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THE MANAGEMENT OF SUBCONTRACTED NETWORKS AS AN ALTERNATIVE TO INTERNALISATION: THE SHIFT FROM THE STANDARDISED TO THE SPECIALISED IN FROZEN AND CHILLED FOODS

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Abstract

This paper is to highlight the management of subcontracted networks as an alternative to internalisation. The contrasting examples of the frozen food sector and the chilled ready meals sector are employed to examine the different economic relationships. The paper draws upon transaction costs economics, interdisciplinary literature from organisation studies, network theory, and sociology to contextualise the functioning of network relationships.

The paper examines the shift in the role of the firm from producer, to the firm as co-ordinator of information flows. In contrast to the vertically integrated frozen food sector, the chilled food industry manifests plural organisational forms, with close-knit trust based inter-organisational networks and arms-length subcontracting.

I. Introduction

This paper analyses why networking arrangements have proved an intrinsic part of the organisation of the chilled foods sector in the UK. It contrasts these arrangements with the vertically integrated structures that pervaded the frozen foods sector in its initial growth and development, led by the manufacturers in the food industry. The chilled foods sector has been developed to a large extent by retailers, the large supermarkets, in conjunction with technologically sophisticated distribution groups and manufacturers. The arrangements between these retailers, manufacturers and distributors have evolved due to technological advances and specialisation in ways that, from the perspective of the economics of networks, transactions costs and organisational boundaries, are illustrative of the growing complexity of network forms of organisation underpinned by information technology in the late 1990s.

Comparing the chilled ready-meals sector and the frozen processed foods sector in their innovative periods allows us to explore how the problems of uncertainty, asset specificity and the development of technologies presented by the product were overcome by different forms of economic organisation. Both sectors had complex problems involving the development of technologies for storage, hygiene, transport, and (in their times) retail.

The paper starts with a discussion of the reasons why networks emerge, in the context of the transactions cost distinction between markets and hierarchies or vertical integration. We then uses this framework to examine why vertically integrated structures of production, distribution and to some extent retailing evolved in the frozen foods sector. The final section of the paper goes on to examine why vertical integration was inappropriate, in the context of these problems, for the development of the chilled foods sector and looks in more detail at the nature of the networking arrangements that have evolved, in particular between the retailers and distribution companies, and how this form of network organisation differs from the literature. It examines the balance of power within the relationship between retailer and distribution company and the tensions that arise out of the issues related to transactions costs between these two tiers in the production process. It looks at why networking solutions persist despite some of the forces that would tend to resolve these issues via vertical integration. In looking at relationships in parts of the food processing industry here, we are interested in the reasons or causes of their networks as well as the mechanisms and forms that they take as alternatives to internalisation. This paper identifies a novel form of economic organisation which we term the network of subcontracted co-ordination.

II. Methodology

Three principal methodologies were employed in the development of this paper. The first method consisted of a literature search centring on transaction costs economics, networks theories, and the theory of the firm, in order to ground the empirical investigation of the organisation of the chilled food industry. More specific literature searches were undertaken for the information on the frozen and chilled food industries, including relevant trade journals, trade association literature, marketing, and business papers.

The second methodology was semi-structured interviews with representatives from retail and logistics organisations in the chilled ready-meals sector. The aim of these interviews was to understand the organisation of the chilled ready-meal industry, and the nature of economic linkages within the sector.

The third methodology employed is the diagrammatic representation of the organisation if the chilled ready-meals sector following the conventions devised by principally by Mark Casson (of which more will be said in literature review). Modelling organisational forms in this manner disentangles different forms of economic linkages and co-ordination mechanisms, allowing a subtle understanding of the relationships involved. The resulting map of the economic linkages in the sector were used to analyse the mechanisms co-ordinating the chilled ready-meals sector, and two of these diagrams (because of space constraints) have been included in the paper.

Literature

There are two strands of theory about networks in the transactions costs literature: one looks at them as a hybrid between a market solution and vertical integration (Williamson, 1975; 1995) and the other stresses their own particular characteristics and properties distinct from either the market or integrated organisation (Powell, 1990).

