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**Enablers and inhibitors to horizontal
collaboration between competitors: an
investigation in UK retail supply chains**

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Abstract

Over the last half-century, the development of physical distribution management has led to the establishment of logistics, which itself has developed into one of the key components of supply chain management. As different models of competition have developed in parallel, so the concept of competition between supply chains, as opposed to between firms, has been described. These two trends are striking in the context of UK grocery retailing. This market sector is described as at the leading edge of innovation and is arguably among the most efficient in the one world. The speed and efficiency of these retail supply chains has underpinned customer offerings of range and freshness and has contributed to the growth of supermarket chains and thus the concentration of retail power in the UK grocery market.

These trends then raise two issues. Innovation in logistics and distribution management appears to be easy to copy and thus goods ideas tend to be adopted by competitors and best practise is quickly and uniformly applied. Competitive advantage is, therefore, short term only. Secondly, new organisational paradigms, such as the extended or virtual enterprise, support the concept of competition between vertically integrated supply chains. However, it is not necessarily the case that all elements of the supply chain must be in competition. Whilst range, branding and procurement policies may continue to offer competitive advantage over time, the logistics elements of the supply chain might afford an opportunity for collaboration between competing supply chains, as these elements contribute no long term advantage to individual firms.

New models for corporate strategy argue that collaboration between competitors is not only possible but desirable in certain areas of operations and under certain circumstances. Efficient Consumer Response (ECR) offers a set of tools for exploring potential areas of collaboration in the retail and grocery markets. However, in spite of collaboration in other areas and

predictions by authors of collaboration in logistics operations, there is little evidence of applications in practise. This research set out to explore why this might be so. Research in the UK grocery market led to the proposition of a series of enablers and inhibitors for horizontal logistics collaborations, which were then tested in two other UK retail contexts.

1 Collaboration in logistics

1.1 Introduction

In separate recent statements, senior managers from two major UK food retailers offered different perspectives on the competitive nature of physical distribution. Whilst accepting that, in the short term at least, developments in distribution would provide “real competitive edge”, Paul Mason of Asda (Logistics and Transport Focus, July / August 2000) went on to speculate that “supply-chains will be pretty equal and then you are into the real value for the customer which is store service and price”. He noted that, through collaboration with competitors, “there is an awful lot we can do collectively as an industry”. This view accorded with that of Garth Thorne of Marks & Spencer (Motor Transport, 4.3.99), who said “Why shouldn’t the big retailers work together to pool their resources? The competitive edge is on the sales floor, not in the truck. “Clearly, although they are both engaged in food retailing, Asda and M &S are very different businesses. Yet, at the highest level, there seems to be an almost surprising level of convergence on the opportunities which might be unlocked through collaboration between competing retailers. However, in spite of this convergence and the apparent good sense implicit in co-operating to reduce costs and increase efficiency in areas of shared opportunity, there was very little evidence of such collaborations at the time and, indeed, there has been little since. Other writers (Fernie, 1998; Whiteoak, 1999) have noted specific opportunities available in the field of physical distribution, particularly transport, but examples of actual application are thin on the ground. This indicates that the advantages alluded to by Paul Mason of Asda have yet to materialise and that there are inhibitors and / or the absence of enablers which would explain the lack of collaboration or which, at some point, might facilitate it.

The contribution of distribution to competitiveness appears to be at odds with current thinking about the contribution of supply chain management, in that it

is not companies which compete, but supply chains (Christopher, 1996). However, this is because supply chains by their very nature tend to be thought of vertically, or end-to-end. As such, distribution is just one element of a package which competes. However, this is not to say that every single element of each supply chain has to compete with every element of every other supply chain: distribution can form a vital link in one competitive chain whilst collaborating with the distribution element of another chain.

Secondly, conventional wisdom (in some quarters) also tends to view the terms “distribution”, “logistics” and “supply chain management” as interchangeable and almost synonymous. From this perspective, if supply chains compete then distribution systems must, de facto, compete as well. The three terms are, of course, neither synonymous nor interchangeable. A review of the literature spanning more than four decades reveals an evolutionary process in which the bounds of the discipline have expanded as the nomenclature has developed.

As this evolutionary process of the expansion of the bounds of influence has progressed, so too has there been constant innovation within each of the component parts. Thus physical distribution has become a sub-set of logistics, which is, in turn, a sub-set of supply chain management. At the same time, physical distribution has itself evolved through innovations such as centralisation of stocks leading to reduction and even removal of inventory, continuous replenishment and so on. The enabling technologies (vehicle design, warehouse design, communications and information technologies) have also evolved and developed over the same period. The two parallel evolutions can be represented visually, as in figure one below.

History also shows us, however, that innovations in distribution, once they have been seen to work and to offer competitive advantage, are readily copied, thus removing the advantage. Each of the waves of innovation that has been occurred over the last four decades has thus been almost universally adopted as best practice within a few years of its introduction. This can be seen in the rapid adoption of inventory centralisation, reduction and

elimination, temperature consolidation and transport integration. Thus, within the physical distribution component, competitive advantage is, at best, temporary and transient. Proponents of supply chain thinking would suggest that the real competitive gains are to be made at the leading edge of the expansion of the overall discipline, as shown in figure two.

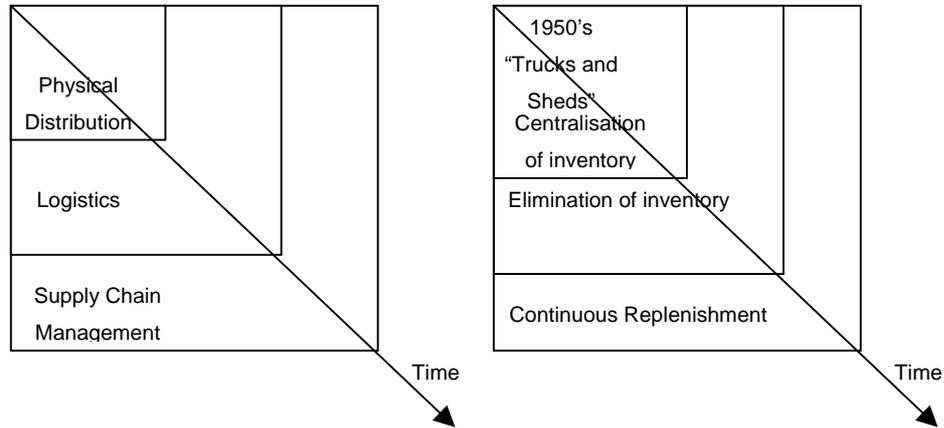
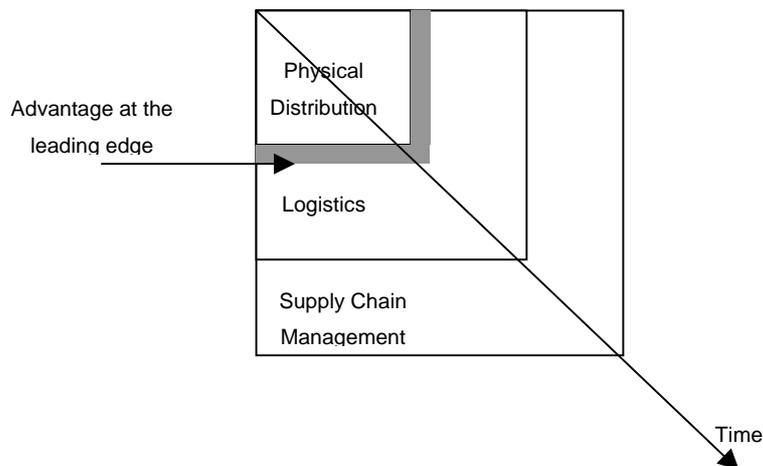


Figure 1: The expanding boundaries of supply chain management and parallel innovations in physical distribution.

Figure 2: Competition advantage at the Leading Edge

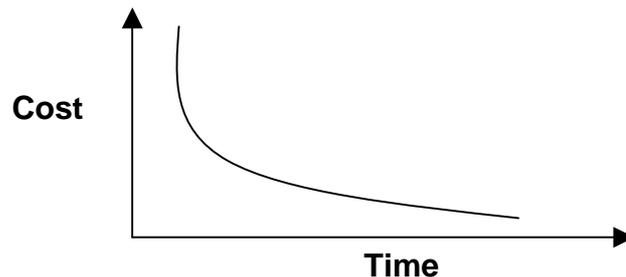


Distribution is generally regarded as an enabler of efficiency rather than as adding value and is therefore a “hygiene factor” rather than a differentiator or, after the Kano Model, a “basic” factor, rather than an “excitement” factor (Bicheno, 1998). As the retailer, rather than the product, has become the brand (Walters & White, 1987), distribution has played an enabling role in underpinning service developments (Smith & Sparks, 1993; Quarmbly, 1990) although innovations in this respect are easy for competitors to copy (Savitt,

1987). UK retailers such as Asda, Tesco, Sainsbury and Marks & Spencer have all attributed at least part of their recent success or difficulties to innovations in Physical Distribution Management.

An alternative depiction of the short-term advantage to be gained from logistics innovation shows how the rate of reduction in unit costs has levelled off over time, as shown in figure three:

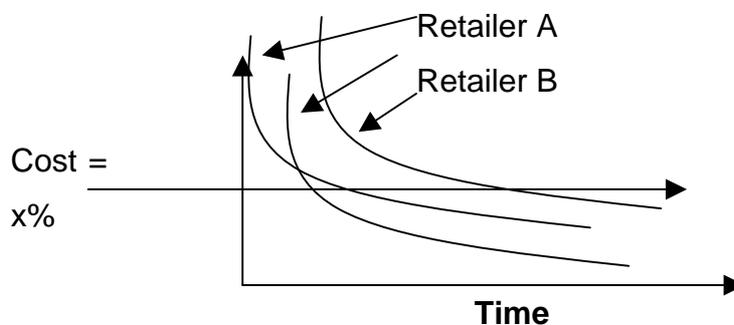
Figure 3: Diminishing returns in supply chain innovation



However, as individual retailers adopt these innovations at different times, they will exhibit some variations in unit costs over time until they have all fully implemented the latest best practice, as shown in figure four.

According to this representation, then if further significant cost improvements are to be made over time, then these will need to be pursued in a different direction from the general trend.

Figure 4: Relative gains to be made over time by competing firms



This “time-based” interpretation is further complicated by the fact that not only do physical distribution operations form one part of the total supply chains, but

the relationships between parties in the vertical supply chain also have, to some extent, horizontal relationships with other parties in a network of parallel chains.

Traditionally, supply chain integration and the joining of enterprises into an extended or “virtual” enterprise has tended to be vertical and contained within a single chain. Arguably, the required step change to facilitate a move in the curves shown in figures three and four above might be driven by integration horizontally, as shown in figure five:

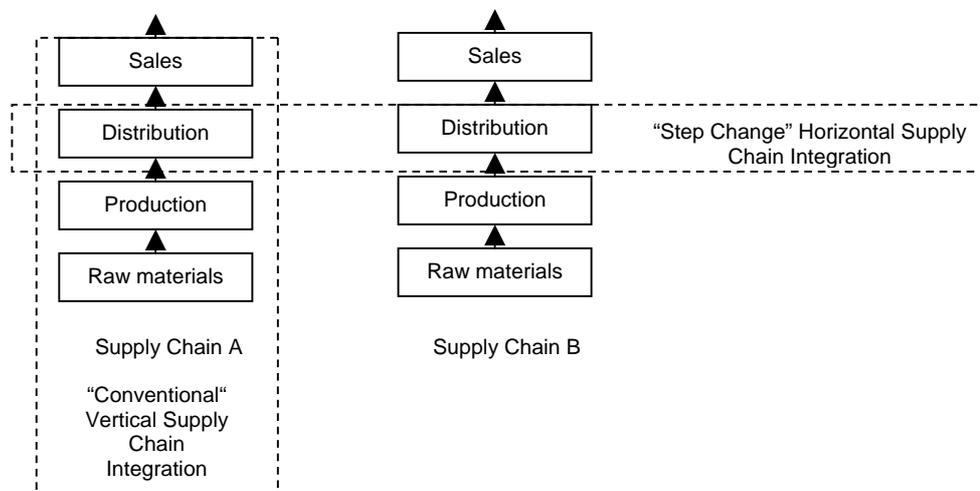


Figure 5: Horizontal integration across competing supply chains

The extended enterprise (Miles & Snow, 1986; Johnstone & Lawrence, 1988; Borys & Jemison, 1989) has emerged as an alternative to traditional forms of economic exchange (Ellram, 1991). Such extension is most easily and visibly applied in the logistics arena (McKinnon, 1989; Bowersox, 1990; Schonberger, 1990; Christopher, 1996; Zinn & Parasuraman, 1997; Hines, 1998; Cavinato, 1999). This has given rise to the notion of competing supply chains (Christopher, 1998). However, supply chain architecture in specific industries may make this concept unworkable (Buzzell & Ortmeier, 1995; Christopher, 1996) and there has been some debate as to whether vertical or horizontal integration within supply chains is more effective (Richardson, 1998; Whitehead, 1999).

To summarise the ideas which will be developed into hypotheses, therefore:

- there appears to be prima facie case to suggest that distribution is no longer a core element of the differentiation strategies of major UK food retailers.
- the physical distribution element, since it offers only transient competitiveness through innovation in the short or medium term, can be treated as a discrete element within supply chain management and, as such, can be treated in a non-competitive way in order to achieve greater efficiency.
- cross-functional co-ordination will be shown to address issues of variance in channel infrastructures, channel density and fragmentation which, it is suggested, cannot be addressed through vertical integration of the physical distribution function.

This raises the following important issues:

- The evolutionary process through “logistics” to “supply chain management” has been holistic in the sense that it assumes that all of the component parts of the supply chain, including physical distribution, must be treated collectively in their contribution to competitiveness
- The supply chain models offered are increasingly irrelevant in an environment of concentrated retail power with an increasingly complex and fragmented supply base.

There is anecdotal evidence to suggest that, driven by initiatives under the banner of Efficient Consumer Response (ECR), even in the highly competitive UK food retail market, competitors are starting to work together in the area of distribution. To date, however, little research appears to have been carried out into the rationale or implications of such activity for overall supply chain strategy. This paper attempts to address this gap.

1.2 Scoping the Research: The UK Food Retailing Market

The UK food retail market is often held up as a paragon of logistics efficiency, with unit costs and inventory levels significantly lower than most of the rest of the world (Fernie, 1995). Logistics developments as described above have taken place against the background of market concentration, creating an environment of intense competition. Arguably, the pace of change and intensity of competition should give rise to a research frame in which it is possible to isolate competition through physical distribution efficiency from total supply chain-based competitive strategies.

Since 1960, the major multiples' share of the UK grocery market has grown from around a quarter to nearer three-quarters, at the expense of the independent and co-operative sectors. Within this three-quarters, the top six companies account for over 70% of all sales. However, this top six contains some very different companies (Seth & Randall, 1999):

1.2.1.1 Sainsbury and Marks & Spencer

are both over 100 years old and have developed (almost) entirely through organic growth. Both companies continued to be run by the families of their founders until recently. Both place a strong emphasis on their own brand goods (100% of the range in M & S) and both acquired reputations as “national institutions”. After spectacular financial results in the 1980’s and early 1990’s, however, both businesses have run into trouble, both in market share and financial performance, in the last few years. Sainsbury in particular has largely attributed its woes to logistics and supply issues, with a substantial investment in a new generation of automated distribution depots going seriously wrong, leading to gaps on shelves and disenchanted customers. This was one logistics innovation which was not rapidly taken up by the competition and former Safeway Logistics Director, Lawrence Christensen, was drafted in to undo the automation and return the network to more

conventional and stable working practices. Within months of these actions, the customers started to return (Seth & Randall, 1999; Pendrous, 2004)

1.2.1.2 Morrisons / Safeway and Somerfield

are both the result of the acquisition strategies of holding companies, with Safeway and Somerfield appearing in something like their present form in the 1970's, and the former being acquired by Morrisons in 2003. James Gulliver's Argyll changed its name when it acquired 133 Safeway stores in 1987. When Isoceles acquired The Dee Corporation, the Somerfield fascia emerged. Neither company, therefore, has a single identity which can be traced back much more than two decades. Both have, at times, fallen from grace with both the public and investors. Safeway enjoyed a brief flare of glory under the leadership of Carlos Criado-Perez in the late 1990's, driven by promotional "guerilla" tactics. The 1998 union of Somerfield and Kwik Save has been described as two companies "huddling together for warmth" (Seth & Randall, 1999), rather than a merger. Morrisons had been a low profile, but commercially successful family business, strong in its regional base in the North and controlled from Bradford, until it won the battle for Safeway, beating off challenges from all the other majors. Arguably, the acquisition has given Morrisons indigestion and, three years on, the company is still struggling to integrate the systems, fascias and networks of the two brands and its financial performance has been badly hit. (Seth & Randall, 1999; Jardine, 2000; Conley & Benady, 1998)

1.2.1.3 Tesco and Asda

Compared with Safeway and Somerfield, Tesco and Asda have a history (1932 and 1965, respectively). Both companies' names include acronyms of the founders and their key partners (T.E. Stockwell + Cohen, Asquith + Dairies) and both went through financially difficult periods in the 1970's or 1980's, which were famously brought to an end by charismatic leaders (Ian McLaurin, Archie Norman) and marketing campaigns (Operation Checkout, Breakout). Both have combined acquisition with organic growth and both have

strong international agendas (Seth & Randall, 1998), albeit Asda's determined from the USA following its acquisition by the global giant Wal-Mart.

The key trends in the retail distribution environment, and the reasons which explain them, have been well documented in the logistics literature:

- centralisation of distribution (Carter, 1986; Bowring, 1988; McKinnon, 1989; McKinnon, 1990; Moore, 1990 and 1991; Cullis, 1992). Latterly, this has been described as having grown from 60% of total volume in the late 1960's (Pettit, 1967) to around 95% in the late 1990's (Sheldon, 1998).
- concentration of retail power in the hands of a few major multiples (Akehurst, 1983; Fernie, 1992 and 1997; Bourlakis, 1998) to the extent that the top 6 UK food retailers now hold over 70% of the total market. This phenomenon has been so pronounced and continuous as to provoke Government interest, in the form of a Competition Commission investigation, which concluded that, although the industry was found to be broadly competitive, a type of complex monopoly did indeed exist, which might have implications for planning and other policy decisions in the future (Competition Commission, 2000).
- use of third-party providers of distribution services (McKinnon, 1986; Fernie, 1990; Buck, 1990, Jaafar and Rafiq, 2005), with third party transport penetration having grown from 40% in 1984 to 47% in 1998, and warehousing penetration from 14% to 34% in the same period (Buck, 1990 and Sheldon, 1998).

Against the background of retail concentration, the arguments for the centralisation of distribution are so compelling that, whilst there have been differences in the rate of uptake, all major UK retailers had implemented these techniques almost universally by the 1990's. Having achieved parity in this respect, the next key trend has been the optimisation of physical distribution resources through operational tools including:

- integration of primary and secondary distribution
- increased asset utilisation through multi-cycling and new handling techniques and technologies
- reduction in inventory through rapid replenishment, improved forecasting and co-managed or vendor-managed stocks.

These issues conspire to create a climate of further change, in which many of the traditional assumptions about the way in which firms compete are being challenged. Among these is the notion that competitive advantage is created by supply chain excellence, and thus by implication, by physical distribution excellence. However, as already discussed, competitive advantage in physical distribution is gained in the short term only, with any emergent best practices easily copied and adopted by competitors.

Having taken more or less complete control of deliveries into stores, a further trend in the last five years has been for retailers to become involved in the supply chain from factory to RDC. Initiatives such as ex-factory buying (or factory gate pricing, also known as FGP), intermediate stock-holding and retailer-controlled Primary transport (that is, transport from manufacturing sites to the retailers' regional or national distribution centres, as opposed to the "secondary" leg from distribution centre to store) have been some of the manifestations of this trend and appear to demonstrate a willingness to examine every opportunity to drive costs out of the supply chain.

Finegan (2002) suggests that retailers have been slower to look at some of these areas of opportunity due to a lack of understanding of costs, a preoccupation with service to stores, perceived complexity and the fragmented nature of the transport market. However, he concludes, pressure on margins and highly evolved central operations and supporting technologies have facilitated initiatives across the entire supply chain.

Having sought to extricate more value through such extended influence and control, it is reasonable to assume that the retailers would regard further innovation in new areas and directions as being fair game.

Distribution of fresh foods to major UK retailers is thus highly integrated and centralised. Typically, a major retailer will operate around 10 - 15 regional distribution centres (RDC's), each collating the individual store orders for 50 - 70 stores and handling around 1 million cases per week. Some RDC's operate across a range of temperature regimes ("composite" RDC's), others are dedicated to a single product group (e.g. frozen or produce). Most retailers operate at least some of their RDC's themselves, with the balance contracted out to third party operators. Many RDC's have their own depot-base transport fleets for store deliveries, either operated in-house or by third parties. The RDC network was first established in the late 1960's and is now more or less complete and handles over 95% of fresh foods for major retailers.

In terms of specific retailer networks, JS's core depot network dates back to the 1960's, although £900 million was invested by former Chairman Peter Davies in the late 1990's with, as discussed above, disappointing results. The automated "fulfillment centres" have largely reverted to more traditional technologies and many of the old 1960's sites remain. M & S's depots were established in the late 1960's and early 1970's as a dedicated business set up by the distribution arm of the BOC gases company. Safeway essentially inherited Presto's distribution systems from the 1980's, and Morrisons is now part way through the programme of integrating these within its own network or rationalising, albeit with some high profile resistance from the Trade Unions. Asda and Tesco composite depots were all established in the late 1980's, with Somerfield being the last player to move fully to the central distribution model in the 1990's.

The argument that logistics developments offer only short-term advantage before contributing to general best practice is supported by a comparison of the key trends in retail logistics and retail marketing strategy over the last thirty years. Just as two parallel evolutions in the development of supply chain management and innovations in physical distribution are described above, so too can two evolutionary processes can be seen to have occurred in parallel in retailing, with moves to centralization and integration facilitating changes in

strategic offering, such as emphasis on quality, range and freshness. These two parallel sets of developments are shown in figure six.

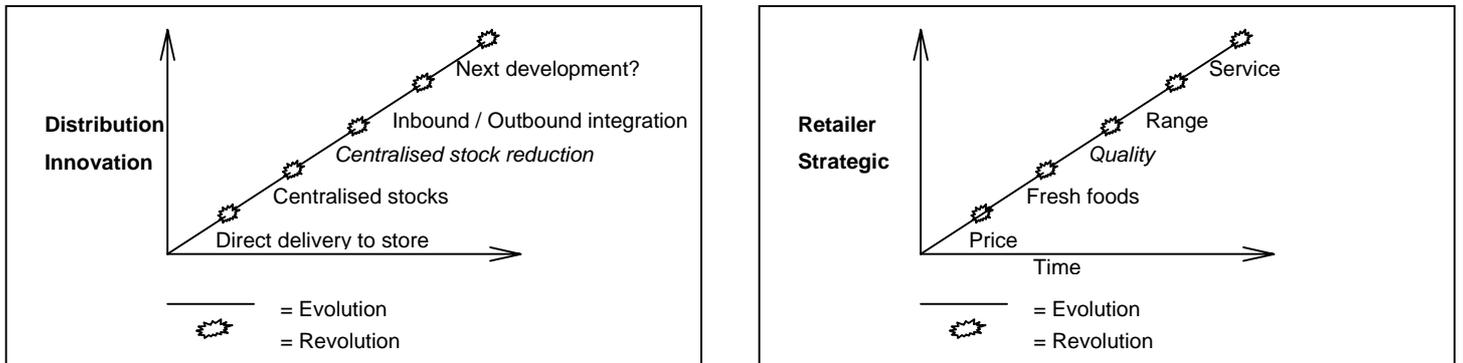


Figure 6: Trends in distribution innovation (McKinnon, 1989) and strategic retail offering (Beaumont, 1987), after Greiner, 1972.

1.2.2 A new paradigm: Co-operation between Competing Retailers

Although the history of their respective corporate developments varies, all of the major UK food retailers have adopted similar physical distribution models. This raises the question as to whether such differing companies can achieve a degree of commonality in their distribution systems and, if so, whether this commonality can override other areas of competitive difference. As seen above, the last forty years have been marked by a series of step changes in retail supply chain operations: writers commenting on the implications of Efficient Consumer Response (ECR), as discussed below, suggest that the a change in orientation from vertical to horizontal integration will be the next logical step change.

Having considered the similarities between the physical distribution systems of the major retailers, what form might collaboration take? Collaboration of some sort between competitors in the retail environment is not entirely new: there are limited examples of collaborative working under the umbrella now known as ECR. Latterly, Fernie (1999) and Whiteoak (1999) have suggested

that the ECR model should logically be extended to embrace pooled distribution activities.

1.2.3 Efficient Consumer Response (ECR)

ECR was first described in 1993 by Kurt Salmon Associates, working with Wal-Mart and Proctor & Gamble. Their initial report on the subject, commissioned by the Efficient Consumer Response Working Group in the USA (Kurt Salmon, 1993), described the four pillars of ECR:

- efficient replenishment
- efficient assortments
- efficient promotions
- efficient introductions

all supported by "efficient alignment" between suppliers and customers (Kurt Salmon, 1993). The work was based on a piece of self-analysis by the grocery industry which was unusual, but not without precedent. An earlier initiative known as Quick Response (QR) focused on joint efforts to shorten the retail order cycle.

Bowersox and Closs (1996) describe the emergence of ECR from an alliance between two major American trade associations, the Grocery Manufacturers Association (GMA) and the Food Marketing Institute (FMI), as well as a number of other interested parties. They describe a climate in which traditional and conventional food companies found themselves coming under increasing market pressure from new trading formats, such as mass merchandisers, warehouse club stores (such as Costco) and convenience stores. This is slightly problematic insofar as the Kurt Salmon work was based on the Wal-Mart experience, whereas Bowersox and Closs seem to describe ECR as a defensive response by other manufacturers and retailers to the path being pursued by Wal-Mart and Proctor & Gamble. Whichever scenario is correct, ECR was not conceived as a closely guarded secret. Its basic tools and

philosophies were promoted as being of interest and value to all parties involved in the supply chain, both on the demand and supply sides.

The concept migrated from the US to Europe and the ECR Europe Group targeted the introduction of best practices by the end of 1994 with full ECR implementation by the end of 1996. Their objectives were ambitious, with a target of 7.3% consumer spending, equivalent to £42 billion across European markets, made up of 10% on the supply side and 30% on the demand side, mainly in category management. Transport-related initiatives proposed include greater use of backhauling, consolidation centres (particularly for slow moving goods), data sharing and efficient unit loads (Potter, Brown, Patel & Comes, 2004). Average logistics costs are estimated at £102m for a large business, £10.2m for a medium business and £1.02m for a small business. Average retail logistics costs were 3.4% of turnover in 2002, with a range of 2 to 6.4%. Within these figures, typical transport costs are 35% total costs and are estimated to be 25% impactable (Potter, Brown, Patel & Comes, 2004). These figures are broadly supported by other survey data collected and published by the Institute of Grocery Distribution (IGD). For example, their 2004 survey concluded that average distribution costs were 3.6% of total turnover, with the gap between highest and lowest is now 3.9%. Cost has averaged around 3.5% since 1998, and can now be split 45% warehouse, 32% transport, 22.4% other and 0.5% systems.

These figures were derived from a survey which indicated that the total UK market was £111.3bn, of which £83.5bn was through supermarkets and superstores. Within this, £79.4bn was multiple chains, £3.2bn co-operatives and £0.9bn independents (Aujla, Patel & Walton, 2004).

Other studies have shown order lead times down by as much as 80%, working capital requirements down 60% and service levels up from 97.5% to 99.5%. Coopers & Lybrand describe ECR as driving 4 phases of change:

- process alignment (doing things more effectively leads to cost reduction).
- new systems in place (doing things differently and better).

- changed processes (transfer of responsibilities leads to cost reduction).
- reduced manpower resources.

Bowersox and Daugherty (1987) describe 3 stages:

- operational (control of finished goods, transport and warehousing).
- integration of finished goods and control of inbound freight.
- integration of entire process.

