hamel and Prahalad, 1994). It is therefore essential that within the competency framework organisations can agree about the strategic contribution that information and information systems will make to achieving its objectives and the criticality of each of the competencies.

Whilst a quantitative instrument would have been appropriate, at this stage of both the research and our understanding, it was deemed more appropriate to develop a more qualitative assessment. Experience could be built upon in the future in order to develop a quantitative assessment tool. The learning from this exploratory study would enable us to begin to develop a mechanism which could be applied in any organisational setting.

Questions were keyed off the competency framework in order to help in determining the existence of micro competencies, to debate the relative importance of each micro competence in relation to overall strategic goals and to seek consensus concerning the level of improvement required. It was recognised that a possible risk which might arise from these discussions would be for the management group to suggest that every micro competence is critical to the business strategy and hence the vision for each competence would be demanding in organisational terms. However, building on some of the research output from the RBV, some competencies need only be performed efficiently and adequately whereas others required world-class performance. The outcome of this debate is a shared vision for each micro competency of required performance and its criticality to the delivery of business strategy. Appendix A illustrates sample questions for one of the micro competencies in relation to determining its relative importance.

A second instrument was developed to help in assessing performance of all the micro competencies. These questions were developed initially from the literature and then refined through a combination of an expert panel and by discussions with participating organisations. In total, over 300 questions were determined. Appendix B illustrates a sample of questions used to assess one of the micro competencies.

Both sets of questions were to be addressed in a workshop allowing discussion and debate between different stakeholders. This would provide a community of managers the opportunity to buy into the assessment; permitting any differences in attitude to be explored and resolved rather than exacerbated, and to enhance the quality of the experience for those involved. It also permitted the research team to evaluate the reaction to and understanding of the questions and the kind of responses elicited.

To improve the communication of the outcome of discussions for each competence “radar charts” were used. These permitted a visual representation of current performance in relation to the shared vision of the required level of performance. This assessed position is a subjective agreement among the participating managers. Figure 4 illustrates an example used to illustrate overall performance at the macro-competency level. The outer line is the normalised outcomes reflecting the consensus view of the required performance level. The shaded area represents the evaluation of current level of competence for each of the macro competencies. For example, in figure 4, the consensus view is that the organisation is poor in the exploitation of IS/IT relative to how good it wishes to be.

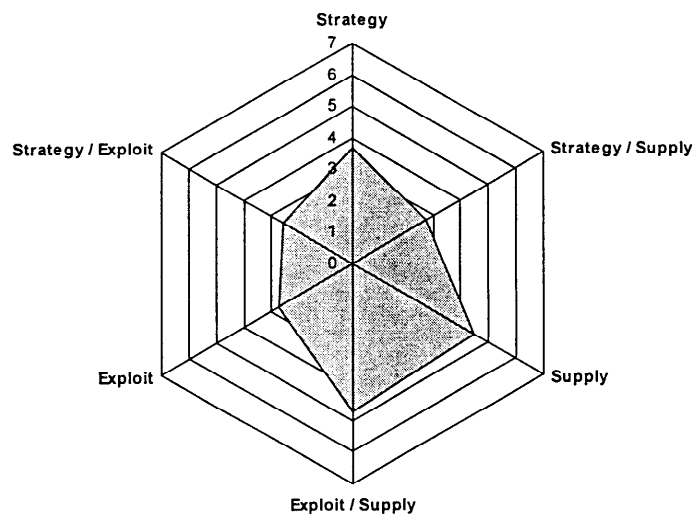


Figure 4 Example radar chart.

Structure and conduct of the action research process

Four workshops together with a feedback meeting were held off-site to ensure full commitment of the participants and to minimise interruptions. The IT Director, IT Strategy Planning Manager and Head of the Division set the scope widely and agreed to involve as many business and IS people as possible, with the objectives:

- to raise awareness of IS/IT competencies and expose known and unknown issues
- to gain from the interplay of ideas that would arise during discussion
- to identify the changes required to redress any imbalance in competencies
- to gain commitment to change from a large number of key managers.