The Williamson tradition, stemming from Coase (1937), focuses on the reasons for market failure arising from three conditions in particular: asset specificity, uncertainty and frequency of transactions, which make arm's length market transacting costly and may be sufficiently difficult to prevent the transaction occurring altogether. The traditional alternative to this put forward by Coase is the existence of firms or vertical integration instead of market transacting. More recently it has been recognised that networks of interdependent firms also provides an alternative solution to market failure. Networking relationships may be said to include long term relations between independent partners, co-operative arrangements (Richardson, 1972), relational contracting (Macneil, 1978; Goldberg, 1980), joint ventures (Mariti and Smiley, 1983), quasifirms (Eccles, 1981), global coalitions (Porter and Fuller, 1986) and dynamic networks (Miles and Snow, 1986; Dicken, 1998).

Other factors which are considered relevant to the formation of networks include: the intensity of interdependence between firms, the number of firms or units to be considered, the complexity of the interdependent activities, and the flexibility required in the activities (Grandori and Soda, 1995). Williamson (1970) argues that increasing numbers puts limits on the size of the hierarchy with networks enabling firms to expand activities beyond the scope of the hierarchy. The complexity of the interdependence related to whether resources, information or know-how are controlled symmetrically between firms or parties or are asymmetrically distributed will exercise some influence on the shape and centralisation of the network (Mariotti, 1984). In addition, breadth of interdependence is relevant: how many activities are interdependent and how important are these activities to each firm (Alter and Hage, 1993). Flexibility as a property of networks, with the capacity to adjust outputs and arrangements has been seen as another strength of networks as an alternative to both integrated and market forms of organisation (Pfeffer and Salancik, 1978). The business strategy and management literature stresses the specificity or lack of substitutability of a firm's distinctive competencies as a key element in the firm negotiating its position within a network of strategic alliances (Porter and Fuller, 1986; Ohmae, 1990; Contractor and Lorange, 1988).

Network arrangements have also been looked at in the context of game theory, with the idea that if the game between firms is totally co-operative, even high specificity of resources should not lead to opportunism. Transaction costs may minimised by the development of trust, has been identified as the most efficient and reliable form of exchange (Arrow, 1973; Smith Ring, 1997). This raises the whole issue of trust in its different forms (as overviewed by Bradach and Eccles, 1989) as an influence on these non arm's length relationships. Trust can be generated as a commodity by the close interaction of individuals within an institutional framework (Zucker, 1986; Lane and Bachmann, 1996), or via social relationships (Fukuyama, 1995; Casson and Cox, 1997; Zucker, 1986).

The mechanisms used within networks have been looked at more within the organisation studies literature. As summarised by Grandori and Soda (1995) these include achieving co-ordination of the network through certain linch-pin roles, using common staff, hierarchical supervision, formal planning, using information and training and accounting systems, creating authority relations within a consortia, using incentives schemes and proprietary commitments to solve appropriability problems, and using tougher selection criteria to join the network the more important the network is in all the firms' activities.

In terms of the forms that networks may take, there exists a spectrum from formal bureaucratic networks with explicit contractual agreements between the parties to informal, personal or social networks such as those that characterise industrial districts (Saxenian, 1990). They can also be classified along the spectrum of how symmetrical they are with all parties contributing and receiving equivalent benefits, such as trade associations, cartels or consortia, or how asymmetrical they are such as licensing, franchising or agency networks where parties to the network occupy different positions within it. There are also proprietary networks involving crossholdings of equities such as joint ventures, with hostages exchanged to counteract problems of appropriability of rewards.

In order construct an empirically derived model of these linkages, we have adopted the diagrammatic conventions developed by Mark Casson, which have been widely used in studies of organisations (Casson, 1997), trust and business networks (Casson, 1997; 1998; Casson and Cox, 1997), and organisations and information strategies (Casson and Wadeson, 1996).