Thus the trend is seen as being away from viewing supply from a purely intra-company standpoint and towards a total value-chain. A number of key enablers, both physical and attitudinal, are identified to facilitate the process, one of the most critical of which is open access to shared I.T. systems. "The glue of shared I.T. means that companies resisting that process will be stuck within the relationships by their I.T. systems". (Dalzell-Payne, 1998)

In Europe, the approach to ECR was very much collaborative, with competing retailers and competing manufacturers sitting together on the council to discuss and develop ideas of mutual interest. Part of these discussions has revolved around developing a shared model of the ways in which ECR can be applied to competing supply chains, but there has also been collaborative work in areas such as "enabling technologies" (Coopers & Lybrand, 1996), the results of which have been shared by competitors. Jointly shared standards on, for example, item coding and database maintenance, electronic data interchange and message formats were viewed as key to the implementation of ECR in Europe. Competitors worked together to develop initiatives such as the balanced scorecard (of supply chain performance indicators) and standards for activity-based costing. Latterly, there has been work on the development and implementation of a shared standard for unitisation equipment, the including the E-crate to replace individual retailers pools of plastic distribution trays.

Thus ECR can be seen to have been viewed in two dimensions. On the one hand, it was developed as a tool which would allow for efficiency gains along the supply chain, allowing chain partners to compete more efficiently with other companies in other supply chains. On the other hand, there is a perspective that ECR allows for collaboration across supply chains, where it is perceived that the potential gains to all parties, from sharing in enabling technologies for example, are greater than any perceived loss of competitive advantage between chains. These possibly opposing views can be summarised:

- “The motive behind the formation of supply chain arrangements is to increase channel competitiveness” (Bowersox and Closs, 1996).
- The fundamental principle of ECR is that through partnership within the supply chain, significant cost reduction can be achieved” (Christopher, 1996).
- There are likely to be as many opportunities for consolidation across many supply chains as there are along single ones” (Whiteoak, 1999).

This then, raises two issues of interest:

- Given that Europe appears to be already ahead of the US in terms of the application of the basic principles of ECR (Coopers & Lybrand), do the greatest opportunities for further efficiency and cost reduction in Europe and, specifically, the UK, lie in collaboration within individual channels or in cross-chain collaboration to develop what Whiteoak (1999) refers to as “opportunity technologies”?
- What defines the boundaries between those items which can legitimately be discussed across channels (crates, bar-codes, EDI) and those items for which the focus still remains resolutely within individual supply chains (for example, physical distribution)? Two ways of addressing this issue are through the concept of “distance”

of the supply chain component from the end consumer and by the visibility of the component to the consumer.

These two questions are explored below.

1.3 Cross Chain Collaboration through Opportunity Technologies?

There is an interesting conflict between the concepts of inter-chain competition, as described by Christopher and cross-chain collaboration, as inferred by Whiteoak's and Fernie's interpretation of the true potential of ECR. Not least, Whiteoak is even critical of the notion of the validity of considering the market as a series of chains in the first place. Most manufacturers, he points out, supply a large number of competing retailers and all retailers certainly get their products from a wide range of suppliers. There is, therefore, no such thing as a series of discrete chains, but rather a complex network of inter-relationships, and that to optimise one apparent chain within this network may well sub-optimize another part.

Whiteoak's (1994) paper suggests that the principle focus of ECR-based activity to this point has been about achieving integration along chains, ultimately to give control to the end party, the retailer. This is flawed in the sense that it creates upstream costs for manufacturers who are involved in a number of apparently competing supply chains. To illustrate the point, he attempts to represent the evolutionary development of retail logistics in the UK over the past three decades. Direct delivery to stores in the 1970's gave way to centralisation of stocks in retailer RDCs in the 1980's. Thus the locus of control shifted from stores to depots. As new information and communications technologies arrived to enable the application of new techniques such as quick response, so, in the late 1980's, control of logistics switched from retail depots to head offices. The fourth and latest phase is the implementation of

just-in-time replenishment. Each of these four phases has been marked by an increase in speed with which goods flow through the supply system.

Just as progress from each phase to the next has been enabled by technological developments (warehouse management systems, central stock control, bar-code tracking and EDI), so each phase has also given rise to an “opportunity” technology. The development of both retail depots and central stock control created the environment in which suppliers and manufacturers could jointly manage inventories and plan replenishments, through initiatives such as co-managed inventory (CMI), vendor-managed inventory (VMI) and collaborative planning, forecasting and replenishment (CPFR). Whiteoak argues that just-in-time techniques and improved communications now permit the application of two further “opportunity” technologies: transport pooling and auto goods-in scheduling. Both of these activities can be considered, like standardization of unitization and product coding, as being sufficiently far upstream from the end consumer as to be non-contentious areas for co-operation, as shown in figure seven.

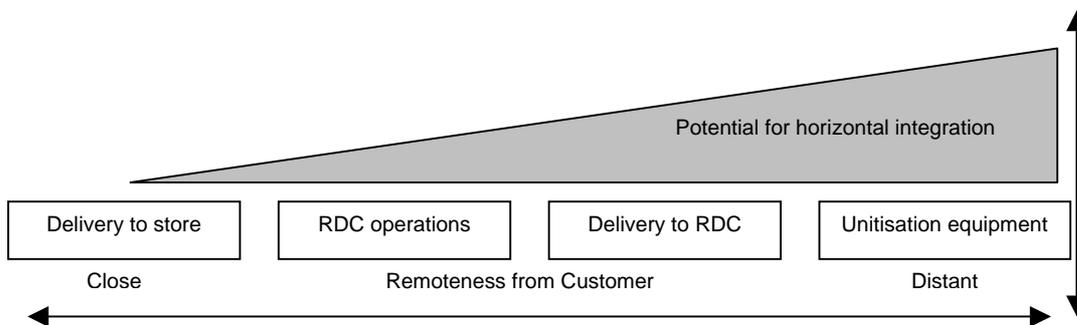


Figure 7: Remoteness from the consumer in the supply chain

Transport pooling has been a specific subject of developments and proposals by ECR Europe (Potter et al, 2004). Driven by retailer initiatives such as factory-gate pricing, ECR Europe set out a “decision engine”, to assist firms in deciding not only which combinations of backhauling, contractors and consolidation centres to use, but also where it might be appropriate to take a collaborative approach to transport with both retailers and other suppliers. A further European forum has been established by logistics users and providers

under the acronym ELUPEG (European Logistics Users, Providers and Enablers Group). Their mission statement (<http://www.elupeg.com/>) refers to the need to address the 75 billion empty truck kilometres covered in Europe each year (alleged to be 30% of all kilometres travelled) before legislative or environmental issues force the hand of supply chain managers.

However, whilst there is evidence that the ECR Europe Council has been able to achieve collaborative results on some of the enabling technologies, such as item numbering and unitisation equipment, the view appears to persist that collaboration on initiatives such as transport pooling runs counter to conventional views of supply chain competitiveness. In other words, the physical distribution function is perceived as contributing to competitiveness within an individual chain to a greater extent than it might contribute to efficiency gains across competing supply chains. A possible explanation for this demarcation between those items upon which there may be collaboration and those which may not could be that, as the Coopers & Lybrand survey showed, Europe was already some way ahead of the US in terms of supply chain efficiency as the ECR model was first being promoted and applied.

Fernie (1999) offers a possible solution, in that greater use could be made of third party logistics providers to overcome organisational resistance to pooling of distribution assets. A brief consideration of the development of the role of contractors in retail distribution and their possible contribution to the enhancement of ECR is of value at this point.

1.3.1 The contribution of PD Contractors to ECR

The UK retail market differs from that of its nearest European neighbours in a number of respects. Apart from its high levels of centralisation (McKinnon, 1989) and concentration of power (Fernie, 1992), the extent of the presence of third party service providers, or contractors is significantly greater in the UK than in Europe. Whilst some of these grew out of the operations of food manufacturers, who reacted opportunistically to the threats and opportunities

of the implementation of the central distribution model in the 1970's and 1980's (for example Wincanton, Express and NFT), others have built their success on the availability of capital and management expertise during a period where retailers chose to concentrate their own capital and skills elsewhere. However, some authors have argued that the pre-existence of contractors in the market-place now affords an opportunity for a further step-change in the way in which the supply chain is configured within UK retailing.

Fernie (1999) describes third party logistics providers as the "missing piece in the ECR jigsaw". He observes that although a great deal has been written on the development of relationships within the supply chain, particularly in the contexts of ECR and supply chain management, but there has been little consideration of the physical processes of getting goods from manufacturers to stores. Fernie concludes that, as companies move to become "virtual organisations", defined by a series of relationships (such as those described within the ECR framework), then those companies will tend to concentrate on their core competencies and outsource those functions which lie beyond those competencies. This, he predicts, will have the further outcome of enabling further co-operation between competing firms in fully implementing the principles of ECR, as contractors can be used to facilitate transport pooling (as described by Whiteoak, 1999) in a "hands off" manner.

The use of distribution contractors, or "third party logistics providers", has a longer history than that of ECR. Buck (1990) published the results of a survey carried out in the UK, which suggested that, against the background of declining overall expenditure on distribution, third party penetration was increasing. He suggests that the decline in expenditure (between 1980 and 1985) was brought about by increases in efficiency and the introduction of new logistics systems in the UK. During this period, third party penetration had increased from 40% to 47% in transport operations and from 14% to 18% in warehousing. Of a total annual distribution expenditure estimated at £24 billion at the time, some £6.5 billion was vested with third party providers.

McKinnon (1986) offers five reasons to explain the presence of contractors in the distribution market:

- the development of parallel distribution systems.
- the special handling requirements of particular types of products.
- geographical extension of retailer operations.
- seasonal peaks and troughs.
- congestion in parts of the system can be overcome by the use of nominated carriers to increase vehicle fill and allow for better resource planning..

Buck (1990) adds a further six “environmental” reasons for the increasing prevalence of third party operators:

- firms concentrating on their core activities.
- changes in the market-place, brought about by rapid expansion and contraction and new product development.
- changes in marketing ethos, which sought to ally distribution activity with areas of demand, rather than of supply.
- industrial relations.
- technology.
- tax / other financial criteria.

McKinnon (1989) notes that intermediaries, such as logistics service providers, can often carry out some of the functions of physical distribution, such as break bulk, consolidation, storage and local delivery) more cost effectively than individual suppliers, because they are able to secure larger economies of scale. In 1990, he cited the presence of contractors in the market as one of the enablers for the emergence of the central distribution model in retailing: this could perhaps be described either as a self-fulfilling prophecy or, from the point of view of the contractors, as a virtuous circle.

Fernie noted that UK retailers have been “at the forefront of fostering partnerships with professional distribution companies” to the extent that, of

£1.9 billion spent on distribution services by retailers, some £1.3 billion was contracted out (Ferne, 1990). However, he also notes later that those retailers which are still carrying out their own distribution operations believe that they are providing a better service than contractors and that organisational history and inertia may play a role in defining which operations are contracted out and which are retained in-house (Ferne, 1995).

1.3.2 Transaction Cost Economics

Transaction Cost Economics are often used to explain the presence of contractors in the market for physical distribution market (see below). Whilst this argument undoubtedly has merit, the factors listed by Buck and McKinnon are also of practical relevance in the UK retail market.

Transaction Cost Analysis has been used to inform the debate about the outsourcing of physical distribution functions (Maltz 1993, 1994 among others), but this has largely been in the sense of vertical integration of functions within firms, rather than horizontal integration across markets. Outsourcing of PD functions lends itself well to the type of analysis proposed by Coase (1937 in Rindfleisch & Heide, 1997) and developed by Williamson (1975), in that the concepts of asset specificity and environmental and behavioural uncertainty are relatively easy to operationalise (Rindfleisch and Heide, 1997). Organisations, specifically in the UK retail context, can be mapped against these variables in an attempt to understand the different levels of outsourcing observed in the market place. Ellram (1991) argues that the philosophy of supply chain management facilitates the move from vertical integration to an environment governed by obligational contracts. Aertsen (1993) specifically points to the specific nature of assets and the importance of performance measurement as significant influences in the decision to outsource logistics.

Transaction cost analysis supports this view in the sense that transactions are certainly recurrent, and supported by only moderately-specific assets. Having already discussed the homogeneous nature of retail physical networks, one

might wonder as to the extent to which these capital intensive systems are only moderately-specific to their function. However, the emergence of third-party service providers and alternative methods of funding explain that this may well be the case. For example:

Buildings

High capital requirement and specific location and equipment requirements but can be converted to other industrial uses over time and a range of funding options is likely to be available (sale and leaseback, for example drive flexible designs and modular construction). It should also be noted that the transferability of distribution assets (including vehicles) means that they carry a lower financial risk to lenders, and therefore third party providers might attract a higher credit rating in this respect than the retailers. Third party providers may thus be able to borrow more cheaply than the retailers themselves.

Vehicles

Temperature-controlled equipment is highly specific, but otherwise vehicles can be put to many uses, and because residual value is a major cost driver an accessible market for disposal is required. Traditionally required investment and expertise for maintenance, but modern financing arrangements (contract rental) can include maintenance packages.

Staff

Management skills are highly specific, but the low on-take of technological applications in warehouses lead to a requirement for generally unskilled, or easily trained labour. Third party providers of short-term contract (agency) labour are entering the market. Systems which de-skill tasks can also contribute.

The view that management skills are highly-specific concurs with the work of Maltz (1993, 1994), who concluded that the main factor

supporting integration of PD functions was highly specific human assets. In the context of the presence of third-party logistics providers in the marketplace, however, such assets are transferable and thus, as with buildings and vehicles, only of moderate overall specificity.

Ellram's argument appears persuasive, therefore: PD assets are only moderately specific and thus there is no compelling argument for vertical integration.

This leaves the question of horizontal integration to be addressed. We would argue that the specific context of UK food retailing creates an environment which effectively resolves the three key problems underpinning transaction cost analysis (Williamson, 1975), those of safeguarding, adaptation and performance evaluation. The summary characteristics of the UK food context are retail concentration, a philosophy of upstream and downstream "chain" control, highly developed information systems and the presence of experienced and able third-party service providers. These characteristics apply as follows:

The Safeguard Problem

Opportunism by market partners is dealt with by the essential homogeneity of PD system and by the presence of "impartial" service providers, who can act as honest brokers between competing organisations

The Adaptation Problem

Environmental uncertainty is reduced by market concentration, with something like 75% of the market in the hands of just four players. Factors such as demographic change, legislation and new channels (e-commerce)

are, to a large extent, predictable in the long-term.

The Performance Evaluation Problem

The power and application of information technology is now sufficiently advanced to allow for the development and monitoring of agreed key performance indicators in real time, with individual levels of performance buffered at the corporate level by service level agreements.

These arguments can be extended in the sense that pooling of resources, facilitated by the homogeneity of PD channels, can actually remove from the calculation the cost elements associated with the resolution of these transactional problems.

UK food retailer Sainsbury, for example, pursued a strategy of in-house investment in, and operation of, multi-temperature “composite” central warehouses throughout the 1960’s and 1970’s. The first was built at Buntingford, in Hertfordshire, in 1960 and this was complemented by three further sites during the following 10 years. However, a strike over meal-break payments in June 1977 rapidly spread throughout all of the Sainsbury depots, virtually bringing the supply of goods to stores to a stand-still. In the aftermath, Sainsbury changes its strategy for depot development, and although a further series of composite depots was built during the 1980’s and early 1990’s, all of these were developed and operated by contractors. IT was a further contributory factor in this development. David Quarmby of Sainsbury said in 1990 that it was now possible for retailers to control distribution by information, rather than by “doing”. Information systems could be used to give control to the retailers and it is thus irrelevant who actually runs the operations (in Fernie, 1990).

Buck (1990) suggested that tax and financial reasons explained, in part, the growing use of contractors. Two specific examples of these factors are the ability (for retailers) to compare their own costs with those of contractors in

“mixed” regimes, and the development of technologies to facilitate open book / management fee systems of operation.

During the roll-out of its “composite” depot strategy in the 1990’s, Tesco sought to establish a balance between in-house operations and those allocated to contractors, in order to enable comparisons of performance and bench-marking of costs. Tesco is now serviced by nine composite centres, five of which are run by contractors (Smith, 1999). Similarly, Safeway puts 39% of the total volume handled by its network through depots operated by third-parties. In these cases, the employees and managers tend to be employed by third parties, whilst the assets themselves are owned by Safeway (Christensen, 1999).

Whereas Sainsbury, Tesco and Safeway all operate with a mixture of in-house and contractor facilities, Marks & Spencer have contracted out 100% of their distribution operations since the implementation of the central distribution model in the early 1960’s. Historically, technology was one of the prime drivers for this. BOC Distribution Services were able to offer new refrigeration technology, based on liquid nitrogen supplied by sister company BOC gases. The great attraction of this system was that it allowed for much quieter transport operations than “traditional” diesel-engined refrigerated vehicles, an important consideration with many of M & S’s stores being in town centre or residential locations. Technology has also been an issue more generally in the area of temperature-controlled distribution, which requires investment in highly-specialised sites and vehicles. Frozen foods typically represent less than 10% of the sales for most retailers and, for smaller firms in particular, there is insufficient critical mass for firms to operate on their own. Contractors are able to combine the volumes of competing firms in this sector in order to achieve scale of economy through shared-user operations.

Another key financial factor influencing the use of contractors is the availability of capital to support in-house operations. According to Fernie (1990), it was no coincidence that the retailers with the largest capital investment programmes at the time (for example Sainsbury, Tesco, Safeway and Marks

& Spencer) were the same firms which sought to contract out most of their distribution operations. Furthermore, although Asda funded its own investment in a network of central distribution depots in the late 1980's, it is unlikely that it would have been able to carry out the process in the same way after the disastrous disposal of its furniture business (MFI) and the acquisition of a number of superstores from Gateway.

The arguments put forward by Fernie (1999) and Whiteoak (1999) are clear. The principles of ECR dictate that relationships formed along the length of supply chain will yield efficiency gains and thus lower costs. However, there are further potential gains across competing supply chains which can be unlocked through the use of contractors to overcome inter-firm rivalries and suspicions. UK retailers have tended to use contractors within their own supply chains in isolation, in order to overcome specific financial, technological or industrial relations issues. Thus the mechanism for achieving cross-chain benefits exists in the form of contractors, but UK retailers appear to view physical distribution from the perspective of cross-chain competition. Christopher, quoted in an article in the Grocer (13.2.99) pointed out that "RDC operations are often run by third party distribution experts" and that "if rival manufacturers can share an RDC and transport, then why not rival multiple retailers?" Since Christopher is widely credited with describing the concept of competing supply chains, this question would indicate that he too views as at least debatable the idea that the physical distribution element might be removed from the competitive elements of the supply chain and might be devolved to contractor operations without compromise to competitiveness.

1.3.3 Managed Primary Networks

One of the most significant areas in which food retailers have sought to form relationships with logistics service providers in physical distribution is in primary distribution – the movement of goods from manufacturers or their warehouses into the retail DC's. Historically, retailers bought their goods from manufacturers on a "delivered in" basis: that is, the manufacturer was responsible for organising transport to the retailer's distribution centre and the

costs of this operation were included within the product price (Smith, 1999). During the 1990's, retailers identified three drawbacks to this method of supply:

- there was no visibility of the transport element within the total product price. Thus two similar bought in prices for a particular product might hide variations in manufacturing efficiency offset by distribution efficiencies. Retailers would ideally seek to source the most efficiently produced product without costs being distorted by distribution costs, either through relative inefficiency or distance from the centres of demand.
- smaller manufacturers, who might nonetheless be able to manufacture efficiently, were unable to buy distribution services economically, due to the absence of economies of scale.
- increased volume pressure on the DC networks was leading to congestion by delivery vehicles, many of which were only delivering small quantities of products from a single supplier or small groups of suppliers.

The perceived advantages arising from increased retailer intervention in primary distribution were thus:

- visibility of relative manufacturing costs, allowing buyers to concentrate on sourcing products from the most efficient manufacturers.
- lower transport costs, achieved by the retailer either acting on behalf of groups of manufacturers in the third party market-place or by directly placing distribution operations with a contractor on behalf of the retailer themselves.
- managed intake profiles, allowing for better planning and allocation of resources at the DC and consequently improving capacity..

The conventional model of retailer centralised distribution (McKinnon, 1989) has the retailer in control of operations from the point of receipt of goods at

the distribution centre through to delivery to the store and return of empty transit equipment. Although retailer controlled, some of these operations have been contracted out to third-party logistics providers, albeit on a dedicated basis. The new model, which has emerged through the 1990's, sees retailers controlling the flow of goods all the way from factory to store, although with some differences in application and methodology. The key differences are:

- the nature of the commercial relationship between the retailer, the manufacturer and the provider of primary transport. Some retailers (for example Sainsbury) have experimented with "ex-factory" or "factory-gate" pricing. Under this methodology, the retailer pays for the goods excluding any transport elements and then engages a transport provider to work on its behalf. The retailer pays directly for the transport services. Other retailers have sought to encourage their suppliers to use certain nominated carriers on a "pool" basis, with transport costs still paid for directly by the manufacturer, but on a basis overseen by the retailer.
- degree of integration with secondary (that is DC to store) operations. Some retailers (Tesco, Asda and Boots) have offered collection services to manufacturers, to individual DC's by vehicles on the way back from making store deliveries. Others (Safeway) have put in place a network of inter-DC movements, allowing store delivery vehicles to collect products for a number of different DC's. Safeway have even put product destined for competing retailers' networks through this system on a commercial basis..
- the extent to which the operations are actively managed by the retailer from day to day, with direct intervention in the planning of booking times, management of contingencies (lateness) and the pursuit of further cost saving measures. Sainsbury operate a Primary Operations Team, based at their head office in London. Asda, on the other hand, leave the entire management process to their nominated contractors.

Each of the main UK food retailers has become involved in Primary operations during the last ten years, although to differing extents and at differing paces. In many cases, intervention in Primary has been gradual and incremental and it has been hard to discern exactly when each of the retailers has actually achieved a significant scale of operations. Furthermore, some of the differences in methodology make it difficult to define whether a specific retailer has achieved control of its primary operations or not. Some of the mile-stones in the development of primary initiatives have been:

- Sainsbury established three “hubs” for primary chilled food operations in 1994 and 1995, followed by a number of ambient “intermediate” warehouses.
- Tesco began encouraging manufacturers to pool volume on a regional basis and oversaw the allocation of this volume to regional nominated carriers in 1994. The first regional allocations were for chilled foods from Yorkshire / Humberside and from East Anglia.
- Safeway has offered back-haul services to its manufacturers since the early 1990’s. The facility to “trunk” product between depots was available from the mid-1990’s.
- Asda sought to appoint one or two nominated carriers in each temperature regime (chilled, ambient, produce and frozen) in 2004.

Third party service providers (contractors) were obviously active in the primary market-place prior to the implementation of these primary initiatives. All but the very largest manufacturers had tended to dispose of their in-house transport assets at the time of the shift from direct store delivery to centralised distribution in the 1970’s and 1980’s. A number of primary contractors thus achieved critical mass by integrating the volumes of a large number of manufacturers and put in place the infrastructure to do this in a timely manner. Retailer intervention in primary operations was both threat and opportunity for these contractors. They could either work with the retailers and thus look to grow their volume, or resist and see volume transfer to other contractors. However, whilst the contractors had achieved cross-channel efficiency savings by integrating volumes for a number of retailers, the retailers

themselves generally approached primary initiatives on an intra-channel basis. Thus Sainsbury sought to bring all of its volumes together in order to reduce distribution costs, choosing to ignore the fact that the typical Sainsbury supplier also supplies many of the other retailers. Ultimately, this creates the possibility for goods from a single manufacturer being distributed by a number of parallel primary networks. Whilst this may provide a reduction in costs from the “free-market” operation of primary, it may also institutionalise further inefficiencies, such as, for example, a factory having to despatch its products on vehicles belonging to three different contractors with each vehicle rarely being full.

Primary distribution initiatives, therefore, have so far been concerned with further vertical integration of discrete supply chains. The cross-channel efficiencies which had been established by contractors in open market arrangements prior to retailer intervention have, by and large, been superseded by other models. Although the retailers have undoubtedly made gains in terms of lower costs and operational controls, it is not clear whether these gains could have been made without subverting the cross-channel efficiencies which were already in existence, nor whether any clear gains have been made from concentrating on single-channel integration. Since all of the retailers who have involved themselves in primary distribution initiatives seem to have set out with broadly the same agenda and objectives, it is hard to see how these initiatives have made any significant contribution to competitive advantage.

One of the reasons cited for not integrating operations across retailers is the potential for access to commercially sensitive information about suppliers and their volumes. Historically, of course, primary transport contractors had access to all of this information as they integrated volumes in the open market. Having made the initial efficiency gains through managed intake and cost visibility, it remains for the retailers to be persuaded that further gains are available through pooling with contractors, without compromise to sensitive information. The Fernie / Whiteoak vision of further cost savings through pooled transport is based on the assumption that the contractors could once

again, as they did prior to the primary initiatives, broker these operations and thus safeguard sensitive information.

Whiteoak (1999) describes a scenario where a focus on efficient use of vehicles will create demands for customer collections (by store vehicles), use of consolidators for small volumes and pooling with third parties in intermediate warehouses. These factors will, in turn, lead to ex-factory buying, “cherry-picking” of routes and the potential for the creative use of shared fleets to overcome cost problems. Furthermore, different arrangements will be brought into play to deal with seasonal fluctuations and promotions. The complexity inherent in this ought to be more closely allied with the core competencies of specialist distribution contractors than with those of the retailers themselves. Whiteoak proposes six focus areas as the basis for the necessary collaboration between retailers and contractors in cross-channel initiatives, all of which have, to a large extent, been addressed during the retailer primary initiatives to date. These focus areas, together with examples of their application in retailer primary initiatives, are:

- commercial principles (for example ex-factory arrangements, or nominated carriers).
- network strategy (for example, integration between primary and secondary movements).
- warehouse facilities (for example primary hubs and intermediate warehouses).
- full vehicle trunking (to support, for example, store back-haul to local RDC).
- store deliveries (either integrated with primary collections or carried out by supplier vehicles after delivery into DC).
- IT support (for example, systems already in place for pre-advice of deliveries and tracking of product),

Whiteoak also identifies a series of process steps for collaboration across competing chains:

- common mind-set
- communications
- development
- planning
- performance targets
- performance evaluation
- process effectiveness
- continuous development

It could be argued that the last six of these are all implicit in the intra-channel arrangements that have been established for primary collaboration with contractors and could thus be applied to cross-channel initiatives. The establishment of a common mind-set and an effective framework for communications between competitors are currently frustrated by a preference for cross-channel competition (the "Christopher" model) as opposed to cross-channel co-operation. As Whiteoak (1999) concludes, this frustration can be overcome by third party involvement in two areas:

- logistics service providers should be directly involved in new ECR initiatives, on the basis of the prevailing practice of using contract logistics, to drive opportunities for synergy and consolidation.
- the providers of value-added (communications) network services, such as EDI, have major opportunities in offering the communications infrastructure and management software to facilitate shared-resource operations.

1.4 Collaboration in Practice

Ellram (1995) describes a partnership or strategic alliance as "an ongoing relationship between two organisations which involves a commitment over an extended time period and a mutual sharing of risks and rewards of the relationship". The main reasons for entering partnerships are obtaining a

better price and to secure a reliable source. The key factors establishing a successful partnership are: two-way information sharing, top management support, shared goals, early communication to suppliers and supplier adds distinctive value. Poor communication and lack of trust, up-front planning and shared goals are the most common reasons for the failure of partnerships (Ellram, 1995).

Although traditional strategic models suggest that competitive advantage is driven either by the structure of an industry or the resource-based view. Others argue that a firm's critical resources may span firm boundaries, rather than being focused within the firm. Firms who combine resources in unique ways may realise an advantage over competing firms who are unwilling or unable to do so. An "explosion in alliances" suggests that pairs of firms are an important unit of analysis. Competitive advantage can, therefore, be gained through sharing relationship specific assets, knowledge sharing routines, complementary resources and capabilities and effective governance (Dyer and Singh, 1998).

