

# **The Conceptual Development of Organisational IT Structure and Strategy with a Service Focus**

**Neil McBride**

**Centre for IT Service Management Research  
De Montfort University  
The Gateway  
Leicester  
LE1 9BH**

**Tel: 0116 207 8500**

**Email: [nkm@dmu.ac.uk](mailto:nkm@dmu.ac.uk)**

## ***Abstract***

Traditionally IT strategy has focussed on defining a list of IT applications to be developed. This may have the effect of widening the gap between the business and its IT and therefore reducing alignment and decreasing the ability to respond to organisational change. This paper proposes a service-oriented approach to strategy in which the development of the information system strategy focuses on the development of a portfolio of services rather than a portfolio of products. Systems development becomes subservient to, and only a part of service development. The focus moves towards service analysis and design and away from software design. The paper discusses the context for IT service management strategy development and defines a service-oriented IT management infrastructure. The content of the IT service strategy is discussed and it is suggested that its foundation should be a set of service level agreements rather than application definitions. Finally, the paper outlines a process by which an IT service strategy may be developed. The paper concludes that taking a service-oriented view of the IT function may have significant benefits and effects. Increased fit of IT to the business may be experienced. The change of focus away from the technology to the business services may enable more effective use of IT within competitive strategies.

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## **1. INTRODUCTION**

Information system planning is a key activity in any organisation. Whether conducted formally or informally, significant effort is put into identifying IS options and defining IS plans in the short or long term. The emphasis of such plans is commonly on identifying a portfolio of application systems to be developed together with outline timescales and some indication of resource requirements.

Information systems planning is seen as 'the process of identifying a portfolio of computer-based applications that will assist an organisation executing its business plans and realising its business goals' (Lederer & Gardiner, 1992) and 'the means of identifying application systems which support and enhance organisational strategy. It also provides a framework for the effective implementation of these systems' (Fidler & Rogerson, 1996). Approaches to IS planning concentrate on the identification of required IT systems as the main output (Lederer & Gardiner, 1992; Elliot & Melhuish 1995; Lederer & Salmela,

1996;Li & Chen, 2001) or the identification, evaluation and implementation of new technology (Hackney & Little, 1999).

A primary problem with the prevalent approaches to information system planning is that they are product-oriented. Their focus is on what systems are to be delivered, on the hardware and software which the organisation requires and timescales for implementing the technology. The IS strategy may become principally a technology wish list, much of which may not actually get implemented (Hackney & McBride, 2001). It overemphasizes the technology at the expense of the business.

Such a product-oriented approach to IS strategy may have the effect of widening the gap between the business and its IT and therefore reducing alignment and decreasing the ability to respond to organisational change. This business IT gap is well-documented (Ward & Peppard, 1996; Avison et al, 1999; Peppard & Ward, 1999; Peppard, 2001). Whether the technology-oriented IS strategy is a result of this gap, or a contributor to the gap, there is a requirement for different approaches to IS strategy which do not focus primarily on the technology, but treat the technology in its business context as just one element of a service which also encompasses people, processes and knowledge (Rand, 1992)

This paper proposes a service-oriented approach to strategy in which the development of the information system strategy focuses on the development of a portfolio of services rather than a portfolio of products. Systems development becomes subservient to, and only a part of service development. The focus moves towards service analysis and design and away from software design. Indeed, it has been envisaged that software will become virtually self-designing and that the software industry focus will move to the definition of services through service-level agreements (SLAs) and the semi-automated delivery of componentized application systems to meet the dynamic service needs (Layzell, P. et al, 2000; McBride, 2002). Furthermore the focus of a service-oriented strategy may move away from software maintenance to service improvement and from software quality to service quality.

A service-oriented IS strategy aims to increase the alignment between business and IT and reflect the trend towards a service-focus in organisations (Edvardson, et al, 2000). The computer system then becomes a platform for the delivery of a service. In considering IT as a service, we take a holistic view in which the computer system is put in its context. That context involves customers, both inside and outside the organisation who are using that service. Thus issues of customer satisfaction, service quality, service design, management structures, timing of delivery, training, resourcing come into play.

This conceptual paper will firstly consider the context of a service-oriented IS strategy, identifying some changes in IT management infrastructure required to produce a service-oriented IT environment. Secondly, we will consider the content of a service-oriented strategy: what and might be expected in a service-oriented IS strategy. Thirdly we will examine the process by which a service-oriented IS strategy might be developed. A model hospital will be used as a basis for considering a service-oriented IS strategy.

