

**SWP 9/98 IS/IT MANAGEMENT IN THE GLOBAL  
ENTERPRISE:  
A FRAMEWORK FOR STRATEGIC ALIGNMENT**

**JOE PEPPARD**

**Information Systems Research Centre  
Cranfield School of Management  
Cranfield University  
Cranfield  
Bedfordshire MK43 0AL**

**Tel: +44 (0)1234 751122**

**Fax: +44 (0)1234 751806**

**Email: [j.peppard@cranfield.ac.uk](mailto:j.peppard@cranfield.ac.uk)**

*The Cranfield School of Management Working Papers Series has been running since 1987, with approximately 450 papers so far from the nine academic groups of the School: Economics; Enterprise; Finance and Accounting; Human Resources; Information Systems; Logistics and Transportation; Marketing; Operations Management; and Strategic Management. Since 1992, papers have been reviewed by senior members of faculty before acceptance into the Series. A list since 1992 is included at the back of this paper.*

*For copies of papers (up to three free, then £2 per copy, cheques to be made payable to the Cranfield University), please contact Wayne Bulbrook, Research Administrator, at the address on the back of this booklet.*



# IS/IT Management in the Global Enterprise: A Framework for Strategic Alignment

Joe Peppard,  
*Information Systems Research Centre,*  
Cranfield School of Management,  
Cranfield,  
Bedford MK43 0AL  
Phone: +44 1234 751122  
Fax: +44 1234 751806  
Email: [j.peppard@cranfield.ac.uk](mailto:j.peppard@cranfield.ac.uk)

*Much has been written over the last decade on managing global enterprises. While the predominant concern of this literature has been strategic in orientation, the management of information and information systems is a neglected area. By drawing on a diverse range of literature in the international business, strategy and IS disciplines this paper develops a framework for analysing IS/IT management in the global enterprise. It highlights the role of IT as supporting global business strategies while at the same time IT can also be a major catalyst in the globalisation process itself. Significant relationships between the domains of the framework are surfaced and an agenda for action developed.*

**Keywords:** Global enterprises, IS/IT management, IS/IT strategy, strategic alignment

# **IS/IT Management in the Global Enterprise: A Framework for Strategic Alignment**

*Much has been written over the last decade on managing global enterprises. While the predominant concern of this literature has been strategic in orientation, the management of information and information systems is a neglected area. By drawing on a diverse range of literature in the international business, strategy and IS disciplines this paper develops a framework for analysing IS/IT management in the global enterprise. It highlights the role of IT as supporting global business strategies while at the same time IT can also be a major catalyst in the globalisation process itself. Significant relationships between the domains of the framework are surfaced and an agenda for action developed.*

**Keywords:** Global enterprises, IS/IT management, IS/IT strategy, strategic alignment

## **IS Management in the Global Enterprise: A Framework for Strategic Alignment**

As we leave the 20th century many economists argue that we are entering a truly “global economy”. At the same time, however, others are questioning whether or not such an exalted destination will ever be reached, pointing towards increasing regionalism, the difficulties with negotiating the last GATT agreement, and persistent rumblings of protectionism. Yet despite these concerns it would seem that forces are already at play ensuring that a truly global economy rather than an economy that is a little more international is about to dawn. Three interrelated phenomena capture the essence of the emerging economy in its inextricable march towards globalisation.

First, dramatic increases in the scale and scope of technology - its cost, risk, and complexity - have rendered even the largest national markets too small to be meaningful economic units. Second, the explosive growth of transnational strategic alliances signals a fundamental change in the mode of organisation of international economic transactions. Finally, the emerging global economy is integrated through information systems and information technology, facilitating co-ordination through markets rather than organisation hierarchies. The result is an electronically networked world economy where national markets are losing meaning as constituent units and geography is no longer the basis for the organisation of economic activity. Yet, simultaneously, IT also enables companies to exploit sources of national competitive advantage.

What are the implications for business organisations as they strive to survive in this new world order? How can organisations translate global business objectives into global operational structures? How can business processes which transcend national boundaries be best managed? How can organisations harness the opportunities provided by IT as both an enabler and driver of globalisation? How can an organisation ensure that the benefits of their investments in IT are actually realised?

Much has been written over the last decade on managing global enterprises. While the predominant concern of this literature has been strategic in orientation, it deals mainly with issues of co-ordination (Roth *et al.*, 1991), control (Doz and Prahalad, 1981; Egelhoff, 1984; Eisenhardt, 1985), governance (Gomes-Cassares, 1989; Lorange *et al.*, 1992), product/market breadth and marketing (Bradley, 1991), supply chain (Christopher and Braithwaite, 1991), innovation (Nohria and Ghoshal, 1997; Rugman, 1981), legislation and national cultural differences (Adler, 1986; Hofstede, 1984). Critically, the management of information, which is so crucial to the survival and functioning of such enterprises, is neglected. Any reference to information management is generally portrayed as a technical issue, and seen as being primarily concerned with communication networks and technological infrastructures. Consequently, responsibility is often delegated by senior business managers to

technically competent staff in the IT organisation. The irony is that decisions about IT are essentially business decisions.

The objective of this paper is to contribute to our understanding of IS/IT management in the global enterprise and consequently the development of this sub-field of research. By drawing on a diverse range of literature in the international business, strategy and IS disciplines this paper develops a framework for analysing IS/IT management in the global enterprise. It highlights the role of IT as supporting global business strategies while at the same time IT can also be a major catalyst in the globalisation process itself. Significant relationships between the domains of the framework are surfaced and an agenda for action developed.

The paper begins by exploring the concept of globalisation and highlights the issues and problems which are present in managing outside of a domestic context. Tensions which are inherent in the global context are surfaced and the impact of IT in addressing these tensions is explored. Decisions concerning the organisation of global operations are examined and five specific dimensions identified from the literature are reviewed. The management of IS/IT in the global context is then analysed. Significant relationships between the domains of the model are highlighted. The paper concludes by developing an agenda for action.

## **The global context**

Two assumptions underlie the construction of this paper. The first and more general assumption is that managing in the global context is different from managing a single sited organisation thus presenting a different set of issues to be addressed. The second assumption, which is specific to the management of IS and IT, is that there are value for money benefits and advantages to be gained by managing IS/IT on a global basis as opposed to a domestic country or single site. The overwhelming evidence would suggest that this is the case.

To put this paper in context and to highlight the enormity and complexity of global operations consider the following scenario:

*The global corporation, head-quartered in Germany, markets and sells a product that is designed in Milan, Italy with components manufactured in Taiwan and Korea. It is assembled in Canada, Germany and Ireland and sold as a standard model in South America, and as a model with considerable options in the US, Europe and Australia. Transfer pricing of the components and assembled product is determined with an eye to minimise tax liability. The principal financing is provided from the Eurodollar market based in Frankfurt. Add in the complexities of having transactions in different currencies, with foreign exchange hedge contract gains and losses that sometimes offset trading losses or gains.*

While this scenario captures just some of the complex issues involved in global operations at a business level translating business demands into information and systems requirements becomes a daunting task, *yet it is one which confronts many organisations on a daily basis.*

Managing in the international arena presents a number of concerns and problems not usually faced when operating in a single domestic market. These include:

- Addressing different legislative demands, taxation systems, accounting requirements, currency systems, and environmental standards, particularly outside the borders of the European Union (EU). While the EU is seeking the harmonisation of many of these aspects, the fact is that many anomalies still remain among member countries.
- Dealing with cultural differences both within different operating units and national cultural differences. Even within Europe there is a mosaic of different cultures. Culture also influences business practices and customer preferences.
- Addressing international economics and politics. Consider the intervention of the French government when Hoover announced that it was moving manufacturing from France to Scotland. The stability of political and economic systems varies throughout the globe as does the extent of state intervention, particularly in attracting foreign direct investment (FDI).

Accentuating the global 'problem' are further observations in relation to operating internationally.

- It is very often difficult to distinguish between what one might consider as being 'domestic' and 'international' firms. Even the home base is often be deceiving. For example, Honda manufactures more automobiles in the US than in Japan, employs more US workers than Japanese, generates more revenue in the US than it does in Japan, and even exports US designed and manufactured cars to Japan
- In many industries, international business can sometimes be described as a tangled web of international links, often associated with competing firms. For example, Nike, Adidas and Reebok despite competing against each other head-to-head often use the same manufacturers in South East Asia. In the computer industry IBM, DEC, Hewlett Packard and Apple are at the same time involved in both collaborating and competing alliances.

Globalisation has become a strategy for many companies of all sizes as they seek to expand their participation in foreign markets. The extent of this "globalisation" varies from having a sales office in a local market to a sophisticated network of business operation fully integrated on a global basis. In the process of becoming increasingly global, many firms follow a developmental path from 'international' to 'multinational' to 'global' (Bartlett and Ghoshal, 1989). Briefly, the international stage is characterised by an increasingly autonomous international division, separate from domestic business; the multinational stage is characterised by an increasing duplication of the value chain across countries and local autonomy; and the global stage is denoted by increasing geographic integration of activities and strategies.

## **IS/IT management in the global enterprise**

The global organisation seeks to manage the interdependencies among geographically dispersed multi-site operating units, for example between manufacturing facilities, distribution centres and sales offices all at different locations. Information is the mechanism through which this integration is achieved and IT is increasingly being used to integrate and manage geographically dispersed operations. At the same time IT is reducing communication and transaction costs and enabling new structures and processes providing global organisations with new organising possibilities (Malone *et al.*, 1987).

Yet, this management of information which is so crucial to the functioning of global enterprises is neglected in the research literature. As recently as 1991 Deans and Ricks reported that a comprehensive review of the relevant literature revealed very little academic research. Similarly, the international business literature has tended to ignore the IS functional area.<sup>1</sup> Any reference to information management is generally portrayed as a technical issue and seen as being primarily concerned with communication networks and technological infrastructures.