Brandenburger and Nalebuff (1996) suggest that horizontal collaboration between competitors might give rise to so-called co-opetition. Noting that collaboration within vertical chains is rare, Bowersox et al (2003) use the word "horizontal" to describe a process-oriented view across a single supply chain rather than a slice across parallel competing supply chains. Once again, they point out that examples of successful collaboration are scarce and most are actually just examples of conventional contracting and outsourcing, even though the strategic focus of supply chain management has shifted from adversarial to collaborative. Nonetheless, many companies have "waved the collaborative banner while launching aggressive supplier cost-cutting initiatives". Cross-enterprise collaboration emerges when two or more firms voluntarily agree to integrate human, financial or technical resources in an effort to create a new, more efficient, effective or relevant business model. The participating firms voluntarily create joint policies and integrate processes, to create what has been referred to as an "extended enterprise". This might be based on the competencies and capabilities associated with the three

strands of leadership processes, planning and control processes, and integrated operations processes (Bowersox, Closs & Stank, 2003).

Manufacturers and distributors are involved in fewer, but increasingly significant, working partnerships. Successful partnerships are based on three core concepts: relative dependence (which in turn defines relative influence), communication (which leads to trust and cooperation) and outcomes given comparison levels (assessment of results against experience or expectation). Cooperation is an antecedent to, rather than a consequence of, trust and the relationship between cooperation and trust is iterative. Disagreements are inevitable: adroit firms develop mechanisms to manage these and settle differences.

(Anderson & Narus, 1990)

In 1993, Cooper and Gardner considered some of the factors which might influence logistics outsourcing partnerships: the range of possible relationships (from joint venture to arm's length), the rationale for the partnership, the implementation method and the contextual situations likely to promote certain patterns of partnership behaviours (Cooper and Gardner, 1993).

Lambert et al (1999) describe a partnership as "a tailored business relationship based upon mutual trust, openness and shared risk, and shared rewards that yields a competitive advantage, resulting in business performance greater than would be achieved by the firms individually." There are four primary facilitators in every relationship: corporate compatibility, similar managerial philosophy and techniques, mutuality and symmetry. Five additional facilitators need not always be present, but strengthen the partnership when they are: exclusivity, shared competitors, physical proximity, a prior history of partnering and a shared end user. (Lambert, Emmelhainz & Garder, 1999).

Boddy, Macbeth & Wagner (2000) note that implementing and managing an alliance is harder than deciding to collaborate. Seven contextual factors are

identified which can both help and hinder the content of partnerships: business processes, technology, people, structures, power, culture and resources. Prior context, as well as individuals' propensity to reconstruct context, affect the degree and success of cooperative behaviour (Boddy, Macbeth & Wagner, 2000).

Mentzer, Min and Zacharia (2000) consider the influence of antecedents on the choice and effectiveness of partnering orientations. Whilst many relationships in supply chains are simply transactional, partnerships are based on some degree of expected continuity and the focus of the relationship goes beyond price. Supply chain partnerships are driven by, amongst other things, environmental uncertainty, degree of competition and the level of time and quality based competition. The influencing antecedents are interdependence, absence of conflict, trust, commitment, organisational compatibility and top management vision (Mentzer, Min & Zacharia, 2000).

However, in spite of the compelling arguments for the benefits of partnering and the identification of mechanisms to promote its facilitation and success, there is evidence of failure in implementation. This maybe due to the difficulty experienced in change management. The normal starting point for collaboration is the sharing of information, which leads to the emergence of new competitive structures based upon networks and inter-firm collaboration. However, this requires careful change management in the areas of partner selection and classification. training of boundary spanners, coordinating interpersonal relationships, external support and relationship monitoring (Christopher & Juttner, 2000).

Even with the context of single vertical supply chains, there have been problems in implementing partnerships, with some already suggesting that the writing is on the wall for supply chain collaboration. There has been an over-reliance on technology, a failure to understand when and with whom to collaborate and a lack of trust between partners (Barratt, 2004).

ECR and the associated later developments VMI (vendor-managed inventory) and CPFR (collaborative planning, forecasting and replenishment) provide a choice of strategies for collaborating amongst supply chain partners. Although collaborative efforts appear to be most developed in the grocery industry, implementations have not been as widespread as expected, because of lack of common understanding of the concepts. There is, for example, some cynicism about the actual benefits of information sharing: greater benefits can accrue by reducing delays and history is as good an indicator of demand as current shared data (Holweg, Disney, Holstrom & Smaros, 2005). Traditional views of ECR can be summarised as inter-firm co-operation “vertically”, that is along competing supply chains.

“Value-adding partnerships” are formed between firms within a single supply chain (Johnston & Lawrence, 1988; Hines, 2000). This perspective is flawed in that supply chain relationships can be viewed as more of a web than as a series of chains, with individual suppliers selling to multiple customers and vice versa. There is, therefore, also a role for “horizontal” co-operation between firms in competing supply chains, or for firms to act in both competition and co-operation with other firms at the same time, in the model described as “co-opetition” (Brandenburger & Nalebuff, 1996). At this level, a firm may be both a competitor with other firms at the same level, and a complementor. The complexities of this dual role are dealt with by defining areas of operations, or even individual roles, which can be treated with one or the other set of behaviours. There is a correlation between levels of co-operation and the perceived “distance” of the operational activity from the end consumer. This has been seen in the Austrian grocery industry (Kotzab & Teller, 2003), the Swedish brewing industry (Bengtsson & Kock, 2000), as well as in UK food retailing (Stephens & Wright, 2002). Bengtsson & Kock’s work was based on 21 semi-standardised personal interviews with business managers in three industries (lining, brewery and dairy) in Sweden and Finland. They note that the two activities of co-operation and competition have to be separated, depending on the degree of proximity to the consumer and that individuals within an organisation cannot be engaged in both activities: they must either compete or co-operate, as summarized in figure 8.

1.5 Conclusion

Previous research on supply chain-based strategies has tended to be framed in mature, vertically integrated markets (the motor and aerospace industries for example), where brand domination is achieved by the original equipment manufacturer (OEM), rather than the seller. In UK food retailing, characterised by concentration and competition, the fascia, rather than individual products, is the brand. Product brands are subsumed within the brand of the store and thus retailing becomes a demographic solution to connecting supply and demand, rather than a true supply-chain strategy solution.

These considerations can be distilled into three propositions:

- The ubiquitous application of best practice means that the physical distribution function does not contribute to competitive advantage in the UK food retail market.
- The importance of physical distribution in defining customer image and strategic positioning is both time and context specific.
- Removal of physical distribution from the arena of competition might lead to further efficiency gains.

However, if physical distribution does not contribute to competitive advantage and therefore resource pooling is a logical extension of the principles of ECR, it is surprising that there are few examples of the application of such collaboration between competitors. This apparent contradiction highlights the following gaps in knowledge:

- 1. The factors that either facilitate or obstruct horizontal collaboration across supply chains.
- 2. The prerequisites for successful horizontal collaboration across supply chains.
- 3. Identification of the benefits of horizontal collaboration and how these might be apportioned.

- 4. Whether there are different types of horizontal collaboration: direct collaboration versus indirect participation in schemes administered and operated by third parties.

In order to contribute to the further development of supply chain initiatives, these gaps in current knowledge are to be explored and, hopefully, explained through testing of the following hypotheses:

1. Logistics collaboration between competitors is influenced by factors that either facilitate or obstruct co-opetition. (First gap in knowledge)
2. Collaboration is more likely in the presence of external factors, such as resource shortages, legislation or social and environmental pressures. (Second gap in knowledge)
3. Collaboration is more likely once a firm has exhausted all opportunities for internal optimisation within its own logistics systems. (Second gap in knowledge)
4. The inclination to collaboration is influenced by the extent to which firms perceive they are in competition with potential collaborators. (Second gap in knowledge)
5. Collaboration is more likely where costs and benefits are clearly measurable and performance measures can be agreed. (Third gap in knowledge)
6. Active and intentional collaboration is more likely to take place when brokered by a third party, either operationally or in order to apportion costs and benefits. (Fourth gap in knowledge)

Although the detailed operationalisation of these hypotheses will be discussed later, they can be summarized in the contention that the actions of a firm in respect of collaboration are influenced by a series of factors relating to

perceptions of the firm's own worth relative to other forms, combined with the influence of external factors. This summary is represented by the tentative "conceptual framework" (Miles & Huberman, 1994) shown in figure 9. Here, it is suggested that firms' attitudes towards collaboration will be influenced by six sets of variables, four concerned with a firm's perceptions of itself relative to competitors and two concerned with external influences. Seven tentative data codes are arranged into these six groups, which will be explored and explained in more detail.

The exploration of this topic is set out in the following chapters as follows:

Chapter 2 is a brief description of the contexts chosen for the research.

Chapter 3 describes the process and conclusions of a systematic review of the relevant bodies of literature, concluding that little has been written about horizontal collaboration specifically in the physical distribution area of supply chain management.

Chapters 4 and 5 consider the philosophical and methodological underpinnings of the research, concluding with the proposition that case studies will be used to test the propositions.

Chapters 6, 7 and 8 describe three cases in detail: UK supermarkets, an example of urban transshipment and UK brewery distribution.

Chapter 9 considers the cross-case analysis and chapter 10 the overall summary and conclusions of the work.

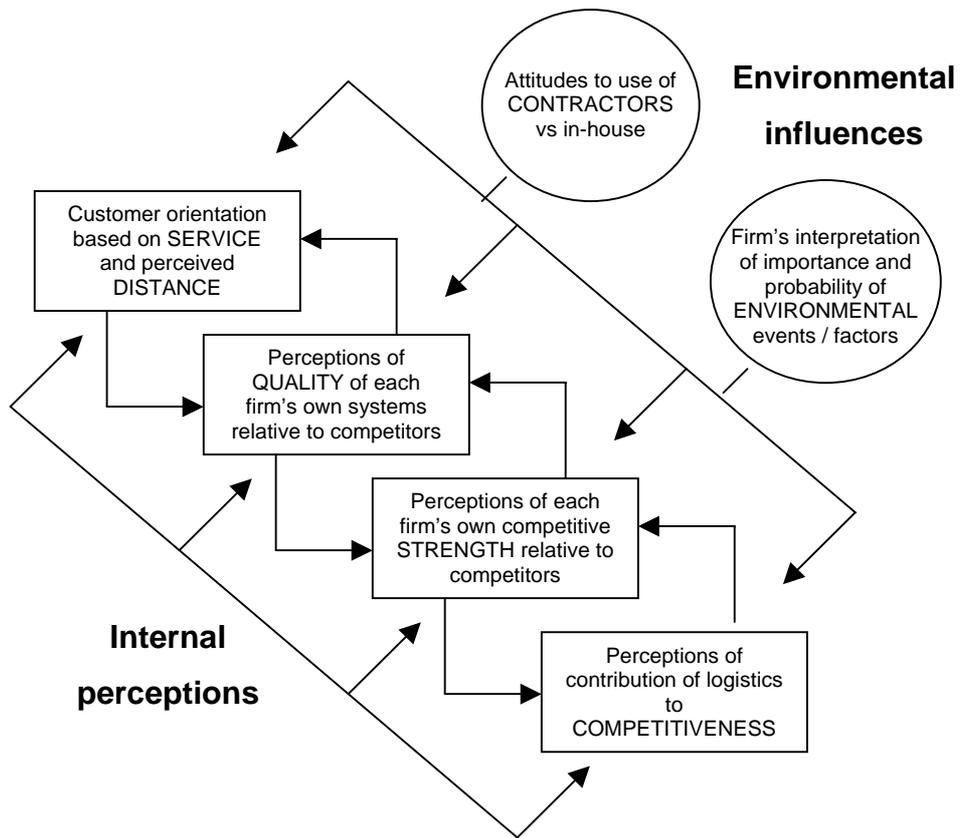


Figure 9: Conceptual framework based on the research hypotheses

2 Research in retail logistics

The first chapter described why the context of UK supermarket retailing was of interest for this research. A general review of the development of the market and major players therein was discussed before consideration of some of the key areas of theory which might inform further debate about the role of supply chains in retail strategy. This chapter moves on to consider the retail context in more detail, in order to share an understanding of some of the key operational characteristics, as a precursor to considering research design considerations and actually “entering the field”.

The evolution of the physical distribution function as a major contributor to efficiency and cost reduction is evidenced in the UK grocery industry, where a common template for highly centralised systems has developed. However, such innovations are easily copied and thus competitive advantage is only possible at the leading edge. As logistics initiatives in grocery have broadened into the umbrella of Efficient Consumer Response (ECR), it has even been suggested that further efficiency gains will be made possible by cross-chain collaboration between competitors. This exploratory research seeks to understand the circumstances under which such “co-opetition” might be possible in UK grocery retailing. The apparent homogeneity in this setting, of highly developed distribution systems and evidence of significant vertical channel integration, ought to provide a context with rich potential for exploring opportunities for horizontal integration across supply chains.

The basic hypothesis of the research – that physical distribution does not offer any competitive advantage to competing retailers – assumes that all retailers have managed to achieve parity in costs and service. A prerequisite to investigating attitudes to possible co-operation in this area is, therefore, to establish that this parity does indeed exist. However, the very competitiveness of this industry sector implies some challenges for the research process. Whilst there is some comparative performance data available in the public

domain, it is largely based on self-completed surveys (published annually by the Institute of Grocery Distribution) and therefore prone to bias or inconsistency and may also be incomplete. The first stage of the research, therefore, was to benchmark selected companies against each other using the secondary data, but then to get the target firms to confirm the benchmark data. The initial review of the secondary data brought the further advantages of immersion in the language and reference points of the industry, as well as a detailed level of operational knowledge, which allowed for greater “fluency” in conversation with respondents.

The research process, therefore, was designed as a number of stages:

- Using secondary quantitative data, establish and verify whether the target firms have all achieved a level of parity in terms of physical distribution excellence.
- Validate the overall cost and performance measures implied by the review of the secondary data through contacts with a number of UK grocery retailing firms. As will be discussed later, this was not achievable in practise, due to considerations over the sensitivity of numerical data.
- Using interviews, obtain qualitative data to explore the attitudes of firms towards the contribution made by the physical distribution function to competitive advantage; if possible, find practical examples of situations, which are believed to exist anecdotally, where physical distribution has been removed from the competitive arena.
- From an initial pilot phase with a small number of retailers, construct a tentative explanation for the presence or absence of inter-firm horizontal collaboration.
- Use case studies with single firms or contexts to explore the validity of the tentative model and refine accordingly.

In practical terms this meant identifying a number of target firms for whom the available secondary data was complete and meaningful. Exploratory research

of this type might normally be expected to review the design, execution and results of a pilot study before considering the implications and validity of a full-scale study. However, due to the nature of the industrial context chosen, the research aims at depth (with a small number of firms to be researched) rather than breadth. There is also a longitudinal element to the research.

2.1 Exploratory phase – UK Food Retailers

The key players in the UK food retail market and the basic characteristics of their distribution systems and networks have been discussed previously. In order to balance depth of exploration with breadth across the industry context, it was intended to establish contact with all the major national grocery chains. Target organisations were chosen on the basis of five qualifying parameters:

- Geographical coverage: (national infrastructure required to facilitate inter-firm comparability).
- Similar product ranges, predominantly foods across all temperature regimes, distributed through a formal multi-echelon system (McKinnon, 1989).
- Established central control of distribution.
- Scale of operations: arbitrarily, retailers with a turnover of less than £2 billion per annum will be excluded.
- Maturity of systems: retailers who are still behind the main trends in terms of centralisation, implementation of information technologies and stock reduction will be excluded.

The retailers selected on this basis were the (the) “Top 4” (Tesco, Sainsbury, Asda and Safeway) plus Marks and Spencer. At the time of the start of the research project, these five firms alone accounted for just under 50% of the UK grocery market (annual food sales for 1998).

Tesco	£16.5 billion	17.4%	
Sainsbury	£11.6 billion	12.2%	
Asda	£7.6 billion	8.0%	
Safeway	£7.0 billion	7.4%	
M & S	£3.2 billion	3.4%	(Cum 48.4%)
Total market	£94.7 billion	100.0%	

Table 1: UK grocery market shares, 1998 (Source: Annette et al, 1998).

Note: M & S is actually the sixth largest retailer in terms of sales rankings. The decision to omit the fifth largest – Somerfield – was taken on the basis of “maturity of systems”, as described above. At the start of the project, Somerfield was still in the process of integrating the distribution systems of Kwik Save, which it acquired in July 1998.

These shares, and the concentration of the marketplace generally, changed markedly as the research developed, and by 2004 were estimated to be:

Tesco	£28.7 billion	25.8%	
Sainsbury	£19.3 billion	17.3%	
Asda	£18.4 billion	16.5%	
Morrisons	£17.7 billion	15.9%	
M & S	£3.3 billion	3.0%	(Cum 78.5%)
Total market	£111 billion	100.0%	

Table 2: UK grocery market shares, 2003 (Aujla et al, 2004).

The IGD estimates that retailers’ physical distribution costs (from receipt of goods at DC) represent, on average, 3.46% of sales (Aujla et al, 2004). On this basis, the five retailers selected would have a total annual distribution cost of £1.6 billion in 1999, increasing to £3.1 billion five years later.

The key changes over this five-and-a-half year period can be summarised as:

- At the start of the research Asda was still an independent UK company, although there were already rumours that the US global giant, Wal-Mart, was looking for acquisition opportunities in Europe generally and in the UK in particular. The takeover actually took place in 1999.
- Sainsbury had lost its market lead to Tesco two years earlier, but it would be three more years before it fell to third place, overtaken by Asda whilst suffering serious supply and availability problems following changes to its distribution network.
- Safeway was the fourth largest retailer, with its future predator Morrisons having less than half its turnover and being only viewed as a regional player in the North of England.
- Profits at M & S were about to collapse, from £1.6 billion to £0.6 billion in 1999, with a further halving over the next three years. Only in 2005 is there credible evidence of a recovery in performance.

Because of the limited number of firms under consideration and the complexity of issues involved, the use of surveys is not appropriate. Instead, semi-structured and unstructured interviews have been selected as the principal research tool. Elements of a “delphi” approach are used, in the sense that an iterative cycle of interviews is used to seek patterns and connections between respondents, although the exploratory nature of the research does not lend itself to questionnaires or other written tools, which would form elements of a normal delphi methodology.

The question of access to the target companies was dealt with opportunistically. The issue of separating commercial interest from academic research appeared to be understood by all the respondents approached. There was also a high degree of interest in the research topic generally and some of the implied outcomes in particular. Therefore a series of interviews

was proposed to each firm, which would approach the topics in the following order and style:

- Confirmation of base operating data for inter-firm comparison (structured questionnaire).
- Investigation of current strategic role of physical distribution and identification of existing examples of non-competition, if any (semi-structured interview).
- Exploration of attitudes underpinning logistics strategies, in the context of competitive strategy or alternatives to competitive working (unstructured interviews).

2.2 Secondary Research

The principal source for secondary research was the two annual surveys published by the Institute of Grocery Distribution (IGD) (“Retail Distribution”, formerly known as “Retailer Distribution Profiles”, and “Grocery Retailing”), for each year from 1986 to 1999.

A review of other available secondary literature (market data, company reports, press articles and so) led to the development of a model to describe the environment and to a series of metrics which could be validated by each retailer and then used as the basis for inter-firm comparisons.

The IGD carries out regular surveys of distribution practices and systems amongst UK retailers and, as well as publishing reports periodically, also maintains a library of the results and other published materials. This resource was used for the majority of the initial secondary research.

Reliable information on the total size of the UK grocery market and retailer shares within it is notoriously hard to find as retailers increasingly extend their offerings to include non-grocery items (fuel, clothes etc) and as grocery is

increasingly available through non-traditional retail outlets (petrol forecourts, convenience stores etc). This is compounded by the fact that much of the existing secondary data is based on information supplied directly by the retailers risks being subject to a degree of manipulation and interpretation in order to exaggerate market shares. However, a longitudinal study of the secondary data shows a number of key characteristics of the market and approaching the current data from several differing perspectives allows a balanced view to be drawn.

One of the subsidiary aims of the initial research is to try and identify a set of performance indicators which not only facilitate the evaluation of the relative efficiency of different systems, but which can also be used to identify areas for possible integration of resources. Many of the traditional distribution and logistics metrics (McGibbin, 1972) are not particularly helpful in the foods context (labour cost per ton, tons per customer) and a more subtle and complex set of productivity and utilisation measures are required (Caplice & Sheffi, 1994). Latterly, a commonly accepted set of transport key performance indicators (KPI's) has been developed for and with the UK food transport industry, based on work originally commissioned by the Department for Transport. These include vehicle fill, time utilisation, empty running, fuel efficiency and deviations from schedule (DtF, 2003; McKinnon and Ge, 2004). Although not exhaustive, the initial measures discussed with respondents include:

- Overall throughput measures, preferable in a common (non-cash) unit. These measures should relate to the drivers of activity, which is likely to be based on cases handled for warehouses, aggregated into some measure of load capacity (e.g. pallets) for transport.
- Numbers of sites, product ranges handled and overall size, in terms of square footage and staff. It is hoped to refine this through activity sampling to determine measures for time phasing, including peaks and troughs of activity during the day and by periods.
- Size of fleets, together with measures of both time and volume usage efficiency.

- Numbers of stores served by each location, together with any further sub-grouping of distribution volume, perhaps by product type or by order cycle, where this means that individual stores receive products more than once per day. This is to be developed to gain an understanding of the number of order consignments to be handled by the systems each working day.
- Other numerical measures which reflect variations in working methodologies, for example numbers of days stock held in depots, order assembly methods (pick by store or pick by line) and types of load assembly equipment used (pallets, trays, crates etc) (See Christensen (1990) for an explanation of some of these terms).
- The extent to which retailer control had been extended back up the distribution chain, for example, retailers' own vehicles being used to make supplier collections or nominated hauliers being used to facilitate "factory gate pricing" arrangements.

Research of the available secondary data, validated and updated through initial interviews, has led to the following summary description of the current retail distribution environment:

- The five retailers selected (Tesco, Sainsbury, Asda, Safeway and M & S) have an annual foods turnover of £44 billion, through almost 2,000 stores.
- Levels of centralisation of distribution are all above 92%.
- Average case values are in the range £15.79 to £20.26, giving a good correlation between turnover and volume throughput.
- There is some variation between the extent to which resources are worked, with M & S achieving a sales turnover per square foot of warehouse space almost 60% higher than that of Sainsbury. The other three retailers lie within this range.
- Asda achieve the highest volume throughput per vehicle, almost three times that of Marks & Spencer.

Discussions with retailers have revealed that the ultimate benchmarks against which distribution operations are measured relate to cost and service, with cost being viewed as ultimately the more important. The most frequently discussed cost ratio is distribution cost as a percentage of sales. However, although this figure was universally recognised, no retailer was prepared to disclose their own number. The Institute of Grocery Distribution (Sheldon, 1998) has attempted to survey this ratio “anonymously”, but although an industry average of 3.46% is given in their report, no individual retailer figures are disclosed and no explanation of methodology, treatment or analysis is given.

2.2.1 Parity between Retailer Systems

McKinnon (1989) discusses the difficulty of agreeing a range of KPI's which are not commercially sensitive and identifies a series of measures based on utilisation, productivity and effectiveness (Caplice & Sheffi, 1994). The subsequently proposed list was regarded as sufficiently non-sensitive and non-contentious as to form the basis of a cross-industry benchmarking exercise. On the basis of this survey and published IGD data, the following types of data can be viewed as non-sensitive: numbers of depots and cases handled, numbers and types of vehicles, numbers of journeys and distance travelled and numbers of employees.

However, whilst retail operations managers clearly wish to observe company rules on confidentiality, in our discussions, they have been surprisingly willing to share information on cash productivity measures at an operational level. This has particularly been the case where questions have been framed on the basis of pre-knowledge of the answers. For example, questions such as, “I assume you must be getting about 10 miles per gallon out of such a new vehicle fleet?” tend to elicit helpful answers, such as, “Well, actually it's nearer 10.5”, or “No, we only get about 8 on Scottish journeys”. Such conversations have been conducted with all of the top 5 retailers and, as described elsewhere, in one instance with three of the retailers together. These measures can be regarded as tertiary (or level C – Ploos van Amstel and

D'hert, 1996) but, assuming that they are reasonable generalisable across the industry sector, they can be used to synthesize level B measures (cost per function).

From the interviews conducted with Asda, Marks & Spencer, Sainsbury and Safeway, data on standard base costs was extracted. Because of its commercial sensitivity, it is impossible to validate this data conclusively. However, the averages derived are representative and some sensitivity analysis has been applied to test validity.

Tractor standing cost per week (including maintenance)	£450
Trailer	£200
Rigid vehicle	£500
Miles per gallon	10.5
Fuel per kilometre	20p
Average all up labour cost per hour	£11
Average miles covered per labour hour	24
Labour cost per kilometre	28.6p
Operating cost per week of a 300,000 sq ft composite DC	£250,000
Operating cost per week of a 80,000 sq ft specialist DC	£40,000

Table 3: Typical benchmark costs for retail distribution operations derived from extant secondary data

Even across the chains studied, there appears to be little variation in these standard figures. However, there is clearly scope for significant variation in total distribution costs, based on the efficiency with which these resources are used. Such efficiency (or lack of it) can be driven by a number of factors, including ratio of transport resource to warehouse resource (a larger number of warehouses typically drives down journey distances and thus numbers of vehicles and drivers), store coverage (again driving journey distance) and the quality of service required at store (which may sub-optimize distribution resources). We have observed a consensus that these factors are more likely

to affect the ratio of distribution cost to sales, rather than any variance in the unit cost standards described above.

The summary results are:

	Asda	Safeway	Sainsbury	Tesco
Composite DC's	13	9	17	20
Specialist DC's	0	5	3	1
Tractors	468	629	787	1,031
Trailers	687	1,060	1,246	2,205
Rigids	1	0	54	8
Kilometres p a	90m	96.8m	110m	176m
Annual sales	£8.8 billion	7.6 billion	£12.1 billion	£15.3 billion

(Standard base cost data derived from the interviews was then applied to this secondary data:)

Vehicle cost	£18m	£26m	£33m	£47m
Fuel cost	£18m	£19m	£22m	£35m
Hours cost	£26m	£28m	£32m	£50m
DC cost	£169m	£127m	£227m	£262m
Direct costs	£231m	£200m	£314m	£395m
Systems / other	£23m	£20m	£31m	£40m
Total cost	£254m	£220m	£345m	£434m
Cost / sales %	2.89%	2.90%	2.85%	2.82%

Table 4: Estimated retailer physical distribution costs (* Source of Sales Data: IGD monthly survey: 12 months to June, 1999)

The key deduced metric (distribution costs as a percentage of sales) was then tested on the interview respondents. Whilst none would specifically confirm their own figure, for reasons of commercial confidentiality, all three respondents confirmed that the calculation appeared to be basically correct.

2.2.1.1 Marks & Spencer Costs

M & S have been omitted from this analysis, because their DC's do not fit easily into the (otherwise common) categories of large "composite" or small "specialist" sites and also because they have not taken part in any of the recent IGD surveys. However, an attempt has been made to construct an estimated cost, based on an extrapolation of the "standard costs" of other retailers applied to the known characteristics of the M & S network.

M & S's secondary distribution costs were confirmed by respondents as being "about £120 million per annum", or 4.6% of sales revenue. IGD surveys across all retailers suggest that a figure of around 3% RSV is the norm, typically split:

- Warehousing: 56.4%
- Transport: 34.6%
- IT systems: 6.7%
- Other costs: 2.3%

Assuming that 9% of M & S's annual costs are similarly allocated to IT and other costs, we estimate that M & S's actual physical distribution costs are:

- £40 million transport (36p per tray)
- £70 million warehousing(63p per tray)

This compares with an expectation, based on industry norms, of:

- Transport (34.6% of 3% RSV) £27 million (Actual is 48% above norm)
- Warehouse (56.4% of 3% RSV) £44 million (Actual is 59% above norm)

The absolute “pence per tray” figures are typically double those of other retailers, in spite of the fact that the typical delivery pallet fill (46 cases) is similar to that achieved in store deliveries in, for example, Sainsbury.

