

Creating Value by Delivering Integrated Solutions

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Introduction

In recent years project forms of organisation have become increasingly popular, spreading from 'old economy' sectors like construction, defence and aerospace to 'new economy' industries such as consultancy, advertising, and the media sector. A growing proportion of internal and external activities is being organised on a project basis. Some firms utilise subcontractors while others, in a move away from more traditional functional and matrix structures, are opting to organise internal activities on a project basis. Terms like the 'project-based firm' (Gann and Salter 2000; Keegan and Turner 2002) and the 'project-based organisation' (Hobday 2000) have emerged to describe such entities.

Some of the world's leading firms have been changing their strategic focus to compete by providing 'solutions' rather than individual products or services (Slywotsky, 1996; Slywotsky and Morrison, 1998; Wise and Baumgartner, 1999; Sharma and Mollooy, 1999; Cornett *et al*, 2000; Davies *et al*, 2001; Bennet *et al*, 2001; Foote *et al*, 2001). This trend has particularly affected the capital goods sectors, where firms design, integrate, and deliver complex products and systems for business users, operators, service providers and/or government agencies. Moving from both upstream and downstream positions in the value stream these firms are attempting to capture the higher value territory that lies between manufacturing and services. This means combining products and systems with services in order to specify, design, deliver, finance, maintain, support and operate a system throughout its life cycle.

This paper presents findings from research into the provision of 'integrated solutions' by capital goods producers supplying complex products and systems (COPS).¹ These systems are designed, produced and integrated on a project basis in small batches or as one-offs to the meet the particular needs of business, government and institutional customers (Miller *et al*, 1995; Hobday, 1998). The three year research project² involved leading international suppliers of COPS: Alstom in railways; Ericsson in mobile phone networks; Thales in flight simulation; WS Atkins in the built environment and infrastructure; Cable & Wireless in managed network services.³

¹ Complex products and systems (COPS) are high-value, engineering and software-intensive capital goods. They cover a range of business-to-business products, systems, networks, infrastructures, constructions and services. Examples include aircraft, ships, flight simulators, trains, telecoms networks, intelligent buildings.
² 'Mastering service capabilities in complex product systems: a key systems integration challenge' - funded by the UK's Engineering and Physical Sciences Research Council (EPSRC) Systems Integration Initiative (Grant no. GR/S9403).
³ Initial interviews with senior managers in business units or divisions provided an opportunity to study the

choices made by firms facing similar problems but operating in very different industrial settings. Managers were asked to describe the companies' products and service offerings in 1995 and how and why they had moved into the provision of integrated solutions by 2000. These initial interviews were followed up by case studies conducted during 2001-2003 which provided an in-depth analysis of the companies' strategies for the provision of integrated solutions provision. The aim of the case study research was both descriptive – to improve our

Since then similar moves have occurred in sectors such as telecoms, railways, aerospace and the built environment. Increasingly, buyers of CoPS are expecting their suppliers to move from being equipment manufacturers and system integrators to providers of integrated solutions - complete business solutions which involve the integration of products and services into one package (Davies et al, 2001, Alderman et al 2002). This move requires CoPS firms to take over activities previously carried out by their customers and/or to undertake completely new service activities. These activities may be related to after-sales support, maintenance, training, operations and service provision which used to be undertaken by the customer after delivery of the CoPS product; or they may relate to the supply of new types of services at each stage of the project life cycle from the bid phase (e.g. conceptual design, consultancy, finance), through implementation (e.g. site construction, sub-contract management), to support (e.g. training, maintenance, system operation). Table 1 shows how firms in different sectors have been shifting their focus from a traditional product or service focus in the mid 1990s to integrated solutions from the year 2000.

The trend towards the provision of integrated solutions first became apparent in the 1990s when IT equipment suppliers like IBM and Sun Microsystems responded to customer pressure to take responsibility for supplying not only hardware, but also software, the installation and integration of the system, and providing support throughout the product life cycle. Customers were encouraged to demand such solutions because of the increasing complexity and size of their IT contracts; the importance of IT systems to their competitiveness; and the seriousness of the problem of systems failure. IT vendors started to offer solutions that allowed individual customers to select a level of service that met its specific requirements; ranging from individual packages to full service solutions covering failure prevention, disaster recovery and planning functions.