A survey at the beginning of the decade showed that more than half of the 100 major multinational corporations surveyed in 1991 did not, or rarely considered IS/IT in strategy development (Amdahl, 1991). This survey also reported that the percentage of corporations that regard IS/IT as a component of their global strategy development was as low as 14%.

Most of the IS/IT research literature is 'domestic' in orientation (Deans and Ricks, 1991; Emery, 1990; Roche, 1996), i.e. addresses the management of IS/IT from a single site or business unit within an individual country. Some research has identified issues with managing IT in the global context (Ives and Jarvenpaa, 1991; Roche *et al.*, 1991), issues specific to Chief Information Officers (CIO) of global organisations (McFarlan, 1992), and there has also been some recent publication on managing international IS projects (Tractinsky and Jarvenpaa, 1995). In addition, there are a limited number of cases studies dealing with aspects of global IS/IT management (Clemens and Row, 1991; Ives and Jarvenpaa, 1994; Jelassi and Dutta, 1993; Ross, 1995). Despite this dearth of literature, 'Global Information Technology' is emerging as a sub-discipline within the IS field recognition of the increased importance of IT in globalisation and in managing the global company.<sup>2</sup>

In summary, the existing research literature reveals little by way of guidance for managing IS/IT in the global enterprise. One paper has noted that "...the literature [on

---

<sup>1</sup> The popular book of readings in global business and strategy *Global Strategic Management: The Essentials* (Vernon-Wortzel and Wortzel, 1991) explores finance, R&D and innovation, marketing and production within the context of global strategies. IS/IT management is not considered. Yip's (1996) book, with the title *Total Global Strategy*, devotes one paragraph to IT.

<sup>2</sup> There is now a journal devoted to the area, the *International Journal of Global Information Technology*, published by Idea Publishing, PA. A working group has been established under the auspices of the International Federation for Information Processing (IFIP) to promote research and the exchange of best practice in this area. IFIP Working Group 8.7 is titled 'IT Management in the International Enterprise' and was established in December 1996.

managing Global IS/IT] remains fragmentary, offering only partial and potentially contradictory normative implications for managers” (Ramarapu and Lado, 1995). Indeed, a more recent study concluded that “...the global information systems challenge appears to be more complex than commonly suggested ... there are no easy and straightforward prescriptions for practitioners involved with global information systems” (Earl and Feeney, 1996).

### **An alignment framework for managing IS/IT in the global enterprise**

In spite of the above conclusion, there are two central themes which emerge from what little research exists in the Global Information Technology field which are of particular relevance. The first suggests the criticality of matching global *IS/IT* strategy to global *business* strategy (Earl and Feeney, 1996; Ives and Javenpaa, 1991). The second advocates the linking of global organisational design strategies with tactics for providing information technology support (Chismar, 1994; Karimi and Konsynski, 1991). Different structures influence information flows within the organisation (Egelhoff, 1982) and IT plays a crucial role in allowing organisations to implement global business strategies which depend on complex organisational and decision making structures (Chismar, 1994). The logic is that in implementing a global strategy the organisation constructs a specific business model which is supported and enabled by IT while at the same time cognisance is taken of the opportunities provided by IS/IT in enabling innovative global strategies and novel structures.<sup>3</sup> IT is also driving the globalisation process with technologies such as the Internet and World Wide Web allowing even the smallest company the opportunity to operate on a global scale (Quelch and Klein, 1996).

Figure 1 presents an alignment framework for managing IS/IT in international businesses. This framework builds on the work of Earl (1989), Pyburn (1993) and Ward and Griffiths (1996) in aligning IS/IT strategies and business strategies, and that of Hendersen and Venkatraman (1993) and Broadbent and Weill (1993) in developing strategic alignment models and the framework of Ives *et al.* (1993) for global IS strategy formulation. It combines this research with the international business literature, the strategy literature, the organisational design literature and the IS/IT literature in developing an integrative strategic alignment framework.

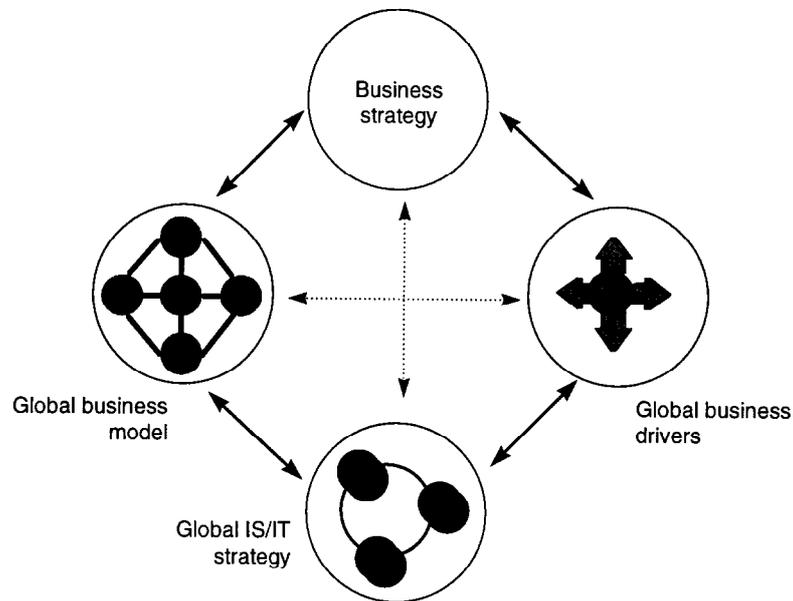
The concept of strategic alignment is based on an assumption that economic performance is directly related to the ability of management to create a strategic fit between the position of the organisation in the competitive product-market arena and the design of an appropriate administrative structure to support its execution (Henderson and Venkatraman, 1993). The inability to realise benefits and value from IS/IT is due in part to the lack of alignment between the business and IS/IT domains.

The framework highlights the two key influencers of the global IS/IT strategy as *the global business model* and the *global business drivers*. It recognises the opportunities which IT offers in providing new strategic options and also provides new possibilities

---

<sup>3</sup> For an enlightened perspective of the impact of new technologies on strategy see Evans and Wurster, (1997). On exploiting the virtual value chain see Rayport and Sviokla, (1995).

in terms of organisation for strategy implementation. IT can impact the global business model in that it enables new organisational structures and opens new configuration possibilities particularly in relation to supporting virtual structures. IT increases options in relation to global business drivers, for example, in relation to mass customisation (Boynton *et al.*, 1993).



**Figure 1** A strategic alignment framework for managing IS/IT in the global enterprise.

The four domains of this alignment framework are interdependent. A change in any one dimension may require a corresponding change in any or all of the other three. This aspect is discussed later in the paper. In the sections that follow each of the domains is explored in isolation as within each there are a number of issues to address. The focus of analysis is on the management of IS/IT.

### **Global business strategy**

There has been much debate recently concerning the nature and content of strategy: What it is (Hamel, 1996; Porter, 1996)? And whether or not it really matters (Whittington, 1993)? Aside from the issues raised in this debate, there is considerable agreement that an organisation needs an overarching vision in order to give it not only guidance but to also frame the globalisation process. In this context, strategy can be defined in terms of choices pertaining to the positioning of the business in the product and market arena. It addresses issues such as the extent of comparative relationships (joint ventures and strategic alliances) and distinctive competencies defined in terms of the basis under which the organisation competes (for example, delivery reliability, relationships, price, quality, etc.). In developing the global strategy, it is important to first identify those aspects of strategy which should be globalised (Yip, 1995, p. 6).

There are two central features to a global business strategy: *scope* of the organisation's activities and *governance*. Scope refers to the business the organisation wants to be in. It is concerned with issues of products and markets; where does the organisation

want to compete? On what basis? and in which markets? The second dimension of governance refers to the relationship which the organisation wishes to have with customers and suppliers. Generally, we can categorise the type of relationship from loose to tight. Depending on the governance stance the extent and nature of joint ventures (Gomes-Cassares, 1989) and strategic alliances (Lorange *et al.*, 1992) are determined. Once defined, an organisations global business strategy gives direction to the global business model, i.e., how it organises for global operation. Yet sight must not be lost of the drivers of the globalisation process: the global business drivers.

### **Global business drivers**

A company 'goes global' for a number of reasons including access to foreign markets, to sourcing resources, to exploit significant economies of scale, to raise capital at lower costs, to exploit a strategic advantage like a technological lead, to capitalise on lower factor costs, to extend the reach of the business, etc. (Doz, 1986; Porter, 1980). Consequently, brands, distribution, marketing, manufacturing and decision-making must be viewed from a global perspective.

The globalisation process requires that decisions concerning a number of *global business drivers* (GBD)<sup>4</sup> are made. These drivers both promote and constrain the globalisation process. In addressing these drivers, a balance must be struck between a number of countervailing forces. These forces are local flexibility, global integration and efficiency, global effectiveness and the leveraging of knowledge (see figure 2).

*Local flexibility*: entails being responsive and adaptive to local market and customer requirements. For example, adopting "global" products to local markets or responding rapidly to changing customer preferences. Diversity among national markets in market structure, industry structures, distribution channels, manufacturing processes and customer needs may require local responsiveness (Doz and Prahalad, 1984). However, brands may enable global standardisation of products and services.