The relatively high cost is largely explained by the number of depots. Modern retail composite (multi-temperature) DC’s normally process around 1 million cases per week. M & S’s store demographics and lead times are such that seven depots are required, each only handling 300,000 cases per week. Compared with other retailer operations, the M & S network thus stands the indirect costs of up to 5 “unnecessary” depots. On the basis that indirects could represent 30% of a typical weekly composite RDC cost of £300,000, this network inefficiency would be worth 20p per tray. Deducting this would reduce secondary costs to 3.7% of sales value.

For the four major UK food retailers (excluding M & S), therefore, the average distribution cost as a percentage of sales is just under 2.9%. In financial terms, if Safeway could return Tesco’s performance ratio, this would increase nett margin by £5.9 million (compared with a total declared operating profit of £375 million in 1998).

This analysis is clearly based on a number of assumptions and generalisations, which need to be validated with the respective retailers. It should also be noted that the construction of a robust and objective set of benchmarks for retail distribution costs was absolutely not one of the research aims. The intention was to attempt to establish that there was likely to be approximate parity in operational, organisation and relative costs and to provide a foundation of operational familiarity which would then inform the subsequent interviews.

Subject to this caveat, the theory and hypotheses appear to be supported by the data: that is, the major food retailers have achieved parity in operational efficiency and therefore the physical distribution function no longer contributes to competitive advantage between these firms.

2.3 Establishing Contacts

Each of the five target organisations was approached in the autumn of 1999. Contact was made opportunistically with the most senior manager within the distribution function of each of the retailers. Typically, this would be “National Transport Manager” or “National Distribution Manager”, occupying the following position in the organisational hierarchy (nomenclature varies from firm to firm):

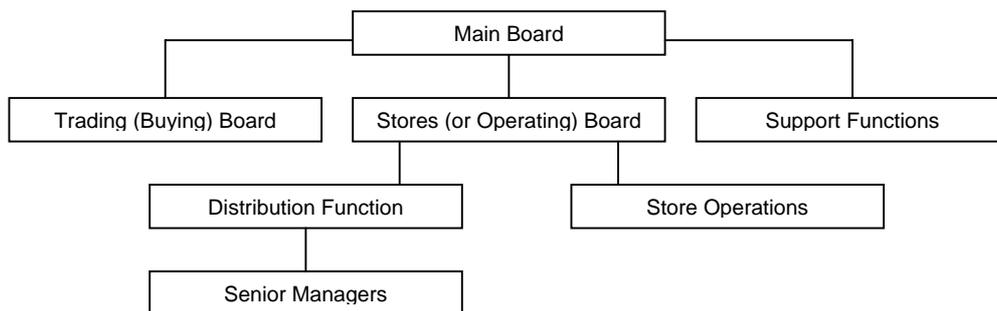


Figure 10: Typical retail distribution senior management reporting structure

Of the five retailers, three expressed immediate enthusiasm for the project and a series of semi-structured interviews was conducted in the autumn and winter of 1999, two each with Asda, Safeway and M & S. It took somewhat longer to establish meaningful contact with the other two but during 2000 first interviews were held with representatives from Tesco and Sainsbury.

The summary aims of these interviews, as explained to the respondents, were:

- Confirm the extent to which physical distribution systems of UK food retailers are similar and whether they contribute a competitive advantage.
- Identify potential cost savings, efficiency gains and other benefits which might be generated by the sharing of physical distribution resources by UK food retailers.

- Identify potential barriers to, and enables for, distribution resource sharing.

It was agreed that all data gathered would be non-attributable, other than that already in the public domain. Summary transcripts of interviews would be sent to respondents for editing and approval before any of the data was used. Since it was intended that these interviews would be the first stage of an iterative process of discussions, it was essential that commercial confidences were established and respected absolutely.

The first objective was to confirm the reliability of data gathered from archive material and other secondary data sources (IGD etc) such as turnover, percentage of sales attributable to food, numbers of stores and key distribution system characteristics (numbers of lorries, cases delivered etc). Secondly, some standard definitions of terms were proposed, including defined limits to the physical distribution system ("unit of analysis"). A number of standard quotations from the literature and trade press were used to illustrate the background to the subject.

The following two sets of questions were then used. The first set out to explore attitudes to competition and the contribution which physical distribution might make to competitive advantage

1a) Does the retailer consider its physical distribution systems to be better or worse than those of the other Top 6 retailers? (Tesco, Sainsbury, Asda, Marks & Spencer, Somerfield/ Kwik Save).

1b) To what extent does the physical distribution system contribute to competitive advantage?

1c) Would competitive advantage be compromised by the sharing of distribution resources with competing food retailers?

1d) Would the sharing of such resources be counter to the retailer's strategy and culture?

1e) What benefits do you believe might arise from the sharing of distribution resources?

- 1f) Are there any possible benefits beyond the financial ones?
- 1g) What are the main barriers to resource sharing?
- 1h) What might the main enablers or facilitators to resource sharing be?

The second set of questions was intended to find out whether any practical applications of co-operation had already been either identified or even tested:

- 2a) Bearing in mind the previous definition of physical distribution, which excluded any activities paid for by manufacturers, do you currently operate any part of your distribution systems on a shared basis with another retailer?
- 2b) Have you identified any opportunities for potential sharing of resources?
- 2c) If so, specifically which types of resource would be involved?
- 2d) Have any discussions take place with other retailers about resource sharing?
- 2e) If not, who do you think is most likely to initiate such discussions?

The six initial interviews each lasted an hour. Initially, it was hoped to capture the content through detailed note taking, with a draft transcript circulated to respondents after the event for comments and editing. However, as the discussions developed, it became impractical to take notes and concentrate on the detail of the conversations. The last interviews and the subsequent joint meeting were therefore tape recorded with the consent of the participants. In all instances, transcripts of interview tapes have been returned to respondents for checking and (if necessary) editing of potentially sensitive material.

2.4 Joint Retailer Seminar

Having established a dialogue, together with an understanding of some of the key issues underpinning resource sharing, it was then proposed to the respondents that they (Asda, Safeway, M & S) should meet together, with a view to:

- Share the research findings to date, on a non-attributable basis.
- Identify specific potential synergetic benefits identified as part of the comparative survey of current systems.
- Develop a framework for quantifying benefits which may accrue from these opportunities.
- Develop a framework for discussion, planning, implementation and division of the accrued benefits.

The proposed forum was a “seminar”, in terms of academic research. As such, attendance was viewed as a contribution to the research process, rather than an opportunity to identify any specific opportunities for joint working with other retailers at that stage.

The first aim of the meetings was to confirm the reliability of data on the structures of operations derived from secondary data. Thereafter, the detailed content of the individual discussions was distilled down to four questions, or topics for discussion, which were then used as the framework for the joint meeting between the three firms.

- How is it possible to define an “optimum” or “best” PD system: for example, is quality, service or price the defining characteristic?
- What role, if any, does the logistics function fulfil within corporate strategy?
- Are there any examples of retailers working together either in the field of logistics or elsewhere?
- At what level, or in what sphere of activity, would pooling of information or resources be regarded as non-contentious (start with crates / recycling, move forward through primary transport and on into order systems / stock etc)?

The joint meeting, held in April 2000, lasted for two hours and was recorded for transcription. In order to allow time for note taking and reflection during the discussions, a colleague from Cranfield University, who was supervising the project at the time, also sat in attendance at the meeting to help facilitate the

dialogue. After some initial reserve, all three respondents contributed to a lively debate which covered all of the planned topics. However, it was felt by all participants that the presence of “competitors” in the room constrained contributions to some extent.

2.5 Broadmead and Tradeteam Case Studies

The findings of the exploratory phase formed the basis of a paper published early in 2002 (Stephens & Wright, 2002). Shortly after this, two applications of co-operative distribution arrangements were widely reported in the press.

The first of these, Tradeteam, had originally been set up as distribution joint venture between UK brewer Bass and third party logistics provider Exel Logistics. However, in 2000, Bass sold its brewing operations, including its stake in Tradeteam, to Interbrew. However, at the insistence of the then Trade and Industry Secretary Stephen Byers, Interbrew were obliged to dispose of these acquisitions, which they sold to Coors in 2002. Up to this point, the Tradeteam operation is of little relevance to this research. However, when Interbrew decided in the Summer of 2002 to outsource their distribution activities to Tradeteam, they were effectively joining with Coors to form a shared operation. Tradeteam also managed to attract other competing suppliers to join the shared platform. This appeared to form an appropriate environment in which to try and understand more about the circumstances under which competitors would share distribution resources. Access to Tradeteam was gained opportunistically, however, following contacts established as a result of another initiative.

In Spring, 2004, Bristol City Council announced that it was setting up a shared distribution platform to address issues of congestion and environmental damage associated with supplier deliveries to all of the competing retail businesses in its Broadmead shopping centre. The Council organised the funding and commercial arrangements, but contracted the operation out to

Exel Logistics. By the Autumn of 2004, some 17 suppliers had joined the scheme and there therefore appeared to be a pool of retailers which might offer some further insight into attitudes to co-operation in distribution. Contact was established in the first instance with Bristol City Council, who were not only prepared to discuss their experiences in setting up the scheme, but who were also prepared to provide introductions both to some of the retailers involved and to management contacts at Exel. These latter contacts were then used to gain access to their counterparts in the Tradeteam operation, who, in turn, were able to provide contacts in the participants from the major brewing companies.

In both cases, secondary data gathered through desk research was used in preparation for direct contact and to gain an understanding of the context, development and physical attributes of the operations. Thereafter, the primary data was collected through semi-structured interviews, which were generally tape recorded, transcribed and manually coded. The Broadmead case study was conducted between November 2004 and February 2005, with the Tradeteam case following in the Spring of 2005. Over this time the progress of the research was discussed with representatives from the original food retailers. Because of the passage of time and the major changes which had taken place in the market since the start of the research, some contacts inevitably moved on to new roles or even new firms and industries. However, it was still possible to continue a dialogue with some of the initial targets, affording the chance to test experience of the model and refinements to it on the original participants.

The output from each of the next two stages (urban transshipment and brewing distribution) built on the output from the previous stage. The aim was to provide:

- Longitude to the original, grocery-based research and
- Explore the generalisability of the findings.

2.6 Summary

As described in the first chapter, the research is intended to examine the idea that, because it offers short term competitive advantage only, logistics capability no longer contributes to competitive advantage in developed supply chains, such as those in the UK grocery market. On this basis, the next quantum reduction in costs or increase in efficiency might come from collaboration rather than competition. Having established the operating characteristics of the market and its key players through secondary research, it is intended to try and understand why there are few, if any, practical examples of collaboration.

On the basis of the exploratory research described in this chapter, the six hypotheses set out in chapter one in an attempt to explain the circumstances under which collaboration might or might not occur can be distilled down into a number of key phrases. These can be developed subsequently into a table of codes for the analysis and interpretation of further data collected during the research:

For example, potential collaborations will be affected by:

1. Maturity of systems, (typified by centralisation, transport consolidation and use of contractors), the remoteness from the end consumer, the willingness to sub-optimize costs to optimize service and the relative size / growth strategy of the firm.
2. Environmental or other external pressures, such as resource shortages.
3. Perceptions of strength relative to competitors.
4. Measurability and comparability of benefits.
5. Presence of active third party (contractor) brokers in the market.

The following chapters will examine these influences in more detail, against the findings from each stage of the case study research.

3 A systematic review of the literature

3.1 Introduction

In order to develop a framework for the systematic review of the literature relevant to this project, three broad areas of interest are identified: logistics, competitive strategy and retailing. The contextual literature pertaining to each is briefly reviewed in order to develop a set of search terms for the more formal and objective systematic review. These terms are used to identify those articles written in this subject area. These, in turn, are reviewed to establish how much work has been conducted in the specific area of research interest and to summarise and critiques the key views and findings set out in this area so far.

3.2 Systematic Reviews

A review of the existing literature surrounding the research area is a vital part of the research process, both to synthesize existing knowledge and identify where a further contribution to knowledge can be generated. However, literature reviews, if not carried out with sufficient rigour and diligence, can be subjective and open to the bias of the researcher. Tranfield, Denyer and Smart (2003) propose the adoption of the systematic review, as applied to research in the fields of medical science and, latterly, the formulation of government policy, to the field of management research. The key elements of this approach are:

- clear definition of the scope of the research.
- clear definition of the literature sources to be searched, search methodologies, search terms and tools used.

- recording of an audit trail of decisions taken, particularly on the selection of literature to be reviewed and, equally, that to be excluded.
- analysis of the internal and external validity of the literature used.
- extraction of the key data from the literature.
- descriptive and thematic analysis of the literature.
- synthesis of the findings.

To ensure that the disciplines of this approach are followed, a review protocol is prepared in advance of the search. The main aims of this are to define the boundaries of the subject area to be reviewed, as well as to define the details of the research strategy to be applied.

3.2.1 Review Protocol

Two types of literature are reviewed: contextual / explanatory and exploratory. The former is intended to provide a description of the context: development of the disciplines of supply chain management, characteristics of the UK retail grocery industry and alternative theories on strategy and competitive advantage, for example. The aim of this review is purely descriptive and need not be subject to the rigour of systematic review. There are two distinct outputs from this informal review process:

- development of the search terms which can subsequently be applied in more formal and systematic literature searches and
- in the absence of substantial and relevant literature being identified in the systematic review, a more informal “snapshot” of current thinking and ideas in the areas of interest.

The second, more formal, review is used to inform the theoretical underpinning of the research interest and link it to other work in the field, as well as identify the relevant gap in existing knowledge. The criticality of this review requires that it is subject to the disciplines of systematic review.

3.3 Choice of Terms – Three Spheres of Interest

The core argument underpinning the research project is that, since logistics innovations are easy to copy, they only offer competitive advantage in the short term until universally adopted. Thereafter, costs can be reduced further by co-operation by competitors to force out remaining inherent inefficiencies. A pilot study with four UK retailers suggested four enablers or “inhibitors”, the presence or absence of which might explain the circumstances under which such co-operation might take place.

The exploratory literature review is based on the premise that co-opetition is a known, accepted and understood form of competitive strategy and that logistics and supply chain management are accepted as legitimate branches of management science. There is thus no need to “prove” or critique either of these concepts.

The exploratory literature review, therefore, seeks to understand the known concept of co-opetition in the known context of supply chain management and will be managed in the following terms:

- Examples of cross-channel collaboration in logistics activity will be sought.
- Searches will be limited to refereed academic journals and the practitioner press.
- A data extraction table will be written in Excel, classifying material by source, quality and relevance, noting reasons for inclusion or exclusion in the final review.

The phenomenon under investigation can be seen as occurring at the overlap point of three spheres of interest: logistics operations across competing channels in a retail environment. The literature search is depicted by the overlap at the centre of the Venn Diagram in Figure 11:



Figure 11: A Venn diagram depicting the research area

The overlapping area of interest needs to be explored further in order to develop a list of tentative search terms for the systematic review of literature. The search terms for the literature review were developed from the following contextual areas.

- Operational context: physical distribution / logistics.
- Strategic context: competitive strategies.
- Commercial context: grocery retailing (note that this context is of lesser initial importance than the first two).

3.3.1 Operational context: Logistics and Physical Distribution

These words are applied deliberately and with care. A cynic might reasonably level the accusation that logistics, and the related though different disciplines of physical distribution and supply chain management, are not appropriate areas for academic pursuit in that, as “mere” branches of operational management, they are purely of practitioner interest and not fertile ground for the development and application of theory. However, the fallacy of this view can be demonstrated from the rich literature which has charted the development and evolution of a legitimate branch of management science, albeit from origins rooted in operations, through the integration of other functions into the discipline of logistics and, latterly, into the even broader context of supply chain management.

The lay-man could be forgiven for thinking that the terms distribution, logistics and supply chain management are synonymous and can be used interchangeably. The literature describes a process of evolution, from physical distribution as a focus of cost-driven operations, to supply chain management as a conceptual framework for the strategic integration of business processes and relationships. Unfortunately, the boundaries between the stages of evolution have been blurred, such that no single source offers a set of demarcations between the various terms and the process of development has tended to subsume each of the previous paradigms into the next one, to the possible detriment of the contribution which might arise from considering the components in isolation. In other words, if the notion of “competing supply chains” (Christopher, 1998) is accepted, then there is the danger of an implicit acceptance that all of the component parts of the supply chain are, by their nature, in competition.

Some of the confusion arising from the interchangeability of terms arises from the fact that the use of the word “logistics” in its modern connotation predates the treatment of physical distribution as a serious management discipline. Logistics has its roots in military applications and, in that arena, can be traced at least as far back as the beginning of this century. Even then, however, it embraced a broader range of disciplines than those which we would now regard as physical distribution.

Writing in 1905, Major Chauncey B. Baker described logistics as “that branch of the act of war pertaining to the movement and supply of armies”, implying far more than a fixed network of nodes and links. Johnson and Wood (1996) describe how extensive use of logistics models and forms of systems analysis were used in World War 2 to ensure that materials were in the correct place as they were needed, with physical distribution forming just one part of this process.

Outside the military context, Christopher (1996) cites Arch Shaw, writing in 1915, who pointed out the importance to business of considering both supply management and physical distribution as an integrated whole: “the question of

supply must be met and answered before the work of distribution begins”. However, although the concept of logistics as an integrated discipline has a relatively long heritage outside the commercial arena, it was not until the late 1950’s that there was any pressure on businesses to consider even the narrow discipline of physical distribution. Converse (1954) and Stacey & Wilson (1958) paved the way for Drucker’s seminal article of 1962, which described the physical distribution function as the “dark continent” of most firms’ activities (Drucker, 1962).

Drucker described distribution as “one of the most sadly neglected, most promising areas of American business”, accounting for almost 50% of consumer spending, but contributing little: “it can only mar, soil, tear, scratch or otherwise damage or downgrade the product”.

“We know little more about distribution today than Napoleon's contemporaries knew about the interior of Africa. We know it is there, and we know it is big; and that's about all. For people with a technical orientation, these activities are low-grade nuisances”. He threw down the gauntlet to the management community by concluding: “There is a need for a new orientation - one that gives distribution the importance in business design, business planning and business policy its costs warrant.”

Throughout the 1950’s and 1960’s, writers postulated ideas which developed the operational and scientific credibility of the distribution function. Building on systems theory (Bertalanffy (1950), topics covered included network design, transport optimisation, warehouse location and design and principles for balancing inventory against manufacturing (Ballou (1968 and 1987), Buxton (1975), Coyle and Bardi (1976), Bowersox (1983), Watson-Gandy, 1988)). Much of this work was summarised in McKinnon (1989), who narrowed the definition of physical distribution back down to the consideration of finished goods only, excluding raw materials (supply) management. He defined physical distribution as the collective term for the series of inter-related functions (principally transport, stock-holding, storage, goods handling and order processing) involved in the physical transfer of finished goods from producer to consumer, directly or via intermediaries. McKinnon estimated that

physical distribution accounted for approximately 8% nett sales in the UK and US and that costs had come down over the last 20 years. "The performance of a nation's economy is critically dependent on the quality and cost of its logistics support". He defined a physical distribution channel as "composed of terminal nodes, intermediate nodes (warehouses) and the links between them represented by transport movements: a much less abstract concept than a marketing channel". He described two dimensions of a physical distribution channel: vertical (number of nodes), and horizontal (similar nodes at a given stage).

However, the evolutionary process from logistics via "integrated logistics" to "strategic logistics" and ultimately to "leading edge logistics" (Bowersox & Daugherty, 1987) was accompanied by the widespread belief that logistics excellence contributed to competitive advantage. Even in the narrow physical distribution sense, Stock (1990) uses examples from American industry to describe how "such advantages in distribution are more difficult for competitors to duplicate in the short term, so the advantage remains for a period of time. It can be called sustainable competitive advantage". As we have already seen, however, there comes a time when all distribution innovations can be copied and adopted universally, so that competitive advantage is nullified.

Thus, during the 1960's, the hitherto separate process disciplines of distribution and raw materials management were integrated, in accord with the original military logistics concept. Although the terms "distribution" and "logistics" are not interchangeable, integrated logistics is not at odds with a narrow functional focus based on cost, leading to universally adopted best practice. LaLonde (1983) maintains that it is still appropriate to "re-align (the) physical facilities network" as part of strategic response to environmental issues and pressures.

In 1986, the (American) Council of Logistics Management defined Logistics Management as "the process of planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory,

finished goods and related information flow from point-of-origin to point-of-consumption for the purpose of conforming to customer requirements" (CLM 1986). Sussams proposed that "Logistics is a holistic science. it does not look at the individual parts of a system in isolation; it looks at ways in which the parts are connected and suggests better connections. One of the principal tasks of the logistician is to impose some kind of order on (this) vast system in which, ultimately, everything is connected to everything else" (Sussams, 1991).

The term "Supply Chain Management" appears to have been first coined in the early 1980's, and can be traced back to channels research and systems integration research, both in the 1960's. The SCM concept moves the focus away from an operational cost focus within functional silos, and instead emphasizes the business benefits which can accrue from the broader horizontal and vertical integration of business processes. As such, it is not a tool kit for the development of operational competencies or even excellence (Peters and Waterman, 1982; Treacy & Wiersema, 1995), but a new "lens" through which the structure of a business, and the relationships within that business, can be viewed.

One of the other early references to SCM as a management process (rather than a juxtaposition of the 3 words) was Houlihan (1985) "We need a new perspective and a new approach: supply chain management". Porter popularised the term "value chain" in the same year (Porter, 1985).

Ellram (1991) describes SCM as "an innovative form of competition which has grown out of and is supported by the current economic environment. SCM represents a tremendous opportunity for firms to utilise assets, particularly inventory, more effectively while decreasing the ownership and management risks of vertical integration. SCM is defined here as an integrative approach to dealing with the planning and control of materials flow from suppliers to end-users. Supply chain management really represents a network of firms interacting."

Stevens (1989) proposed one of the first models for supply chain management, covering the flow of goods from supplier through manufacturing and distribution chains to the end user. Stevens expanded this scope further upstream to the source of supply and down to the point of consumption (from dirt to dirt). Stevens' understanding of the scope of the supply chain is the most commonly accepted in the literature.

Setting aside the earlier military applications, the development of logistics as a topic for study can be summarised as having started with Drucker in 1962 as a consideration of the physical distribution activities of warehousing and transportation. Following the extension of distribution to embrace inbound materials and purchasing within the field of logistics in the 1970's, the further integration of vertical business processes in the 1980's and 1990's, to embrace both the end customer and upstream suppliers, created the broader discipline of Supply Chain Management. Whilst, as seen above, differences in definitions vary slightly from author to author, the concepts can be described as nesting within each other. A depiction of this nesting of concepts is shown in Figure 12 below.

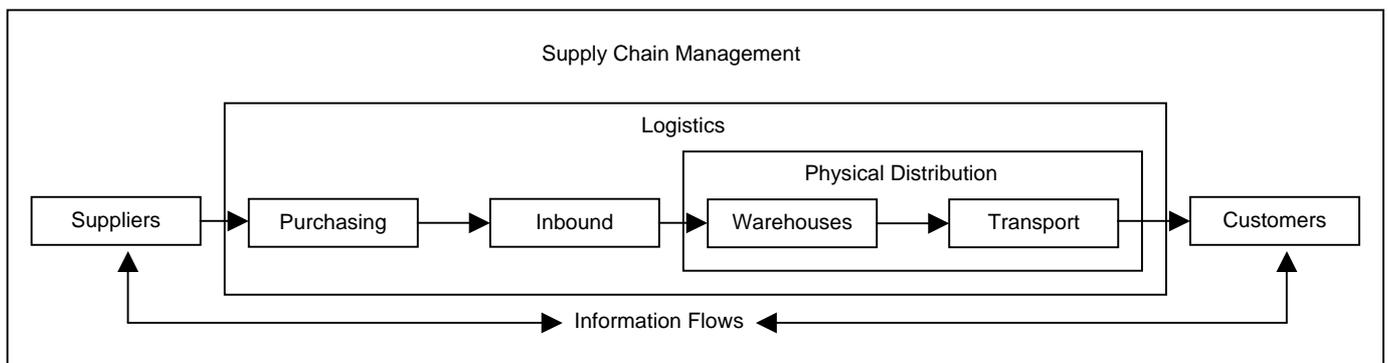


Figure 12: Physical distribution as a sub-set of logistics, in itself a sub-set of supply chain management

3.3.2 Logistics: Implications for Search Terms

The phenomenon under consideration in this study is the potential for co-operation or collaboration between competing companies across supply

channels in the field of physical distribution. The study considers opportunities for sharing tangible distribution assets, such as warehouses and trucks, rather than facilitation mechanisms, such as information exchanges or shared planning tools. We are thus interested in the early to mid stages of the evolutionary process as described above, rather than the later developments. A preliminary review of available source material, even prior to a systematic review, suggests that much has been written about the potential for collaboration in areas such as information flows and supplier management. However, this is not relevant to the research topic and the search terms for this section of the Venn diagram will therefore be restricted to “logistics” and “distribution”. Results based on this latter term will need to be reviewed with care, as “distribution” has a second meaning in the business literature, specifically relating to the “place” element of the so-called 4 P’s of marketing: the outlets in which a product is potentially available to the consumer. The word also has a specific meaning in statistical analysis, as well as a more general meaning in describing, for example, the occurrence of flora or fauna. As with all subsequent sets of search terms, these will be applied with the Boolean operator OR.

Summary: primary set of search terms: (Logistic* OR distribut*)

3.3.3 Strategic context: Competition Strategies

Although the work of strategy theorists has only latterly been applied to the retail environment, the basic “universal” strategic choices of price leadership or product differentiation (Ansoff, 1965; Porter, 1980 and 1985) have been refined to apply in a retail context as price versus added values (McGee, 1987; Johnson, 1987; Walters, 1988; Treacey & Wierseme, 1995). This basic choice between corporate objectives is refined into more specific operational goals as strategy is devolved through the hierarchy of the business (Hofer & Schendel, 1978; Walters, 1988; Harris & Walters, 1992). Although some commentators have argued that price is paramount (Corstjens and Corstjens, 1995), others have argued that low costs (and thus low prices) are a prerequisite for market entry and therefore set out frameworks by which

differentiation can be achieved (Walters & White, 1987; Walters, 1988, Cox & Brittain, 1988). Distribution is generally regarded as an enabler of efficiency rather than as adding values and is also therefore a “hygiene factor” rather than a differentiator, or, after the Kano Model, a Basic factor, rather than an “excitement” factor (Bicheno, 1998). As the retailer, rather than the product, has become the brand (Walters & White, 1987), distribution has played an enabling role in underpinning service developments (Smith & Sparks, 1993; Quarmby, 1990) although innovations in this respect are easy for competitors to copy (Savitt, 1987). UK retailers such as Asda, Tesco and Sainsbury have all attributed at least part of their recent success to innovations in physical distribution management.

As discussed briefly in chapter one, the extended enterprise has been adopted as a governance structure which might readily be applied to firms vertically integrated within a single supply chain. However, just as it is suggested that such vertically-integrated chains can compete with each other (Christopher, 1998), so others have suggested that horizontal integration may be effective in the field of logistics (Richardson, 1998; Whitehead, 1999).

If Porter’s model can be described as businesses at war, the notion of “co-competition” describes business as both war and peace simultaneously. Co-competition, as coined by Ray Noorda of Novell (Nalebuff and Brandenburger, 1996), is based on the concept of enlarging the size of the pie to be divided, rather than simply upon the rules by which the pie is fought over. Nalebuff and Brandenburger (1996) describe the emergence of game theory, from its roots in submarine warfare planning during World War 2, to a developed branch of mathematics which helps to predict and explain the actions of players in many situations, including business strategy. They use game theory as the foundation for a model of co-competition, where the acronym PARTS sums up the roles of players, added values, rules, tactics and scope of the game. The players are described as a symmetrical “value net”, where suppliers are balanced against customers, and competitors are balanced against so-called complementors. This notion of complementarity provides an alternative to the “business as war” perspective: the recognition that non-competing firms can

help expand the size of the business pie is then extended to ways in which directly competing firms can equally contribute to the well-being of the market as a whole. Figure 13 describes this dual role of other firms as competitors and / or complementors from the perspective of a single firm.