The first workshop was attended by 30 business managers and 5 IS/IT managers from across the division. In essence, these people represented the 'exploiters' and the 'strategists' in the business. The second was attended by 20 IS/IT managers and 4 business managers, in essence the 'suppliers', whose general remit was the supply and delivery of technology into the business. The third workshop was with the Head of the Division together with his first line reports. This was a video conferencing session. The fourth workshop was a feedback session to the participants at the first two workshops. Finally, there was a presentation of the findings and discussion of the conclusions at a meeting attended by 70 people, including board members, most of whom had participated in one or another of the previous sessions.

Conduct of the workshops

Each of the workshops was led by one of the researchers who facilitated the discussion. Detailed notes were taken by a second researcher. At the first two workshops the approach was explained and six syndicate groups, each containing a mix of IT and business managers with facilitators, debated each set of the micro competencies and presented their assessment of the ability of the organisation to perform that competence. The process of this discussion developed a common assessment of how well this competence was being performed at present and a shared vision of how well it needed to be performed and agree action points for progress.

Whilst it is not possible to discuss in this paper every point in detail of the deliberations within these syndicate groups and plenary sessions, a great number of issues were raised, and many deficiencies in competencies were uncovered. Interestingly, the conclusions of the first two workshops were very similar despite the different backgrounds of the participants. The analysis also indicated that there was already some local success, but there were also significant opportunities to raise the level of competencies and deliver substantial business benefits.

The video conferencing session was successful in engaging senior management in the review; pictorial representation using the radar charts forcefully brought home weaknesses within particular IS/IT competencies. Senior management recognised the findings and gave their commitment to address areas of weakness.

Important issues arose concerning each of the macro competencies and the output enabled IT managers to make a persuasive presentation dealing with improvements, addressing such issues as strategy linking and IT prioritisation. Table 3 summarises the discussions, the key points of which are:

- **Strategy:** Previously, the business strategy had addressed product development issues but not the information systems that would support product development and marketing. Indeed, IT priorities were not driven by business needs.
- **Strategy / Exploit:** The analysis highlighted the need to measure the right things in order to take a sensible story back to the business, and to avoid a fixation with financial justifications. There was a poor understanding of business processes.

- **Exploit:** Limitations in achieving successful and full exploitation were revealed, for example in regard to training and inter-departmental communications, and a poor appreciation of information “know how” within the business.
- **Strategy / Supply:** The time horizons in IT planning were shown to be too short to sit comfortably with business planning horizons. Infrastructure was developed, but at a high price due to piecemeal development. On the up-side, technology-watching was deemed to be effective even though informal; on the down-side, opportunities to influence relevant international standards were being ignored.
- **Supply:** Much effort was being made to minimise costs, but critical supplier management issues were being sidelined or ignored. Internal resource allocation was not adequately controlled leading to uncertainty and unreliability of supply.
- **Exploit / Supply:** Service level agreements were focused on IT performance not on business benefits delivered. It was found that business people were uncertain – even unable – to specify their requirements. No training had been given to them in relation to requirements specification.

The detail of the discussion was more extensive than this, and obviously both strengths and weaknesses were revealed. Taken in isolation, any single observation might seem obvious or predictable, but it has to be stated that the analysis was *balanced* across the full gamut of IT operations within the business, the outcome *had impact*, it was entirely contained within a *single* assessment exercise, and that this exercise was properly *geared* to its context.

Marco competence	Summary of key points to emerge from workshops
Strategy	<ul style="list-style-type: none"> • The business strategy is a product strategy which gives no guidance for IT priorities • IT priorities are not set corporately or driven by business strategy <ul style="list-style-type: none"> - business targets are not translated into IT requirements - priorities are IT driven not business driven - priorities are frequently overridden by the business • The 1 year budgetary cycle precludes strategic applications • The IT role is primarily reactive, to avoid disadvantage • The company aims to be a world class player in its industry <ul style="list-style-type: none"> - it is unclear about the role of information and IT in this objective • IT seen as a cost not a resource
Strategy-Exploit	<ul style="list-style-type: none"> • Performance measures - need to measure the ‘right’ things • There is no consistency in use of investment criteria <ul style="list-style-type: none"> - hard nosed not visionary - mainly financial criteria applied - not aimed at long term business benefits • Innovation - this is counter to the business culture <ul style="list-style-type: none"> - rewards are based on ‘getting it right’ no points for failure • There is poor understanding by the business of current business processes <ul style="list-style-type: none"> - business processes are a poor fit to current needs • There is little emphasis on knowledge management <ul style="list-style-type: none"> - minimal leveraging of expertise from corporate knowledge
Exploit	<ul style="list-style-type: none"> • IT success criteria is focused mainly on cost reduction <ul style="list-style-type: none"> - need to focus benefit management on realisation of strategic advantage • When implementing new systems, training is poorly managed <ul style="list-style-type: none"> - IT organisation not responsible for user training - room for improving effectiveness of new processes including use of IT systems and new ways of working • There is a communication/understanding gulf between the IT organisation and the