## **2. CONTEXT: CHANGING THE IT MANAGEMENT INFRASTRUCTURE**

Traditionally, IT within medium-sized and large organisations has been organised on a technical basis. The IT department may be organised around application development and live system support. Within application development, teams may be formed to develop particularly computer systems which are then passed on to the maintenance and support teams. Thus the IT infrastructure is structured around the information systems and their state of development. Users may then be passed on to different IT staff depending on the application they are using and its current developmental status.

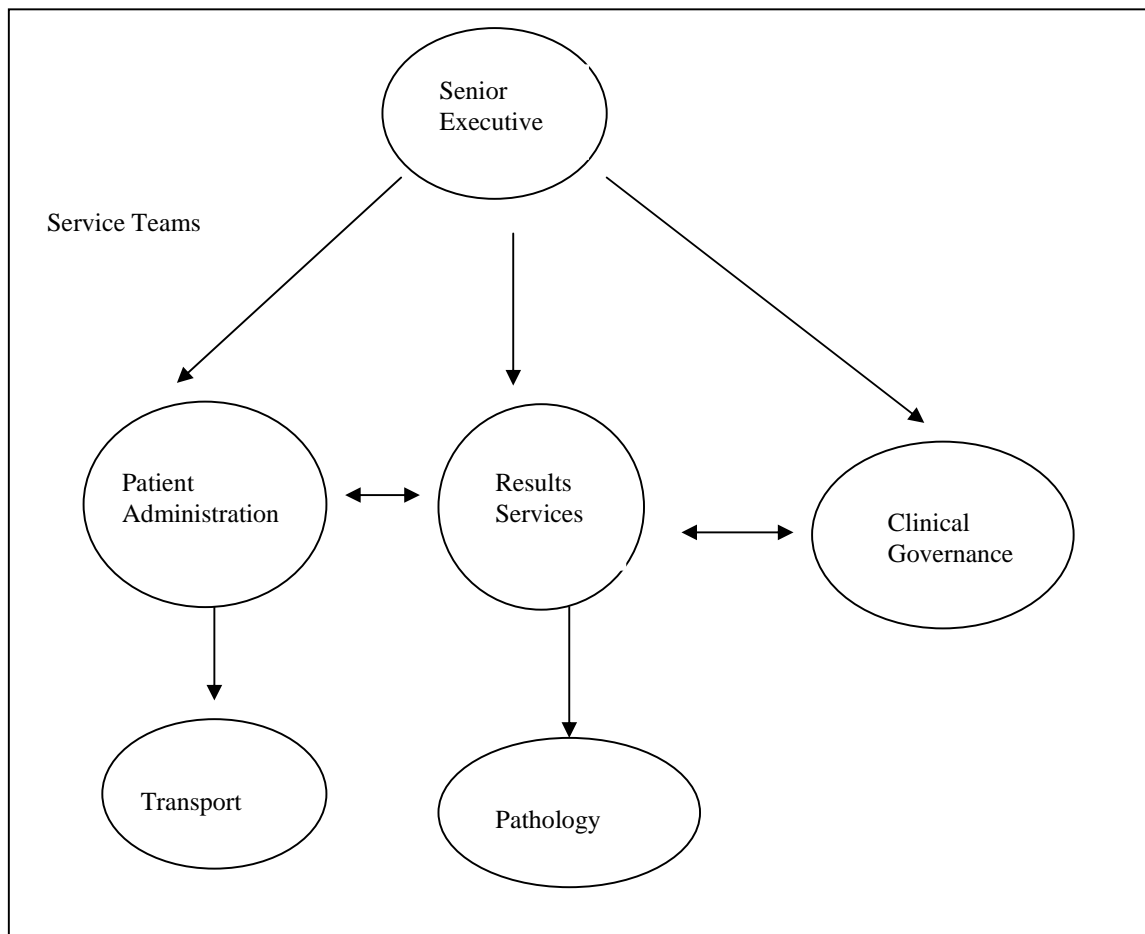
Frequently further divisions of IT infrastructure may be found which focus on networking, PC support, mainframe application support and web-support. Whether centralised, decentralised or federal (Sambamurthy & Zmud, 1999), the focus is on the technology and the technical and maintenance issues associated with IT. For example, IT governance in the State of Iowa is split into data processing, communications, office automation, systems development, data administration and procurement (State of Iowa, 2001). An IT department organised around a technology theme may not reflect the organisational structure of the business in which it resides, Such organisational misalignment may increase the distance between the IT and the organisation it serves. In centralised IT governance, the IT department may be

further separated from the organisation by geography, being located away from the front line of the business and even in a different building.