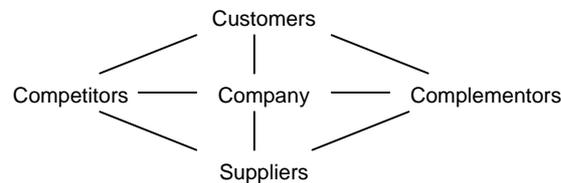


Figure 13: The dual role of firms as competitors and complementors in “co-opetition”

In summary, the role of any player in the “positive sum” game is to increase their own added value through their interaction with the other players. The added value of a firm is simply the size of the total pie when a firm is in the game, less the value of the total pie when that firm is out of the game. The relevance of this model to our research is clear: firms, in this case UK food retailers, can maintain a competitive position towards each other whilst seeking ways to add value to the total size of their “pie”.

Alternatives to the Porter strategic model may not only be manifested in overt co-operation between firms, such as the examples given above, but also in choices concerning organisational form. Of these, the most apparent are the extent to which firms choose to vertically integrate (or disintegrate) support activities and elements of the supply chain. Two of the clearest manifestations of this in UK food retailing are the extent to which retailers choose to contract out certain operations (for example the physical distribution function) and the extent to which retailers attempt to subsume the identity of manufacturing suppliers through the development of “own label” ranges. As well as any direct cost or marketing advantages to be gained through such initiatives, both developments have a grounding in theories of transaction cost economics.

One of the key trends of retail distribution over the past thirty years has been the increased reliance on specialist contractors (Buck, 1990, Jaafar and Rafiq, 2005). Reliance on own-label merchandise and the use of specialist functional

contractors can both be seen as outcomes of a style of relational management, the opposite faces of which could be regarded as opportunism in a (manufacturer) branded market and insistence on functional control.

Thinking of supply and demand in terms of simple hierarchical chains is not helpful in many industries, and in food manufacture and retailing in particular. Here, the matrix of suppliers to “creators of demand” is complex, with many inter-connections. Each supplier may service many retailers in parallel and thus each party can be a component of several parallel (and potentially competing) chains. This takes us back through the literature, to the starting point of Miles and Snow (1986), who described the emergence of a new organizational form – “a unique combination of strategy, structure, and management processes that we refer to as the dynamic network”. Brought about by phenomena such as vertical disaggregation, market mechanisms and information disclosure, the role of “brokers” emerges as parties who facilitate the linkages among equal partners in a network of chains and business inter-relationships. The influence of brokers in the logistics context can be seen in graphic form in Christopher (1986), who describes the influence of intermediaries in the supply chain. For example, where five suppliers sell to five retailers, there are potentially 25 sets of transactional links. The use of an intermediary reduces this to ten as shown in figure 14.

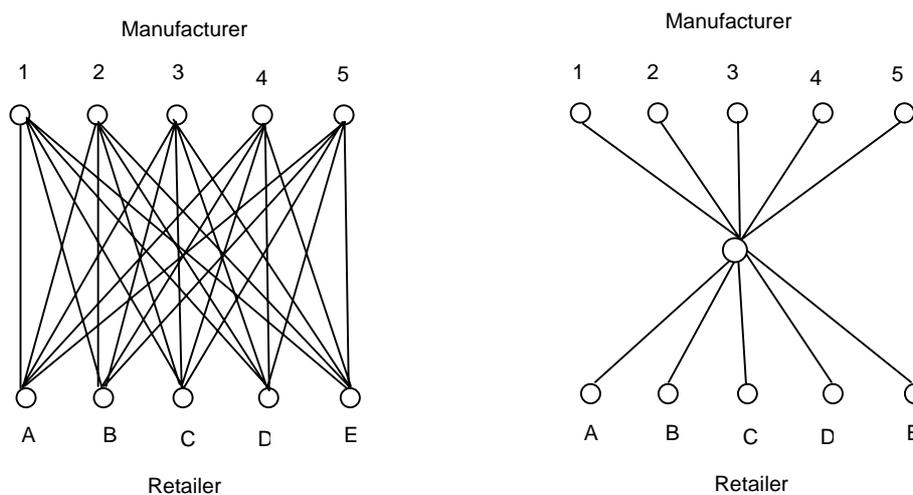


Figure 14: The use of intermediary contractors to de-complex supply chains (Christopher, 1986)

However, in this simplified example, the difficulty of achieving vertical integration along any one manufacturer / retailer supply chain can be seen. If the intermediary is considered as a provider of distribution services, and if that intermediary were to be vertically integrated with the operations of supplier A, then the products of manufacturer 1 for retailer B will either have to find a new route to market, or considered as a parallel set of enterprise extensions. Although Buzzell and Ortmeyer (1995) refer to the same problem in that most retailers must work with a multiplicity of suppliers, they do not mention that many suppliers must also work with a range of retailers. Whether supplying brand-leading products, with universal availability, or specialized products with low throughput per store or retailer, there is a range of circumstances under which manufacturers may choose, or be obliged, to be part of multiple supply chains within a dynamic network.

However, there are other spheres of activity where the role of an intermediary can be seen to contribute to the provision of a non-competitive operation. For example, most UK manufacturers and retailers have long since ceased to source, procure and maintain their own supplies of wooden pallets on which to move goods around. The engineering concern GKN joined forces with an Australian company to set up the Chep organization, which has operated a pallet pool in the UK for many years. Chep are now in competition with other service providers, including Hays, to operate a common pool of re-usable plastic crates for the transport of foodstuffs into supermarkets. Interestingly, prior to this, the major UK retailers tried for several years to agree procedures for using each others' crates but without success. Discussions had failed because each retailer appeared to believe that his own crate was better than everybody else's and that pooling would only be possible if his design were to be used. It took the intervention of (neutral) trade bodies, the Institute of Grocery Distribution and ECR Europe, and commercial third party service providers, before the mindset of competing over non-competitive resources could be addressed.

The strategic models can thus be seen to have evolved from simple price / quality decisions to more complex frameworks, embracing inter-channel and

intra-channel competition and collaboration, often all occurring simultaneously. Much has been written about collaboration between potentially competing partners within a single supply chain: such thinking has evolved in parallel and in harmony with the development of Supply Chain Management.

3.3.4 Competition: Implications for Search Terms

The phenomenon under consideration in this study is the potential for co-operation or collaboration between competing companies across supply channels in the field of physical distribution. Interest is focused on the potential for competing supply chains, or elements within those supply chains, to share or pool physical distribution assets without compromising the competitive relationship between the supply chains. Therefore, collaboration within a supply chain (between manufacturers, shippers and consumers) for example, is irrelevant to this study. Co-operation or collaboration between competing manufacturers or retailers, through shared or pooled resource, is of interest. Therefore the phenomena of “cooperation” or “collaboration” need to exist at the same time as the continuing phenomenon of “competition”. Again, Boolean operators are used to express the logic of this second set of terms. Wild cards are used in this instance to capture instances of, for example, competition, competitor, competitiveness etc.

Summary: secondary set of search terms: (Cooperat* OR co?operat* OR collaborat* OR opetition) AND competit*.

(Note: the specific letters “opetition” were used to avoid issues in database searches with hyphenation, which is used by some authors).

3.3.5 Commercial Context: Grocery Retailing

As noted above, the phenomenon of interest in the broadest sense is cooperation between competitors in the field of physical distribution. Applications in any commercial or operational context are potentially of

interest, although examples of application in grocery retailing are specifically sought, in order to try and understand this narrow context more fully, and the ways in which it might be generalised to other contexts. There is also an argument that it is impossible to draw meaningful understandings and conclusions from too disparate and fragmented a constituency of examples.

The UK food retail market is often held up as a paragon of logistics efficiency, with unit costs and inventory levels significantly lower than most of the rest of the world (Ferne, 1995). Logistics developments as described above have taken place against the background of market concentration, creating an environment of intense competition. Arguably, the pace of change and intensity of competition should give rise to a research frame in which it is possible to isolate competition through physical distribution efficiency from total supply chain-based competitive strategies. Since 1960, the major multiples' share of the UK grocery market has grown from around a quarter to nearer three-quarters, at the expense of the independent and co-operative sectors. Within this three-quarters, the top six companies account for almost 80% of all sales. However, this top six contains some very different companies (Seth & Randall, 1999).

The key trends in the retail distribution environment, and the reasons which explain them, have been well documented in the logistics literature:

- centralisation of distribution (Carter, 1986; Bowring, 1988; McKinnon, 1989; McKinnon, 1990; Moore, 1990 and 1991; Cullis, 1992). Latterly, this has been described as having grown from 60% of total volume in the late 1960's (Pettit, 1967) to around 95% in the late 1990's.
- concentration of retail power in the hands of a few major multiples (Akehurst, 1983; Ferne, 1992 and 1997; Bourlakis, 1998) to the extent that the top 6 UK food retailers now hold almost 58% of the total market.
- use of third-party providers of distribution services (McKinnon, 1986; Ferne, 1990; Buck, 1990), with third party transport

penetration having grown from 40% in 1984 to 47% in 1998, and warehousing penetration from 14% to 34% in the same period (Buck, 1990 and Sheldon, 1998).

Against the background of retail concentration, the arguments for the centralisation of distribution are so compelling that, whilst there have been differences in the rate of uptake, all major UK retailers had implemented these techniques almost universally by the 1990's. Having achieved parity in this respect, the next key trend has been the optimisation of physical distribution resources through the tools of:

- integration of primary and secondary distribution.
- increased asset utilisation through multi-cycling and new handling techniques and technologies.
- reduction in inventory through rapid replenishment, improved forecasting and co-managed or vendor-managed stocks.

These issues conspire to create a climate of further change, in which many of the traditional assumptions about the way in which firms compete are being challenged. Among these is the notion that competitive advantage is created by supply chain excellence, and thus by implication, by physical distribution excellence. However, an alternative approach would suggest that competitive advantage in physical distribution is gained in the short term only, with any emergent best practices easily copied and adopted by competitors.

Changes in the UK food market over the last 30 years, therefore, have thus been characterised by two key trends: the concentration of retail power into the hands of a small number of multiple store operators, and the almost complete centralisation of these multiples' distribution activities. Part of this research explores the reasons for these trends with a view to extrapolating future developments.

Having taken more or less complete control of deliveries into stores, a further trend in the last five years has been for retailers to become involved in the

supply chain from factory to RDC. Initiatives such as ex-factory buying, intermediate stock-holding and retailer-controlled primary transport have been some of the manifestations of this trend.

Distribution of fresh foods to major UK retailers is thus highly integrated and centralised. Typically, a major retailer will operate around 10 - 15 regional distribution centres (RDC's), each collating the individual store orders for 50 - 70 stores and handling around 1 million cases per week. Some RDC's operate across a range of temperature regimes ("composite" RDC's), others are dedicated to a single product group (e.g. frozen or produce). Most retailers operate at least some of their RDC's themselves, with the balance contracted out to third party operators. Many RDC's have their own depot-base transport fleets for store deliveries, either operated in-house or by third parties. The RDC network was first established in the late 1960's and is now more or less complete and handles over 95% of fresh foods for major retailers.

There is general agreement within the UK food supply industry that retailer initiatives, such as ECR (Efficient Consumer Response), will have an increasing impact on physical distribution systems. Examples might include stock and processing activities being forced back up supply chain, re-definition of exactly "who does what" in the supply chain and further reduction in order lead times and extension of "chill" disciplines to other temperature regimes.

3.3.6 Grocery Retailing: Implications for Search Terms

Although some of the basic tools and systems are transferable to more or less any commercial context, the UK grocery retailing industry, and its associated distribution systems, are at least as mature and efficient as anything else in the world. A climate of intense competition and rapid concentration of the marketplace has prompted the rapid adoption of strikingly similar operations by all of the major players. Whilst, outside the context of this piece of research, it may be interesting to draw parallels with other markets and other countries, the degree of homogeneity within grocery distribution, particularly in

the UK, facilitates the kind of cross-channel cooperation under investigation. Whilst, therefore, it is of interest to understand applications in other commercial or operational contexts, ultimately, examples of theory or application in the narrow grocery retail market in the UK are sought.

Summary: third set of search terms: (Grocer* or ECR or Efficient Consumer)

3.4 Methodology and Results – First Iteration

A hierarchy of search terms has been designed to be applied in turn, to determine the scale of the available literature at each level of the hierarchy, before pursuing a more detailed analysis of the results.

- The string “(Collab* OR Cooperat*) AND (Logistics OR Distribution)” is applied first, in order to understand the amount of references available on collaboration in physical distribution within a single supply chain.
- The second string “AND competit*” is then applied in to limit references to collaborations across parallel competing chains. In fact, this string may also bring back references to intra-channel collaboration, as a tool to deliver competitive advantage as compared to other chains. Such references can then only be identified and removed through a study of the content.
- The third string (Logistics OR Distribution) is applied
- The fourth string “(Grocer* OR ECR OR Efficient Consumer) can then be applied to further delimit the references.

Because of the amount of non-refereed practitioner material available in this commercial and operational context, the results were limited to include (refereed) academic journals only. The search terms were applied to all text fields within the databases, in order to try and identify as many references as possible. Any which contained only passing or incidental reference to, for

example, logistics or distribution, were then manually eliminated during a more detailed review of the texts themselves.

The search terms were iteratively applied to four databases : ABI (ProQuest), EBSCO (Business Source Premier), Web of Science (ISI) and Science Direct. The initial results were treated as a pilot, with the full list being manually reviewed to remove duplications and irrelevant papers. The search “rules” were further refined during the pilot phase:

- papers with no author were removed, as these generally tended to be from non-academic practitioner journals (despite setting limiters to exclude these) or abstracts or summaries of other papers.
- papers in languages other than English were discounted

Various combinations and alternative sequences of the hierarchical strings and additional limiters were tested, all with broadly similar results. However, application of all of the search strings returned a very limited number of texts (3), which did not include some anticipated material. Closer inspection of some known key texts revealed that many authors writing in the area of collaboration have looked at the context of collaboration in logistics or collaboration in retail supply chains, but rarely collaboration in both logistics and retailing. It was therefore decided to apply the third and fourth search strings separately, in effect to identify two separate bodies of literature, which could then be manually reviewed and integrated as appropriate. These searches resulted in a combined total of 11 papers:

First Iteration: Search on all strings: collaboration in grocery logistics		
(Collabor* OR cooperat* OR co?operat* OR opetition) AND competit* AND logistics AND (groce* OR ECR OR Efficient Consumer)	3	
Manually eliminate irrelevant papers	2	
Second Iteration: References to collaboration (etc) in (grocery) retailing, but with no specific references to logistics		
(Collabor* OR cooperat* OR co?operat* OR opetition)	30,031	Known “test” papers included? Yes
AND competit*	2,773	As above: No
AND (Groce* OR ECR OR Efficient Consumer)	87	As above: Yes
Manually eliminate irrelevant papers	6	
Third Iteration: References to collaboration (etc) between competitors in logistics		
(Collabor* OR cooperat* OR co?operat* OR opetition)	30,031	
AND competit*	2,773	
AND logistics	85	
Manually eliminate irrelevant papers	7	
Overlap	2	Papers delivered by both searches
Total references	11	

Table 5: Numbers of references identified in each iteration of the systematic literature search

Note: See appendices 1 – 3 in the References chapter for a full list of references returned, together with explanation of those papers discounted as irrelevant

3.5 Outcomes from the literature review: enablers and inhibitors for collaborative arrangements

A list of the full results after the final iteration (11 papers) is included in Appendix 1. Because of the low number of papers satisfying all of the search criteria, the content of all was fully reviewed to establish relevance (or otherwise) to this project. Papers listed in the appendix were rejected for one of the following reasons:

- collaboration within a single supply chain, or so-called vertical integration. This collaboration is generally in the area of information exchange or joint planning, but can extend to logistics, but no consideration was given to cross-channel collaboration.
- logistics was only an incidental consideration in a broader discussion on specific opportunities, largely in the areas of data exchange. Again, the language used has parallels in both disciplines: information is “distributed” through “hubs” in much the same way physical goods might be.
- Two papers were themselves literature reviews of the development of supply chain management principles, but offered no observations on current practise or future opportunities.

A rich picture of the contextual retail environment and the associated evolution of logistics systems is provided by Fernie (1995). However, this paper pre-dates most of the developments and almost all of the literature on potential horizontal collaboration and therefore perhaps unsurprisingly makes no reference to the potential for development of partnership arrangements.

Having said that, it can be seen from some of the other literature that the idea of potential collaboration in logistics operations between competitors is not a particularly new one. Heskett (1973) identified the opportunity, explaining it as being driven by vast technological changes in physical distribution systems and capabilities since the Second World War. For example, traditional

technologies have increased their capacities: ships and trucks are generally larger and can carry larger payloads than they could 20 years ago. At the same time, new technologies have either become available for the first time, such as containerisation, or have become accessible to a wider market as costs have fallen, for example with air-freight.

To take maximum advantage of these technological changes and the opportunities they provide for greater efficiency and reduced costs, however, it is necessary for a programme of organisational change to follow. This is not solely driven by the need to embrace logistics as a core skill and ensure that the technologies have been embraced operationally and have not been blocked by labour or management attitudes. Rather, there is a need for organisations to shift responsibilities to create both internal vertical integrations, but also external relationships. Partly, this is driven by the need to create the necessary critical mass to make the most effective use of the increased capacity created by the new technologies, but Heskett also proposes two distinct sets of circumstances under which inter-firm cooperation will be desirable.

The first is the so-called "distribution utility": cooperative inter-organisational development of an "arm's length" package of services, designed to allow "large, proud" organisations to concentrate on selling, rather than delivery. Such a utility might be created jointly by a group of leading manufacturers and their chain-store customers.

The second of circumstances reflects environmental, as well as commercial pressures. City centre congestion compounded by small and fragmented consignment sizes conspire to make the costs of urban delivery untenable. A possible solution, suggests Heskett, would be the coordinated consolidation of freight movements via shared urban transshipment centres.

Both opportunities - arm's length cost-sharing and consolidation of volumes - proposed by Heskett appear to have some support from potential participants. Consolidated distribution facilities might not be "far-fetched and might have advantages to both sectors of the industry", according to the president of a large retail food chain" (unattributed quote in Heskett, 1973).

Because of the maturity and fairly homogenous nature of retail distribution systems (Fernie, 1995), it can be argued that innovation in logistics might offer at least a short term competitive benefit. However, the complex inter-relationship between logistics and manufacturing which has developed over the last few decades requires collaboration and cooperation between supply chain members in order to facilitate innovation. Conversely, therefore, a willingness to innovate and change can be seen an enabler, or explaining factor, for partnerships (Frankel, Goldsby & Whipple, 2002). The same authors note that, in spite of the widespread belief of the supply chain benefits driven by ECR implementation, the actual physical impacts on distribution systems may not be that great, with, for example, inventory levels in the US generally as high or even higher than before ECR was first promoted.

Almost 30 years after Heskett (1973) suggested two sets of circumstances under which logistics collaboration would be possible, Cuthbertson and Collet (2001) explore the relationships between potentially competing partners within a single supply chain in more detail. Specifically, the relationship between supplier and retailer is described as being both collaborative and competitive, in that both parties are also highly likely to be members of other competing supply chains. The need for information exchange and the alignment of key resources (money, people and technologies) is discussed, but an opportunity for much wider collaboration networks is identified. Retailers deal with many suppliers and suppliers deal with many retailers, and therefore there may be a role for sector-wide organisations to act as inter-mediaries and develop standards and platforms across industries. Whilst the examples discussed focus on information and technology standards, it does not require much of a leap of imagination to apply this thinking to physical distribution standards and processes.

Very recently (Hoffman 2005), it has been recognised that this potential for collaboration across supply chains faces an uphill struggle, because firms would fear the loss of some competitive advantage grounded in their logistics systems. Having recognised the role of third parties in facilitating information

exchange, not only by setting common standards but also developing the technologies which allow only limited access to data by the appropriately authorised parties, it is suggested that there may be a role for third parties in acting as agents to facilitate collaboration and integration elsewhere. Whilst recognising that vertical coordination within a single chain is likely to be much easier than horizontal collaboration, because of prejudices and fears among potential participants, it is suggested the template for integration has been developed in the field of information exchange. This would, however, be more than just an extension of traditional third party service provision, in that it requires the participants to join more actively in the setting of common standards, in the full knowledge that they are actively joining with their competitors in these operations, rather than operating at arm's length. "When senior management starts to view the supply chain as a strategic initiative, then collaboration will really start taking off".

Data exchange between "dyads" of trading partners is nothing new, but in spite of the fact that technologies such as Electronic Data Exchange are well established and relatively cheap, inhibitors such as asymmetry of information exploitation, trust and opportunism are seen to exist and limit potential implementations (Christiaanse, 2005). Elemica was established as a global network for information exchange across the chemicals industry in 2000, as a collaboration between 22 chemical manufacturers and distributors. Although initially designed as a vertical integration tool between dyads within single supply chains (by linking enterprise resource planning systems such as SAP, to allow for the free flow of orders and payments), there are no technological or process barriers to stop its use horizontally across supply chains at each tier level. Indeed, the application could even theoretically be scaled to allow for transport pooling and optimisation (Christiaanse, 2005). However, this development is still inhibited by lack of inter-company process standards and institutional factors such as power and trust.

Elemica was just one of several similar exchanges set up around 2000: other examples include Transora for the food, beverage and consumer products industries. However, in spite of rapid growth (50 manufacturers signed up

within weeks of the launch) and talk of a substantial global opportunity, including in transportation, the exchange service settled little to become little more than a facilitation point for e-auctions and appeared to be floundering by 2002, laying off staff and closing offices (Anon, Food Logistics, 15.1.02 quoted in Christaanse, 2005). Covisint was set up as a similar data exchange platform by the US motor industry, as a collaboration between Daimler Chrysler, Ford and General Motors. But, 13 months after being established, Covisint still did not have a CEO and many companies appear to be considering building their open data exchange platforms for their suppliers, rather than joining industry-wide ones. Covisint also appears to have faced considerable resistance from automotive industry suppliers (O'Keefe, 2001). In the end, the major US retailers may bring about the final demise of Transora, as they form their own trading exchange platforms such as Worldwide Retail Exchange (Target and Supervalu) and GlobalNetExchange (Kroger and Sears). The largest retailer of them all, Wal Mart, has sufficient mass in its own right to have established its own platform (O'Keefe, 2001).

Many writers explore the need for vertical collaboration within a single supply chain as a response to competitive pressures. This concept is developed to recognise that most firms are members or more than one supply chain and thus collaborations form part of a network, web or "extended enterprise" (Greis & Kasarda, 1997). As the manufacturing environment has progressed from mass production, through lean manufacture to agility, so the logistics function has become both more sophisticated and more fully integrated with manufacturing processes. Citing an example of horizontal collaboration between competitors in product development and machine fabrication, Greis and Kasarda (1997) suggest that such a collective enterprise, combining simultaneous competition and collaboration, is a logical response to the development of more complex web-like arrangements. However, whilst operational characteristics, such as process alignment and shared information systems are described, Greis and Kasarda offer little or no insight into the organisational traits which are likely to facilitate or impede the formation of extended enterprise relationships. Furthermore, their web model still only describes a complex set of inter-woven and simultaneous vertical

relationships, rather than exploring ways in which horizontal collaboration can be developed concurrently with, or in place of, vertical supply chain relationships.

Although collaboration based on ECR have become "ubiquitous" in the last ten years, academic studies of such collaborations, and thus literature about them, are scarce (Corsten & Kumar, 2005). Based on a survey of 266 suppliers to Sainsbury (the identity of the retailer is not actually revealed in this paper, but can be inferred from Corsten and Kumar (2003), Corsten and Kumar identify enablers for suppliers to collaborate with retailers in a vertical partnership, including relative scale of operations, perceived fairness and perceptions on the relationship between scale of effort invested and reward gained. They conclude that, while vertical collaborations in the context of ECR are generally a good thing, rewards are almost certainly not fairly apportioned. However, they still recommend that suppliers should seek to enter into such partnerships, although they should select potential partners carefully, on the basis of perceived levels of trust and the extent to which the supplier is "smart" and can therefore contribute experience and learning. The power and aggression of retailers may be beneficial to them in the short term in that it allows them to hang onto a greater share of the benefits of collaborations with suppliers. However, this will be counter-productive in the longer term, as cynical suppliers will simply invest less effort in the partnerships to the detriment of the total benefit, in an attempt to balance reward with perceived effort or investment (Corsten & Kumar, 2003). The absence of mutual trust, possibly caused by asymmetry of power, appears to be a significant inhibitor to the development of successful collaborations (Frankel, Goldsby & Whipple, 2002).

ECR is occasionally believed to have fallen far short of its promised efficiencies and value. Many believe that unrealistic expectations among grocery industry participants are primarily at fault for this shortcoming. The level of internal and external change required to make desired outcomes a reality have been underestimated and poorly understood by prospective

participants (Frankel, Goldsby & Whipple, 2002; Stank, Crum & Arango, 1999).

Some of the original components of ECR (such as electronic data interchange: EDI) or later enhancements and applications (collaborative planning and forecasting: CPFR) can be seen as prerequisite technologies which have to be in place, but which do not, of themselves, drive collaborative arrangements, which can only exist when these technologies are complemented by trust and inter-dependence (Stank, Crum & Arango, 1999).

An empirical survey conducted amongst UK suppliers of fresh produce to supermarkets suggests that, whilst levels of collaborative effort and economic factors are important in determining the value and quality of a vertical supplier - retailer relationship, relative inter-dependence is the most important enabler / inhibitor (Duffy & Fearne, 2004). Crudely, the more power the retailer has relative to the supplier, the greater the asymmetry independence between the two parties and thus a disproportionate sharing of the benefits of the partnership. Symmetry of dependence leads to higher levels of perceived "fairness" and thus trust, which in turn leads to deeper co-operation and collaboration, resulting in greater accrued benefits to be shared between the two partners. The use of Transaction Cost Economics as a rationale for partnerships is flawed in that, whilst it recognised the need for control measures and costs to deal with opportunism by one of the parties to the arrangement, it does not adequately recognise the impact of power on the potential outputs (Duffy & Fearne, 2004). Therefore, whilst vertical partnerships within a chain, as posited by the ECR model, will deliver an overall benefit, compared with traditional adversarial models which may push costs back up or down the chain between competing chain members, but ultimately leave the total sum of costs unchanged. Partnerships may potentially reduce overall costs, but the extent to which benefits are allotted fairly can be compromised by power, which is more often than not, a reflection of relative size.

So, parallel evolutionary developments in logistics collaboration and buyer – supplier collaboration in grocery retailing can be seen to be enabled and facilitated by external environmental factors as well as behavioural characteristics. However, although the notion of actors participating in multiple inter-woven supply chains is recognised, the first discussion of horizontal arrangements across competing supply chains is relatively recent (Kotzab & Teller, 2003) The co-opetition model, described above, offers a framework in which firms can act simultaneously as competitors and collaborators, specifically in a supply chain context. The same “soft factors”, such as trust and commitment, which were discussed in the context of the development of vertical integration collaborations, will have a significant effect on the success or otherwise of horizontal arrangements. However, in addition to the influence of power and its effects on relative inter-dependence, another enabler / inhibitor suggested in the perceived “distance” of the potential partnership activity from the end customer. Citing examples from the Austrian grocery industry, activities such as load unitisation, information exchange and even return of empty unitisation equipment are sufficiently far upstream from the consumer as to contribute nothing to competitive advantage and thus fertile ground for the development of horizontal collaborations (Kotzab & Teller, 2003). ECR of itself is again described as a non-market governance structure, within the context of Transaction Cost Economics. However, this economic approach does not fully explain why some partnerships or collaborative efforts, either vertical or horizontal, work when others do not.

3.5.1 Summary

Three key points, therefore, emerge from this literature:

- there is evidence of collaboration between competitors in supply chain activities other than logistics and distribution. Of these, the key activity is information exchange, both to drive transactional efficiency (EDI, collaborative planning and forecasting) and to design more agile and responsive chains (goal sharing, conflict resolution mechanisms, performance measurement).