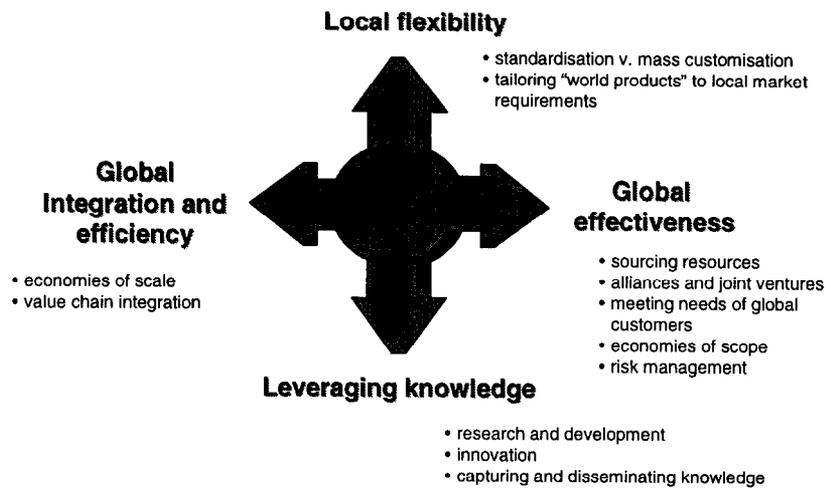
*Global integration and efficiency*: is concerned with minimising duplication of effort and leveraging scale economies. Operating internationally demands the close integration of all activities along the value chain no matter where they are geographically undertaken. International scale economies are derived from cost reduction achieved through the accumulation of volume across country locations and international aggregation of market segments (Kogut, 1990).

*Global effectiveness*: entails ensuring that overall operations meet effectiveness aspirations. The critical issue is to ensure that the 'whole is greater than the sum of the parts', capitalising on synergies between operating units. For example, the global sourcing of raw materials, or the mandatory requirement to manufacture in a host country before you are permitted to sell into that country, or addressing global customer needs in a local market. International scope economies arise when existing

---

<sup>4</sup> The concept of 'global business driver' in this paper is much broader than that of Ives *et al.* (1993) who view global business drivers as 'those entities that benefit from global economies of scale and scope, and that contribute to global business strategy' (p. 146).

international operations benefit from the introduction of additional activities or products, since the cost of additional products may be less than the individual costs.



**Figure 2** Tensions in a global company: global business drivers.

*Leveraging knowledge:* Bartlett and Ghoshal (1987) stress the need for the global corporation to manage the flow of ‘intelligence, ideas and knowledge’. A critical task is to ensure that there is no ‘re-invention of the wheel’ and that knowledge and learning is captured and simultaneously shared throughout the organisation. Despite this assertion, very little is known about how knowledge actually develops in globalising firms (von Krogh *et al.*, 1996).<sup>5</sup>

Balancing these four tensions requires strategic trade-offs, for example between local flexibility and scale economies, but it is only in addressing these trade-offs that an organisation can begin to determine its global business model and it is this business model which strongly influences the deployment of IS/IT. Technology can impact these drivers by permitting the organisation to address them in different ways (see table 1) and at the same time facilitate strategies which can lessen tensions. The Internet, for example, offers organisations the opportunity to extend their global reach enabling both scale and scope economies to be addressed. Technologies can also enable the organisation to achieve both global effectiveness and local flexibility.

### **The global business model**

The global business model (GBM) refers to the structures and processes in place in order to operationalise the strategy of the business. It is through this model that the day-to-day activities of the global organisation are facilitated. There have been many empirical studies that have examined the relationship between strategy and organisational design in MNCs (Daniels *et al.*, 1984, 1985; Egelhoff, 1982; 1988; Stopford and Wells, 1972). In developing the global business model five specific

<sup>5</sup> Gupta and Govindarajan (1991) have developed a theory regarding knowledge flow within multinational firms.

dimensions can be determined from this research literature: capabilities, configuration, co-ordination, control and culture. Of course, decisions made in these areas are driven by the organisations vision and business strategy.

Global business drivers	Opportunities provided by IS/IT
<i>Local flexibility</i>	<ul style="list-style-type: none"> <li>• Flexible manufacturing systems permitting low volume, high variety production in small batch size</li> <li>• Mobile computing enabling sales teams to focus on local customers</li> <li>• Point of sale (POS) systems collecting local customer information for local decision making</li> </ul>
<i>Global integration and efficiency</i>	<ul style="list-style-type: none"> <li>• EDI enabling exchange of design and inventory information between operating units</li> <li>• Workflow systems</li> <li>• Video conferencing</li> <li>• Enterprise Resource Planning systems such as Baan and SAP R/3</li> </ul>
<i>Global effectiveness</i>	<ul style="list-style-type: none"> <li>• The Internet as an electronic market</li> <li>• Business scope extension through the Internet</li> <li>• International private virtual networks</li> </ul>
<i>Leveraging knowledge</i>	<ul style="list-style-type: none"> <li>• IT providing a single point of contact for global customers</li> <li>• E-mail for organisational communication</li> <li>• Groupware facilitating the sharing of knowledge</li> <li>• Expert systems capturing knowledge, making it available to the wider organisation</li> <li>• Access to information via online data bases</li> <li>• Intranets</li> </ul>

**Table 1** IT and global business drivers.

*Capabilities:* Through articulating the vision and business objectives the required business capabilities underlying the business strategy can be defined. The focus is on capabilities to deploy resources, usually in combination, in order to effect a desired end (Amit and Schoemaker, 1993). Capabilities are firm specific, develop over time (Grant, 1991; Prahalad *et al.*, 1990) and unlike resources, are not tradable over time. They often contain tacit aspects making them difficult to imitate.

*Configuration*<sup>6</sup>: Decisions concerning the deployment of value chain activities around the globe, specifically the *geographical* location of resources (people, plant, finance, expertise, etc.) (Porter, 1986) to deliver the required capabilities. Configuration decisions are essentially business decisions:

- often governed by regulatory requirements
- strongly influenced by financial implications, for example transfer pricing, tax implications and wage rates
- customers may prefer locally produced produce

<sup>6</sup> Configuration in this context is different for the concept of configuration expoused by Miller (1986, 1987).

- strength of trade unions and industrial relations situation can effect location decisions
- communication and infrastructure systems  
proximity to markets
- governmental inducements (Kogut, 1990), for example 10% manufacturing tax in Ireland can be a major attraction
- arbitrage cost differences in factors of production (Kogut, 1990) providing a cost advantage to the producer (Rugman and Hodgetts, 1995, p. 225)
- economic and political stability are key influencers of location decisions.

While resources are tangible, capabilities are intangible and difficult to imitate. A company can gain a 'comparative advantage' through locating activities in certain areas. Such advantage may be due to differences in factor costs across country locations (Ghoshal, 1987; Kogut, 1985; Porter, 1980). Competitive advantage influences the decisions of *what* activities and technologies along the value added chain an organisation should concentrate its investment and management resources (Kogut, 1985).

*Co-ordination:*

Concerned with managing the interdependencies (Roth *et al.*, 1991) of a complex network of operations brought about through selecting specific configurations. The increased uncertainty and complexity resulting from international competition makes co-ordination a critical success factor (Pfeffer and Salancik, 1978). The firm selects a coordination structure by jointly determining its decision authority structure ("who decides what") and its information structure ("who knows what") (Anand and Mendelson, 1997). In essence, co-ordination entails defining what it is that must be managed:

- understanding the value system and the value-added contributions of activities
- defining the extent of coupling of global value chain activities (i.e. the interdependencies among activities in business processes), particularly in exploiting synergies
- understanding the 'information intensity' of business processes
- identifying local business practices, perhaps due to cultural factors, and their impact on global processes.

*Control:*

Process by which management influence other members of an organisation to implement the organisation's strategy. The management control system should enable management to control the essential strategy of the company. Formalisation is the degree to which organisational norms are defined explicitly (Hall, 1982).

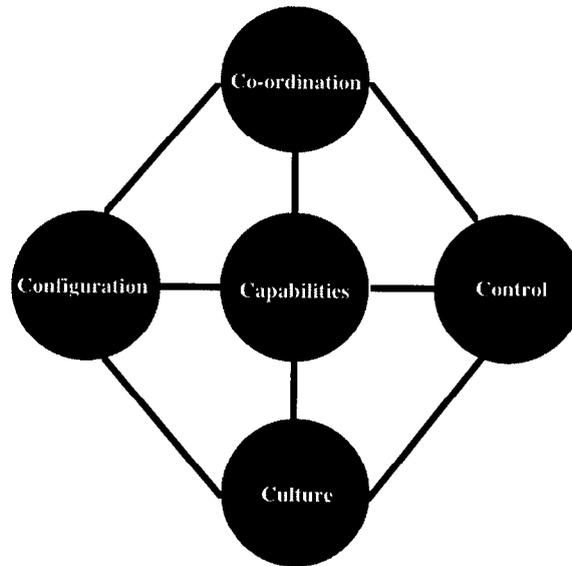
- formal parenting style defining the nature of the relationship between the centre and subsidiaries and the roles and responsibilities of each (Gould and Campbell, 1986)
- defining the nature of the relationship between subsidiaries (or business units) due to global processes and the requirement for lateral co-ordination
- informal (based on personal relationships). Control can also be exercised through informal networks, for example it may be the outcome of moving managers around (Edstrom and Galbraith, 1977)
- integrating mechanisms such as taskforces and committees, used to develop collaborative efforts among organisational sub-units, are seen as critical to managing international operations (Bartlett, 1983; Egelhoff, 1984). They are also instrumental in creating a single managerial philosophy within the organisation (Roth *et al.*, 1991)
- transferring organisational culture overseas (Jaeger, 1983).

*Culture:*

Cultural differences due to operating in different countries and different marketplaces. What are the basic business practices in operation which differ from the 'home' country and what is their impact?

There are also company specific cultural issues, which often overflow into issues of power and politics.