1. The move towards integrated solutions provision

The rest of the paper is organised as follows. Section 1 examines the shift towards the provision of integrated solutions in more detail. Section 2 describes the CoPS value stream showing how value is added at different stages in the stream. We examine how CoPS firms (moving both upstream and downstream to provide integrated solutions) add value by providing combinations of products and services that create unique benefits for each customer. Section 3 deals with some of the implications of this shift for suppliers of complex products and systems and their relationships with their customers.

The move to integrated solutions in CoPS industries represents a fundamental shift in the mindset of a supplier and its relationship with customers. Delivering integrated solutions to meet user needs involves a new type of project which extends the traditional life cycle of a project beyond the delivery phase into the operational phase. CoPS suppliers have to take a new approach to creating value for themselves and their customer. Firms undertaking integrated solutions are changing their strategies, occupying new positions in the value stream, and developing new capabilities.

Table 1: The shift to integrated solutions

Company	Traditional product or service focus (1995)	Integrated Solutions (2003)
Alstom Transport	Products: <ul style="list-style-type: none"> subsystems (e.g. propulsion, traction, drive, electronic information systems) rolling stock signalling and train control systems 	Transport solutions (e.g. 'train availability'): <ul style="list-style-type: none"> Systems integrator – turnkey solutions for project management, fixed infrastructure, and finance Services for maintenance, renovation, parts replacement & service products - 'Total Train-Life Management' ©
Ericsson	Products: <ul style="list-style-type: none"> mobile handsets, mobile system mobile system subsystem products: radio base stations, base station controllers, mobile switches, operating systems, and customer databases 	Turnkey solutions to design, build and operate mobile phone networks: <ul style="list-style-type: none"> Mobile systems – complete supplier, systems integrator and partner Global Services – services and business consulting to support a customer's network operations
Thales Training & Simulation	Products – standalone flight simulators for commercial and military aircraft	Training solutions (e.g. 'pay as you train'): <ul style="list-style-type: none"> Systems integration Training services: networked training; independent training centres for training services; and, synthetic training environments
WS Atkins	Engineering consultancy, project management and technical services for infrastructure projects	Integrated solutions for the built environment; <ul style="list-style-type: none"> the design, build, finance and operation of infrastructure across industrial sectors Total Solutions for Industry (TS4i) provides one-stop-shop for design, construction, maintenance and finance
Global Business Telecom Networks	<ul style="list-style-type: none"> Network design Supply telecom infrastructure and applications Network management 	Provides 'global outsourcing solutions' for a multinational corporation's entire telecom and IT needs on a global basis: <ul style="list-style-type: none"> Network design Supplies telecom infrastructure and applications Network management Ownership of the network Network operation Business process applications Service Level Agreements
Cable & Wireless	Provides 'managed network services' for multinational corporations	Provides 'global outsourcing solutions' for a multinational corporation's entire telecom and IT needs on a global basis: <ul style="list-style-type: none"> Network design Supplies telecom infrastructure and applications Network management Ownership of the network Network operation Business process applications Service Level Agreements

The main drivers towards integrated solutions include the attraction of profitable markets; demand from customers for outsourcing; government-led market reforms such as privatisation, de-regulation and liberalisation; and the use of private finance for public investment programmes.

The use of private finance for public infrastructure projects

The final driver has been the recent and rapid growth in the use of private finance to pay for the design, development and operation of systems resulting from changes in government policy towards the financing of public sector projects. This trend has been driven by several factors: the desire to provide capital-intensive infrastructure without having to raise taxes and to remove such expenditure from the government's balance sheet; a belief that such programmes deliver better value for money; and the assumption that giving the private sector responsibility for the risks of operating and maintaining systems would result in designs which would prove more cost-effective in terms of operation and maintenance over the whole life cycle. In 1992 the use of private finance for major public projects became the standard for government procurement in the UK, when, in the light of limited availability of public funds the government launched the private Finance Initiative (PFI) whereby private sector companies would design, build, finance and operate (DBFO) public sector projects ranging from roads and railways, to prisons, schools and hospitals, to major IT systems and defence programmes. By the end of the decade similar policies were being enacted elsewhere in the world (Timmins 1998). In the UK, in 1997, the newly elected Labour Government introduced another programme – public-private-partnerships (PPP). The main difference between PPP and PFI projects is that in the latter, the private sector finances projects and takes on the bulk of the risk whereas the former involves partial financing from the private sector with the state