- Although there has been resistance to cooperation in logistics because of perceptions of compromise of competitive advantage, there may be circumstances which over-ride these prejudices, particularly where a third party can facilitate the initiative.
- More importantly, a number of prerequisites or enablers are identified in an attempt to explain, if not the circumstances in which collaborations will be established, at least the conditions under which they will perform best and flourish, or in which they will under-perform. These include an imbalance of power between the parties leading to an imbalance of inter-dependence, relative size and maturity of aligned operations and processes, as well as perceived distance of a supply chain activity from the end consumer. Because of the relative maturity and thus homogeneity of physical distribution systems, innovation could be perceived as a source of competitive advantage, albeit possibly only in the short term, and thus willingness to innovate and change might be a significant enabler to the formation of collaborative partnerships.

3.6 Conclusions from the literature

The planned and systematic review of the available literature reveals that, whilst much has been written about the potential opportunities for collaboration across competing supply chains in some well-defined areas, little or nothing has been written to explore or explain the application of such ideas in the physical distribution environment, in spite of this idea having been set out several times over the last 30 years. The review identified only a very small number of papers which came close to dealing with the subject area in any detail and, within these, the notions that collaboration may be context specific and driven to some extent by external factors are supported.

These points identify that “back office” functions exist, that offer little in terms of competitive advantage and thus they are candidates to be pooled or shared

across competing supply chains to benefit the sector as a whole. There may be specific sets of circumstances (for example environmental, legislative or commercially opportunistic) which will facilitate such cooperation. An understanding of the organisational inhibitors to cooperation may help determine exactly which enablers are required to clear the blockage.

Separate bodies of research on collaboration in the grocery and logistics sectors suggests that, assuming that all enabling technologies are in place and physical processes aligned, then concepts such as relative power, trust, distance from the consumer and maturity of systems will all have an influence on the existence and success of partnering arrangements.

4 Review of philosophical approaches for research

Before undertaking any piece of management research, it is essential for the researcher to understand the choices of philosophical perspective through which the phenomenon may be observed and then to form a link from the appropriate philosophical stance to the most relevant and reliable methodology (Burrell and Morgan, 1979). Based upon a review of the questions of research philosophy, this chapter aims to establish which of the relevant available research methods, reviewed from a realist perspective, is appropriate to the phenomenon and context under consideration, as described in the conceptual framework in the introduction.

At the heart of the philosophical debate underpinning any social research lies the question of perspectives of social reality. Essentially, this can be summarised in the question as to whether social reality exists independently of individuals or whether it is a construction or interpretation of reality by individuals. The former philosophical stance is rooted in the natural sciences and assumes that reality, and thus individual behaviour, is governed by laws which can be discovered and observed. The latter position assumes differences between individuals and that reality is constructed by individuals, or groups of individuals, to explain the observed world around them.

Burrell and Morgan (1979) set out four sets of philosophical assumptions to examine the implicit and explicit characteristics of these opposing viewpoints.

Firstly, there are ontological assumptions: those concerned with the nature or essence of the social phenomena under consideration. Is social reality external to individuals or is the product of individual consciousness? This gives rise to two philosophical stances known as nominalism and realism. The former holds that perceptions of reality are no more than words and that there

is no independently accessible reality which constitutes the meaning of the words used. The realist perspective contends that things which are known have an existence independently from the “knower”.

The second set of assumptions relate to epistemology. On the one hand, knowledge can be perceived as being hard, real and capable of being transmitted in a tangible form. On the other hand, knowledge can be seen as soft, subjective, spiritual and only gained through experience and personal insight. A choice between these opposing assumptions is seen as profoundly influencing the way in which researchers will seek to uncover knowledge. If knowledge is seen as hard and objective, the researcher will tend to assume a detached observer role, whereas a personal and subjective stance will impose a requirement for involvement on the part of the researcher and, by implication, a rejection of the methods of the natural scientist.

This is developed in the third set of assumptions, which concerns the relationship between individuals and their environment. On the one hand, individuals are described as responding mechanically to their environment. On the other hand, individuals are seen as initiators of their own actions.

Finally, these assumptions culminate in a choice of methodological stances. Researchers based in the objectivist, or positivist, paradigm, treating the world as hard, real and external, will tend to favour traditional scientific research methods, such as surveys and experiments. Others from a more subjectivist (or anti-positivist) approach, seeing the world as softer, personal and individually created, will tend towards more recent and emerging techniques, such as accounts, participant observation and personal constructs.

The practical application of these sets of assumptions within a societal or organisational framework can be summarised by consideration of the subjective – objective dimension, as shown in figure 15.

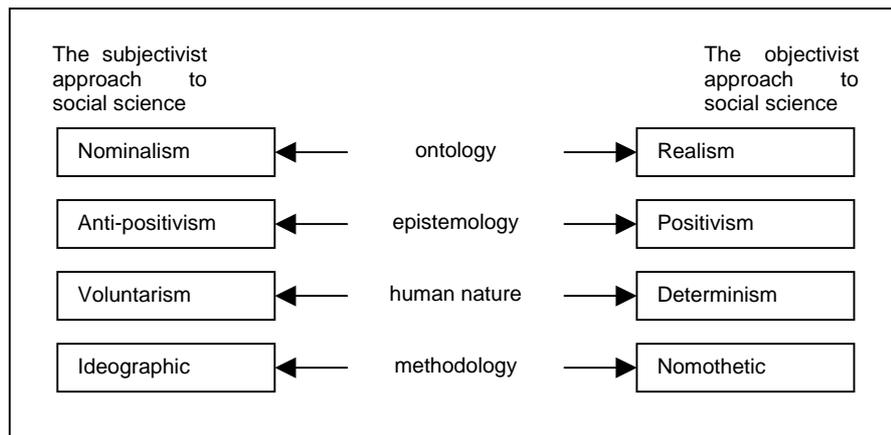


Figure 15: A scheme for analyzing assumptions about the nature of social science (Burrell and Morgan, 1979).

Cohen and Manion (1994), based on Barr Greenfield (1975), discuss some of the practical implications of these core assumptions for the development of a research strategy, in terms of both a societal and organisational framework. These are set out in figure 16.

The following connected suppositions are also added to the positivist stance by Giddens (1974), Firstly, the methodological procedures of the natural sciences may be directly applied to the social sciences, implying that the social scientist is an observer of social reality. Secondly, the final product of investigations by social scientists can be formulated in terms parallel to those of the natural sciences. This means that their analyses should be presented as laws, or law-like generalisations of the same kind that have been established in respect of natural phenomena. Positivism, therefore, implied a clear view of the social scientist as analyst or interpreter of their subject matter.

Burrell and Morgan contrast subjective and objective paradigms, with positivism being viewed as, if not synonymous with, then at least closely aligned with objectivism. Blaikie (1993) contrasts positivism with negativism. He argues that the “positive” root of the paradigm stems from a positive answer to the question as to whether the methods of the natural sciences can be applied to the social sciences. The answer to this question can be “yes”

<i>Conceptions of social reality</i>		
<i>Dimensions comparison</i>	<i>Objectivist</i>	3 <i>Subjectivist</i>
Philosophical basis	Realism: the world exists and is knowable as it really is. Organisations are real entities with a life of their own	Idealism: the world exists but different people construe it in very different ways. Organisations are invented social reality.
The role of social science	Discovering the universal laws of society and human conduct within it.	Discovering how different people interpret the world
Basic units of social reality	The collectivity: society or organisations	Individuals acting singly or together.
Methods of understanding	Identifying conditions or relationships which permit the collectivity to exist. Conceiving what these conditions and relationships are.	Interpretation of the subjective meanings which individuals place upon their action. Discovering the subjective rules for such action.
Theory	A rational edifice built by scientists to explain human behaviour.	Sets of meanings which people use to make sense of their world and behaviour within it.
Research	Experimental or quasi-experimental validation of theory,	The search for meaningful relationships and the discovery of their consequences for action.
Methodology	Abstraction of reality, especially through mathematical models and quantitative analysis.	The representation of reality for purposes of comparison. Analysis of language and meaning.
Society	Ordered. Governed by a uniform set of values and made possible only by those values.	Conflicted. Governed by the values of people with access to power.
Organisations	Goal oriented. Independent of people. Instruments of order in society serving both society and the individual.	Dependent upon people and their goals. Instruments of power which some people control and can use to attain ends which seem good to them.
Organisational pathologies	Organisations get out of kilter with social values and individual needs.	Given diverse human ends, there is always conflict among people acting to pursue them.
Prescription for change	Change the structure of the organisation to meet social values and individual needs.	Find out what values are embodied in organisational action and whose they are. Change the people or change their values if you can.

Figure 16: Alternative bases for interpreting social reality: adapted from Barr Greenfield (1975) in Cohen & Manion (1994)

(positivist), “no” (negativist) or “yes and no”, implying that either the current methods used in natural sciences are inappropriate even in that context, or that the methods are appropriate but need modification for application in a social context.

Blaikie identifies eleven philosophical responses to the basic question, six classical and five contemporary:

Yes	Classical	Positivism
No		Negativism
Yes / No		Historicism
Yes / No		Critical Rationalism
No		Classical Hermeneutics
No		Interpretivism
Yes / No	Contemporary	Critical Theory
Yes / No		Realism
No		Contemporary Hermeneutics
Yes / No		Structuration Theory
No		Feminism

He describes four concepts which underpin each paradigm. Like Burrell & Morgan, he describes ontology, epistemology and methodology. However, instead of a set of assumptions on human nature, Blaikie elaborates critical differences between methodology and method, with method being his fourth under-pinning concept. Methodology is defined as the analysis of how research should be conducted, including discussion of how theories are generated and tested. Methods are described as the pragmatic tools, techniques and procedures used to gather data related to a research question or hypothesis.

Easterby-Smith et al (1991) review what they describe as the “long-standing debate” between two basic philosophical stances: positivism and phenomenologism. They point out that, although there has been a trend away from positivism towards phenomenology in recent years, consistent with the

contemporary responses to positivism described by Blaikie, there are many researchers. particularly in the field of management science, who adopt a pragmatic view by deliberately combining methods drawn from both traditions. Easterby Smith et al cite the French philosopher Auguste Comte (1853) as defining the positivist tradition thus: “....there can be no real knowledge but that which is based on observed facts.” Although not all the work of Comte, or of any other single philosopher, they identify a number of implications which follow from the positivist tradition:

- independence: the observer is independent of what is being observed.
- value freedom: the choice of what to study, and how to study it, can be determined by objective criteria rather than by human beliefs and interests.
- causality: the aim of social sciences should be to identify causal explanations and fundamental laws that explain regularities in human social behaviour;
- hypothetico-deductive: science proceeds through a process of hypothesizing fundamental laws and then deducing what kinds of observations will demonstrate the truth or falsity of these hypotheses;
- operationalisation: concepts need to be operationalised in a way which enables facts to be measured quantitatively;
- reductionism: problems as a whole are better understood if they are reduced into the simplest possible elements;
- generalization: in order to be able to generalize about regularities in human and social behaviour, it is necessary to select samples of sufficient size;
- cross-sectional analysis: such regularities can most easily be identified by making comparisons of variations across samples.

The basic beliefs of the two traditions, together with their implications for research methodology and methods, are summarized:

	Positivist Paradigm	Phenomenological Paradigm
Basic Beliefs	The world is external and constructed objectively Observer is independent Science is value free	The world is socially subjective Observer is part of what is observed Science is driven by human interests
Researcher should:	Focus on facts Look for causality and fundamental laws Reduce phenomena to simplest elements Formulate hypotheses and then test them	Focus on meanings Try to understand what is happening Look at the totality of each situation Develop ideas through induction from data
Preferred methods include:	Operationalising concepts so that they can be measured Taking large samples	Using multiple methods to establish different views of phenomena Small samples investigated in depth or over time

Table 6: “Key features of positivist and phenomenological paradigms”; Easterby-Smith et al, 1991

The basic philosophical choices have thus been variously described as:

- objective vs subjective (Burrell & Morgan).
- positivist vs non-positivist (with a further sub-set of strategic choices in the non-positivist tradition) (Blaikie).
- positivist vs phenomenologist (Easterby Smith et al).

However, more contemporary responses to the application of natural science philosophies to the social sciences suggest a middle ground: a “yes and no” answer as described by Blaikie. Of these, the “realist” perspective is attractive in describing organizational behaviour, in the sense that it reflects the

principles of natural science whilst also accepting that human behaviour cannot be reduced to a series of chemical reactions or other absolute explanations. In other words, the methodology and philosophy of science can be applied to human behaviour, but only in the knowledge that human beings do not necessarily conform to the expectations of scientific prediction. Realism is thus described as the search for mechanisms which explain the way in which the actions of people or social groups can explain observed phenomena. Two key writers on the realist perspective, Harre and Bhaskar, both agree that social science is a search for the fundamental structures and mechanisms of social life (Blaikie, 1993). Both Harre and Bhaskar describe a progression from observed phenomena to explanation of mechanisms, although with variations in terminology. Harre believes that exploration of a phenomenon should lead to empirical studies, which are then followed by theoretical studies to confirm or refute tentative generative mechanisms. The same process is described by Bhaskar as being the identification of a phenomenon, followed by the construction and testing of a model explanation, which will lead to the definition of a causal mechanism which connects actions and the observed phenomenon. Bhaskar lists five principles which underpin his definition of realism:

- transitive objects (concepts, theories and models) are developed to explain intransitive objects (entities and relationships which make up the real world).
- reality consists of three strata: the empirical (observed), the actual (all events, whether observed or not) and the real (structures and processes which cause events).
- whereas natural science laws are universally applicable, social laws are tendencies. which may or may not lead to specific outcomes.
- however, definition of reality are concerned with the basic nature of an entity or structure, not about what is observed.
- suggested mechanisms are developed in the light of observation and confirmed or refuted by research.

These principles are important in the consideration of the design of research strategies. Classically, research which leads to the proposition of theory has tended to be either inductive (observations lead to generalisations and thus to theory) or deductive (predictions lead to hypotheses which are tested by observation).

Both strategies are essentially linear in nature, starting from a given point and moving through a logically arranged series of stages in order to arrive at an end point. The realist perspective, as set out by Bhaskar, favours theory development based in retrodution, which can be described as a circle or spiral, in which observation leads to the construction of models to explain underlying mechanisms. Connections between events and actions are observed, explanations for these connections are postulated and the mechanisms underpinning these connections are then demonstrated. The process is iterative, in that the models developed to explain the underlying mechanisms start by being tentative and are refined in the light of testing and further observation.

This iterative cycle differs somewhat from the process known as grounded theory (Glaser and Strauss, 1967), in that the retroductive process begins with an attempt to construct a model to explain a phenomenon, rather than allowing the model to emerge from immersion in a subject and refining it until a saturation point is reached.

The models developed in the retroductive process would normally be expected to be paramorphic (that is, reflecting an unknown subject), as opposed to homeomorphic (where the subject is the source of the model, as with a model aeroplane, for example).

4.1 Choice of stance on Research Philosophy

Although the broader context of supply chain management may, to some extent, be underpinned by constructions and beliefs surrounding relationships between people and organisations, the narrower discipline of logistics is essentially positivist and functionalist (Skjoett-Larsen, 1999). However, this implicit positivism is also tempered by the fact that logistics systems and operations are run by people, who do not necessarily observe constant rules and thus the context lends itself to consideration from a realist perspective. Furthermore, the arguments for retroduction are also persuasive in this context: observation informs theory, which is then tested by observation which leads to better theory.

Research in the field of logistics generally could be described as being characterised in two ways:

- a tendency towards normative or exploratory research, which does not conclude in new theories or knowledge.
- based on the positivist paradigm, on the basis that the fundamental essence of logistics is either economic in nature, or rooted in operations management, and thus measurable in a quantitative sense.

However, these economic principles are interpreted and applied by individuals or social groups within organisations: this interpretation and application may be guided by influences which lie beyond rational (mathematical) explanation.

In summary, there appear to be compelling mathematical, financial and economic reasons for the development of initiatives in logistics and physical distribution, but the application of these “scientific” principles is tainted by the intervention of individuals and groups, driven by motives of their own.

The research interest concerns the way in which the concepts of ECR have not been applied in situations where logic suggests they might be, with attitudes to the nature of competition providing a possible explanation for this. Given that the attitudes of a firm are the product of the attitudes of the senior managers within that firm, the traditional positivist approach is unlikely to explain the reasons for this situation.

As already described, the adopted philosophical perspective (realism) has clear implications for the selection of research strategy and methodology (retroduction). In Easterby Smith (1991), the positivist studies of Pugh and the Aston Group (1976) and Hofstede (1984), being firmly rooted in the positivist tradition, are contrasted with the phenomenological work of Dalton (1959 and 1964). Although the links between the positivist paradigm and quantitative research, and between the phenomenological paradigm and qualitative research are not absolute, there is a clear tendency for these associations. This has some important implications for research design. Easterby-Smith et al describe five choices for the researcher which are influenced by philosophy and which in turn influence the design of the research process:

Researcher is independent	Vs	Researcher is involved
Large samples	Vs	Small numbers
Testing theories	Vs	Generating theories
Experimental design	Vs	Fieldwork methods
Verification	Vs	Falsification

Table 7: Key choices for the researcher (Easterby-Smith et al, 1991)

The first four of these choices relate closely to the choice between a positivist and a phenomenological perspective, with the last only being of particular relevance within a positivist approach. The fifth choice applies to either paradigm and is essentially concerned with the way in which the supporting evidence for any emergent theory is worded. A verification approach looks for evidence to support a contention, but each piece of support is unlikely to prove conclusively that a statement or theory is absolutely correct. On the

other hand, a falsification approach requires only one piece of contradictory evidence to prove that a theory is incorrect.

Within the chosen context, the area of research interest tends towards the centre of each pair: no existing theory explains why the relatively small number of firms in the market tend to act in a particular way. Most of the likely respondents are already known in some way to the researcher and it is thought likely that conversation and observation, rather than questionnaire and survey, are more likely to uncover the attitudes in play. The position at the centre of this continuum appears to accord with the concept of “logical positivism”, or hypethetico-deductivism as developed by the so-called Vienna School in the 1930’s.

The question of relative involvement and participation of the researcher can be set on a continuum from detached and unobtrusive measurer of observed facts, through to participant in joint action research.

This continuum can be mapped against the scale of positivist to phenomologist to give a 2 x 2 matrix of possible research methodologies as depicted in the following figure (after Easterby-Smith et al, 1991):

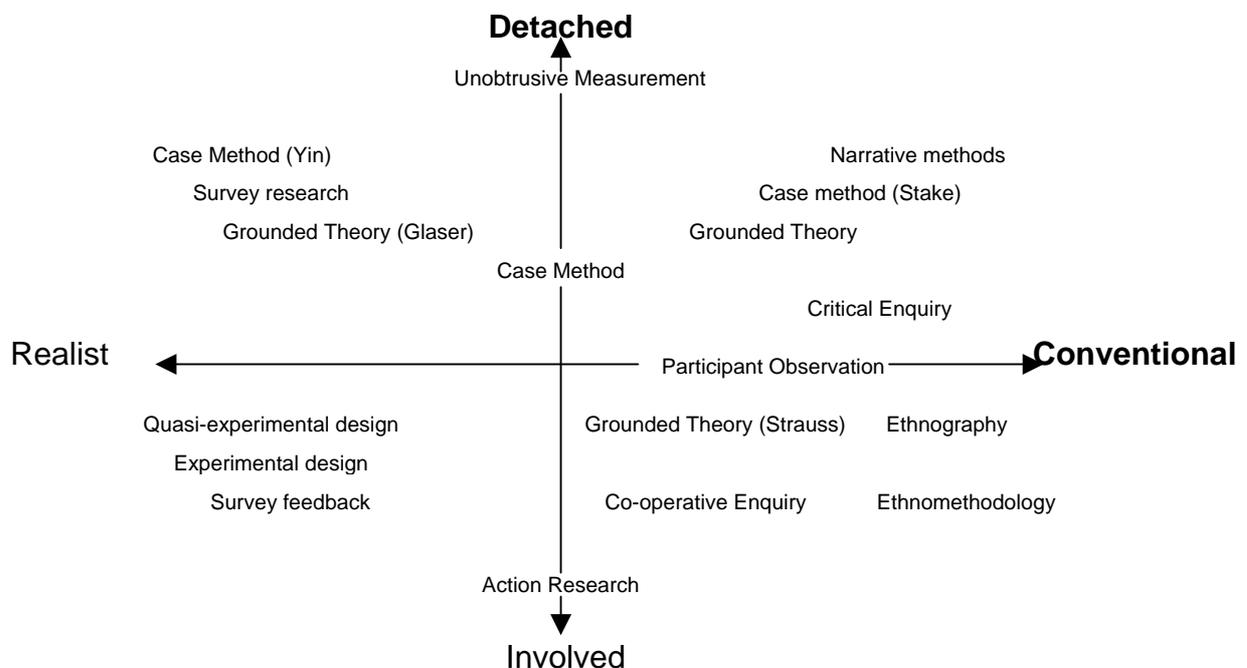


Figure 17: The influence on research design of philosophy and researcher involvement (after Easterby-Smith et al, 1991)

The first key choice for the researcher, in this framework, is to establish which of the four quadrants the research is to be based in, both from a philosophical perspective and in the light of the context being studied. Although logistics has generally been viewed from a realist / positivist stance, in this particular piece of work, the effects of managerial attitudes tend to move the research part way towards a phenomenologist / conventionalist perspective. Equally, although quantitative (objective) tools have traditionally been applied in the logistics arena, a degree of involvement is implicit in the prior knowledge of the informants likely to be used in the research, going as far as direct participation in a process of change. These arguments, therefore, place this research very close to the crossing point of the two continua, but slightly above the central dividing line. According to this model, this would suggest that the case method is the most appropriate strategy.

Easterby-Smith et al raise six potential issues when working in this area of the research model, all of which should be considered when designing the research and evaluating the implications of the results:

- the theoretical and practical significance of the research.
- the operationalisation of variables developed as part of the hypothesis.
- the representativeness of the sample selected and thus the applicability of the findings to a more general context.
- the perceived credibility of both the outcomes and the methods used (summed up by the possible response to the research being “So what?”).
- the management of bias on the part of the researcher.
- the way in which data is reported, so that it represents more than just narrative stories.

These issues can be distilled into three broad tests which can be applied to the research design and outcomes, irrespective of the philosophical stance (Easterby-Smith et al, 1991):

	Positivist viewpoint	Phenomenological viewpoint
Validity	Does and instrument measure what it is supposed to measure?	Has the researcher gained full access to the knowledge and meanings of informants?
Reliability	Will the measure yield the same results on different occasions (assuming no real change in what is to be measured)?	Will similar observations be made by different researchers on different occasions?
Generalisability	What is the probability that patterns observed in a sample will also be present in the wider population from which the sample is drawn?	How likely is it that ideas and theories generated in one setting will also apply in other settings?

Table 8: Three key tests to inform research design (Easterby-Smith et al, 1991)

In attempting to formulate a model to improve the validity and credibility of research in the field of logistics, Mentzer & Kahn (1995) surveyed all of the articles published in the Journal of Business Logistics between 1978 and 1983. They attempted to categorise the research embedded in each of the articles into one of four headings. They concluded that some 90% of all published research was either normative (exploring what organisations ought to do), reviews of existing literature or exploratory studies. Only 4.3% of the published articles concerned the testing of new hypotheses. Their implied criticism is that logistics research is thus essentially managerial in nature, rather than aimed at building a body of new knowledge.

Skjoett-Larsen (1999) echoes this viewpoint, suggesting that not enough consideration has been given to the consideration of logistics problems and research from the perspective of theories borrowed and applied from other disciplines. Stock (1997) carried out a further content analysis of articles from four academic journals, in which he attempted to establish which theories and perspectives from other academic disciplines had already been brought to bear in logistics research.

However, despite its relative youth, “logistics” as a field of management and academic research has already developed a breadth that spans both

measurable, technical reality and more over-arching conceptual abstractions, encapsulated within philosophical propositions such as “supply chain integration” (Christopher, 1996), “virtual enterprise” (Walker, 1993) and other evolving organisational paradigms. This conflict between theoretical generalisation and practical application is not unique to logistics, and can be found at the interface of management and academia in all disciplines. In this field, a significant gap appears to exist between abstraction / theorising and practical application, with the suggestion that practitioners or consultants may offer more useful insights through their own research than academics and theorists (Voss, Tsikritis and Frohlich, 2002). Perhaps because of the rapid growth of the influence of the logistics perspective as a lens through which to view the total structure and operation of organisations, the academic literature has tended ever further towards over-arching theories, leaving little in the way of detailed operational or comparative research. The normative textbooks of the early 1960's, founded in economics and operations research, have not generally been superseded by further practical research to explain the dynamics of the changes in supply systems over the last 30 years (Skjoett-Larsen, 1999). A bias and prejudice towards practicality and measurable objectivity at the outset of this work are, therefore, understandable although open to change over time.

In the broader sense of extended Supply Chain Management, it may be possible to take a more “social science” oriented view that the discipline is so concerned with the management of relationships between organisations and individuals that a positivist orientation somehow misses the point. However, the narrower sub-discipline of logistics operates in a mechanistic and technical environment, in which success and failure can be measured and rationalised in purely objective terms and in which performance is described in terms of the “scientific” principles of economics, finance and operations management. This narrower technical perspective on logistics as a sub-set of a more complex and over-arching set of interactions is supported by the evolutionary view of the development of the discipline, as discussed in the review of literature earlier. Logistics and physical distribution grew out of economic principles and were later subsumed into the broader organisational

philosophies of supply chain management. The narrower operational context is still very much driven by numbers and tangible achievements. The fact that this objectivity and scientific rationalisation is, to some extent, undermined by the logisticians themselves, has been discussed as a reason for adopting a realist perspective in this area. Nonetheless, for an academic analysis of the field, it is still attractive to assume that management science can be universally described as objective, and measurable, and comprises a set of universal truths, which exist to be revealed. This positivist approach attempts to explain and predict reality, both in terms of tangible components and the reactive and deterministic actions of people (Mentzer & Kahn, 1995).

In summary, the strategic choices of research methodology are therefore reviewed from the perspective that this research is likely to be:

- realist: explanations and causes exist objectively, but are subject to the perceptions and actions of individuals
- objective: the researcher is detached from the subjects under scrutiny.

5 Methodology and research design

In the previous chapter, a number of possible philosophical positions were discussed, with the conclusion that this research should be undertaken from a realist perspective. It was also recognised that the normally technical and functional orientation of the discipline may be influenced by (possibly irrational) personal and subjective issues in this specific context.

5.1 Review of Alternative Strategies

A number of possibly appropriate research strategies were identified and reviewed for their suitability. These were experiments, surveys and case studies.

Easterby Smith et al (1991) identify that experiments involve assigning subjects at random to either an experimental or control group. The experimenter, who is clearly directly involved in the process, then seeks to manipulate conditions for the experimental group in order to compare outcomes and behaviours of that of the control group. Experiments are popular in some areas of the human and social sciences, such as psychology, particularly where the context ensures a ready supply of guinea pigs. However, experiments can be dismissed as a research tool in this project for (at least) the following reasons:

- They are hard to conduct in an organisational context.
- It is the behaviour of organisations under consideration here.
- The direct involvement of the researcher is required.
- It would be impractical for a single researcher to manipulate conditions within an organisation in such a way as to simulate the conditions which give rise to the behaviour in question.

- It is difficult to repeat the conditions under which the experiment was conducted and replication is therefore challenging.

An alternative approach to the application of experiments in an organisational context is the quasi-experiment. Examples of this include attempts to overcome the mis-match between control and experimental groups over time by conducting “before and after” analyses. However, the research in question is presumed to be time- and context-specific and no immediate change in situation or conditions is predicted. Furthermore, the direct involvement of the researcher is still required and this is at odds with the chosen philosophical perspective.

Similarly, in order to maintain a detached and non-involved position, action research is rejected. This might normally take the form of a consultancy approach to the implementation and analysis of a pre-ordained set of changes within an organisational context. Again, the phenomenon under consideration is possibly time-specific and, quite apart from considerations of objectivity and participant involvement, it is not possible to determine what kinds of organisational change would inform the underlying reasons for current actions.