These 5 decision dimensions are interdependent (see figure 3) and successful implementation of any global business strategy would require these dimensions to be aligned. For example, the location of R&D facilities can have implications for the transfer of knowledge. Cultural factors can also affect the attitudes of people in relation to sharing knowledge. In practice, configuration decisions strongly influence co-ordination and control decisions and define the cultural context.



**Figure 3** Interdependencies among dimensions in developing the global business model.

IS/IT both supports and drives the global business model. Building on the pioneering work of Lawrence and Lorsch (1967), we find that as an organisation expands overseas its information processing capacity must increase. IS/IT is needed for co-ordination (Emery, 1990) as the essence of co-ordination is the communication and processing of information (Malone *et al.*, 1987). IT reduces communication and transaction costs while at the same time it also makes different types of configurations possible through its coordination capabilities (Malone and Crowston, 1994). Capitalising on this phenomena, organisations can depend less on hierarchy and more on markets as co-ordinating mechanisms (Malone *et al.*, 1987; Evans and Wurster, 1997).

### **Global IS/IT strategy (GIS)**

Thus far we have been primarily concerned with an organisation's global business strategy and how it organises for the implementation of that strategy. We have seen how this strategy is influenced by global business drivers defining the framework within which this strategy is formulated and implemented. The duality of IT is that it not only enables the business strategy but can also create strategies through the opportunities which it provides. For example, technologies like the Internet now permit transactions to be conducted in a *computer mediated environment* which has profound implications for the very nature of business itself (Rayport and Sviokla, 1995). We have also seen that IT can influence global organisation design choices, enabling innovative configuration opportunities which not possible without significant use of information technology.

The interplay between these three domains requires that alignment issues be addressed. Their interdependent nature means than changes to any one dimension may require corresponding changes in any of the others. For example, a new global

strategy may require a novel organisational model or increasing local responsiveness may place a high co-ordination overhead on the organisation.

The concern of the global IS/IT strategy domain is how information, information systems and information technology support the GBM, facilitate the GBD and consequently the global strategy of the organisation. While commentators often use the terms information systems (IS) and information technology (IT) interchangeably, this paper uses these two terms precisely (Earl, 1989; Ward and Griffiths, 1986). Information systems predate computer, communications and networking technologies (the IT) and have always existed in organisations. Indeed, information is often portrayed as the lifeblood of an organisation and, following this analogy, the systems are its veins, directing the flow of blood. It is the organisation's global business model and global business drivers which give focus to this flow and define the purpose and function of this information in the global enterprise. Borrowing a concept from economics, IS is *demand* oriented, i.e. it defines the organisation's demand for information and systems to support and enable the strategy of the business and leverage core competencies. Anand and Mendelson (1997) present an appealing use of the term IS to refer to the organisation *information structure*, with its information system implementing its information structure.

On the *supply* side there is IT, which is concerned with how that demand is to be met. It addresses not only the technologies but also includes corporate data and IT skills to specify, develop and maintain the technology. The choice of supply side options is increasing with organisations no longer compelled to source all IT resources in-house. Options range from sub-contracting software development to the wholesale outsourcing of all technical requirements. Yet even with "total outsourcing" there are aspects of IT which should remain in house (Lacity *et al.*, 1996) which place new responsibilities on the IT organisation, such as managing the relationship with the outsourcing vendors (Venkatraman and Loh, 1994).

There are three components to the Global IS/IT strategy. These are

- the global IS model
- the global IT model
- the global IS/IT organising model.

### **The global IS model**

The definition of the global business model will demand specific information and systems requirements depending on the decision choices made in relation to the global business drivers and the global business strategy. Information systems must be harmonized with the structure of the organisation they support (Anand and Mendelson, 1997) and are the mechanism for managing organisational interdependencies (Rockart and Short, 1989). For example, the extent of global value chain integration can determine the choice between *integration*, *replication*, or a *laissez faire* strategy. With a heavily decentralised GBM, a policy of replication may be appropriate, with individual operating units replicating information systems to a pre-specified framework. For a conglomerate with little relatedness among business

activities, a policy of laissez faire may be the required choice. A tightly coupled value chain with global business processes probably demands a strategy of integration of information and information systems across operating units. For organisations engages in strategic partnerships, IT is often seen as being critical to the success of the arrangement (Hendersen, 1990; Konsynski and McFarlan, 1990).

### **The global IT model**

The global IT model is concerned with the technical and human resources to develop the required IT infrastructure and applications to enable and support the global IS model. Activities addressed by this model include IT development and maintenance, as well as the provision of IT services such as the help desk and IT training. Issues addressed include the specification of technical standards, version control of software and information security. The extent of standardisation and technical integration depends on the global IS model.

### **Global IS/IT organising model**

The management of IS 'demand' and IT 'supply' in the global context is complex. The debate has traditionally swung between centralisation and decentralisation although the "middle ground" has become an appealing alternative. Von Simson (1990) subscribes to an IT organisation design with IS/IT roles played by both a central IT organisation and the business units and prescribes a "centrally decentralised" IT organisation with strong dotted line reporting relationships. In a similar vein the federal structure is often seen as capturing the benefits of both centralisation and decentralisation. In the federal IT organisation, business units receive a responsive service from decentralised IT functions, whilst at the same time a corporate IT function provides group-wide IT services and exerts some degree of central leadership and control of IT activities (Hodgkinson, 1996). However, while appealing, federalism is more an aspiration rather than a structure which has been implementable in practice. Figure 4 summarises the dominant themes in the literature, highlights the advantages of each structural type for the global enterprise and identifies the critical management issues.

Governance structure for the IT organisation	Strategies for managing global IS/IT	Advantages	Critical management issues
<b>Independent global IS/IT operations</b>	Subsidiaries pursue independent system initiatives	Business units have ownership Users control IS/IT priorities Responsive to BU's needs	Integration Variable standards of IS/IT competence "Reinvention of wheels" and duplication of effort Little synergy and integration Cost
<b>Headquarters-driven global IS/IT</b>	Corporate wide IS/IT solutions imposed on subsidiaries	Scale economies Control of standards Critical mass of skill	Politics Unresponsive Does not meet every business unit's needs Effect on customer
<b>Mutual co-operation in global IS/IT</b>	Co-operation and mutual existence between the head office and foreign subsidiaries Usually brought about by movement of key IS/IT personnel	Awareness of IS/IT issues in the global enterprise	Co-ordination and direction setting Leaving too much to chance
<b>Integrated global IS/IT</b>	Balancing central control and local autonomy without losing the advantage of world-wide co-ordination and integration	Group-wide IS/IT strategy and architecture	Complexity Execution Timing

**Table 4** Summary of global IS/IT governance structures.

The integrated global IS/IT structure is complex to manage and execute. Positioning the IT organisation and defining the role, responsibilities and processes of raises a number of questions which make it unique among organisational resources. IS/IT raises certain questions concerning scale, infrastructure planning and risk. There is also advantages to be gained through standardisation. One of the assumptions underlying the discussion thus far is that there are value for money advantages in managing IS/IT on a global as opposed to a domestic country, single site or operating unit scale. It seems logical to suggest that there are aspects of IS/IT management which should be managed centrally and others others which individual business units are permitted to have more discretion over (see Cross *et al.* 1997). For example, telecommunications and other infrastructure which are shared across the global company may require centralised control given co-ordination requirements while IT support may be localised.

The global IS/IT organising model is concerned with the overall organisational issues governing the demand for and supply of information systems and technology. It is organisation based, relationship oriented, management focused and benefits driven. This governance structure specifies many things. Using the dimensions of the GBM can help in structuring the areas to be addressed in managing global IS/IT and help in constructing the organisation and management processes for IS/IT management (see table 2).

This global IS/IT organising model defines the IS planning process, identifies who is involved, defines a benefits management process for delivering benefits from IT, and signals how relationships are managed. It determines local and global responsibilities and the relationship between headquarters and business units and between the business unit themselves. It also addresses how IS requirements are prioritised, defines approaches to investment appraisal, determines appropriate project management methodologies, specifies policies regarding hardware and software, and allocates roles and responsibilities.

	Global information and systems model	Global IT model
<b>Capabilities</b>	<ul style="list-style-type: none"> <li>• Required IS capabilities</li> <li>• Dispersion of IS capabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Required IT capabilities</li> <li>• Dispersion of IT capabilities</li> </ul>
<b>Configuration</b>	<ul style="list-style-type: none"> <li>• Information and systems requirements due to GBM</li> <li>• Geographical location of IS activities</li> </ul>	<ul style="list-style-type: none"> <li>• Geographical location of IT activities and resources (data centres, help desk, software development etc.)</li> <li>• Technical architecture (LANs, WANs)</li> <li>• Technical platform</li> <li>• Extent of IT outsourcing</li> </ul>
<b>Coordination</b>	<ul style="list-style-type: none"> <li>• Determining interdependencies of information and systems requirements</li> <li>• Global and local information process requirements</li> <li>• Extent of “information partnerships”</li> <li>• Balancing local and global demand for information and systems</li> <li>• Local IS strategy with global IS strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Definition of IT infrastructure</li> <li>• Coordination of IT activities</li> <li>• Development v. maintenance roles</li> <li>• Sharing technological expertise</li> </ul>
<b>Control</b>	<ul style="list-style-type: none"> <li>• Formal structures and processes</li> <li>• Mechanisms (committees, steering groups, taskforces, teams, etc.)</li> <li>• IS policies</li> <li>• IS planning process (determining local and global requirements)</li> <li>• Data/information models</li> <li>• Distribution of responsibilities</li> <li>• Monitoring mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanisms (committees, steering groups, taskforces, teams, etc.)</li> <li>• IT policies</li> <li>• Standardisation v. customisation - open v. proprietary standards</li> <li>• Version control of software</li> <li>• Security</li> <li>• Project management approaches</li> <li>• Managing relationships with outsourcing vendors</li> <li>• Distribution of responsibilities</li> <li>• Monitoring mechanisms</li> </ul>
<b>Culture</b>	<ul style="list-style-type: none"> <li>• Cultural differences in information management</li> </ul>	<ul style="list-style-type: none"> <li>• Restrictions on IT importation</li> <li>• Managing IT development across national boundaries</li> </ul>