Misalignment of IT and the business may be highly likely if the IT infrastructure is technology-oriented. A service-oriented approach seeks to divide the IT infrastructure into service teams that support the service provided by the organisation. Each team provides the information and system needs of a particular service element. A service-focused IT infrastructure then directs the attention of IT staff outwards to the organisations' services and customers and away from a notion of the primacy of the IT.

The service team would be driven by defined service contracts and measurables. How the service is delivered would be up to the team. For example, the team would make decisions as to whether to meet the service need by tweaking an existing computer system, buying or building. Also the team would decide when to retire an existing computer system. The delivery of the service to the organisational service area or business unit should continue without the service customer needing to get involved with implementation of a new system and without having to organise their activities according to an IT agenda. Thus the service team retains some autonomy concerning the delivery of the service. The IT service strategy then defines the nature of the service to be delivered, its scope and quality.

In a hospital, a separate IT department delivers the IT requirements of the whole hospital. The department may concentrate on the large IT developments as the expense of smaller service, departmental and specialty needs. An outline service-based structure for a hospital is illustrated in figure 1.



**Figure 1: Service-oriented IT Management Structure for a Hospital Trust**

IT service teams support bounded areas of hospital services and processes. At the top level, these might be:

*Patient Administration* : Provision of integrated information flows to support the entire patient experience from outpatients, through in patients stay and operations to discharge, including connections with primary care and other organisations.

*Results*: The results services provides information support and information systems support for the requests for diagnostic procedures including pathology, x-ray and other procedures and the delivery of the results of those procedures inside the hospital and to requestors outside the hospital.

*Clinical governance*: provision of information to enable effective clinical practice, including provision of systems and services to enable evidence-based medicine, the development of integrated care pathways and the development of information databases to enable effective clinical audit. Clinical Governance at a primary care group level will also be supported where it interfaces with the hospital.

These service teams may interact with more departmentally based service teams in for example, transport and pathology. Smaller service teams supporting specialist service requirements within particular specialities ( for example, intensive care and Magnetic Resonance Imaging) might be formed as sub-teams within the patient administration or clinical governance service teams.

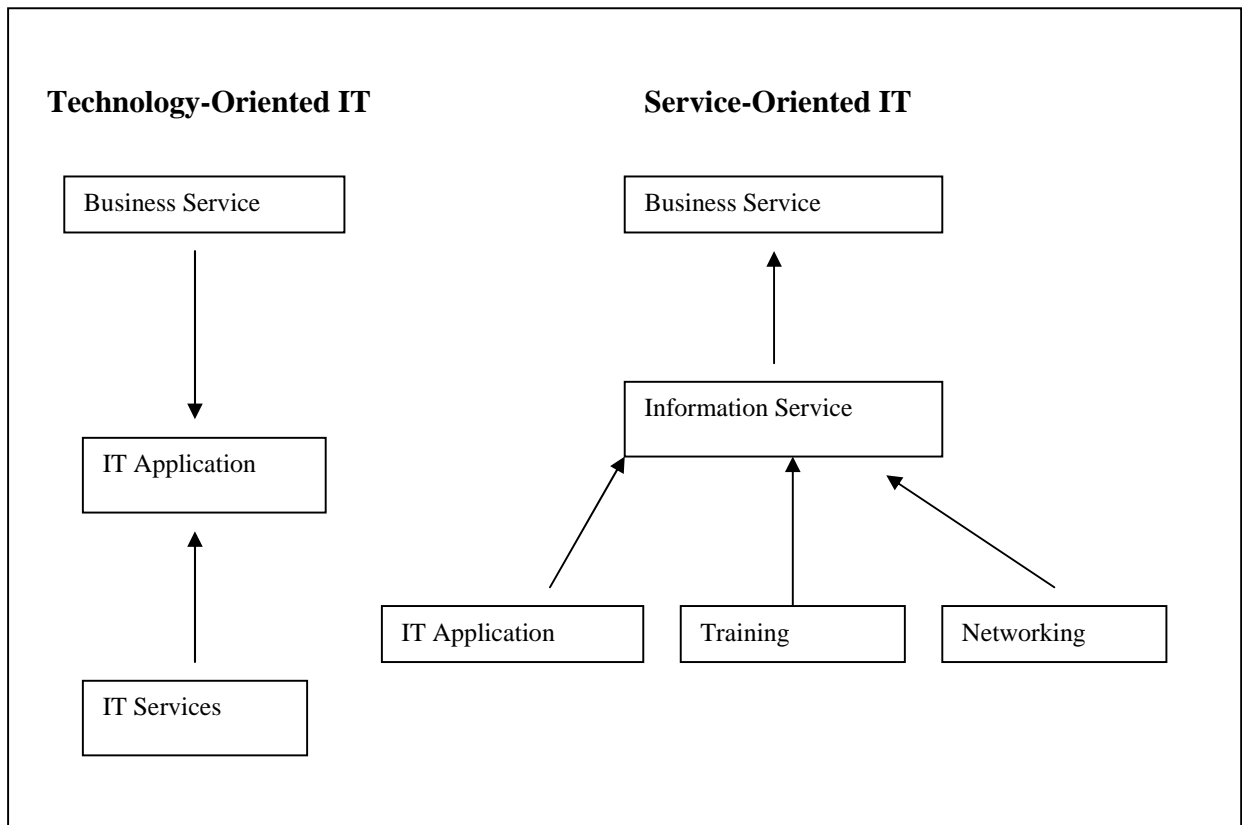
The effect of such an IT structure may be to:

- Generate a service culture;
- Move the IT interface right next to the appropriate hospital services;
- Enable faster support for changes in services or processes;
- Generate greater understanding of the IT within the service area;
- Generate greater responsiveness from the technologists.

It should be noted that the skills set within the service teams would need to extend beyond the IT to the organisational services. A Patient Administration Service team would need to understand the processes in outpatient clinics, medical records, ward-based services and theatre. Practitioners from these areas would be part of the team; defining services and working on the delivery of these services in concert with IT-Skilled staff who would quickly gain business and service understanding within the area. These teams may be managed by organisational service-oriented staff. For example, clinical governance may be managed by a clinician.

While ideally the business and technical skills should be encapsulated within the service team, which is able to develop the service set and apply IT understanding to deliver it, we recognise that, in large organisations, economies of scale may demand that some of the IT elements are delivered by technical teams. For example, IT networking may be delivered by a networking team whose customers are the various service teams. Such technical elements may be outsourced.

However, an overall service philosophy can be used. In a service-oriented IT infrastructure, business services are supported by IT services which draw on applications, training, and information resources to deliver a holistic service which meets the service needs for information and does not just focus on technology. This contrasts with a traditional model which a computer application is built for the business and IT services support the computer application (Figure 2)



**Figure 2: Changing from IT application focus to information service focus**

### **3. CONTENT: IT STRATEGY AS A PORTFOLIO OF SERVICES.**

The content of an IT Service strategy focuses on the nature of the services to be delivered by the service teams within the IT management infrastructure and not on the computer systems and technology.

The content of the strategy will consist of a series of service definitions together with explanations of the philosophy behind each service and the strategy for service-delivery. At a greater level of detail, the IT service strategy would define the service level agreements and the level and type of service the internal customer might expect. The SLA may, for example, be divided up to differentiate between a basic bronze service and the 'Rolls-Royce' gold service and may indicate costing and pricing differences between these levels of service.

It may be appropriate for the strategy to define the resources required to deliver that service in terms of computer systems and applications, networking, staff training, IT staff and so on. However, it may be more effective to leave that level of implementation strategy to the service teams and restrict the IT service strategy to a definition of services, service content and SLA which the service teams will have to adhere to. Such a focus on services reduces the risk of the strategist's attention being deflected by the technology needs and hence the technology actually driving the service definitions.

The contents of an IT Service Strategy may include:

- Definition and description of business/ customer services provided by the organisation;
- Definition of the service teams and mapping of service teams to business services or business units;

- Description of mission and scope of each service team, including definition of strategy and philosophy behind the service;
- Definition of services provided by each team presented as a service catalogue;
- Description of service including a diagram of the service processes, delineating service team, activities, customer activities and the interaction between the two,
- Definition of one or more SLAs associated with that service,
- Constraints on service,
- Information provision associated with that service,.
- Summary of resource requirements focussed on enabling costing and pricing of the service,
- Definition of quality measures associated with each service and description of process by which quality will be monitored,
- Management policies associated with the service.
- Definition of any generic services which may be provided on behalf of the service teams, either centrally or outsourced. Examples may include installation and maintenance of physical IT infrastructure and servicing of PCs.