III. Introduction to Diagrams

This paper attempts to depict and analyse the economic linkages in the development of the frozen processed foods and chilled ready-meal sectors. In order construct an empirically derived model of these linkages, we have adopted the diagrammatic conventions developed by Mark Casson (1997; 1998). By depicting the value chains of these sectors diagrammatically, we hope to show clearly the contrasting relationships between the various components of the value chain. In this way, the differences between integration and disintegration, networks and externalisation are made more explicit. The following table explains the diagrammatic conventions used in the paper:

Physical consumer/decision maker	⬭
Unit generating or transforming materials	▭
Individual mind	⬭
R&D centre, expert centre	△
Ownership boundaries	⬚
Information flow	→
Trusted information flow	$\underline{\rightarrow}$
Physical Resource flow	⇨
Equity finance	–

Table 1 Diagrammatic Conventions

IV. The Frozen Processed Foods Sector

This paper examines the frozen processed food industry and the chilled ready meal industry during their innovative early stages to contrast differing organisational solutions to the problems of new product development and the management of the supply chain. The development of the frozen prepared foods industry in the United Kingdom is a story of vertical integration. The questions of asset specificity, especially in relation to the development of new technology, were solved through internalisation. The advantages of economies of scope allowed vertically integrated companies, of which we take Unilever as a representative example, to drive the development of the sector by developing new markets. The next section describes this development and offers a simple model of the organisational form of the sector.

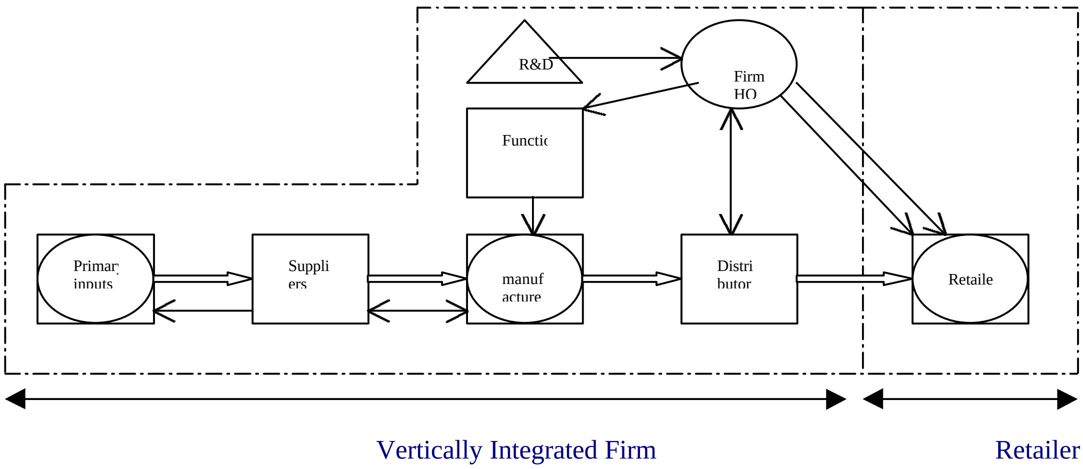

Figure 1 Organisation of a vertically integrated frozen food company

Vertical Integration and the Development of the Frozen Foods Industry

In the innovative period in the UK (the 1950s), the frozen food sector was organised as vertically integrated hierarchies, in conformation with transaction costs economic theory, as defined by Coase (1937) and Williamson (1975; 1985). Figure 1 shows this relationship. The company integrated backwards to suppliers and forwards into retail leasing. Birds Eye (part of the Unilever group in this period), for example, owned fishing fleets and exclusive supply contracts with farm producers (backwards quasi-integration), processed the product internally, owned and managed the distribution chain even to the point of owning the freezer cabinets leased to retailers. From primary supply to the point of sale the companies followed the logic of “vertical development” (Wilson, 1968), integrating all businesses and processes, including packaging, R&D, and marketing.

In addition to the transaction costs imperatives suggested by Williamson (1975; 1985), Cantwell (1995) and others (Jones, 1997) have suggested that the integrated firm allows the development of tacit competencies, such as the functional and management specialisms. The exploitation of these tacit advantages and economies of scope were important in the development of the frozen processed foods market, especially in relation to specific assets. This exploitation is enabled by intra-firm communication, and Casson and Wadeson (1996; 1998) have suggested that the ability (or inability) to economise on communication costs is a factor contributing to vertical integration.