Whose job is IT anyway?

	<hr/> <ul style="list-style-type: none">business<ul style="list-style-type: none">- the business believes that IT management do not understand business operations- working relationships range from 'good' to 'strained'- need mechanisms for the two to work together• Use of information rather weak, but is improving<ul style="list-style-type: none">- internal key information not readily accessible- external information is available but tools for analysing/disseminating are not good• IT investments are mainly monitored and evaluated on the basis of IT costs only<ul style="list-style-type: none">- associated business costs are only partially captured <hr/>
Strategy-Supply	<ul style="list-style-type: none">• Long term infrastructure decisions<ul style="list-style-type: none">- unclear approach to justifying/defining future needs• Medium term needs are not well identified. "We'll succeed, but at what cost?"• In the short term the strategy-supply processes are effective because the head of IT and the Division head work closely together<ul style="list-style-type: none">- but it is IT driven- there are some common desktop provisions- some development tools are in use to reduce development time• External scanning of IT environment to improve IT competence is informal but effective for technical standards <hr/>
Supply	<ul style="list-style-type: none">• Current focus of sourcing decisions is mainly to minimise costs<ul style="list-style-type: none">- room to improve sourcing decisions as a means of meeting business benefits, and to expand expertise through use of external suppliers• Supplier management on behalf of users and by business managers "miles off" at present<ul style="list-style-type: none">-based on "carrot and stick without the carrot!"• Mis-alignment between IT management and business management on the strategic intent of IT organisation<ul style="list-style-type: none">- business looking for highly flexible arrangements with shared risks and rewards, with a timed road map- IT management looking for some flexibility, based on medium to long-term relationship• Not all business areas aware of criteria and policies regarding contract management• Hardware architecture effective, but there is plenty of room to exploit information and systems architecture more fully<ul style="list-style-type: none">- partial support only of IS strategy and business benefits• More training is needed in change management and benefits management for business and IT specialists• The current culture is to hijack IT resources<ul style="list-style-type: none">- but this only avoids prioritisation <hr/>

Exploit-Supply	<ul style="list-style-type: none">• Service Level Agreements (SLAs) focus on IT delivery, not achieving business benefits<ul style="list-style-type: none">- business and IT need to focus more on delivering business benefits in defining SLAs- business managers need training in specifying service definition• Approach for delivering IT solutions is IT driven<ul style="list-style-type: none">- business people are poor at specifying requirements- they possibly do not understand where they fit in- project management usually defaults to IT• Time is a big issue<ul style="list-style-type: none">- it drives projects rather than benefits• Much more training is needed in:<ul style="list-style-type: none">- defining and delivering systems- project management- benefits management- creativity and change management• Recovery/back-up procedures are mainly IT driven<ul style="list-style-type: none">- not driven proactively through business risk• IT enabled change is far from being an integral part of culture<ul style="list-style-type: none">- culture is of “warring tribes”- internal politics are a barrier, which are talked about rather than being addressed
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Table 4 Summary of key points to emerge from discussions at the case study organisation.

Gaining business commitment

The final ‘feedback’ workshop involved a review of the findings and conclusions, and left the organisation in no doubt that it was below the required level of competency needed in almost all the six macro competencies analysed. It created a high level of support for action based upon the need to:

- better understand and develop cross-functional business processes within which IT applications would sit;
- avoid the trap of trying to use IT to mend “broken” business processes;
- introduce a proper project plan for the improvement work arising;
- balance competencies in the supply of IT into the business with organisational competencies in information exploitation;
- set appropriate timescales for action, and for re-alignment of the relationship between business and the IT function;
- interpret and adapt the outcome of the study in the context of the different business units involved;
- understand and use key business drivers (not just financial criteria) to drive investment in IS/IT;
- understand the difference between competitive advantage and competitive disadvantage arising from IS/IT competencies;
- understand how well IT is supporting the business;
- improve the articulation and interpretation of business strategy.