Whilst ethnographic studies might provide some insight into the way in which organisations, and the individuals within them, act at a particular time or in a particular set of circumstances, they demand a degree of involvement and subjectivity on the part of the researcher which is inconsistent both with the philosophical perspective and the context.

Surveys have been rejected for two main reasons:

- In an environment of intense competition, some of the reasons for patterns of organisational behaviour are likely to be driven by, or at least prejudiced by, commercial information which is, or is perceived to be, highly confidential. Access to relevant parts of this information and a comprehension of its influence on business actions and

strategies is thought likely to be achieved through the building of relationships with informants over time.

- The chosen research context is deliberately narrow, with only a small number of firms to be studied. As such, depth of understanding, rather than breadth of sample is the key objective.

Lambert et al (1996) criticise the use of surveys in logistics research because of their propensity for gathering large amounts of “thin” data, without much in the way of extent or description. In seeking to gather “thick” data through surveys, they point out the dangers of respondents misunderstanding questions which seek to address subtle issues.

The study of history is rejected, because the research is concerned with a current situation and industry context, for which no historical precedents are believed to exist.

5.2 Case Research

Numerous writers have commented on the appropriateness of case study techniques within the field of logistics research (Ellram, 1996; Juga, 1996; Stock, 1996 and 1997). Ellram suggests that case study research is particularly appropriate in considering a holistic situation, such as a complete supply chain or inter-firm relationship, in a real life setting. Such research would tend to have specific boundaries of interest, or a specific context, such as a particular industry or type of operation.

The use of case study studies, as defined by Yin (1989 and 1994) satisfies all of the main strategy and philosophical issues of this research. A case study is defined (Yin, 1989) as

“an empirical enquiry that investigates a current phenomenon in its real life context, when the boundaries between the phenomenon and context are not clearly evident; and in which multiple sources of data are used”.

Case study research can be based on single or multiple studies, using both qualitative and quantitative data. Case studies can be used within research programmes that are intended to satisfy any, or all, of the following aims:

- Exploration: defining the questions, hypotheses and theories for further study.
- Description: providing a complete picture of a phenomenon within its specific context.
- Explanation: the collection of data to build, test and confirm (or refute) theories which might explain causalities, regularities and outcomes.

Case-based research is occasionally confused with ethnography and participant observation, leading to the misconception that it necessarily takes a long time and produces a mass of data which is hard to interpret. Case studies can, however, be designed in such a way as not to require large amounts of time and to be focused on specific issues key to the research.

Eisenhardt (1989) suggests the following strengths and weaknesses of a case-based approach to theory-building:

- The likelihood of generating novel theory.
- The emergent theory is likely to be testable with constructs that can be measured and hypotheses proven false.
- The resultant theory is highly probable to be empirically valid.

but:

- The intensive use of empirical evidence can yield theory which is overly complex.
- The resultant theory is narrow and idiosyncratic.

Eisenhardt (1989) proposes the following series of actions in order to take advantage of the positive aspects of case study research and avoid the possible pitfalls:

- Getting started: define the research questions.
- Select cases: specifying the population with theoretical, not random, sampling.
- Crafting instruments and protocols: using multiple data collection methods, possibly combining both qualitative and quantitative data.
- Enter the field: overlapping data collection and analysis, with flexible and opportunistic data collection methods.
- Analyse the data: building data displays within cases.
- Shape hypotheses: iterative tabulation of evidence for each construct, searching for the evidence of “why” behind relationships.
- Enfold the literature: making comparisons with existing literature.
- Reach closure: through theoretical saturation where possible.

Yin (1994) raises three potential pitfalls of the case-based approach:

- Possible accusation of lack of academic rigour.
- Possibly limited scope for scientific generalisation. They can take too long and produce too much indigestible data.

All three of these dangers can be dealt with effectively through careful design of the research programme. Yin summarises the work of several writers in proposing four basic tests to which any empirical social research can be subjected, and which specifically address the key issues surrounding case-based research. These are:

- Construct validity: the establishment of appropriate measures for the concepts being studied.
- Internal validity: establishing a causal relationship, whereby certain conditions or actions are shown to lead to other conditions or actions, as distinguished from chance or co-incidental relationships.

- External validity: establishing the precise boundaries of the area into which the findings can be generalised (and beyond which generalisation is meaningless).
- Reliability: demonstrating the execution of the research, including data collection and analysis, could be repeated to yield similar results (Yin, 1994).

Mentzer and Kahn (1995) address similar issues, which they refer to as statistical conclusion validity, internal validity, construct validity and external validity. These tests lead on to a series of proposed mechanisms, which, if properly considered and executed, address the question of academic rigour. Specific examples relevant to the design of this research programme are:

- The use of multiple sources of evidence and having draft reports reviewed by key informants (to address construct validity).
- The search for patterns across multiple case studies and over time (for internal validity).
- Replication across multiple case studies (to explore external validity).
- Development of a case study database and thorough procedures for data collection and recording (to address issues of reliability).

Two further characteristics of case study research are relevant to this work.

- Case studies can effectively combine both qualitative and quantitative data and analysis.
- Case study research can be based either on a single case, or on multiple studies.

It should be stressed that the choice between qualitative and quantitative approaches is not the same as the choice between positivist and conventionalist philosophies. As Donald Campbell's introduction to Yin's (1994) book points out, the author's philosophy is firmly rooted in the approach and disciplines of the natural sciences, yet he is a strong advocate

of the use of both qualitative and quantitative information to provide triangulation of information and analysis within a case-based programme.

A case-based approach has been selected for this research, therefore, not only because of its appropriateness in terms of exploring “rich” and “thick” data in the context of a specific, and possibly complex, real life situation, but because it also conforms to the philosophical stance suitable for the context and aims of this research. The case-based approach has also already been considered at length as an appropriate form of research in the field of logistics. However, it has been recognised that careful consideration needs to be given to a number of elements of the design process to ensure that the findings can be subjected to tests of academic rigour.

5.3 Case Design

Yin (2003) describes good research design as the logic that links the data to be collected to the initial questions under investigation. This logic can be further developed into five components:

- Clear definition of the “how” or “why” question on which the research is founded.
- Propositions, or hypotheses, which develop the base question into possible cause and effect relationships in areas for specific examination in the study.
- The question should make the unit of analysis (firm, group of firms, physical phenomenon) clear: if not, the question is probably too vague. Given that it is possible to have both main and embedded units of analysis, consideration must be given to the limits of the unit of analysis, in particular distinguishing those units of data collection which are within the unit of analysis (the immediate topic) from those which are outside (the context). Specific time boundaries are

needed and units of analysis should not be idiosyncratic when compared to the existing literature.

- There must be a clear logic linking the data to be collected to the propositions or hypotheses.
- Criteria for interpreting the findings should be set out at the design stage.

The last two of Yin's points on research design can be addressed through the rigorous preparation of what Yin refers to as a case study protocol. In fact, such a protocol is considered essential in multiple case studies, to ensure consistency and reliability. The protocol could, therefore, be regarded as evidence of having completed the five stages of the case study design and should include at least the following:

- Overview of the project (objectives, letter of introduction, auspices, case study issues and relevant readings).
- Field procedures (credentials, access to "sites", sources of information, procedural reminders – schedule, workspace, assistance).
- Case study questions (questions to be kept in mind during data collection, "table shells" (column and row headings for data tables) for arrays of data and potential information sources for each question). These are questions aimed at the researcher, not the informants. Questions are on 5 levels: specific interviewees (1), individual case (2), patterns across multiple cases (3), entire study (4), recommendations and conclusions beyond the study (5).
- Guide for the case study report (target audience, outline, format, use of other information, bibliographical information).

In this model, theory is clearly developed before data collection, unlike ethnography or grounded theory. Theory development prior to data collection is essential, to inform the five stages of case study design. Even in exploratory case studies, where there is no existing theory, it is essential to define what is

to be explored, the purpose of the exploration and the criteria by which the exploration will be judged successful.

This methodological model is reinforced by Mentzer and Kahn (1995), who describe a path through the validation of ideas through metric-based observation, through the testing of the managerial values and motivations which underpin observed actions, to the formulation of a model which connects environmental (market) causes with predicted outcomes. The dominant paradigm in logistics is that of functionalism / positivism and it is from such a position that this research is approached. Reality is not only observable and describable, but can be explained on the basis of relationships between defined causes and effects (Skjoett – Larsen, 1999).

Thus, even when considering behavioural issues, the logistics paradigm tends towards the literature that describes scientific models for the prediction of behaviour and values within management. Examples include Porter (1985) on competition, Lawrence and Lorsch (1967) or Schein (1992) on culture and, latterly, the application of the resource-based view of the firm (Penrose, 1959; Wernerfelt, 1984; Skjoett-Larsen, 1999).

On the other hand, the interpretivist perspective would be that reality, in this case managerial actions and decisions, is the product of its inhabitants (Blaikie, 1993). The framework within which individuals interpret their own thoughts, feelings and actions needs to be understood in order to understand behaviour (Marshall & Rossman, 1989). However, because of its functionalism, the effects of managerial actions in the field of logistics can be measured objectively. Because findings are generally considered to be value-free, time-free and independent of context (Mentzer & Kahn, 1995), the subtleties and nuances of managerial values are thus considered to be of limited relevance.

5.3.1 Multiple Cases

Having established the appropriateness and validity of a case-based approach to research, Yin (1994) suggests that there are two further key decisions to be made prior to the detailed planning process. These are the choices between single and multiple cases, and between holistic and embedded cases.

Yin suggests three sets of circumstances under which a single-case approach would be appropriate. These are described as “critical” cases, “extreme or unique” cases and “revelatory” cases. A critical case is analogous to a critical experiment in the natural sciences: that is a case in which a well-formulated theory has specified a clear set of propositions as well as the circumstances in which the propositions are believed to be true. An extreme or unique case is one in which a set of circumstances or actions is so rare that any one individual case is worth analysing and documenting. A revelatory case is one in which a researcher has an opportunity to investigate and analyse a phenomenon or context which has been previously inaccessible to scientific enquiry.

Research into the physical distribution function of competing retail firms does not conform to the models proposed for critical, extreme or unique or revelatory cases. No pre-existing theory appears to explain attitudes to the inter-relationship between cost efficiency and competitive advantage in the distribution function. The environment and behaviour of the firms in this sector is by no means extreme or unique and the context has been accessible to research in the past. For these reasons, a single-case approach to this research has been dismissed in favour of multiple cases.

The choice between holistic and embedded case studies hinges on the definition of the unit of analysis. Within an individual firm or specific phenomenon under investigation, it may be that there are several separate units of analysis, understanding of each of which separately can contribute to the richness and integrity of the overall picture. However, this particular piece

of research considers the phenomenon of collaboration or co-opetition in single situations but with multiple participants and thus a holistic approach is considered appropriate. Within a 2 x 2 matrix proposed by Yin (1994), this research project is, therefore, classed as a “Type 3” case study: multiple cases with a single unit of analysis in each case, as in the following figure.

	single-case designs	multiple-case designs
holistic (single unit of analysis)	TYPE 1	TYPE 3
embedded (multiple units of analysis)	TYPE 2	TYPE 4

Figure 18: Basic Types of Designs for Case Studies; Source COSMOS Corporation in Yin (1994)

Further advantages of a multiple-case approach include the fact that such designs tend to be seen as more robust and the evidence more compelling than single case designs. Multiple cases also allow for the exploration of validity, externally, internally and in terms of the constructs used. Triangulation between cases may also help to satisfy the criteria of academic rigour. The disadvantages of such an approach can be loss of focus and the additional time and resources potentially required for the research process.

Having established the rationale for a multiple-case approach, Yin suggests one further choice that the researcher needs to make in refining the design of the process, that of replication. Replication is contrasted with “sampling” logic, the latter being concerned with achieving an operational enumeration of the entire universe of potential respondents and then using a statistical model to identify a specific sub-set of respondents which can be argued are representative of the wider pool. This technique is appropriate in the use of

surveys, but not in a case-based approach. Any conclusions drawn from case studies are not assumed to be generalisable to the universe, but rather seek to achieve some commonality across specific contexts, or “replication”.

The researcher has a choice between literal replication, where each case produces similar results, thus reinforcing a common regularity across a breadth of contexts and theoretical replication, which produces contrasting results but for predictable reasons. Whichever form of replication is envisaged, it is important that the design reflects the ways in which a theoretical framework can be used to translate the results into a form which will allow them to be generalised into as broad a context as possible. Yin suggests that a minimum of six cases should be used in order to achieve theoretical replication. However, in order to consider the cases in sufficient depth to provide a rich and “thick” picture, perhaps only three or four cases can be examined, because of the issues of time, resource and the specific context to be researched and therefore literal replication is sought.

However many cases are selected, it must be remembered that the aim is not to achieve any kind of generalisation though “sampling” (where a sample is assumed to represent a population, as in a survey) but for replication. Each case should be selected so that it either predicts similar results or contrasting results but for predictable reasons (theoretical replication).

In this project, a single case approach is not appropriate as the case would not represent a critical test of theory, a rare or unique circumstance, a representative case and would not be revelatory or longitudinal. Multiple case studies are more compelling and robust.

5.4 Research Framework

This research attempts to explore the boundaries for the application of a new managerial paradigm (Efficient Consumer Response) and the extent to which

normative theories (that cross-channel co-operation is beneficial to the market as a whole) are constrained by other factors. In this case, the constraining factor is the attitude of companies to competition. As discussed, the logistics literature is largely, if not wholly, based in the positivist paradigm. Supply chain, logistics and, specifically, physical distribution management decisions are based on measurable outputs of cost. Within this paradigm, therefore, the philosophical approach of this research is that decisions and actions, whilst based on economic arguments, are subject to influence by social constructs. However, whilst realist in this sense, the researcher sits outside the research setting in order to observe the rationale for outcomes in an objective manner.

The flow of the research is based on the framework model proposed by Mentzer & Kahn (1995) and is set out in the following figure:

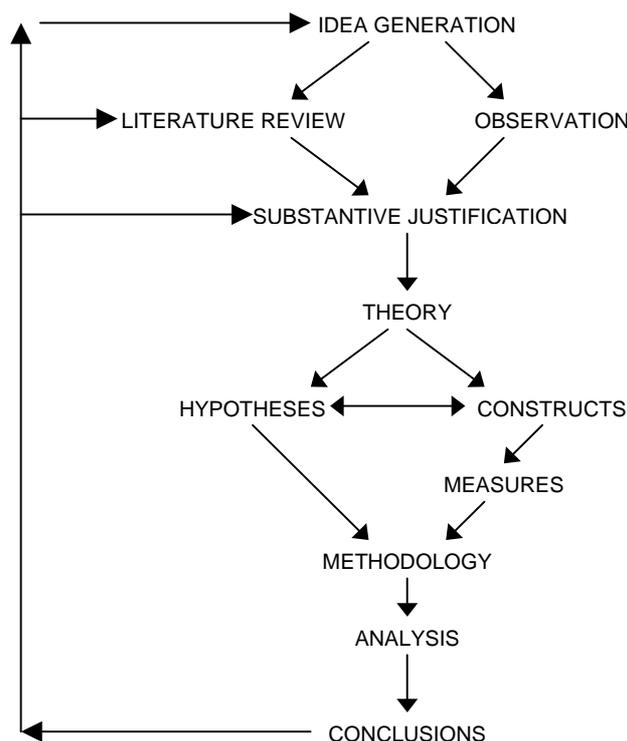


Figure 19: A Framework of Logistics Research: Mentzer & Kahn, 1995

The process begins with the generation of ideas, which can be driven by a review of literature, or by observation of a context, or both. Whilst ideas may be generated intuitively, it is suggested that it is important that these ideas are grounded in a historical perspective and in the context of other research

efforts in the same area. Whilst the purpose of a review of literature is to generate hypotheses, observation should be used to establish general principles or a priori constructs. Mentzer and Kahn also confirm that case studies are a particularly useful tool in the process of observation and thus the generation of ideas. Having substantiated the basis for the research, theories and hypotheses are generated.

Based on a review of the marketing literature, a theory is defined by Mentzer and Kahn as:

- a systematically related set of statements, including some law-like generalisations, that are empirically testable.

Whereas hypotheses are defined as:

- propositions that assert a relationship between facts.

The difference between the two definitions is exemplified thus: a theoretical proposition might be made that “customer service is a phenomenon of what the customer perceives they are receiving”. A related descriptive hypothesis might be that “there is a positive relationship between the amount customer perceived logistics performance exceeds expectation and customer perceived logistics service quality”. A related causal hypothesis might be “the more customer perceived logistics performance exceeds expectations, the greater the customer perceived logistics service quality”. In short, hypotheses are described by Mentzer and Kahn as “empirically testable statements about non-observable constructs”.

Thus the “theories” and “hypotheses” of Mentzer and Kahn accord with the “questions” and “propositions” which Yin asserts are the basis of good case study research.

To summarise, before moving on to consider the details of the design used: from a realist philosophical stance, it is believed that qualitative research

methods will reveal an organisational logic which explains certain behaviour in a specific operational context. It is proposed that this data will be collected and analysed through a multiple case study approach, in which literal replication is sought.

It is important to note that case study design is not necessarily completed at the outset of the study, but rather it can be revised and altered in the light of experience gained at the various stages of the research, but only in stringent circumstances. In other words, the researcher should guard against shifting the theoretical concerns or objectives, whilst recognising that the research process may reveal inadequacies in the research design itself.

Following a review of the literature on case study design, this idea has been developed into the preparation of a case protocol, including propositions and tentative data codes.

Theory development prior to data collection is essential, to inform the five stages of case study design. From a review of the literature, the following hypothesis was developed: given that there is no competitive advantage derived from parallel and homogenous physical distribution systems and therefore horizontal collaboration between competitors in parallel supply chains should be commercially and operationally attractive, enablers and inhibitors must exist to explain the existence (or otherwise) and success of such collaborations.

Given the paucity of literature available in this area, it is necessary to conduct exploratory research with a number of participants to postulate a set of proposed enablers and inhibitors. These will then be tested in more structured case studies to try and develop an understanding of their relevance in a number of physical distribution and logistics contexts and environments.

5.5 Some limitations on the case study design

The operational context selected for this research, although significant in terms of its market size and operational visibility, is relatively narrow. Previous chapters have demonstrated the validity of the chosen field for research into the phenomenon of interest, but have also demonstrated that, by definition, the overall sample size in terms of numbers of organisations involved is small and, within those organisations, the number of potential respondents is likely to be small. This constrains both the number of cases to be included in the research design and also limits the potential number of interviews which can be conducted within each case. However, the context has been deliberately chosen and justified as being an appropriate area for the exploration of possible collaboration, or absence of it under circumstances which would appear to justify it. The research is seen as exploratory and therefore the small number of potential cases and the limited number of respondents which might be available within each case are defensible.

As Voss, Tsikritis and Frohlich (2002) note:

- Case research had consistently been one of the most powerful research methods in operations management, particularly in the development of new theory.
- For a given set of available resources, the fewer the case studies, the greater the opportunity for depth of observation
- It is important that case research is conducted and published because it is not only good at investigating how and why questions, but also it is particularly suitable for developing new theory and ideas and can also be used for theory testing and refinement.

The research is designed around three cases:

- The first exploratory case in the UK supermarket grocery sector, from the premise that both historical trends and events and ECR

initiatives suggest that logistics collaboration is not only possible but desirable, but is actually not being implemented in practice. This case seeks to explore the existence and influence of organisational and environmental factors which inhibit collaboration

- Two further cases exploring instances where collaborative operations have been implemented, to explore the existence and influence of enabling factors and their relationship and interaction with the perceived inhibiting factors. The first of these cases was an example of an urban transport consolidation operation, in which a number of apparently competing retailers are sharing a distribution system to deliver their goods to stores in the centre of Bristol. The second of these collaborative cases is the joint distribution operation shared by two competing UK brewers, under the Tradeteam brand.

Because of detailed knowledge of these operational contexts and the people active within them, contacts were, to a large extent, identified opportunistically. This carries with it the risk, of course, that existing relationships with these respondents may, to some extent, get in the way of or influence the direction of the research and its outcomes. This threat is dealt with in a number of ways:

- Through triangulation of responses from a single firm wherever possible.
- By repeating interviews with individual respondents over a period of time wherever possible, to check for consistency.
- In the first case, where the relationships with the respondents was closed and which therefore possibly carried the greatest risk of prejudice, by inviting respondents from several firms to meet together to allow the “new” interactions between them to expose issues around the relationships, perceptions and organisational behaviours.

- By recognising that researcher prejudice was potentially an issue from the outset and including review of this issue within the process of reflection contained within the iterative analysis of the data.

It is also worth noting that, even if the availability of opportunistic contacts had been ignored and that formal representation for contacts had been made from scratch through “suitable channels”, there is every chance that the result, in terms of contact with certain named individuals, would have been the same. These individuals were in the right areas, with the right levels of seniority, to have a clear understanding of what the business was doing and where it was going, as well as having the power and authority necessary to be involved in, if not actually influencing, outcomes.

Having noted that the potential number of respondents was small, the cases consisted of ten, eight and four interviews respectively. In the major retailer case, these ten interviews were supplemented by the joint “seminar” as well as countless background site visits and operational discussions, which whilst contributing to the depth of contextual knowledge, were not treated as formal data within the context of the research. The interviews in the second case included not only the retailers, but also the contractor operating the system and the public body (Bristol City Council) which had facilitated its inception. The third case also included the operating contractor as well as the manufacturer participants. It is worth noting, too, that all of the interviews were relatively long. Although not managed to a particular timetable and only semi-structured in terms of content, they all ran for over 90 minutes and, in the case of the joint seminar interview, for over two hours. All of these interviews were tape recorded and transcribed verbatim, with the transcript passed back to the respondents for checking for errors or possible “censorship” in the event of later regret about something which had been said. This last offer was not actually taken up by any of the contacts.

Whilst the cases themselves were being conducted, interviews were also conducted with peripheral sources, including for example, the author who had written the two articles which prompted interest in the research topic in the

first place. A discussion with Phil Whiteoak (Whiteoak, 1994 and 1999) gave the opportunity to test understanding of what he was proposing, as well as giving insight into drivers for that proposition and his knowledge of reactions to the articles and any possible subsequent effect on the sector and operational developments therein. The academic community generally was supportive and appeared to demonstrate not only an interest in the research topic, but also in its potential contribution to the field. The Logistics Research Network's annual conference was a particularly useful forum for sharing ideas and progress from the research, as well as gaining valuable feedback from other academics with experience in the field (Stephens, 1999 and 2001).

Deep and detailed contextual knowledge is also the rationale underpinning the decision to code the collected data manually which in turn explains why the conceptual framework was operationalised into a relatively small number of codes, on the advice of other researchers and academics who had also applied this approach. The data was manually coded and reduced through an iterative process of distillation, which is described in more detail in the following chapter on the first case. As noted above, the full interview transcripts were substantial in length and thus the manual coding process was designed deliberately to be as straightforward as possible to achieve quick progress in the first distillation, to get the amount of data down to a meaningful amount to facilitate adequate reflection and subsequent pattern coding.

This research was intended to be exploratory from the start. As has already been stated, little has been written about horizontal collaboration in logistics and there are few applications of its implementation. This research and its conclusions are intended to be set out as a tentative proposition which might yet grow into something more substantial and significant through further research by others.

5.6 Case Protocol – operationalising the research

The introductory review of the environmental context at the heart of the research led to the setting out of three propositions, which suggested that collaboration in logistics is a logical development in that physical distribution innovation affords, at best, competitive advantage in the short term only. However, in spite of the logic of this argument, there are few examples of collaboration in this field. The key gap in knowledge is the explanation of why this should be. Exploratory research in the UK grocery market suggested that possible influencing factors might include maturity of systems, distance of an activity from the end consumer, perceptions of quality and strength relative to competitors, external environmental pressures or threats, ease of measurement and parity of benefits, and the relative level of activity of third party contractors in a particular market.

These influences were set out in a simple framework at the end of the introductory chapter and, on the basis of the exploratory research in the grocery sector, have been used as the basis to develop tentative codes, which are discussed at greater length in the section on the grocery retailing case study.

5.6.1 Unit of Analysis

In all three cases, the unit of analysis is the firms or other stakeholders who have either actively participated in a collaboration or who might reasonably have been expected to participate in a collaboration which has not actually taken place. More specifically, in cases of co-opetition this will be the stakeholders within a defined operational example, whereas in contrasting cases, where co-opetition has not been implemented, this will be the individual firm or firms who have elected not to exploit opportunities for collaboration. In cases where co-opetition can be seen to have been implemented or favoured, the stakeholder parties (facilitators, contractors, retailers) are regarded as units of data collection within the single unit of analysis.

5.6.2 Link between propositions and data to be collected

(Context) What are the competitive and commercial relationships between the stakeholders in the (real or potential) collaboration or in the field in which potential collaboration can be seen not to have occurred?

(1) What was / is the structure of the logistics system before and during the collaboration and what were / are the key performance indicators?

(2) What is the stakeholders' analysis of future strengths, weaknesses, opportunities and threats in the context of the impact of logistics system on future business development?

(3) How have relevant logistics systems developed in the last 10 years and what further development plans are predicted?

(4) Who are the key stakeholders and what is the matrix of relationships: competitive, co-operative, co-existence, facilitation, customer / supplier?

(5) What were / are the financial arrangements prior to and during the collaboration (factory gate, open / closed book, subsidies etc)?

5.6.3 Generalisation / Replication

The protocol for this case research has been developed to facilitate replication in further studies. Because of the limited numbers of relevant cases available for study in the UK retail market, it is intended to study three cases: literal replication will be sought across two examples of collaboration, with theoretical replication sought in an environment where potential collaboration has not been pursued. The case study design will be reviewed after the completion of the first case, with the theory, propositions and design developed if necessary.

5.6.4 Research instruments

The main tool used to collect data was the semi-structured interview. Having arranged time with willing respondents, a separate list of initial questions or topics was prepared for each case. These were not necessarily dealt with

sequentially or verbatim, but were used as a check-list during the informal discussions to ensure that all relevant areas of research had been adequately dealt with. Any omissions or other areas inadequately addressed could then be subject either to further or deeper probing within that interview or covered again at a later interview.

The base question / topic list for the first case study was written based on observations of the (then) current behaviours of the main firms operating in the sector:

- 1a) Does the retailer consider its physical distribution systems to be better or worse than those of the other (named) major retailers?
- 1b) To what extent does the physical distribution system contribute to competitive advantage?
- 1c) Would competitive advantage be compromised by the sharing of distribution resources with competing retailers?
- 1d) Would the sharing of such resources be counter to the retailer's strategy and culture?
- 1e) What benefits do you believe might arise from the sharing of distribution resources?
- 1f) Are there any possible benefits beyond the financial ones?
- 1g) What are the main barriers to resource sharing?
- 1h) What might the main enablers or facilitators to resource sharing be?
- 2a) Bearing in mind the previous definition of physical distribution, which excluded any activities paid for by manufacturers, do you currently operate any part of your distribution systems on a shared basis with another retailer?
- 2b) Have you identified any opportunities for potential sharing of resources?
- 2c) If so, specifically which types of resource would be involved?
- 2d) Have any discussions take place with other retailers about resource sharing?
- 2e) If not, who do you think is most likely to initiate such discussions?

For the second and third cases, where some form of horizontal collaboration was already in place, the list of topics to be covered was derived from

previous case study research into instances of the implementation of vertical supply chain integration within the context of ECR (Frankel, Goldsby and Whipple, 2002).