Government-led market reforms

New market structures resulting from government reforms such as privatisation, deregulation and liberalisation have led to major changes in sectors such as railways, telecoms, electricity, and airports. These changes have acted as an impetus to the drivers for integrated solutions already discussed above, opening up new market opportunities for CoPS suppliers and strengthening the tendency for CoPS customers to outsource.

Demand from customers – outsourcing

CoPS customers, such as airlines, railway and telecoms operators, large business users and government organisations, are increasingly focusing on the provision of services to final consumers, and outsourcing what they consider to be non-core activities. They are looking to their suppliers to carry out activities previously done in-house – such as design, systems integration, project management, maintenance and even aspects of operation. Rather than asking suppliers to respond passively to detailed specifications ('build to print') CoPS customers now expect their suppliers to provide conceptual solutions that address their business needs ('bid-to-concept').

The attraction of profitable markets

CoPS suppliers find integrated solutions markets attractive because they offer highly profitable contracts for systems integration projects and services which are provided throughout the product life cycle. High-cost capital goods tend to be bought in surges at irregular intervals, which means that suppliers are vulnerable in periods when the volume of work declines and their revenues and operating margins shrink. Services provided throughout the product life cycle offer the advantage of continuous revenue streams. Wise and Baumgartner (1999:134) estimate that revenues from operational services represent ten to thirty times the annual volume of underlying product sales. For example railway companies spend \$28 billion a year maintaining and operating their locomotives and fixed infrastructure but purchase less than \$1.4 billion of new locomotives. The promise of smooth, counter cyclical growth is hugely attractive in comparison to the more 'lumpy' cyclical nature of traditional product-based revenues.

The four primary stages of value-adding activities in a typical CoPS industry are depicted in Figure 1. These are the main generic activities involved in the physical creation of the tangible product and its use to provide services to final consumer. Specific CoPS industries may have fewer or more stages in the life cycle of a product. The outputs of one value-adding stage are the inputs of the next. Each of these stages in the value stream is progressively closer to the final consumer. In the first stage – manufacture – raw materials and sub-assemblies are taken and transformed into components and subsystems that are manufactured to meet an overall system design. The second stage – systems integration – adds value through

Much of the literature on value chains and value streams has been concerned mainly with consumer goods (e.g. Porter, 1990, Womack and Jones, 1996). However, as Woodward (p23, 1958) points out, the sequence of activities performed in capital goods, produced as one-off items or in small batches, is the reverse of high-volume consumer goods industries. In mass production, product development is undertaken first, when the design is frozen before being taken into production, followed by marketing, distribution and retailing to final consumers. In low-volume CoPS production, the sequence begins by obtaining an order from the customer, manufacturing components in the system, modifying the design during production, and handing over an integrated system. Moreover, whereas the value stream in consumer goods ends with the distribution of the product to final consumers, in CoPS the product is used by large organisations – operators, service providers, business users and government organisations – to provide services to end users, such as flight simulation training for airline pilots.

Added value is the difference between the market value of a firm's output and the costs of its inputs (Porter, p38, 1985; Kay, p23, 1993; DTI, 2002). A firm is able to create value for its customers by offering products or services, or both, at lower prices than competitors or in ways that provide unique benefits. Porter (1990) distinguishes between value-adding activities performed within individual firms (the value chain) and the linkages between firms that add value within an industry (the value system). In this paper, we use the term 'value stream' to distinguish more clearly between the upstream and downstream activities performed within an industry (Galbraith, 1983; Womack and Jones, 1996). Industrial activities are represented as successive stages in the flow of materials or products from an earlier to later stage of production. The analogy to the flow of a river illustrates that the expansion towards sources of supply (or earlier stages) is a movement 'upstream', while the movement towards the final product (or later stages) is a 'downstream' expansion (Blair, p25, 1972). In a typical manufacturing industry, value is added through successive stages from upstream raw materials extraction, primary manufacture, and fabrication to downstream product production, to marketing, distribution, and retailing to the final consumer (Galbraith, 1985). Value accumulates at each stage in the process of production and consumption to make up the overall industry value stream.