In the study organisation, the major benefit has been the achievement of a common vision of the role of information, information systems and information technology and common

ownership within the business, up to executive level. Additionally, a series of agreed actions to address the issues identified, was agreed including:

- better translation of business objectives into IT priorities
- a major review of their business processes
- the introduction of a clear business benefits management and exploitation framework
- reviewing the current approaches to project management.

Perhaps most important is that senior management found it extremely valuable and agreed to act upon the results.

Figure 5 illustrates pictorially the situation with regard to micro competencies at the case study organisation. This radar chart was used at a board meeting to illustrate some of the problems which the company faced in regard to its competencies in IS/IT. The overall consensus among both business and IT management was that the organisation had a reasonable ability to develop and manage IS/IT resources for the supply of effective IS/IT solutions. Interestingly, it was also felt that it had a capability to translate the business strategic vision into required IS/IT supply capabilities. However, the IT organisation was getting little guidance from business management. Indeed, the organisation was not seen as having the ability to integrate the capabilities of IS/IT into business strategies. In fact, the IT organisation was developing applications which it felt the business needed without any explicit business direction or leadership.

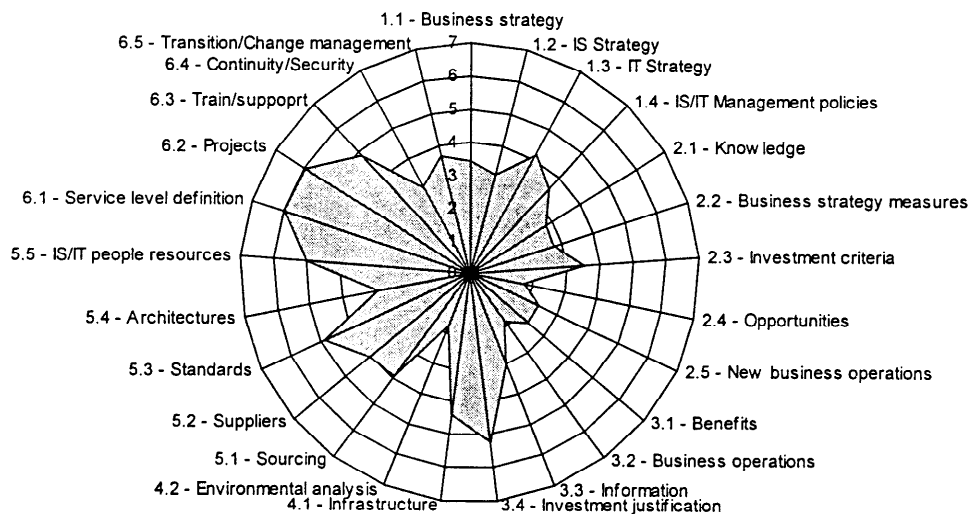


Figure 5 Pictorial summary of IS/IT macro competencies at the case study organisation.

Conclusions and future research

Over the last decade there have been a number of articles prescribing that business managers should take more responsibility for IT management (Anonymous, 1996; Boynton *et al.*, 1992; Dutta, 1996; Rockart, 1988). Prescriptions ranging from ‘the line takes leadership’ (Rockart, 1988) to the ‘end of delegation’ of IT decisions to IS specialists (Anonymous, 1995) have been made. Yet these exhortations have fallen on stony ground, possibly because they lack specificity or detail. We have attempted to shed light on what needs to be done through an exploration of IS/IT competencies.

A central assumption behind this research is that the problems in creating value through IT cannot be addressed through focusing solely on one functional area within an organisation. While the IT organisation has traditionally been charged with responsibility for IT the reality is that the IT organisation can only ever supply the technology into the business. Any benefits and value from IT must be unlocked by business management. This unlocking of value is an organisation wide phenomena requiring IS/IT competencies which are distributed throughout the organisation.