Internalisation suited the development of the frozen food industry. The product was standardised necessitated frequent transactions of the same nature. By internalising these transactions did not need to be renegotiated, and because of the standardised nature of the products once suitable technologies were in place to produce, market and retail the product sunk costs became strategic assets. An example of this in the early stages of packaging development for the frozen food industry can be shown in the development of the packing technology. One of Birds Eye's many contributions to the technology of mass market frozen foodstuffs was individual packaging. The packaging companies - from input to graphic design - were integrated into the parent organisation. Again this internalisation was thought to bring costs down through economies of scope, and conforms to economic theory stressing internalisation of frequent business where power asymmetry occurs. Unilever's proven marketing ability was an organisational asset that was utilised by Birds Eye and other Unilever divisions. This marketing power was vital to Birds Eye in educating a potential market initially unfamiliar with frozen and processed foods.

The ability to use the competencies of the parent group was also important in setting up distribution networks. Unilever's wholly owned distribution company, SPD (Speedy, Prompt Delivery), became important in commercialising frozen foods, developing the infrastructure and transport technology to handle frozen goods. The development of bespoke technology for frozen food (such as freezer compartments for road haulage) is an example of a vertically integrated company using its size to develop common assets with high sunk costs through the cross-group subsidisation. Internalisation allowed Birds Eye to keep the technology involved proprietary and minimised the risk of opportunism from rivals appropriating the technology without incurring high sunk costs of their own. This also reflects economising on informational costs for complex transactions and these high uncertainty projects (such as research and development) by internalising the actors involved and minimising the threat of opportunism. The development of SPD is important to the development not only of the frozen foods business in the UK but also in the development of organisational forms. Without developing the distribution, the potential of the frozen foods market was severely limited. By utilising the economy of scope afforded by the integrated parent company Birds Eye was able to pioneer the frozen food sector. To develop the domestic UK market Unilever and Birds Eye had developed a concerted large-scale advertising campaign concentrating on three major phases focussed on developing a large undifferentiated market:

1) To encourage consumers to buy refrigerators and freezers.
2) To educate consumers as to the possibilities and qualities of frozen foods
3) To promote the Birds Eye brand

V. The Chilled Ready-Meals Sector

The chilled ready-meals sector is of interest to economics and business studies because it is a rapidly growing sector with novel and plural organisational forms. The economic organisational of the chilled ready-meals sector and the frozen processed food sectors in their innovative periods have been markedly different. The latter was essentially a story of vertical integration and standardisation, whilst the organisation of the chilled ready meals industry is a complex story of dissagregation and specialisation, and has plural organisational solutions within the sector.

The chilled ready-meals sector is an emergent market and is primarily British in origin. Within the UK, ready meals dominate the overall chilled foods market (including yoghurts, for example), accounting for 30 per cent of the sector in 1991. The chilled ready meals sector was developed principally by the retailer Marks & Spencer's as part of its differentiation strategy of providing innovative high quality convenience foods. Chilled ready meals are microwavable pre-prepared premium priced foods, intended to compete with the restaurant sector. Whereas frozen foods were manufacturer led with heavily supported brands, the chilled ready-meals sector is retailer driven, 95% of the industry is own label brands and retailers have contracted independent food manufacturers to supply own label ready meals. The manufacturers are not involved in the marketing of their products, which is done solely by the retailers as part of their generic own-brand promotion strategy.

The development of the chilled ready meals sector has resulted in organisational forms very different from the vertically integrated structure of the early frozen processed foods industry. As we have noted, the underlying imperative of minimising transactions and information costs drove internalisation in the frozen foods sector. In the chilled foods sector different organisational solutions are used to reduce transactions costs. We identified two forms of network organisation in the chilled food sector. First, the product innovation network that drives the dynamics of the sector requires a trust based network. Second, the distribution and logistics of the sector are driven by a more arms length network of the co-ordination of subcontracted activity. We shall examine these two forms of network sequentially, starting with an examination of the new product development network.