The IT service strategy provides a blue print for the development of IT services within each service group. The level of detail for the definition of each service may vary. In some cases it may be appropriate for the service team to negotiate the SLAs with the business services it supports. Also, depending on the maturity of the service area, significant service innovation and design may be required.

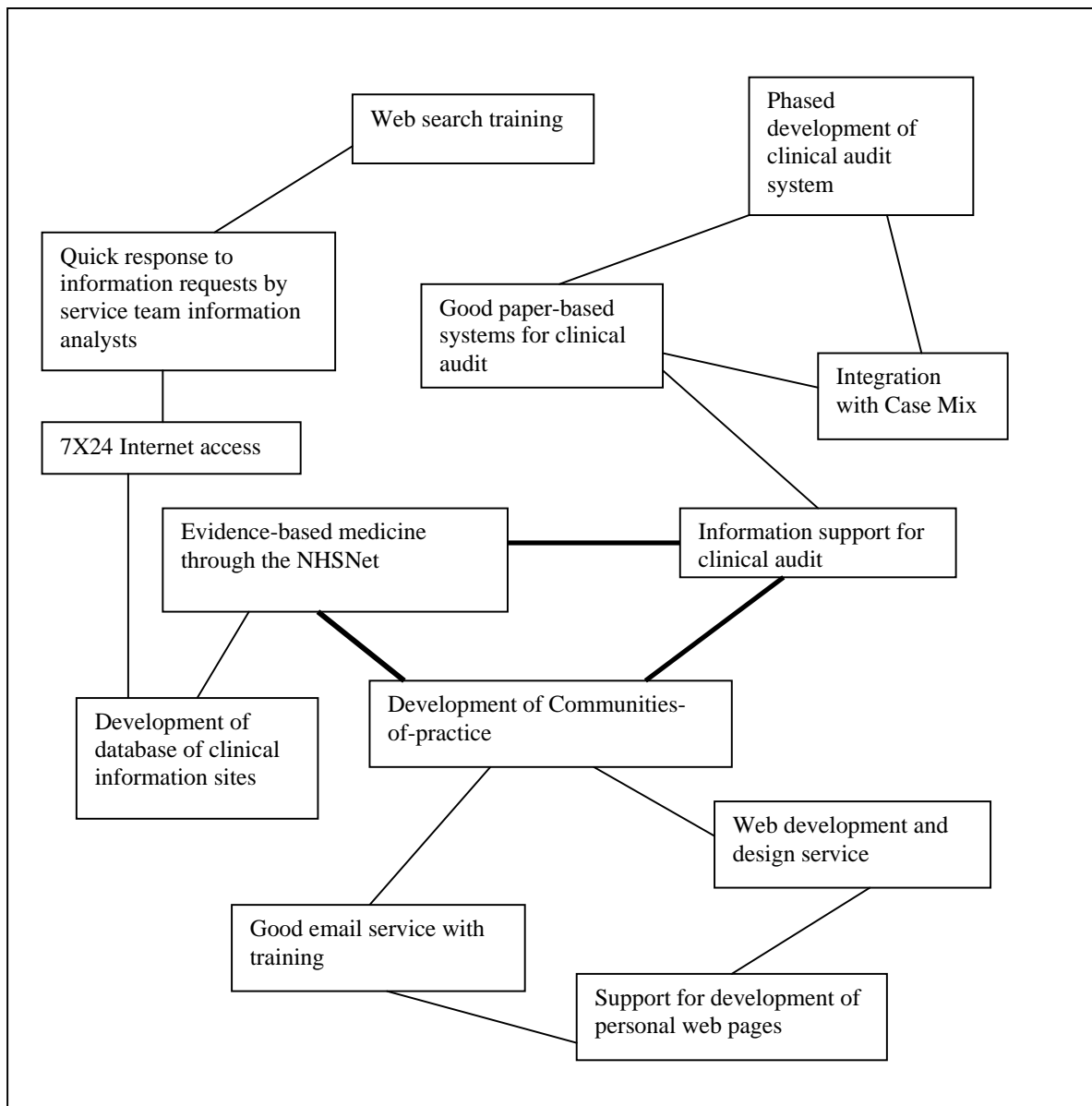
#### **4. PROCESS: DEVELOPING AN IT SERVICE STRATEGY**