**Table 2** Global IS/IT organising model.

### The alignment process

The global strategic alignment framework introduced in figure 1 illustrates the domains to be addressed in both assessing and determining alignment between strategy, organisation and IS/IT. We have seen that these domains exist in dynamic equilibrium. The effective management of IS/IT requires a balance to be struck among the choices made across all 4 domains. Three observations can be made in relation to this framework and the alignment options. These are

- Alignment *between* the domains of business strategy, global business model, global business drivers and global IS/IT strategy.
- Alignment *within* each of the four domains. For example, the alignment of capabilities, configuration, control, co-ordination, and culture in the GBM domain. Questions which are addressed include: does the configuration of resources support the required capabilities? Do control mechanisms, structures and processes meet coordination requirements?
- Alignment *between* the dimensions *within* each domain and the corresponding dimensions of the other domains. For example, between 'control' in the GBM domain and the dimensions of IS, IT and IS/IT organising model. Questions which this raises include, if the parenting style between the centre and subsidiaries is decentralised should IS/IT also be decentralised or should aspects of it be mandated and controlled centrally?

Given that the global business strategy is the overarching determinant of the GBD, GBM, and the GIS, it seems sensible to recommend a *triangulation* process between these three domains. This process ensures that there is a consistency in the alignment between the individual dimensions of each domain, particularly those strongly impacted by IS/IT.

## **Concluding remarks**

The purpose of this paper has been to develop a strategic alignment framework for IS/IT management in the global enterprise. The framework developed in the paper extends the 'traditional' view of IS/IT strategy formulation beyond merely proposing a link between IS/IT strategy to business strategy but is an attempt operationalise this within a global context. The framework extends global business strategy to examine both global business drivers and the organisation's global business model, and how IS/IT can both support and enable new strategies, new structures and offer new trade-off decisions.

The organisations global IS/IT strategy should be aligned to the organisation's global business model. Yet at the same time, IT provides opportunities in constructing the global business model, enabling new configuration and control strategies and leveraging capabilities. The global business drivers are themselves strongly influenced by technology.

Managing global IS/IT demands alignment between the global business strategy, the global business drivers, the global business model and the global IS/IT strategy. Global organisations often don't consider the GBD and the GBM, yet the consequences of such misalignment is often blamed on IS/IT. Very often the IT organisation has little strategic direction from the business and develops systems which it assumes the business requires.

Global IS/IT management is suggested as being concerned with IS management, IT management and defining the IS/IT organising structure specifying the relationship between headquarters and business units and between the business units themselves. The global organisation needs to develop an appropriate strategy for each. In this paper the concept of global business drivers and global business model has been proposed in order to help in developing these strategies.

## **Acknowledgement**

I would like to thank Steve Tallman for his insightful comments on an earlier draft of this paper.

## **References**

- Alder, N.J., (1986) *International Dimensions of Organisational Behaviour*, Kent Publishing, Boston, MA.
- Amdahl, (1991) *Globalisation: The IT Challenge*, Amdahl Executive Institute, Hampshire.
- Amit, R. And Schoemaker, P.J., (1993) 'Strategic assets and organisational rent', *Strategic Management Journal*, **14**, 1, pp. 33-46.
- Anand, K.S. and Mendelson, H., (1997) 'Information and organisation for horizontal multimarket coordination', *Management Science*, **43**, 12, pp. 1609-1627.
- Bartlett, C.A., (1983) 'MNCs: get off the reorganisation merry-go-round', *Harvard Business Review*, March-April, pp. 138-147.
- Bartlett, C.A. and Ghoshal, S., (1989) *Managing Across Borders: The Transnational Solution*, Harvard Business School Press, Cambridge, MA.
- Bartlett, C.A. and Ghoshal, S., (1991) 'Global strategic management: impact on the new frontiers of strategy research', *Strategic Management Journal*, **12**, pp. 5-16.
- Boynton, A.C., Victor, B. and Pine, B.J. III, (1993) 'New competitive strategies: challenges to organisations and information technology', *IBM Systems Journal*, **32**, 1, pp. 40-64.
- Bradley, F., (1991) *International Marketing Strategy*, Prentice Hall, Hemel Hempstead.
- Broadbent, M. and Weill, P., (1993) 'Improving business and information strategy alignment: learning from the banking industry', *IBM Systems Journal*, **32**, 1, pp. 162-179.
- Chismar, W.G., (1994) 'Information technology and the coordination of global organisations', in P.C. Deans and K.R. Karwan, eds., *Global Information Systems and Technology: Focus on the Organisation and its Functional Areas*, Idea Group Publishing, Harrisburg, PA, pp. 479-492.
- Christopher, M. and Braithwaite, A., (1991) 'Managing the global pipeline', *The International Journal of Logistics Management*, **2**, 2.
- Clemons, E.K. and Row, M.C., (1991) 'Information technology at Rosenbluth Travel: competitive advantage in a rapidly growing global service corporation', *Journal of Management Information Systems*, **8**, 2, pp. 53-59.

- Cross, J., Earl, M.E and Sampler, J.L., (1997) 'Transforming the IT function at British Petroleum', *MIS Quarterly*, December, pp. 401-423.
- Daniels, J.D., Pitts, R.A. and Tretter, M.J., (1985) 'Organising for dual strategies of product diversity and international expansion', *Strategic Management Journal*, **6**, pp. 223-37.
- Daniels, J.D., Pitts, R.A. and Tretter, M.J., (1984) 'Strategy and structure of US multinationals: an exploratory study', *Academy of Management Journal*, **27**, pp. 292-307.
- Deans, P.C. and Karwan, K.R., (1994) 'Exploring the globalization of the organisation: new realities for information systems design, information technology applications, and strategy', in P.C. Deans and K.R. Karwan, eds., *Global Information Systems and Technology: Focus on the Organisation and its Functional Areas*, Idea Group Publishing, Harrisburg, PA, pp. 16-30.
- Doz, Y., (1986) 'Government policies and global industries', in M.E. Porter, *Competition in Global Industries*, Harvard Business School Press, Boston.
- Doz, Y. and Prahalad, C.K., (1984) 'Patterns of strategic control within multinational corporations', *Journal of International Business Studies*, **15**, pp. 55-72.
- Doz, Y. and Prahalad, C.K., (1981) 'Headquarters influence and strategic control in MNCs', *Sloan Management Review*, Fall, pp. 15-29.
- Earl, M.J. and Feeny, D., (1995) 'Information systems in global business: evidence from European multinationals', in H. Thomas, D' O'Neal and J. Kelly, eds., *Strategic Renaissance and Business Transformation*, John Wiley & Sons, Chichester.
- Edstrom, A. and Galbraith, J.K., (1977) 'Transfer of managers as a coordination and control strategy in multinational organisations', *Administrative Science Quarterly*, **22**, pp. 248-263.
- Egelhoff, W.G., (1991) 'Information processing theory and the multinational enterprise', *Journal of International Business Studies*, 3rd Quarter, pp. 341-368.
- Egelhoff, W.G., (1988) 'Strategy and structure in multinational corporations: a revision of the Stopford and Wells model', *Strategic Management Journal*, **9**, pp. 1-14.
- Egelhoff, W.G., (1984) 'patterns of control in US, UK and European multinational corporations', *Journal of International Business Studies*, **15**, 2, pp. 73-81.
- Egelhoff, W.G., (1982) 'Strategy and structure in multinational corporations: an information processing approach', *Administrative Science Quarterly*, **27**, pp. 435-458.
- Eisenhardt, K.M., (1985) 'Control: organisational and economic approaches', *Management Science*, **31**, pp. 134-149.
- Emery, J.C. (1990) 'Editors comments: MIS and global organisations', *MIS Quarterly*, March, 1990, pp. iii-iv.
- Evans, P.B. and Wurster, T.S., (1997) 'Strategy and the new economics of information', *Harvard Business Review*, September-October, pp. 71-82.
- Ghoshal, S., (1987) 'Global strategy: an organising framework', *Strategic Management Journal*, **8**, pp. 425-440.
- Gomes-Cassares, B., (1989) 'Joint ventures in the face of global competition', *Sloan Management Review*, Spring, pp. 17-26.
- Goold, M. And Campbell, A., (1986) *Strategies and Style: The Role of the Centre in Managing Diversified Corporations*, Blackwell, Oxford.