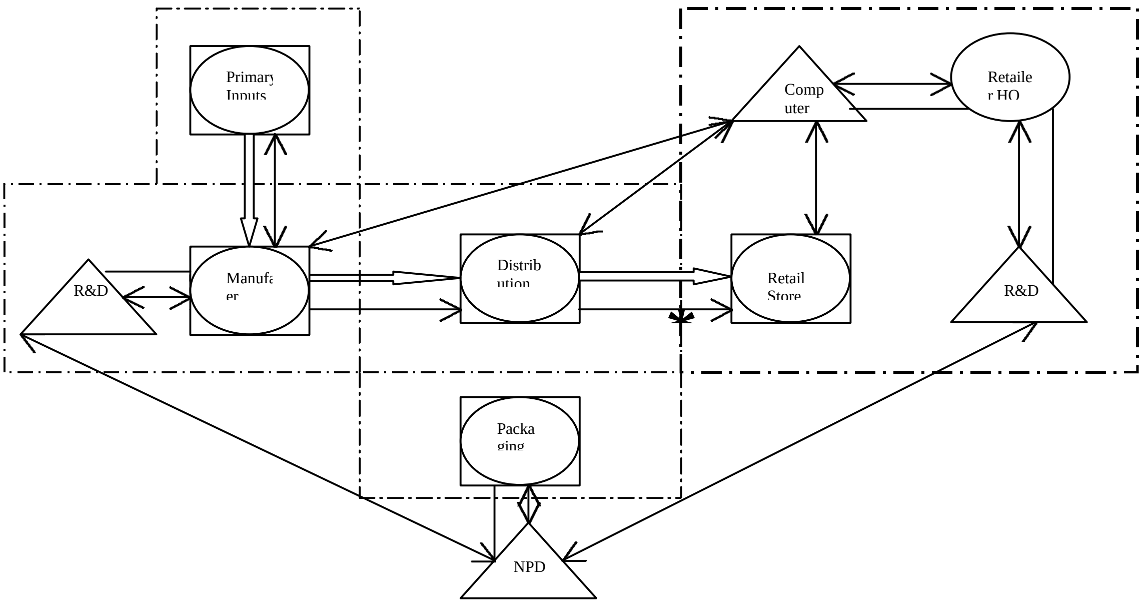

Figure 2: The chilled food value chain

Networks, trust and innovation

The rapid growth of the chilled food sector is driven by new product development[1] (NPD). The large retailers are in a position to gain marketing information directly from their intimate relationship with the customer through POS (point of sale) monitoring, customer loyalty schemes and their own market research. The aim is to identify new market niches, and fill them with new differentiated products as quickly as possible, and react quickly to eating trends. Product innovation is the key to driving growth in the sector, and firms must find organisational solutions to facilitate NPD.

The frozen food sector internalised NPD. However, the main dynamic driving the expansion of the frozen food sector was standardisation, whilst the for chilled ready-meals it is differentiation. The chilled ready-meal NPD therefore needs to be rapid and responsive to changing customer tastes. The organisational solution to this problem in the sector is an inter-organisational trust based network rather than internalisation. The centre of this network is the NPD team, which is placed outside of ownership boundaries in Figure 2, and does not have a physical location in the sense that it is wholly located in a single building, or wholly owned by any one party. NPD is likewise not a joint venture because it is not an independent firm. Rather, NPD is an inter-organisational working group comprised of personnel from the retailer, packaging companies, and the manufacturer. The key member of the working group travel between the research centres located at the organisations. The movement of staff between these centres is “fluid and dynamic”. The boundaries of a firm can be blurred by co-operative agreements (Sachwald, 1998), and by the flow of tacit information between firms (Casson and Wadeson, 1998). It is useful to compare how the firms boundaries in the NPD network, where they become unclear and dynamic, differ from those of the logistics network which is analysed in the next section.