2. The value stream in complex products and systems (CoPS)

These four drivers have encouraged the shift to integrated solutions provision. In the next section of the paper we discuss the ways in which value is created in the complex products and systems value stream and how the move to integrated solutions can add value to both producers and customers.

sharing or underwriting some of the risk. By the start of 2001, £16 billion had been spent on the procurement of PFI and PPP projects, with a further £16 billion in the process of procurement.

These activities in the value stream may be organised in one vertically integrated firm or firms may specialise in particular activities and buy in others. The boundaries between upstream suppliers and downstream consumers have been constantly redrawn. Historically, suppliers of technologically complex goods required vertically-integrated design, manufacturing and marketing organisations (Chandler 1980:24-25). Since the late 1980s, several authors have noticed a trend towards outsourcing and vertical dis-integration which gave rise to specialist organisations whose core activity is systems integration (Rothwell 1992; Granstrand, Patel and Pavitt 1997; Brusoni and Prencipe 2001; Prencipe 2003, Pavitt 2003; Dosi et al 2003). Many of these systems integrator firms outsourced detailed design and manufacture to external suppliers and contract manufacturers, keeping in-house the systems integration capabilities needed to co-ordinate a network of external partners. In the mid 1990s though, a mixture of stagnating demand and a growing installed base of products has led to firms building on core manufacturing and systems integration activities by moving downstream into high value added services to maintain, finance and operate a product

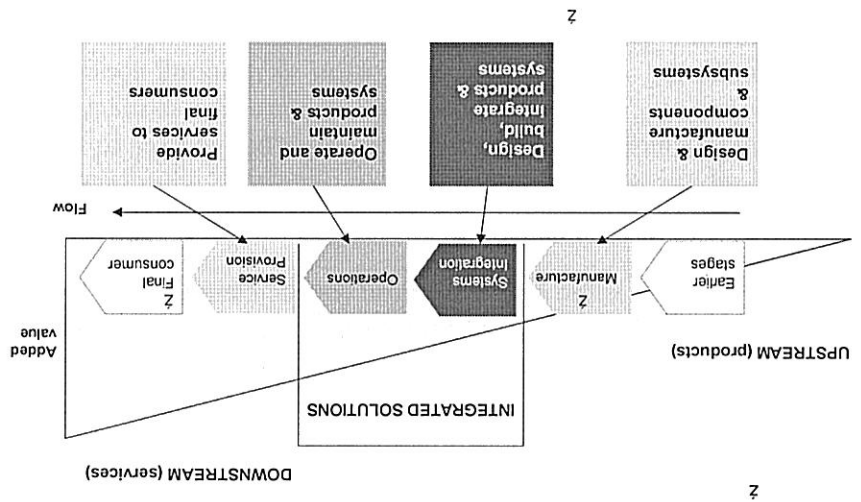


Figure 1 The COPS Value stream

In addition to the main value-adding stages, a number of services – such as financial services, business consultancy and others – support the main activities and provide value-adding inputs up and down the stream. The upstream stages add value to the product through technology development and manufacture, understanding the requirements of large business, government or institutional customers, managing projects, and systems integration. Downstream operators and service providers add value through managing and maintaining system operations, customer care, advertising, billing, branding, marketing and other service activities.

The design and integration of these components and subsystems. Activities include making bids, managing projects, designing, building and handling over fully-functioning products and systems – such as flight simulators, trains, and baggage handling systems – that meet the varying needs of business, government and other large institutional customers. The third stage, - operational services – involves running and maintaining a system to provide services, such as baggage handling, flight simulation training, and train services. In the next stage – service provision – services are provided to the final consumer.