- Grant, R.M., (1991) 'The resource-based theory of competitive advantage: implications for strategy formulation', *California Management Review*, **33**, 3, pp. 114-135.
- Gupta, A.K. and Govindarajan, V., (1991) 'Knowledge flows and the structure of control within multinational corporations', *Academy of Management Review*, **16**, pp. 768-792.
- Hamel, G., (1996) 'Strategy as revolution', *Harvard Business Review*, July-August, pp. 69-82.
- Hamel, G. and Prahalad, C.K., (1989) 'Do you really have a global strategy?', *Harvard Business Review*, May-June, pp. 63-76.
- Henderson, J.C., (1990) 'Plugging into strategic partnerships: the critical IS connection', *Sloan Management Review*, **31**, 3, pp. 7-18.
- Henderson, J.C. and Venkatraman, N., (1993) 'Strategic alignment: leveraging information technology for transforming organisations', in *IBM Systems Journal*, **32**, 1, pp. 4-16.
- Hodgkinson, S.L., (1996) 'The role of the corporate IT function in the federal IT organisation', in M.J. Earl, ed., *Information Management: The Organisational Dimension*, Oxford University Press, pp. 247-269.
- Hofstede, G., (1984) *Culture's Consequences: International Differences in Work-Related Values*, Sage Publications, Beverly Hills, California.
- Ives, B. and Jarvenpaa, S.L., (1991) 'Applications of global information technology: key issues for management', *MIS Quarterly*, March, pp. 33-49.
- Ives, B. and Jarvenpaa, S.L., (1991) 'Global information technology: some lessons from practice', *International Information Systems*, **1**, 3, pp. 1-15.
- Ives, B. and Jarvenpaa, S.L., (1994) 'MSAS Cargo International: global freight management', in T. Jelassi and C. Ciborra, eds., *Strategic Information Systems: A European Perspective*, John Wiley & Sons, Chichester, 1994, pp. 221-236.
- Ives, B., Jarvenpaa, S.L. and Mason, R.O., (1993) 'Global business drivers: aligning information technology to global business strategy', *IBM Systems Journal*, **32**, 1, 1993, pp. 143-161.
- Jaeger, A.M., (1983) 'The transfer of organisation culture overseas: an approach to control the multinational corporation', *Journal of International Business Studies*, **14**, pp. 91-114.
- Jelassi, T. and Dutta, S., (1993) 'Integrating global commercial operations with information technology at BP Chemicals', *Journal of Strategic Information Systems*, **2**, 1, pp. 77-95.
- Karimi, J. And Konsynski, B.R., (1991) 'Globalisation and information management strategies', *Journal of Management Information Systems*, **7**, 4, pp. 7-26.
- Keen, P.G.W., (1992) 'Planning globally: practical strategies for information technology in the transnational firm', in S. Palvia, P. Palvia and R.M. Zigli, eds., *The Global Issues of Information Technology Management*, Idea Group Publishing, Harrisburg, PA, pp. 575-607.
- Kogut, B., (1985) 'Designing global strategies: comparative and competitive advantage value-added chains', *Sloan Management Review*, **8**, 1, 1984.
- Konsynski, B.R. and McFarlan, F.W., (1990) 'Information partnerships - shared data, shared scale', *Harvard Business Review*, September-October, pp. 114-120.
- Lacity, M.C., Willcocks, L.P. and Feeney, D.F., (1996) 'The value of selective IT sourcing', *Sloan Management Review*, Spring, pp. 13-25.

- Lawrence, P. And Lorsch, J.W., (1967) *Organisation and Environment: Managing Differentiation and Integration*, Division of Research, Graduate School of Business Administration, Harvard University.
- Lorange, P., Roos, J. and Simcic Bronn, (1992) 'Building successful strategic alliances', *Long Range Planning*, December, pp. 10-17.
- Malone, T.W., Yates, J. and Benjamin, R.I., (1987) 'Electronic markets and electronic hierarchies', *Communications of the ACM*, pp. 484-497.
- McFarlan, F.W., (1992) 'Multinational CIO challenges for the 1990s', in S. Palvia, P. Palvia and R.M. Zigli, eds., *The Global Issues of Information Technology Management*, Idea Group Publishing, Harrisburg, PA.
- Miller, D., (1987) 'The genesis of configuration', *Academy of Management Review*, **12**, 4, pp. 686-701.
- Miller, D., (1986) 'Configurations of strategy and structure', *Strategic Management Journal*, **7**, pp. 233-250.
- Neo, B.S., (1991) 'Information technology and global competition: a framework for analysis', *Information & Management*, **20**, pp. 151-160.
- Neumann-Alkier, L., (1997) 'Thinking globally, act locally - does it follow the rule in multinational corporations?', in R.D. Galliers, C. Murphy, R. O'Callaghan, S. Carlsson and C. Loebbecke, *Proceedings of the 5<sup>th</sup> European Conference on Information Systems*, Cork, Ireland, pp. 541-552.
- Nohria, N. and Ghoshal, S., (1997) *The Differentiated Network: Organizing Multinational Corporations for Value Creation*, Jossey-Bass Publishers, San Francisco.
- Oliff, M.D. and Marchand, D.A., (1991) 'Strategic information management in global manufacturing', *European Management Journal*, **9**, 4, pp. 361-371.
- Porter, M.E., (1996) 'What is strategy?' *Harvard Business Review*, November-December, pp. 61-78.
- Porter, M.E., (1986a) 'Competition in global industries: A conceptual framework', in M.E. Porter, *Competition in Global Industries*, Harvard Business School Press, Boston, 1986, pp. 15-60.
- Porter, M.E., (1986b) 'Patterns of international competition', *California Management Review*, **28**, 2, pp. 9-40.
- Prahalad, C.K., Doz, Y. and Hamel, G., (1990) 'The core competence of the corporation', *Harvard Business Review*, May-June, pp. 79-91.
- Pyburn, P.J., (1983) 'Linking the MIS plan with corporate strategy: an exploratory study', *MIS Quarterly*, June, pp. 1-14.
- Quelch, J.A. and Klein, L.R., (1996) 'The Internet and international marketing', *Sloan Management Review*, Spring, pp. 60-75.
- Ramarapu, N.K. and Lado, A.A., (1995) 'Linking information technology to global business strategy to gain competitive advantage: an integrative model', *Journal of Information Technology*, **10**, pp. 115-124.
- Raman, K.S. and Watson, R.T., (1994) 'National culture, information systems, and organisational implications', in P.C. Deans and K.R. Karwan, eds., *Global Information Systems and Technology: Focus on the Organisation and its Functional Areas*, Idea Group Publishing, Harrisburg, PA, pp. 493-513.
- Rayport, J.F. and Sviokla, J.J., (1995) 'Exploiting the virtual value chain', *Harvard Business Review*, November-December, pp. 75-85.
- Rayport, J.F. and Sviokla, J.J., (1994) 'Managing in the marketspace', *Harvard Business Review*, November-December, pp. 141-150.

- Roche, E., (1996) 'Multinational corporations - the emerging research agenda', *Journal of Strategic Information Systems*, **5**, pp. 129-147.
- Rockart, J.F. and Short, J.E., (1989) 'IT in the 1990s: managing organisational interdependencies', *Sloan Management Review*, **30**, 2, pp. 7-17.
- Ross, J.W., (1995) 'Johnson & Johnson: building an infrastructure to support global operations', *Working Paper No. 283*, Massachusetts Institute of Technology, September.
- Roth, K., Schweiger, D.M and Morrison, A.J., (1991) 'Global strategy implementation at the business unit level: operational capabilities and administrative mechanisms', *Journal of International Business Studies*, **22**, 3, pp. 369-369-402.
- Rugman, A.M., (1981) *Inside the Multinationals: The Economics of Internal Markets*, Columbia University Press, New York.
- Rugman, A.M. and Hodgetts, R.M., (1995) *International Business: A Strategic Management Approach*, McGraw-Hill, New York.
- Stopford, J.M and Wells, L.T. Jr., (1972) *Managing the Multinational Enterprise*, Longmans, London.
- Tractinsky, N. and Jarvenpaa, S.L., (1995) 'Information systems design decisions in a global versus domestic context', *MIS Quarterly*, December, pp. 507-529.
- Tricker, R.I. (1988) 'Information resource management - a cross cultural perspective', *Information & Management*, **15**, pp. 37-46.
- Venkatraman, N. and Loh, L., (1994) 'The shifting logic of the IS organisation: from technical portfolio to relationship', *Information Strategy: The Executive's Journal*, Winter, pp. 5-11.
- Vernon-Wortzel, H. And Wortzel, L.H., eds., *Global Strategic Management: The Essentials*, John Wiley & Sons, New York, 1991.
- Von Simson, E.M., (1990) 'The centrally decentralised IS organisation', *Harvard Business Review*, July-August, pp. 158-162.
- von Krogh, G., Roos, J. and Yip, G., (1996) 'Epistemology of Globalizing Firms, in G. Von Krogh and J. Roos, *Managing Knowledge: Perspectives on Cooperation and Competition*, Sage, London, pp. 203-217.
- Ward, J. and Peppard, J., (1996) 'The IT/Business relationship: a troubled marriage in need of guidance', *Journal of Strategic Information Systems*, **5**, 1, pp. 37-65.
- Yip, G., (1995) *Total Global Strategy: Managing For Worldwide Competitive Advantage*, Prentice Hall International, New Jersey.