The cost of gathering information for developing new products is high. In the chilled food sector, the benefits of internalisation (lowering information costs and the threat of opportunism) to the retailer would be outweighed by diseconomies of scale. The movement of staff therefore fulfils an economic function. Transaction costs are minimised in the search for information by the development of trust, which Arrow (1974), Granovetter (1973), and others have noted is the most efficient and reliable form of exchange as opportunism is reduced.

In relation to uncertainty, developing new products highly risky, especially when it requires asset specific investment that may result in unrecoverable sunk costs. Some mechanism needs to ensure that transactions can proceed in situations of high uncertainty. Retailers do not consider that internalisation is viable. In the NPD network the risks of uncertainty and opportunism are borne principally by the manufacturers and packaging companies. They may invest in additional capacity to manufacturer a new product, as well as invest time and money in developing the product. The packager, for example, may invest in developing the proprietary technology necessary for the packaging of chilled ready meals. The level of technology required for the packaging is very high as the products must be kept chilled, be microwavable and comprise foodstuffs with differing heating characteristics. The packaging of own brand label goods is also a central part of the retailers marketing strategy for the brand, and its central form of advertising. To ensure that the packaging is suitable for the product there must be close work between all the parties involved in the

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[1] *International Journal of Retail & Distribution Management*, Sept-Oct 1992 v20 n5 p. 2

development of new products. The question of risk is especially pronounced for the packager and manufacturer, because of potential power asymmetry in its relationship with the retailer. Only the largest retailers have the sales volume to sell chilled ready meals (because of the short shelf life), and not all large retailers attempt to sell high-value added products such as ready meals. A few large companies dominate the chilled ready-meal manufacturers, although the majority are small independent manufacturers. The small manufacturers have the most unequal relationship with the retailers, but are vital to the retailers as they offer the flexibility to develop new products quickly.

The contract between the supplier, packager, and retailer is trust-based. The relationship could be termed ‘obligational relational contracting’ (Buckley and Chapman, 1998), as instead of classical contracts there is a “gentleman’s agreement” whereby the parties will honour an arrangement, despite the power asymmetries. The basis of this trust may be reinforced by the individual agents negotiating, but ultimately derives from the institutions involved. The reputation of the institutions involved becomes the guarantee that the agreement will be honoured as parties who break trust based relationships will find it difficult to enter into relationships with other parties in the future. Trust is especially important when a supplier may be developing propriety products / technologies for several retailers at once. In this instance the implicit moral censure of the “gentleman’s agreement” takes precedence over more costly legal enforcement.

In summation, the new product development network is a co-operative relational arrangement designed to facilitate the rapid exchange of tacit skills and knowledge between independent firms. In practice this results in a trust based network where the organisational boundaries are blurred by the passage of tacit information and competencies.

The Logistics and Distribution Network

The organisation of the logistics and distribution network in the chilled ready-meal sector is very different from that of the frozen food sector, and from the organisation of the chilled ready-meal NPD network examined in the previous section. The questions of asset specificity, uncertainty and information have been resolved in different ways, and the nature of relationships between the firms in the value chain are qualitatively different. In contrast to the internalisation of the frozen food sector, retailers and manufacturers employ a range of strategies to manage the chilled ready-meal supply chain. Bourlakis (1998) constructed a transactions cost framework to determine whether retailers would internalise or externalise their logistics operations, or a combination of both. Although this suggests the classic internalise/externalise decision, the organisation of externalised (contracted out) services as networks of subcontracted co-ordination have many features which resemble internalisation. The existing literature examines the internalise/externalise dilemma without exploring the changing nature of economic relationships in external contracting. In the late 1980s, many UK retailers began centralising their logistics and distribution operations to use “logistical competency to gain competitive advantage” (Bowersox, 1998), particularly the major food retailers (Quarmby, 1988) in the chilled ready-meals industry. The identification that competitive advantage may be derived from the organisation of the logistics network has resulted in complex organisational forms qualitatively different from contracting relationships mentioned in theory of the firm and transaction cost literature.