In this paper we have developed the notion of organisational competence within the context of IS/IT management and using a multi-methodological approach we have identified 25 competencies which are required to deliver value from IS/IT. We have grounded our discussions in the context of the Resource Based View of the firm and have taken the stance that the management of IS/IT is a “strategic asset”.

Within this context competencies are considered as the organisations’ ability to deploy its resources so as to effectively leverage IS/IT. Organisational competencies are essentially managerial in nature and constitute self sustaining processes and skills that affect and are affected by the business environment. Hence it is important that these competencies are developed in the light of the key drivers and success factors for a particular business environment in relation to IS/IT. It is also essential that an organisation identifies those competencies that enable it to determine and exploit IS/IT opportunities so as to maximise the value-added contribution to the business.

Through this research we have developed a holistic view of organisation IS/IT competencies which incorporates not only strategic, exploitation and supply issues but crucially the linkage between them. We have articulated a means of establishing how important particular organisational competencies are for delivering the business strategy and demonstrated how it is possible, in workshops, to assess performance in relation to these competencies.

Adopting a competency perspective in relation to IS/IT can be significant and this significance may be summarised as follows:

- IS/IT competencies are organisation wide and have elements in the business as well as in the IT organisation
- Strong linkage is needed between *strategy*, *exploit*, and *supply* areas to ensure maximum benefits

- It is likely that the performance of many organisational IS/IT competencies are below the level required to deliver value, possibly because they have not been clearly defined or even recognised.
- The process of an informed discussion between business and IT managers is valuable in terms of developing a shared understanding and insight into strategic requirements for IS/IT competencies
- Organisations can develop action plans based on an assessment of their competency profile.
- Focusing on supply has been the traditional solution to problems with IT. A major lesson from this analysis is that it is only a part of the total story

We concur with Feeney and Willcocks (1997) who note, in relation to IS/IT competence, that 'in this emerging field there is as yet little general agreement on the labelling or definition of the building blocks, or even on the level at which a competency is most appropriately identified' (p. 467). We have attempted to advance the thinking of those few scholars who have been exploring the notion of IS/IT competencies.

More research is necessary in order to explore the detail of each competency. The competencies developed in this paper require refinement in order to identify their component elements. There are also tacit aspects to be dealt with, for example, the close relationship between business and IT management which may infuse particular competencies. Is a particular cultural climate conducive to the existence of certain competencies? For example, Zmud *et al.*'s (1986) have described the notion of an "information economy" within a company while more recently Davenport (1997) has used the term 'information ecology' to capture the cultural conditions necessary for effective exploitation of IS/IT.

Figure 6 illustrates the process of competence development based on the work of McGrath *et al.* (1995). The model shows that organisational competencies not only derive from personal skills and knowledge (components) but also through effective organisational processes (deftness) that allow these individual skills to be deployed. They argue that it is through organisational processes that the sum of all individual skills appear as an organisational competency and without proper business processes there will be no competency evident. In this paper we have identified the required IS/IT competencies for value creation, the challenge is to address the comprehension and deftness dimensions of this model.

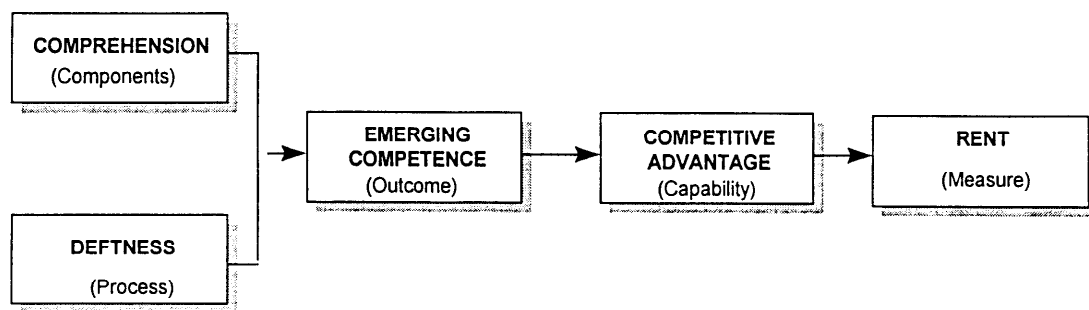


Figure 6 The process of competence development (based on McGrath *et al.*, 1995).