**CRANFIELD SCHOOL OF MANAGEMENT  
WORKING PAPER SERIES  
List No 6, 1992**

- SWP 1/92 Mike Sweeney  
"How to Perform Simultaneous Process Engineering"
- SWP 2/92 Paul Burns  
"The Management of General Practice"
- SWP 3/92 Paul Burns  
"Management in General Practice: A Selection of Articles"
- SWP 4/92 Simon Knox & David Walker  
"Consumer Involvement with Grocery Brands"
- SWP 5/92 Deborah Helman & Adrian Payne  
"Internal Marketing: Myth versus Reality?"
- SWP 6/92 Leslie de Chernatony & Simon Knox  
"Brand Price Recall and the Implications for Pricing Research"
- SWP 7/92 Shai Vyakarnam  
"Social Responsibility in the UK Top 100 Companies"
- SWP 8/92 Susan Baker, Simon Knox & Leslie de Chernatony  
"Product Attributes and Personal Values: A Review of Means-End Theory and Consumer Behaviour"
- SWP 9/92 Mark Jenkins  
"Making Sense of Markets: A Proposed Research Agenda"
- SWP 10/92 Mike Sweeney & Ian Oram  
"Information Technology for Management Education: The Benefits and Barriers"
- SWP 11/92 Keith Thompson (Silsoe College)  
"International Competitiveness and British Industry post-1992. With Special Reference to the Food Industry"
- SWP 12/92 Keith Thompson (Silsoe College)  
"The Response of British Supermarket Companies to the Internationalisation of the Retail Grocery Industry"
- SWP 13/92 Richard Kay  
"The Metaphors of the Voluntary/Non-Profit Sector Organising"
- SWP 14/92 Robert Brown & Philip Poh  
"Aniko Jewellers Private Limited - Case Study and Teaching Notes"
- SWP 15/92 Mark Jenkins & Gerry Johnson  
"Representing Managerial Cognition: The Case for an Integrated Approach"
- SWP 16/92 Paul Burns  
"Training across Europe: A Survey of Small and Medium-Sized Companies in Five European Countries"
- SWP 17/92 Chris Brewster & Henrik Holt Larsen  
"Human Resource Management in Europe - Evidence from Ten Countries"
- SWP 18/92 Lawrence Cummings  
"Customer Demand for 'Total Logistics Management' - Myth or Reality?"
- SWP 19/92 Ariane Hegewisch & Irene Bruegel  
"Flexibilisation and Part-time Work in Europe"
- SWP 20/92 Kevin Daniels & Andrew Guppy  
"Control, Information Seeking Preference, Occupational Stressors and Psychological Well-being"
- SWP 21/92 Kevin Daniels & Andrew Guppy  
"Stress and Well-Being in British University Staff"
- SWP 22/92 Colin Armistead & Graham Clark  
"The Value Chain in Service Operations Strategy"
- SWP 23/92 David Parker  
"Nationalisation, Privatisation, and Agency Status within Government: Testing for the Importance of Ownership"
- SWP 24/92 John Ward  
"Assessing and Managing the Risks of IS/IT Investments"
- SWP 25/92 Robert Brown  
"Stapleford Park: Case Study and Teaching Notes"
- SWP 26/92 Paul Burns & Jean Harrison  
"Management in General Practice - 2"
- SWP 27/92 Paul Burns & Jean Harrison  
"Management in General Practice - 3"

SWP 28/92 Kevin Daniels, Leslie de Chernatony & Gerry Johnson  
"Theoretical and Methodological Issues concerning Managers' Mental Models of Competitive Industry Structures"

SWP 29/92 Malcolm Harper & Alison Rieple  
"Ex-Offenders and Enterprise"

SWP 30/92 Colin Armistead & Graham Clark  
"Service Quality: The Role of Capacity Management"

SWP 31/92 Kevin Daniels & Andrew Guppy  
"Stress, Social Support and Psychological Well-Being in British Chartered Accountants"

SWP 32/92 Kevin Daniels & Andrew Guppy  
"The Dimensionality and Well-Being Correlates of Work Locus of Control"

SWP 33/92 David Ballantyne, Martin Christopher, Adrian Payne and Moira Clark  
"The Changing Face of Service Quality Management"

SWP 34/92 Chris Brewster  
"Choosing to Adjust: UK and Swedish Expatriates in Sweden and the UK"

SWP 35/92 Robert Brown  
"Goldsmiths Fine Foods - Case Study and Teaching Notes"

SWP 36/92 Mike Sweeney  
"Strategic Manufacturing Management: Restructuring Wasteful Production to World Class"

SWP 37/92 Andy Bailey & Gerry Johnson  
"An Integrated Exploration of Strategic Decision-Making"

SWP 38/92 Chris Brewster  
"European Human Resource Management: Reflection of, or Challenge to, the American Concept"

SWP 39/92 Ute Hanel, Kurt Volker, Ariane Hegewisch & Chris Brewster  
"Personnel Management in East Germany"

SWP 40/92 Lawrence Cummings  
"Logistics goes Global - The Role of Providers and Users"

SWP 41/92 Roger Seaton & Martin Cordey-Hayes  
"Interactive Models of Industrial Technology Transfer: A Process Approach"

SWP 42/92 Susan Segal-Horn  
"The Logic of International Growth for Service Firms"

SWP 43/92 Mike Sweeney  
"Benchmarking for Strategic Manufacturing Management"

SWP 44/92 Paul Burns  
"Financing SMEs in Europe: A Five Country Study"

SWP 45/92 Robert Brown  
"The Graduate Enterprise Programme - Has it been Worthwhile?"

### **CRANFIELD WORKING PAPERS List No 7, 1993**

SWP 1/93 John Mapes  
"The Effect of Limited Production Capacity on Safety Stock Requirements for Periodic Review Inventory Systems"

SWP 2/93 Shai Vyakarnam & Alison Rieple  
"Corporate Entrepreneurship: A Review"

SWP 3/93 Cliff Bowman & David Faulkner  
"Pushing on a String: Uncertain Outcomes from Intended Competitive Strategies"

SWP 4/93 Susan Baker & Mark Jenkins  
"The Role of Values in the Design and Conduct of Management Research: Perspectives on Managerial and Consumer Cognition"

SWP 5/93 Kevin Daniels, Leslie de Chernatony & Gerry Johnson  
"Validating a Method for Mapping Managers' Mental Models of Competitive Industry Structures"

SWP 6/93 Kevin Daniels & Andrew Guppy  
"Occupational Stress, Social Support, Job Control and Psychological Well-Being"

SWP 7/93 Colin Fletcher, Ruth Higginbotham & Peter Norris  
"The Inter-Relationships of Managers' Work Time and Personal Time"

SWP 8/93 Mike Sweeney  
"A Framework for the Strategic Management of both Service and Manufacturing Operations"

- SWP 9/93 Colin Armistead & Graham Clark  
"The 'Coping' Capacity Management Strategy in Services and the Influence on Quality Performance"
- SWP 10/93 Ariane Hegewisch  
"Equal Opportunities Policies and Developments in Human Resource Management: A Comparative European Analysis"
- SWP 11/93 Paula Stanley  
"Service to the Courts: The Offender's Perspective"
- SWP 12/93 Mark Jenkins  
"Thinking about Growth: A Cognitive Mapping Approach to Understanding Small Business Development"
- SWP 13/93 Mike Clarke  
"Metro-Freight: The Automation of Freight Transportation"
- SWP 14/93 John Hailey  
"Growing Competitiveness of Corporations from the Developing World: Evidence from the South"
- SWP 15/93 Noeleen Doherty, Shaun Tyson & Claire Viney  
"A Positive Policy? Corporate Perspectives on Redundancy and Outplacement"
- SWP 16/93 Shai Vyakarnam  
"Business Plans or Plans for Business"
- SWP 17/93 Mark Jenkins, Eric le Cerf & Thomas Cole  
"Defining the Market: An Exploration of Marketing Managers' Cognitive Frameworks"
- SWP 18/93 John Hailey  
"Localisation and Expatriation: The Continuing Role of Expatriates in Developing Countries"
- SWP 19/93 Kevin Daniels & Andrew Guppy  
"Reversing the Occupational Stress Process: Some Consequences of Employee Psychological Well-Being"
- SWP 20/93 Paul Burns, Andrew Myers & Andy Bailey  
"Cultural Stereotypes and Barriers to the Single Market"
- SWP 21/93 Terry Lockhart & Andrew Myers  
"The Social Charter: Implications for Personnel Managers"
- SWP 22/93 Kevin Daniels, Gerry Johnson & Leslie de Chernatony  
"Differences in Cognitive Models of Buyers and Sellers"
- SWP 23/93 Peter Boey & Richard Saw  
"Evaluation of Automated Warehousing Policies: Total Systems Approach"
- SWP 24/93 John Hailey  
"Training for Entrepreneurs: International Perspectives on the Design of Enterprise Development Programmes"
- SWP 25/93 Tim Denison & Simon Knox  
"Pocketing the Change from Loyal Shoppers: The Double Indemnity Effect"
- SWP 26/93 Simon Knox  
"Consumers and Grocery Brands: Searching for Attitudes - Behaviour Correspondence at the Category Level"
- SWP 27/93 Simon Knox  
"Processing Ideas for Innovation: The Benefits of a Market-Facing Approach"
- SWP 28/93 Joe Nellis  
"The Changing Structure and Role of Building Societies in the UK Financial Services Sector"
- SWP 29/93 Kevin Daniels, Gerry Johnson & Leslie de Chernatony  
"Similarity or Understanding: Differences in the Cognitive Models of Buyers and Sellers. A Paper outlining Issues in Mapping and Homogeneity"
- SWP 30/93 Habte Selassie & Roy Hill  
"The Joint Venture Formation Environment in a Sub-Saharan African Country: A Case Study of Government Policy and Host Partner Capability"
- SWP 31/93 Colin Armistead, Graham Clark and Paula Stanley  
"Managing Service Recovery"
- SWP 32/93 Mike Sweeney  
"The Strategic Management of International Manufacturing and Sourcing"
- SWP 33/93 Julia Newton  
"An Integrated Perspective on Strategic Change"
- SWP 34/93 Robert Brown  
"The Graduate Enterprise Programme: Attempting to Measure the Effectiveness of Small Business Training"