At some point during this dialogue a value proposition for an integrated solution must be developed. This may vary depending on the closeness of the relationship between the

the process. consulting capabilities are required. We use the term strategic engagement for this phase of dialogue takes place at a senior level and strategic management resources and high-level strategic issues such as how to re-shape a business model or open up new markets. This about helping a customer enhance existing business operations but they may also cover place to begin to understand their strategic needs and priorities. These discussions are often bid process can begin, informal discussions with existing or potential customers need to take products or services, but a different approach is needed for integrated solutions. Before any particularly the early stages. Traditional procurement channels are adequate for the sale of major implications for the kind of activities that need to take place in the project life cycle – The change of emphasis towards customer-centric rather than product-centric thinking has

product through its life cycle, from initial purchase to de-commissioning. This demands a detailed understanding of the customer's business activities as it operates a 1998). Integrated solutions providers begin by thinking about the desired outcome for the 'product-forward' orientation towards value creation is reversed (Slywotzky and Morrison have to understand how value is created through the eyes of the customer. The conventional value for suppliers and their customers. Becoming solutions-focused means that providers The move to integrated solutions in CoPS industries and implies a new approach to creating

- removing the need for the customer to assemble or integrate the products and services that comprise a solution
- taking responsibility for negotiating with multiple suppliers of a solutions component parts – hardware, software and services
- creating innovative ways for components of a solution to work together to enhance the overall value of the solution for the customer.

Systems integrators ensure that the value of the solution for the customer is greater than the sum of its parts by:

the solution for the customer. ways for components to work together as an integrated whole to increase the overall value of performing activities previously carried out in-house by their customers, and develop new create bundles of both products and services. They take over responsibility (and risk) for unique benefits for each customer. Solution providers do not simply extend a product line or Integrated solutions add value by providing combinations of products and services that create

How is value added in integrated solutions provision?

through its life cycle. At the other end of the value stream, traditional buyers of CoPS are looking to concentrate on service provision and move out of systems integration and operations. Instead they are asking their suppliers to take over such activities. This upstream part of the value stream has also seen the emergence of new service providers who concentrate on brand, marketing, distribution and customer care activities and products and buy in the system capacity they require from external operators (e.g. virtual network providers like Virgin Mobile). Integrated solutions providers typically occupy the position in the value stream covering the systems integration and operations activities.

In changing environments, firms are faced with the challenge of re-deploying their existing resources and changing their internal processes and capabilities (Burns and Stalker, 1961; Woodward, 1965; Lawrence and Lorsch, 1967; Galbraith, 1973; Mintzberg, 1983). The shift to integrated solutions is no exception. Our case study research has revealed that firms wishing to become advanced integrated solutions providers need to move through four levels of capability. The first two levels are aimed at building a front-end organisation – a customer facing unit – to structure the delivery of integrated solutions at the point of contact with the customer. The third and fourth involve developing the capabilities of the back-end by creating solutions-supporting product and service organisations. A firm does not necessarily

3. Implications of the shift to integrated solutions provision

In traditional projects the hand-over would signal the end of the project, but solutions projects often include the responsibility for the provider to manage, resource, support and improve the delivery of the solution through the life-cycle of the product or system. These operational capabilities are usually supplied from the supplier's functional line.

Once the contract has been agreed the project can move to the integration phase where the provider establishes a project organisation and implements the solution. This involves traditional project management skills and the in-depth systems integration capabilities to design, integrate, verify and test the system before handover to the customer.

It is essential to take into account the lifetime costs of a solution to assess the value of a contract. The solutions provider may have to accept up-front costs in return for a share in the efficiency gains the solution generates for the customer in the longer term via improvements in operations, revenues and market share.

Because it is difficult to quantify the value of a solution, an integrated solution requires a commercial framework based on co-operation and trust. This allows the proposal team to develop a creative proposition and with the customer develop a common understanding of how value will be measured in terms of pricing and margins, the volume and mix of products and services, capital costs, and distribution of risks. The commercial framework defines the success criteria – usually based on service level agreements – and reward mechanisms.