The process of developing the service strategy may be tackled in a number of ways. A top-down/ bottom-up approach may be considered, as has been used in Method/1 (Lederer and Gardiner, 1992, Earl, 1989). Alternatively, a more evolutionary approach may be considered. Regardless of the process model, a number of tasks must be tackled. Suggested tasks in the development of an IT Service Strategy follow:

*Definition of business services.* An understanding a classification of what the organisation does and the structure of its services must be gained since this will be required for mapping IT services and service teams to business services. If we take a purist service view, then where a company provides products we need to consider the customer service that the product is part of. This may generate ideas for new business services which will require ideas for IT services. The definition of services that are provided by the business should be split down enough to generate service support requests (i.e. definitions of what IT services are need to make that service work or to underpin the service.)

*Definition of Service Teams.* The analysis of the business's services will lead to the construction of a IT management structure consisting of a series of service teams which map to the business services.

*Definition of service strategy.* For each service team a service strategy should be developed. Competitive analysis and an analysis of organisational effectiveness may be carried out at this stage. While traditional management tools such as five forces and value chain can be used in determining the strategy (Botton and McManus, 1999), we would recommend the use of activity-system maps (Porter, 1996) An activity-system map enables the principle philosophy of the service and the activities which will be used to implement that philosophy to be defined (Edvardsson et al, 2000). Figure 3 illustrates an outline activity-system map for the clinical governance service team. Note that the strategy exercise is driven by the service needs of the business, taking a service view of both the organisation and the information systems within it.



**Figure 3: Outline Activity-System map for Clinical Governance Service Team**

*Definition of services.* Exact service provision should be defined for each service team. Draft SLAs should be developed based on the business needs. Information needs should be explored and an initial set of service defined. Definition of services may also involve service innovation. It is in this step that technology innovation should be considered as a basis of new services. Services should be defined at a high level. Detailed service design may not take place until an understanding of current IT services is carried out and a gap analysis done.

*Analysis of current IT services.* Current IT in the organisation may be product-oriented. The IT needs to be considered as a portfolio of services, so an understanding of how IT can currently be represented as services will be needed.

*Gap Analysis.* Gaps between current IT services and the services required within the service teams will need to be analysed. The IT services will be mapped to the service teams. It is at this point that consideration of which IT service elements should be delegated to the service teams and which might be provided as a generic service may be considered. For example, while network administration may be

offered as a centralised, generic service, all application development, application support, systems procurement, user training, and system evolution should be allocated to service teams. It should be a policy to minimise generic services since these can only be provided at a distance from the business services. We would suggest that the proliferation of generic IT services may only serve to widen the IT/ business service gap and reduce business effective and service focus.

*IT Business Integration.* Once the service gaps are understood plans can be developed for the integration of IT services and the business. How each service team is going to obtain its IT resources and take over appropriate application should be considered.

*Definition of SLAs.* At this point there should be sufficient information and understanding of the services to generate details SLAs. These will involve negotiation between members or potential members of service teams and the business service areas.

*Implementation.* Detailed SLAs provide the core of the strategy. At this point a detailed IT service strategy can be written up and the focus moves to service team discussion of how the SLAs are to be fulfilled. Guidelines for implementation may form part of the written IT services strategy, but detailed implementation should, we suggest, be left to the service teams to encourage ownership and a close fit with the business services.

The IT service strategy development process needs to be conducted in a flexible manner. Since the strategy definition is a service in itself, the project team must contain a significant number of active representatives from the business service areas. Service innovation cannot be done without close involvement of internal customers. In planning the strategy development process, internal customer involvement must be defined.

## **5. CONCLUSION**

This paper has outlined the context, content and process of IT service strategy development. Organisations are waking up to the critical importance of IT services. This is suggested by the large attendance at conferences of organisations such as the IT Service Management Forum and steadily increasing membership of such organisations.

We would suggest that taking a service-oriented view of the IT function has significant benefits and effects. Increased fit of IT to the business may be experienced. The change of focus away from the technology to the business services may enable more effective use of IT within competitive strategies. New business areas such as e-commerce demand a service-oriented view and force closer co-operation between IT and the business that IT services. The rise of E-services means that service principles are penetrating top-down and bottom-up.

A service-oriented view creates a strategy that addresses business needs above technology imperatives. Such strategies are closer to the heart of the business and more flexible. We would suggest that the future is service-oriented, both in terms of software development and IT delivery.

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