**CRANFIELD WORKING PAPERS**  
**List No 8, 1994**

- SWP 1/94 Keith Goffin  
"Repertory Grids in Market Research: An Example"
- SWP 2/94 Mark Jenkins  
"A Methodology for Creating and Comparing Strategic Causal Maps"
- SWP 3/94 Simon Knox  
"Re-engineering the Brand"
- SWP 4/94 Robert Brown  
Encouraging Rural Enterprise in Great Britain - Britain's "Venturecash" Competition
- SWP 5/94 Andy Bytheway, Bernard Dyer & Ashley Braganza  
"Beyond the Value Chain: A New Framework for Business Modelling"
- SWP 6/94 Joe Nellis  
"Challenges and Prospects for the European Financial Services Industry"
- SWP 7/94 Keith Thompson, Panagiotis Alekos & Nikolaos Haziris  
"Reasoned Action Theory applied to the Prediction of Olive Oil Usage"
- SWP 8/94 Sanjoy Mukherjee & Ashley Braganza  
"Core Process Redesign in the Public Sector"
- SWP 9/94 Mike Sweeney  
"A Methodology for the Strategic Management of International Manufacturing and Sourcing"
- SWP 10/94 Ariane Hegewisch & Henrik Holt Larsen  
"European Developments in Public Sector Human Resource Management"
- SWP 11/94 Valerie Bence  
"Telepoint: Lessons in High Technology Product Marketing"
- SWP 12/94 Andy Bytheway  
"Seeking Business Improvement: A Systematic Approach"
- SWP 13/94 Chris Edwards & Ashley Braganza  
"Classifying and Planning BPR Initiatives: The BPR Web"
- SWP 14/94 Mark Jenkins & Malcolm McDonald  
"Defining and Segmenting Markets: Archetypes and Research Agendas"

SWP 15/94 Chris Edwards & Joe Peppard  
"Forging a Link between Business Strategy and Business Re-engineering"

SWP 16/94 Andrew Myers, Andrew Kakabadse, Colin Gordon & Siobhan Alderson  
"Effectiveness of French Management: Analysis of the Behaviour, Attitudes and Business Impact of Top Managers"

SWP 17/94 Malcolm Harper  
Micro-Credit - The Benign Paradox

**CRANFIELD WORKING PAPERS**  
**List No 9, 1995**

- SWP 1/95 Andy Bytheway  
"Information in the Supply Chain: Measuring Supply Chain Performance"
- SWP 2/95 John Ward & Joe Peppard  
~~"Reconciling the IT/Business Relationship: A Troubled Marriage in Need of Guidance"~~
- SWP 3/95 Kevin Daniels, Gerry Johnson, & Leslie de Chernatony  
"Collective Frames of Reference, Recognition, and Managers' Mental Models of Competition: A Test of Two Industries"
- SWP 4/95 Alison Rieple  
"Staffing as a Lever of Strategic Change - The Influence of Managerial Experience, Behaviour and Values"
- SWP 5/95 Grafton Whyte & Andy Bytheway  
"Factors Affecting Information Systems Success"
- SWP 6/95 Andy Bailey & Gerry Johnson  
"The Processes of Strategy Development"
- SWP 7/95 Valerie Bence  
"The Changing Market for Distribution: Implications for Exel Logistics"
- SWP 8/95 Valerie Bence  
"The Evolution of a Distribution Brand: The Case of Exel Logistics"
- SWP 9/95 Andy Bytheway  
"A Review of EDI Research"
- SWP 10/95 Andy Bytheway  
"A Review of Current Logistics Practice"
- SWP 11/95 Joe Peppard  
"Broadening Visions of BPR: The Imperative of Strategic Integration"

SWP 12/95 Simon Knox & David Walker  
“Empirical Developments in the Measurement of Involvement, Brand Loyalty and their Structural Relationships in Grocery Markets”

SWP 13/95 Ashley Braganza & Andrew Myers  
“Issues and Dilemmas Facing Public and Private Sector Organisations in the Effective Implementation of BPR”

SWP 14/95 John Mapes  
“Compatibility and Trade-Off Between Performance: An Alternative View”

SWP 15/95 Mike Sweeney & Marek Szwejczewski  
“Manufacturing Standards of Performance for Success”

SWP 16/95 Keith Thompson, Nicholas Thompson & Roy Hill  
“The Role of Attitudinal, Normative and Control Beliefs in Drink Choice Behaviour”

SWP 17/95 Andy Bytheway  
“Information Modelling for Management”

SWP 18/95 Mike Sweeney & Marek Szwejczewski  
“Manufacturing Strategy and Performance: A Study of the UK Engineering Industry”

SWP 19/95 Valerie Bence  
“St. James’s Hospital and Lucas Engineering Systems Ltd - A Public/Private Sector Collaboration in BPR Project A - Elective Admissions”

SWP 20/95 Valerie Bence  
“St. James’s Hospital and Lucas Engineering Systems Ltd - A Public/Private Sector Collaboration in BPR Project B - The Re-Organisation of Purchasing and Supplies”

SWP 21/95 Simon Knox & David Walker  
“New Empirical Perspectives on Brand Loyalty: Implications for Segmentation Strategy and Equity”

**CRANFIELD WORKING PAPERS  
List No 10, 1996**

SWP 1/96 Andy Bailey & Gerry Johnson  
“Patterns of Strategy Development”

SWP 2/96 Simon Knox & David Walker  
“Understanding Consumer Decision Making in Grocery Markets: New Evidence from the Fishbein Model”

SWP 3/96 Kim James, Michael Jarrett & Donna Lucas  
“Psychological Dynamics and Organisational Learning: from the Dysfunctional Organisation to the Healthy Organisation”

SWP 4/96 Mike Sweeney & Marek Szwejczewski  
“The Search for Generic Manufacturing Strategies in the UK Engineering Industry”

SWP 5/96 John Baker  
“Agility and Flexibility: What’s the Difference”

SWP 6/96 Stephen Adamson, Noeleen Doherty & Claire Viney  
“30 Years On - What Have We Learned About Careers?”

SWP 7/96 Keith Goffin, Marek Szwejczewski & Colin New  
“Supplier Base Management: An Empirical Investigation”

SWP 8/96 Keith Goffin  
“Operations Management Teaching on European MBA Programmes”

SWP 9/96 Janet Price, Ashley Braganza & Oscar Weiss  
“The Change Initiative Diamond: A Framework to Balance Business Process Redesign with other Change Initiatives”

**CRANFIELD WORKING PAPERS  
List No 11, 1997**

SWP 1/97 Helen Peck  
“Towards A Framework of Relationship Marketing: A Research Methodology”

SWP 2/97 Helen Peck  
“Towards A Framework of Relationship Marketing: An Initial Case Study”

SWP 3/97 Chris Edwards & Joe Peppard  
“A Critical Issue in Business Process Re-Engineering: Focusing the Initiative”

SWP 4/97 Joe Peppard and Don Fitzgerald  
“The Transfer of Culturally-Grounded Management Techniques: The Case of Business Re-Engineering in Germany”

SWP 5/97 Claire Viney & Shaun Tyson  
“Aligning HRM with Service Delivery”

SWP 6/97 Andy Bailey & Gerry Johnson  
“Logical or Processual? Defining Incrementalism”

- SWP 7/97 Keith Goffin  
 "Evaluating Customer Support Requirements at the Product Design Stage"
- SWP 8/97 Keith Goffin, Colin New & Marek Szejczewski  
 "How Innovative are UK Manufacturing Companies?"
- SWP 9/97 Kim James  
 "Beyond Individual Stress Management Programmes: Towards an Organisational System Approach"
- SWP 10/97 Mark Hambly & Richard Reeves  
 "The Application of Foresight in UK Research and Development"
- SWP 11/97 Leslie Falkingham & Richard Reeves  
 "Context Analysis - A Technique For Analysing Research in a Field, Applied to Literature on The Management of R&D at the Section Level"
- SWP 12/97 Ali Jawad & Richard Reeves  
 "Successful Acquisition of IT Systems"
- ~~SWP 13/97 Richard Reeves  
 "Managing Research and Development"~~
- SWP 14/97 Leslie Falkingham & Richard Reeves  
 "The Four Schools of Thought in Research and Development Management and the Relationship of the Literature to Practitioners' Needs"
- SWP 15/97 Val Singh  
 "A Qualitative Study of the Relationship between Gender and Managerial Perceptions of Engineers' Commitment: Cases from the UK and Sweden"
- SWP 16/97 John Fielding  
 "Dividend Yields, Business Optimism and the Predictability of Long Horizon Returns in the UK"
- SWP 17/97 Brenda Porter  
 "Audit Committees in Private and Public Sector Corporates in New Zealand: An Empirical Investigation"
- SWP 18/97 Brenda Porter  
 "Securing Quality Audit(or)s: Attempts at Finding a Solution in the United States, United Kingdom, Canada and New Zealand"
- SWP 19/97 Kim James & Michael Jarrett  
 "Group Regression and Team Development: Implications for the Top Team Consultant"

**CRANFIELD WORKING PAPERS  
 List No 12, 1998**

- SWP 1/98 Keith Goffin & Zhang Lihong  
 "Joint Venture Manufacturing in China - Key Opportunities for Operations Management Research"
- SWP 2/98 Francis Buttle  
 "I Heard it Through the Grapevine: Issues in Referral Marketing"
- SWP 3/98 Helen Peck  
 "The Development and Implementation of Co-Managed Inventory Agreements in the UK Brewing Industry"
- SWP 4/98 Val Singh  
 "Gender and Managerial Meanings of Commitment in High Tech Engineering in the UK and Sweden"
- SWP 5/98 Joe Peppard  
 "IT in Organisations: A Framework for Analysis"
- SWP 6/98 Kusum Sahdev & Susan Vinnicombe  
 "Downsizing and Survivor Syndrome: A Study of HR's Perception of Survivors' Responses"
- SWP 7/98 Mark Jenkins & Steven Floyd  
 "Spinning your Wheels or Winning the Race: Knowledge, Resources and Advantage in Formula One Racing"
- SWP 8/98 Francis Buttle & A. Adlaigan  
 "Customer Attachment: A Conceptual Model of Customer-Organisation Linkage"
- SWP 9/98 Joe Peppard  
 "IS/IT Management in the Global Enterprise: A Framework for Strategic Alignment"