In these initial stages the team put together to develop the proposal has to be multi-skilled and cross-functional with representation from commercial management, technical design, and project management. It may include members from the product and service units and any strategic partners. Rather than selling from a set menu, the team should have the authority to determine how to tailor product and service offerings to solve specific business problems for the customer. The main responsibility for the proposal team is to ensure that the value created by the solution in the integration and operational phases of the project meets the customer's expectations.

For existing customers who have become strategic partners an 'offer' is made rather than a bid. For potential customers, in a competitive tendering process the supplier will need to develop a value proposition as a bid. There is a distinction between a bid and an offer. Ultimately solutions providers want to develop long-term partnerships with customers which helps avoid the costly process of competitive bids. In either case, a contract has to be made prior to the start of an integrated solutions project.

follow a sequential path through the four levels of integrated solutions capability. There is much overlap and feedback across and between different levels.

The four levels consist of:

- initial front-end moves: either embedding the new integrated solutions activities within the traditional business or establishing a pilot organisation
- expanding the front-end customer-facing organisation
- building the back-end, solutions supporting organisations
- re-focusing the entire organisation – front and back – around customer-focused integrated solutions delivery

At each stage a deliberate strategic decision to climb to the next level of capability has to be taken. Each level requires an intensive process of learning and capability building (see table 2)

Table 2: Towards advanced Integrated Solutions provision: levels of capability

Level 1	Front-end moves: embed or pilot	To move into and learn about new integrated solutions markets	To capture learning from initial projects; assess the future market opportunities	To establish suppliers of products and services, via the creation of standalone service units; re-organising internal products units; entering into strategic partnerships	To focus the entire firm's activities on integrated solutions provision; overcome obstacles to change; divest non-core activities	Develop the capability of the front, back and strategic centres of the organisation	Learning
Level 2	Grow the front end	To capture learning from initial projects; assess the future market opportunities	To establish suppliers of products and services, via the creation of standalone service units; re-organising internal products units; entering into strategic partnerships	To focus the entire firm's activities on integrated solutions provision; overcome obstacles to change; divest non-core activities	To capture learning from initial projects; assess the future market opportunities	Develop the capability of the front, back and strategic centres of the organisation	Capability
Level 3	Build the back end	To capture learning from initial projects; assess the future market opportunities	To establish suppliers of products and services, via the creation of standalone service units; re-organising internal products units; entering into strategic partnerships	To focus the entire firm's activities on integrated solutions provision; overcome obstacles to change; divest non-core activities	To capture learning from initial projects; assess the future market opportunities	Develop the capability of the front, back and strategic centres of the organisation	Strategic decisions
Level 4	Re-focus the firm	To capture learning from initial projects; assess the future market opportunities	To establish suppliers of products and services, via the creation of standalone service units; re-organising internal products units; entering into strategic partnerships	To focus the entire firm's activities on integrated solutions provision; overcome obstacles to change; divest non-core activities	To capture learning from initial projects; assess the future market opportunities	Develop the capability of the front, back and strategic centres of the organisation	Learning

Level 1 Front-end moves: embed or pilot

The first moves into integrated solutions usually involve market-led initiatives which address a specific customer's needs. It is often the customer who initiates the request for such projects via the existing sales organisation. At this point the firm faces a strategic choice between embedding the new project within the existing business organisation or setting up a separate pilot sales and delivery entity to create the integrated solution. Thales, for example

If firms reach level 4 this means demand for integrated solutions has grown to the extent that it warrants re-focusing the entire organisation around the provision of integrated solutions. The senior managers have to take the strategic decision to channel the resources and capabilities of the firm to the customer through a single point of contact – the customer facing unit. They have to re-organise product and service capability into back-end organisations and re-align the role of the corporate centre. These changes are required to create an organisation capable of delivery repeatable solutions profitably. It involves balancing the dynamics of customisation and standardisation and ensuring strong feedback loops and learning. This learning is needed at all levels in the organisation. Personnel will need to be moved around the organisation to help develop a consistent approach to solutions delivery. The customer facing units will need to feedback knowledge and information from the customers to the back end product and service organisations to ensure on-going development of new generations of integrated solutions – involving major new technology, product generations and service development (front-back learning). The back-end organisations are responsible for turning a novel customised solution emanating from the CFU into a standardised future offering but at the same time CFU personnel need to learn how to leverage the resources and capabilities of the back-end product and service organisations to pursue new opportunities with their customers (back-front learning). These