During the undertaking of this study we identified a form of organisation which we call a *network of subcontracted co-ordination*. In many respects this form of organisation resembles a subcontracted network, but a closer study of the economic linkages reveal novel solutions to organisation problems. In a traditional subcontracting network, the retailer devolves process and operation to a logistics subcontractor. Costs and risk are obscured by high information costs and asset specificity, the contractor buying or building bespoke depots for example. In the network of subcontracted co-ordination model, the retailer removes problems associated with risk and asset specify by owning the key assets and the computer system controlling process and co-ordination throughout the network. This can is depicted in the top of Figure 2 where the computer network is the direct link between the retailer and other network constituents. This is in contrast to the NPD network (the bottom half of Figure 2), the co-ordinating mechanism is 'NPD', an inter-organisational working group where personal contacts are frequent. Because uncertainty and risk are removed, this enables lower information costs allowing the retailer to unbundle services. In this model, the retailer has direct control of information and of processes.

Network of Subcontracted co-ordination

Companies may contract out distribution or logistics operations to third party contractors. The literature suggests that contracting out is an organisational solution to the co-ordination of the supply chain. However, the literature does not presently appear to have fully encompassed the changing relationships *within* subcontracting relationships, concentrating more upon the mix between internalisation and contracting out within an organisation.

In the network of subcontracted co-ordination, although the retailer may contract out the logistics chain (externalisation), the retailer directly maintains control of chain as though it was internalised. The retailer can co-ordinate the supply chain through the *direct* management of subcontracted relationships. The core relationship of the retailer managing a network in similar to the dynamic network proposed by Dicken (1998), who argues that the core actor in a network (in this case the retailer) co-ordinates and manages the supplier's processes. The retailer becomes the co-ordinator and controller of many interlinked activities, and retains control of the network through information flows through its computer network, established in its physical assets (such as warehouses and depots). The retailer is able to take direct control of the information system because it owns the most important assets. Some major food retailers, aided by easy credit conditions in the late 1990s (compared to the 1970s), can finance capital intensive projects, such as building a warehouse, internally. This removes the problem of asset specificity from negotiations with a subcontractor to manage the facility. The problem of the true value of services can also be resolved by the unbundling of services by arranging separate contracts for each specific service, rather than buying packaged services or negotiating with middlemen brokering services. The focus of the subcontracted network remains as the retailer head office, as opposed to contracting out where the centre of the relationship is the subcontractor. In this model Sainsbury's owns the assets and management operation systems, and contracts out only the operation of these facilities. Retailers contract a contractor to run the RDC. Retailers also contract other companies to provide support services for these facilities (such as technicians, cleaning services, and depot labour). The retailer therefore becomes the co-ordinator of many contractual relationships. In contrast to simple externalisation (which is outlined in the next section), the network core (the retailer) can be shown to manage the provision of expert and support services, buying into the economies of scale offered by specialist service providers. By negotiating each transaction within the value chain, the retailer can avoid paying for value added services. Taking this relationship further, more direct control can be exerted further down the supply chain to the manufacturers. Sainsbury's (a major retailer) pioneering development and control of the regional distribution centre (RDC) has allowed retailers to "take more control of the supply chain, provided that manufacturers are willing or can be persuaded to relinquish some of their responsibilities" (Cooper, Browne and Peters, 1994: 113), and this is because Sainsbury's can control the asset. Given the power asymmetries which we have noted previously, the large retailers are able exert their leverage in more direct control of the supply chain. In the chilled sector many of the small producers are also not in a position to either contract or internalise their own distribution. In addition to this, contracting out the operation of retailers' assets (such as actual vehicles) blurs the ownership boundaries further, suggesting features similar to internalisation despite the strictly monitored contractual boundaries between the actors involved. However, with sufficient economic leverage a retail company may be able to negotiate the transaction within these services at a lower price, keep control and function and process and simply contract out the operation of their system. Central to this system are the propriety computer networks belonging to the network core which allow the efficient transmission of information (trusted and low cost).