McGrath *et al.* (1995) raise two interesting issues: first that organisational capability can hardly evolve from an initiative unless those responsible can develop competence at what

they are doing. Second, competence can be thought of as a purposive combination of firm-specific assets (or resources) which enable it to accomplish a given task. Weick and Roberts (1993) stress that the process by which elements of individual know-how and skill become linked is also an important ingredient of achieving overall organisational competence. They term this relationship as 'comprehension' and argue that the process by which comprehension develops is crucial for achieving competence. Such a conception of competence is supported by the resource-based theory and is based on the contention that organisational capability is to some extent related to the processes at work within organisations.

A critical aspect is how do organisations translate these IS/IT competencies into individual competencies, skills, knowledge and behavioural characteristics? A related question concerns the development of these competencies within an organisation. What human resources (HR) and organisational development (OD) programs can help in the creation and maintenance of these competencies? In the recruitment of staff and in defining employee contracts, how do these competencies translate into job descriptions? All these questions require further research.

The multi-methodological approach adopted helped identify the relevant competencies. The application of the concepts within a single case organisation had real value in helping practising managers assess their overall performance with regard to managing and exploiting information and information systems. Given the exploratory nature of our research we have used a qualitative assessment approach to identify the existence of and relative performance with regard to these competencies. Of benefit would be a quantitative profiling tool which would enable managers to objectively assess the existence and performance of the organisation vis-à-vis the required competencies.

Having IS/IT competencies is not something which customers desire or indeed purchase *per se* (McGrath *et al.*, 1996). Customers desire and purchase products and service attributes a firm creates by deploying its resources. Recognising this, the trend today is for organisations to outsource activities and processes which they do not consider as being core to their business. IT is not immune to this practice and over the last decade organisations have increasingly looked towards using outside agencies to perform a variety of IS/IT activities, yet our research strongly suggests that organisations must retain the management of the competencies to which these activities relate.

In conclusion, we have identified a generic set of organisational IS/IT competencies for creating value in an organisation from IT. Additionally, we have attempted to develop a holistic framework showing the interplay between these competencies. Drawing on RBV we have proposed an embryonic method for gaining agreement about the relative importance of each competence as well as assessing how well it is currently performed. Finally we hope to have initiated a debate that value creation is an organisational responsibility rather than a functional one.

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Appendix A

Sample questions for assessing future requirements: Macro competence exploit

EXPLOIT: The ability to exploit information and information systems to deliver business benefits

What criteria should be used to judge the success of IT in your organisation?

Prompts: When projects are delivered on time to budget and specification? When business managers identify and realise benefits? When the organisation realises benefits corporate wide and gains strategic advantage?

With regard to business systems implementation, what should be the focus when implementing new systems solutions?

Prompts: Training users in the new application? Training users in the new business process including the IT aspects? Involving users throughout the life cycle of the project enabling them to contribute to the design and development of the business processes?

What should be the primary purpose of information in your organisation?

Prompts: To provide reliable, accurate and timely input to support business decisions? To allow the business to understand and maximise the use of business resources? To understand and exploit customer and market trends?

How should IT investment be understood and justified?

Prompts: IT resource should be costed in isolation? Both IT and business resource costed together? Full costs of organisational change included? Benefits to be quantified and measured?

Appendix B

Questions for assessing the supplier relationship competence.

SUPPLIERS: the ability to select, evaluate, manage and develop suppliers of IS/IT

Are there clear guidelines for contract management, quality control, evaluation and de-selection of external suppliers?

Who is responsible?

Do you monitor the market for potential suppliers?

Is there a formal tender process?

Is the evaluation criterion clear?

Do you have a clear policy re contract management including monitoring and de-selection of suppliers

What is the standard of service level definitions?

Are there clear responsibilities/roles in the management of suppliers?

How do you integrate suppliers and ensure their commitment

How do you reduce risk?

How do you ensure focus from suppliers?

Is there a willingness to share risks and rewards?

How integrated are your operations with those of your suppliers?

Are you moving towards open book accounting?

Assessment of current performance

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