Level 4: Re-focus the firm

Firms that experience a significant increase in demand for integrated solutions have to develop solutions-ready products and services. It is too expensive to create completely unique solutions for each customer. If solutions providers are to make a profitable business they need to be able to gain economies of repetition (Davies and Brady, 2000). This means back-end product and service organisations have to create standardised product platforms and simplified service portfolios. The product organisations focus on developing modular-based components that are easy to configure and integrate into a system. The service organisations focus on developing a consistent services portfolio to support front-end sales and delivery processes. The front-end organisations can then pick and choose between them depending on the customer's requirements and make any necessary minor changes to tailor them for specific customers. Customisation is achieved by re-configuring, re-combining and re-using off-the-shelf products and services.

Level 3: Build the back end

If the demand for integrated solutions projects increases, then the front end sales and delivery of their activities. This process means firms need to capture and transfer learning from the initial projects to subsequent ones. Business processes and procedures may need to be re-organised and new functions created to accommodate the modified bid and project activities that integrated solutions projects require. This can be facilitated by members of the original projects being assigned to work on subsequent projects to ensure a consistent approach to bid and project management. Knowledge and experience can be 'codified' in the form of guides or learning tools to help in the setting up and execution of subsequent integrated solutions projects.

Level 2: Grow the front end

retained its original product-based structure, preferring to overlay its flight simulation training services and solutions (developed for military customers) on top of its product portfolio. Similarly, Cable and Wireless met the growing demand for global outsourcing solutions within its existing sales organisation.

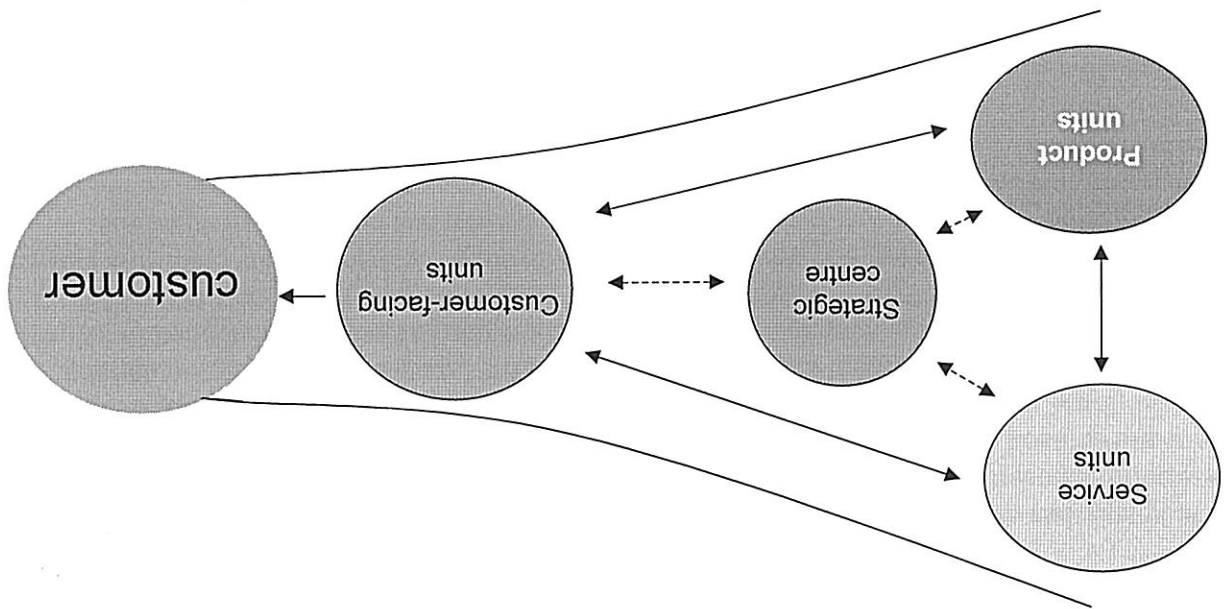
Back-end organisations are responsible for the development of solutions-ready products and services that can be leveraged and integrated by the front-end CFUs. The product organisations supply the tangible, physical components- technologies, hardware, software and products – of integrated solutions. The service organisations are responsible for developing a portfolio of service offerings usually composed of one or more of the following:

- develop an integrated solution to a particular customer's needs
- to integrate the various product and service components of a solution
- take profit-and-loss responsibility
- act as the channel to market for products and services developed internally or sourced from external suppliers.

The CFUs are organised on a project or programme basis to meet a variety of different market situations. They may need to accommodate customers in a specific industry segment; customers within an entire industry; a single customer; or even a customer's need for a single project.

The front end customer-facing units role is to:

Figure 2: An organisational model for an integrated solutions business



This fourth level is not necessarily characterised by organisational stability. There are serious tensions between the front-end customer facing parts of the business and the back-end product and service organisations. Firms often continue to experiment with different internal organisational structures and external partnerships before achieving an effective structure for the repeatable delivery of integrated solutions. Figure 2 shows the essential characteristics of a customer-focused organisation that is able to leverage the range of capabilities required.

learning processes imply more than just exchanging information about a specific product, service or customer need. Ideally, front-back learning becomes a continuous process of capability building for the whole organisation.

Our research has shown that the shift towards integrated solutions has major implications for firms as they attempt to move from product or service centric business strategies to customer-focused one. Firms making the transition to becoming integrated solutions providers find they need to transform almost every aspect of the way they do business – from their business strategies and positions in the value stream, to their capabilities, organisational structures, cultures and mindsets. They have to have to grapple with the question of whether they should preserve or forsake their traditional strengths and capabilities during this transition to an advanced integrated solutions provider. Our case study research has revealed that there is no definitive business model but that success depends on the ability to be entrepreneurial, experimental and open-minded. To make this transition firms have to be able to learn,

This profoundly alters the way a business handles its customer relationships and defines its value adding activities. Integrated solutions transform the customer relationship. Suppliers no longer respond passively to specifications set by their customers or assume that customer needs are set in stone. The emphasis is on a long-term relationship built on trust. Rather than worrying about information leaking out to their competitors or being used against them in future negotiations, the partners share information in a more open, consultative, and informal way and at multiple levels in each organisation. This new relationship is often formalised through the creation of strategic partnerships. The two organisations engage in a close dialogue to develop conceptual solutions to a problem before the customer has even thought about its products and service requirements. Responsibility for the success of the solution is shared; providers and customers work jointly to plan, implement the solution and monitor its ongoing performance.

This paper has examined a new approach to creating value from implementation projects in the complex capital goods sector. Morris and Hough (1987) make the point that complex projects demand an exceptional level of management, and that the application of conventional systems developed for ordinary projects have been found to be inappropriate for complex projects. Traditional project management is the process of planning, organizing, directing and controlling company resources for a short term objective established to achieve specific goals (Ayas, 1996). In contrast integrated solutions delivery projects extend the timescale of the project beyond the handover stage through the whole life cycle of the system being offered. Instead of just handing over once the system has been implemented the integrated solutions provider is responsible for aspects of operations previously carried out by the customer.

Conclusions

The strategic centre has a crucial role in shifting the organisation towards integrated solutions delivery. It has to: provide the overall strategic direction for the solutions business; assess the risks of entering into the new area of activity; execute the strategy and overcome hurdles to corporate-wide organisational change; offer central functions such as common account planning and performance management for different parts of the business; and to orchestrate the linkages between the firm's internal and external suppliers of product and service components.

systems integration, operational services, financing, and business consulting. Based on standardised processes, tools, pricing and guarantees for service reliability, the portfolio is continually revised to improve the processes of selling and delivering solutions.

change and renew their structures continually while at the same time delivering the solutions their customers demand.

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