The nature of relationship that the retailer maintains with external contractors therefore changes significantly because of the clarification of the bargaining procedure. Simple externalisation subcontracting relationships are confused by the provision of value added services, asset specificity and the risk assumed by the contractor for the retailer. Bargaining is therefore undertaking within a framework of profit maximisation by both sides. Negotiation is simplified by the removal of these questions. Retailers and suppliers are sharing information on real incurred costs during negotiation in order to arrive at mutually acceptable costs and profits. Casson (1997:122) describes this process as a "communal network" that requires a high degree of trust (however, this is an effect of the removal of opportunistic threats and uncertainties caused by sunk costs). Casson contrasts this with traditional negotiation, explaining that:

> The alternative approach is to require both parties to divulge all the information on which their bids are based … If adopted, this approach radically changes the way that the market process works…If it can be properly enforced then this approach eliminates the strategic aspect of price formation altogether.

Co-operative price negotiation helps to form longer-term relationships than simple competitive tendering, as demonstrated by retailers adopting longer-term contracts. Trust is therefore facilitated by the more transparent organisation framework.

In contrast with the NPD network, organisational boundaries clearly delineated by contractual arrangements. This may not be immediately apparent because independent firms are operating assets owned by other firms. However, the legal boundaries and responsibilities are clear.

Externalisation

In contrast to the network of subcontracted co-ordination, this section outlines other forms of subcontracting alternatives to internalisation used by retailers. Retailers can use the market to externalise distribution and supply chain operations to third party service providers. Summarising the services offered by contracted distribution, Bourlakis (1998) describes how "These companies provide a range of services, including strategic planning, site acquisition, warehouse design, stock control management and systems development in addition to transport-related functions", and this is supported by the literature (Bourlakis, 1997; Buck, 1990; Cooper, Browne and Peters, 1994). The relationship between the key actors in an externalised logistics chain is highly contractual and formalised. The contractor provides the capital for the assets (such as warehouses) specific to the relationship, in return for a contract guaranteeing a minimum term with the retailer. The contract includes expensive indemnities to ensure that the retailer honours the minimum term. In this relationship, the third party contractor, assumes the risk of developing bespoke assets and committing itself to a contract and the cost structure reflects this risk. The functions offered by the contractor also represent value-added services to their clients, making the price of the services offered difficult to determine for the retailer. Without running a benchmark service of its own, the retailer does not directly posses the knowledge to determine the true costs of the services provided. The retailer must agree costs up-front with the service provider and then try to renegotiate costs when the contract is renegotiated for renewal. In exchange for the subcontracting the supply chain to the contractor the retailer minimises on transactions, and utilises the economies of scale and specialist competencies of the contractor. In interview, retailers suggest that without running a large scale distribution / logistics service of their own, they would not be able to amass the technical expertise or attract the top professionals to their service. In the late 1970s many retailers contracted out their entire supply chain to third party contractors primarily to exploit the economies of scale available to the contractors.

V. Conclusion and directions for research

The exploration of the differences between the frozen processed food and chilled ready-meal sectors during their innovative periods highlights the alternatives to internalisation. Although this short paper cannot attempt to offer a complete analysis of these issues, it suggests that firms are increasingly able to use information technology to unbundle the relationships which they manage, and manage different relationships with specific organisational forms. This paper presents a network model of subcontracted co-ordination as a sophisticated response to the problems of asset specificity, uncertainty, and information costs approximating many of the benefits of internalisation. The model is significantly different to existing models of externalisation. The network is co-ordinated by the core actor, the retailer, by information systems that significantly reduce information costs despite managing more transactions. This enables the retailer to unbundle services. The reduction in the scope for opportunism may enable more trust-based relationships despite the existing of a contractual framework to the relationships.

The network of subcontracted co-ordination is contrasted with the product innovation network. The differences between the two networks highlight the alternatives to internalisation to overcome problems of uncertainty. The plurality of organisational forms within an organisation is highlighted by the contrasts within the chilled ready meals industry. Differing economic solutions can co-exist within a firm when the firm is willing to act as the co-ordinator of these relationships. The firm becomes the co-ordinator of information flows and orchestrator of relationships.

The authors hope that further research may explore the organisational forms discussed in this paper. The findings of this paper support the literature that suggests plural organisational forms may co-exist in a single organisation. More research on the economic and strategic decisions which determine the compositions of plural organisations would benefit from more empirical study.

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