1. Please provide some background concerning how your relationship with (insert collaborating company name) began. Also please discuss how the relationship has evolved over time.
2. Discuss how the decision to move to a collaborative relationship with this company occurred (eg Who approached whom? Where did you start? Why? What prompted this decision?)
3. At what level in the company was the approval to move forward given? Who else was involved in the initial decisions / implementation plans?
4. What was the implementation process? Did you have a formalised plan or a trial by error approach?
5. What type of information is shared in order to accomplish this programme (probe for strategic versus operational information) and how is the information shared (eg paper, EDI, common systems)?
6. How formalised is this relationship? Is there a written contract? Does the contract contain provisions for performance measurement and evaluation, roles and responsibilities, termination, sharing and distribution of cost savings? If a contract exists, how important is the actual written contract in comparison to the relationship?
7. What were the initial barriers or problems when you first began this programme with the collaborator? How did you overcome these barriers?
8. What are the current barriers?
9. What are the plans for continuous improvement? What other improvement ideas have come from this relationship?
10. What are the key benefits of this relationship?
11. If available, do you have actual measured performance improvements (eg inventory turns, levels of inventory, number of stockouts, sales, costs, quality)?
12. How has this relationship made both you and the collaborative company more competitive? Have you benchmarked this relationship against others in the industry?

13. What criteria are necessary to keep this relationship / programme successful?
14. In hindsight, what could have made this relationship / programme better or have provided results quicker?
15. What systems would you like to see implemented to measure the performance and effectiveness of this relationship? What is missing?

Some of these questions turned out to be more useful than others: for example, whilst some of the retailers in the second (Broadmead) case study understood the concept of bench-marking (question 12), they did not perceive this as being relevant to their own operations. Nonetheless, the list was maintained as an aide memoir to ensure a consistent approach to the content of all associated interviews.

5.7 Methodology – Conclusion

Any researcher brings prejudices to their work. In the case of this project, these prejudices included predicted outcomes for the research as well as unchallenged assumptions regarding methodological preferences and relevance. Whilst such prejudices cannot be completely neutralised, a rigorous process of review of available options and rationalisation of choices has identified that case research will provide a rich and useful insight into the research topic. The nature of the subject and context are such that other possible tools, particularly large scale surveys or experiments, are inappropriate. Because of its relative sophistication and maturity compared with other industry sectors, retail logistics in the UK can be considered as a significant area in which to address the “how” and “why” questions implicit in the research interest. In this respect, this work is not aimed to be conclusive but aims to make a contribution by building theory which might then be tested and developed by others subsequently. Thus a relatively small number of interviews in a small number of cases is intended to provide a depth, rather than breadth, of understanding and is certainly not intended to represent a

generalisable “truth”. Properly constituted case research, couched within the guidelines and safeguards previously discussed in this chapter affords an appropriate tool for achieving a meaningful level of coverage in a significant research environment.

6 Exploratory research with three UK food retailers

The three basic propositions set out in the introduction can be summarised as saying that physical distribution does not contribute to competitive advantage. This gives rise to the gap in knowledge, which is to explain why, given the arguments in favour of horizontal collaboration, there are few if any practical examples of application. This in turn led to the development of six hypotheses, which sought to establish whether the presence or absence of certain conditions or external factors would explain the absence of applications and, perhaps, predict under what conditions such collaboration might take place. These hypotheses were developed into a contextual framework, set out in figure 9 in chapter one. This attempts to show how four internal factors or perceptions interact with each other and with two sets of external influences. One of the internal factors is described as having two dimensions, giving a total of seven initial groupings for the collection and analysis of data.

Following the initial exploratory research into the UK grocery context, a number of “shorthand” phrases were suggested as indicators of some of the themes which might emerge from the data in connection with the hypotheses. These initial themes also formed the basis of a published article describing the outcomes of the initial phases of the project (Stephens & Wright, 2002). Briefly, these “shorthand” themes included customer orientation, in terms of the price / service positioning and distance of a supply chain activity from the end consumer, perceptions of a firm’s quality and strength relative to that of its competitors, the presence of active contractors in the market and the influence and extent of external or environmental pressures and threats. These factors and the extent to which they appear to be relevant to the research are all discussed in more detail in this chapter.

As recommended by Miles and Huberman (1994), the suggested framework and emergent influencing themes were used to develop a tentative set of data codes for the analysis of subsequent data.

6.1 Explanation of categories, characteristics and possible data codes

The provisional table of codes and a graphical representation of the code hierarchy are set out in the figure and table below.

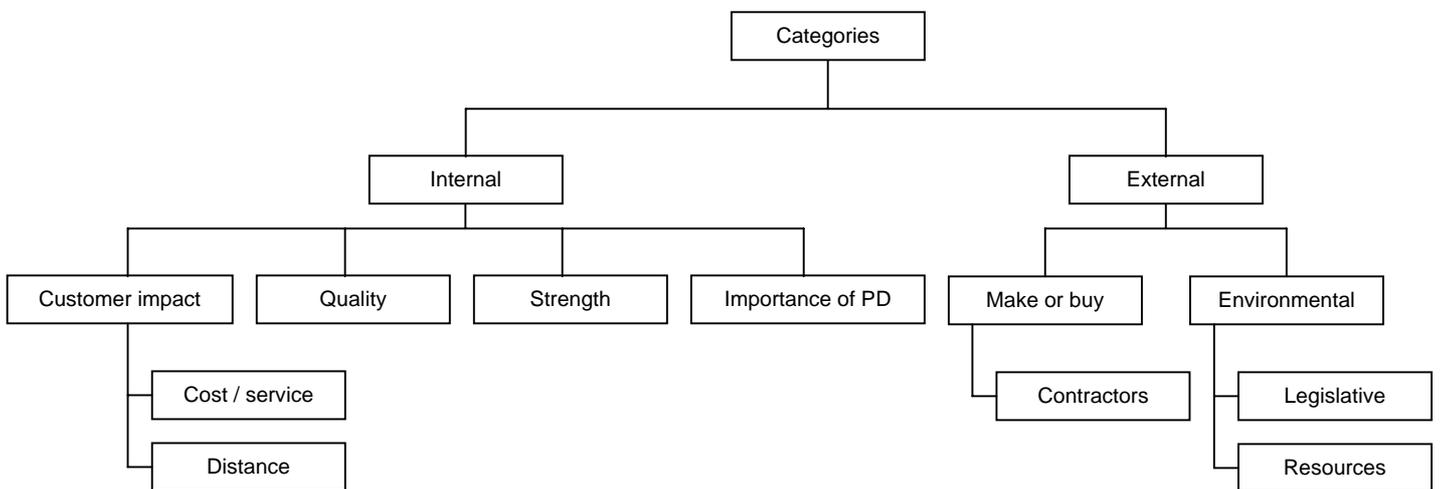


Figure 20: Hierarchical structure of tentative data codes

Category	Code	Description
Customer impact	Distance – 1.1 DIST	Distance, either physical or by echelon, of a supply chain activity from the end consumer
	Cost / service – 1.2 SERV	Extent to which costs are compromised to satisfy store / customer demands
Quality	Perceived quality of logistics system relative to competitors – 2. 0 QUAL	Extent to which a firm perceives itself to be better / worse than the competition in terms of cost and / or service. Potential for equal gain or loss arising from collaboration.
Strength	Perceived market strength relative to competitors – 3.0 STREN	Attack / defence positions in respect to named competitors and growth targets
Importance of physical distribution (PD)	Extent to which PD systems contribute to competitiveness – 4.0 VALU	Extent to which PD is regarded as integral to the customer offering and differentiated from competition
Make or buy	Use of contractors – 5.0 CONT	Use of “white trucks” and other technologies to pursue integration synergies
Environmental	Legislative or social pressures to reduce environmental impact or other external pressures – 6.0 ENV	Degree of perceived threat from empty running, road tolling, curfews, resource shortages, market forces

Table 9: Provisional table of coding categories

The influencing factors can be considered in more detail in six categories.

6.1.1 1. Impact on Customers

The traditional strategic trade-off between cost and service has been discussed, together with the ways in which this model of basic strategic choice has been superseded. However, even in more complex models, improved performance still tends to be measured in terms of lower cost, greater efficiency or improved customer offering. In general, improvements in any of these dimensions would be viewed as a good thing, but there may be circumstances under which a firm would sub-optimize one dimension in favour of another. So, for example, a firm might still choose to ignore a compelling financial opportunity in order to optimize service. In the grocery distribution context, this might be, for example, a policy of always adhering to a delivery schedule to suit the needs of store managers, even when an alternative schedule might offer lower cost. In other words, the retail trading floor is deemed as the main driver of the business and everything else is subservient to this. This might be one possible reason why retailers might ignore opportunities for efficiency and cost improvements through collaboration, as possibly having a detrimental effect on service to stores.

A second characteristic with a potential impact on customer positioning is the extent to which supply chain activities are visible to the end consumer. Whilst vehicles making deliveries to stores in the High Street may be highly visible and provide an opportunity for direct advertising of the firm's offering, more upstream activities, such as primary transport, consolidation or unitization may be not only invisible to consumers, but also of very little interest. This might give rise to the proposition that the visible downstream activities might provide some kind of positioning opportunity which might carry competitive advantage, while the upstream activities do not and are thus more appropriate for non-competitive collaboration. Examples of activities carried out at this "distance" have been identified in several industry contexts, particularly in Sweden (Bengtsson & Kock, 2000).

1.1 DIST Distance of a supply chain activity from the end consumer

1.2 SERV References to required service levels to stores or consumers

6.1.2 2. Perceptions of quality of each firm's own systems relative to competitors (Own quality)

It is not within the scope of this research to attempt to benchmark the distribution systems of retail firms against each other, although some use is made of secondary data to establish that there is approximate parity of scale and sophistication of systems. However, it is likely that, even in the absence of such objective data, firms will have a perception as to whether their systems are better or worse than those of their nearest direct competitors. This may be important in the sense that a firm might be more likely to collaborate with an "equal": in other words, a partner who had no more nor no less to gain from the potential relationship. Perceptions of quality relative to competitors might thus be important in determining attitudes to collaboration.

2.0 QUAL Perceived quality / efficiency of logistics systems

6.1.3 3. Perceptions of each firm's own competitive strength relative to competitors (Own strength)

A development of the above point about quality might be that, even if a firm perceives that its systems might be comparable to those of a competitor, it would still be unable to develop a collaborative arrangement because its overarching competitive strategy might be to take market share from that competitor or, at the extreme, look to take it out of the market or take it over. Where competitors have very similar market shares, the quest for a single percentage point gain over the nearest rival might make any form of collaboration completely unpalatable to management. Paradoxically, the notion that firms with very different market shares might be more inclined to collaborate could be odds with the notion of "equal gains" implicit in category 2 above. Tentative codes:

3.0 STREN Aggression towards other parties in the relationship / marketplace

6.1.4 4. Perceptions of contribution of logistics to competitiveness (PD Contribution)

Although the UK grocery industry has been selected on the basis that there ought to be approximate parity of systems and costs between competitors, it is still possible that individual firms might believe that their systems still offer something different which has yet to be copied or adopted by the competitors. This point complements category 1 above, in terms of trying to identify factors which might explain why a firm thinks its systems are better or worse than those of other firms:

4.0 VALU Value added to the retail offering by the distribution function

6.1.5 5. Make or buy: Attitudes to use of contractors vs in-house operations (Brokers)

The theory of transaction cost economics provides one theory for the presence of third party contractors in the UK grocery distribution market, although there are other more prosaic explanations, as discussed in the introductory section. Although the use of contractors has been seen to be widespread, it has generally been about the out-sourcing of stand-alone operations, such as a warehouse or transport network dedicated to a single network. As has been pointed out, Whiteoak (1999) sees a developing role for contractors as the “glue” to join up the operations of competing retailers. Potentially, this could be at the instigation of the contractor, who might conceivably seek synergy opportunities between competing stand-alone operations without passing the benefit back to the retailer. On the other hand, competing retailers might actively encourage contractors to fit complementary operations together, with a share of the benefits being passed back to them

5.0 CONT Examples of use of third party contractors in distribution operations

6.1.6 6. Firm's interpretation of importance and probability of external environmental factors (External drivers)

As has been previously discussed, some distribution and logistics innovations have been the result of external influences, such as labour disputes, road congestion or pressure on shop floor space. Given parity of current costs and architectures, but no other impetus to change, it may be that further external factors may expedite the need for collaboration, because no single firm has the power or wherewithal to deal with them effectively on their own.

6.0 ENV Environmental policies, legislation and constraints

It should be stressed that these codes are deliberately tentative prior to the start of the exploratory research with grocery retailers and are likely to be developed and extended on the basis of the initial interviews.

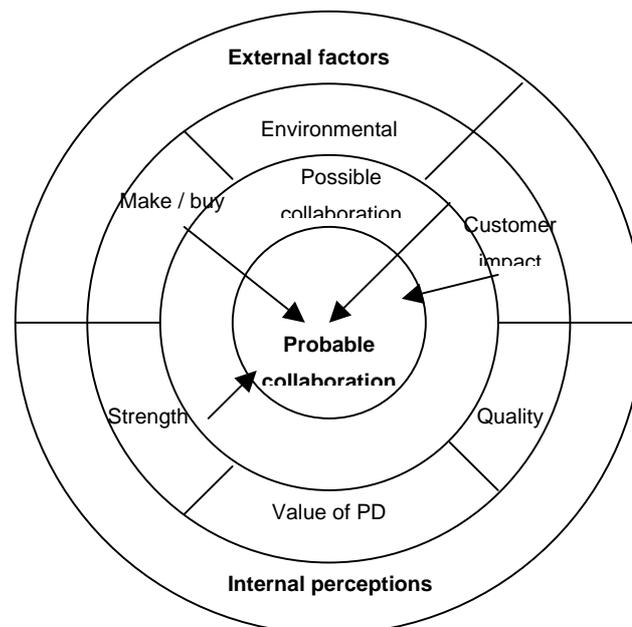


Figure 21: The dimensions of each data code may make it more probable that collaboration might take place.

The relationship between the codes and the propositions can also be explained by considering the relative “dimension” of each code as a facilitator for collaboration. For example, the figure above shows how the arrows representing the variables extend different distances towards the centre of the chart: the length of the variable arrow is influenced by the external factors and internal perceptions. This length determines the extent to which collaboration might move from impossible, to possible to probable. The next figure illustrates how one of the variables (distance) might be operationalised.

Likelihood of collaboration	Proximity of supply chain activity from end user	Physical distance from head office control
Impossible	Store delivery	1 mile
Unlikely	Secondary warehousing	20 miles
Possible	Primary delivery	50 miles
Probable	Supplier consolidation	100 miles
Highly likely	Load unitisation	500 miles
Highly likely	Product coding	1,000 miles

Figure 22: Example of operationalisation of a data dimension: distance

6.2 Entering the field

The evolution of the physical distribution function as a major contributor to efficiency and cost reduction is evident in the UK grocery industry, where a common template for highly centralised systems has developed. However, innovations are easily copied and thus competitive advantage is only possible at the leading edge. As logistics initiatives in grocery have broadened into the umbrella of Efficient Consumer Response (ECR), it has been suggested that further efficiency gains will be made possible by cross-chain collaboration between competitors. This exploratory research seeks to understand the circumstances under which such “co-opetition” might be possible. UK grocery retailing, with apparent homogeneity of highly developed distribution systems

and evidence of significant vertical channel integration, ought to provide a context with rich potential for exploring opportunities for horizontal integration across supply chains.

6.3 Exploratory phase – UK Food Retailers

UK grocery retailing was identified as the context for the initial research for two reasons:

- This sector is recognised as having been in the forefront of logistics developments and, as such, a standard model of best practice has been ubiquitously applied, potentially eroding the competitive advantage of physical distribution innovation.
- The Efficient Consumer Response programme had already opened channels of dialogue between competitors in areas of potential shared gain.

The key players in the UK food retail market, and the basic characteristics of their distribution systems and networks were discussed in chapter two. For the purposes of research into UK grocery logistics, the list of potential target organisations was narrowed down based on five parameters: national infrastructure, comprehensive range of foods, centralized distribution systems, turnover greater than £2 billion and adoption of current distribution best practices.

On this basis, Tesco, Sainsbury, Asda, Safeway and Marks and Spencer were identified as potential target informants. As discussed earlier, of the other “majors”, Morrisons (prior to the acquisition of Safeway) was discounted as being too regionally-oriented and Somerfield was still in the throes of assimilating its recent Kwik Save acquisition.

Telephone contact was made directly with senior managers in the distribution or logistics functions in these firms and, having identified individuals who expressed some interest in the subject, this was followed up sending out a written summary of the research proposal and methodology. Representatives from three retailers expressed interest in taking part more or less immediately and a dialogue was opened, therefore, with representatives from Asda, Marks & Spencer and Sainsbury. In fact, as the research developed, managers from all three of these firms were able to identify other colleagues from within their organisations who were also able to be contacted and drawn into the research. Each of the contacts at these three firms was interviewed individually at least twice and then all three met together for a collective discussion. An initial contact was also identified at Tesco, but after one interview, the respondent declined to take any further part in the research for personal reasons, although they gave permission for the first interview to be used. Although not stated expressly, it seems likely that the Tesco respondent came under peer or managerial pressure not to take further part. Although contact was not attempted with Somerfield, a contact there became available much later in the research process, during the course of the third case study and a single interview was conducted with this respondent to triangulate the evidence gathered from the more in depth relationships with the other retailers. Because the Tesco and Somerfield interviews were conducted differently to the Asda, Marks & Spencer and Sainsbury interviews and are, therefore, possibly less reliable as insights into those organisations, the findings from these two interviews are discussed separately below. The smaller amount of data from Tesco and Somerfield is also evidenced in the gaps in the data displays against some of the code categories: no data on Somerfield's attitudes towards distance from consumer or environmental issues, for example, was identified. No interested contacts were found at Sainsbury.

Whilst the main data collection tool was the interview and later the collective interview or "seminar", other data was collected as well. Most interviews were conducted on the retailers' premises, either head office or distribution site, and there was thus opportunity to gather other materials, such as internal

publications, data from notice boards, minutes from meetings and external (financial) reports. Some of the visits also included site and facility tours, which provided insight into operating methodologies, as well as a richer understanding of the climate, culture and mood prevailing in the organisations at the time.

6.4 Converting data into evidence

All of the interviews, and the seminar, were tape recorded and manually transcribed. Although transcription is a laborious and time-consuming process, it has great value in giving the researcher the opportunity to reflect on the data collected in great detail. During transcription, the tape is listened to over and over again, giving time for the detail of the language used and the inferences made to emerge as the words are typed up. The type-written scripts were printed, read and re-read many times, to allow for further reflection. As well as data coding during these processes, notes and memos were then added to the script for further consideration and linking later on.

Once an overview of the contents of each interview had been assimilated, an iterative process of “distillation” was employed to reduce the data and identify its key elements. Word processing functionality was used to identify and extract the key content from each full length interview into a shorter summary of main items. This summary was then again distilled and the process repeated until patterns among and between the key coded items could be discerned. An example of the scale of this would be take the 18,000 words which represented the long-hand transcription from a 90 minute interview and, after coding, reduce this to a 2,000 word summary, which in turn was eventually reduced to around 200 words of salient text, upon which the key themes and relationships can be marked up.

The process of data reduction and distillation from masses of long-hand transcription to a few key patterns representing the basic evidence can be represented as a pyramid, shown in figure 23 below.

Before moving on to consideration of the findings revealed as the outputs of this analytical process, it is helpful to understand the context of each of the key firms under examination, through an exploration of their recent history, key business issues and standing in the market relative to the other players.

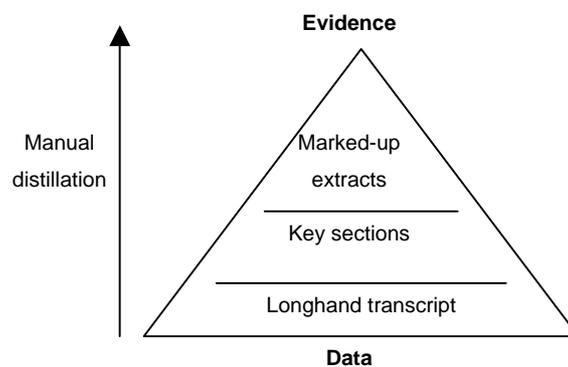


Figure 23: The distillation process to reduce data to evidence

6.4.1 Context M & S

Although M & S's UK food turnover was given as £3.16 billion in the 1998 IGD Retail Survey, this fell in 1999. Food sales were still believed to be around 41% of total UK sales, so a more up-to-date food sales figure can be inferred from the annual published accounts of total sales. M & S traded through 289 stores in 1999. The average store size is 38,000 square feet, although this includes non-food sales areas.

Food throughput averaged 2,244,000 case per week, of which a full supplier breakdown has been provided. Of this figure, roughly a third is cold chain, about 5% frozen and the rest ambient grocery. Apart from a limited number of commodity bread lines, all products are handled through the central distribution network. This comprised seven sites for chill and ambient, and two for frozen. There was also a bonded warehouse for beers, wines and spirits,

but products from this store are then delivered through the depot network. All of the depots were operated by contractors, who own the sites and vehicles.

All products were “picked to zero” each day, with no stock being held in the depots. Products were distributed in two waves per day: short-life products were delivered into depots during the afternoon and evening and delivered to store around 7 a.m. the following morning (AM cycle). Longer life products were delivered to depot in the morning and into store the same afternoon (evening vehicle, or EV cycle). There is a significant volume bias towards AM cycle, driven by the generally short shelf-life of M & S foods, which are marketed on the basis of their freshness.

There were also believed to have been some small scale examples of co-operation, both covert and overt. Some vehicles in the textiles fleet, for example, were painted in plain livery with no logos, to allow for work in non-M & S operations. Reference was also made to a facility for distribution of frozen foods, shared with Asda, as well as delivery journey integration with other retailers in more remote parts of the country. At the time of the initial interviews, discussions were also ongoing with a number of retailers about the possibility of sharing trains to import goods from mainland Europe. Also, although not a retailer-driven initiative, M & S were obviously aware of the joint venture between two of their contractors, Exel and Tibbett & Britten, who collaborated to set up Joint Retail Logistics (JRL) specifically to service M & S’ non-food, general merchandise operations.

Marks and Spencer started life as a market stall in Leeds in 1884 and over the following 120 years became one of the most respected retailers in the world and central to the British shopping experience (Seth and Randall, 1999). From a base in clothing, M & S began to expand significantly into foods in the 1930’s, developing a niche offering based on high-margin value-added items in the 1950’s and virtually creating the chilled prepared foods market in the 1970’s and 1980’s. Food sales rose from £256 million in 1975 to over £3 billion by 1998. Furthermore, this growth was based on a typical store range of 3,000 items (SKU’s) as opposed to the 30,000 SKU’s of the other grocers.

The foundations of M & S' success were quality, value, innovation, supplier partnerships and commitment to all stakeholders – customers, shareholders, suppliers and staff (Seth and Randall, 1999). These foundations were manifested in the early adoption of efficient centralised distribution systems, particularly in the “cold chain”, supported by sophisticated IT systems. Therefore, although M & S have only ever achieved a market share of around 3% of the total grocery market, their innovations in product ranges and operational systems have been highly influential and largely copied and adopted by other grocery retailers, to varying effect.

However, their expansion overseas was less successful than that of, for example, Tesco. Ventures into Canada in 1972, Europe in 1975 and, later, the USA and the Far East were later unwound and by 2001, they had virtually retrenched to the UK (Burt et al, 2002). This was to avoid the international operations “undermining its UK stores any further” (Datamonitor, 2005). Other strategic idiosyncracies included the retention of a “Buy British” policy, 100% own-branding of goods and a reluctance to accept credit cards, other than its own store card, long after its competitors.

However, the strategy was called into question following a downturn in sales in 1998, and, together with this, all of the factors which underpinned this strategy. In a sense, over the last five years, through the leaderships of Richard Greenbury, Peter Salsbury, Luc Vandervelde and Stuart Rose, there has been a focus on branding, marketing and range, with areas such as logistics relegated to a subsidiary role, with little contribution to make to the recovery of the company. This is typified by a quote from Garth Thorne, a senior supply chain manager at M & S in 1999 (Motor Transport, 4.3.99): “Why shouldn't the big retailers work together to pool their resources? The competitive edge is on the sales floor, not in the truck.”

Writing in 1999, Gary Davies (Davies, 1999) suggested that the two conventional models used to explain the evolution of retail businesses, the “Wheel of Retailing” (Hollander, 1960) and the “retail accordion” (Hollander, 1966), were both flawed, in that they would suggest that M & S should be

vulnerable to lower cost, lower priced or more focused retailers. At the time of writing, argues Davies, this was not the case, as evidenced by the long-term survival and success of M & S. Arguably, the years since 1999 suggest that the models were, after all, correct, and that the M & S clothes business could be attacked by, among others, Tesco, Asda and Next and the food business could be eroded by quality and innovation issues by all of the major multiples.

During the course of this research, perceptions of M & S have changed. “In terms of performance, no British company can match them” (Peter Doyle, quoted in Seth and Randall, 1999) contrasts with “M & S is experiencing unprecedented troubles. The company has seen its sales stagnate, profits collapse and market share fall” (Mellahi, Jackson and Sparks, 2002).

Three interviews were conducted with senior managers in M & S’ logistics during 1999 and 2000. In June 1999, just before the first interview, M & S reported the first large drop in profits (from £1.2 billion to £0.6 billion). By the time of the last interview, in July 2000, reported profits had halved again. Merriden (2000) notes that many M & S managers realised the “writing was on the wall” long before the 1999 results were published. In the first interview in August 1999, the respondent commented that food sales were probably already falling from the levels of the previous year. This interview contained several references to a climate of change and even mention of “a disastrous year”. Although, as mentioned above, whilst logistics was not central to the recovery plans, the trading results had an effect on the way in which new approaches might be taken to reduce logistics costs, including possible collaboration with other retailers. For example, when asked if competitive advantage might be compromised by sharing resources with a competitor, the first respondent replied: “Up until a year ago, I would have said ‘yes’. However, we have been through a period of radical change and I think we probably now feel that further advantages could only be gained by pooling”.

6.4.2 Context: Asda

Asda Stores Ltd was founded in 1965, as a partnership between Yorkshire retail entrepreneur Peter Asquith, and Associated Dairies. Asquith had set up and sold one store in Pontefract, before opening another in a converted cinema in nearby Castleford. The partnership was formed by Asquith's need to get funding for his expansion plans, which include the purchase of two existing UK stores from an American company, Gem International. This early partnership set the style of Asda for years to come in two ways: the two Gem stores (in Leeds and Nottingham) were several times the size of existing UK supermarkets and thus formed the basis of the development of the so-called superstore. Secondly, Asda continued to buy up unconventional properties, such as cinemas and abandoned mills, for conversion to stores, rather than looking for traditional High Street properties or getting locked into long term arrangements in shopping centres. The other fortuitous piece of timing for the start of the partnership was the abolition of Retail Price Maintenance by the Heath government in 1965. This paved the way for Asda's two-strand approach: price discounting in store formats which were significantly larger than the current norm and away from the conventional High Street battleground. On this basis, expansion continued throughout the next 15 years, with a take-over approach from Jack Cohen of Tesco rejected in the meantime (Seth & Randall, 1999).

Asda's straightforward strategy became somewhat diverted as a shortage of suitable retail sites and problems in getting planning permission led it to diversify into furniture. Not only did this distract management from their main strategic focus, it also led to financial difficulties. The makings of Asda's near downfall in the 1980's can be attributed to a number of factors. Shoppers were increasingly trading up, seeking an offering based on quality rather than price. On this basis, Asda's reluctance to invest in own-label goods and better premises left it vulnerable to competitors such as Sainsbury. It had also failed to expand significantly away from its Yorkshire base into the relatively more affluent South East. Finally, the merger with MFI furniture stores in 1985 was unlikely to be justified by any real synergies, and merely compounded the

issue of lack of focus. The then chairman John Hardman took two significant decisions to turn events round in 1987. Firstly, Asda demerged from MFI and secondly, a long-term partnership was established with the ex-Next entrepreneur George Davies, to drive Asda's expansion into clothing, which would sell alongside its food range. However, the expansion into the South East, the acquisition of 61 former Gateway stores from the newly-formed Isoscoles group and substantial investment in new centralised distribution systems, which were commissioned in 1989, drove Asda to the verge of bankruptcy (Walters, 1988).

In 1991, Hardman was replaced as CEO by ex-McKinsey consultant, Archie Norman. Norman achieved two major successes: managing (and ultimately turning round) the City's perception of Asda's potential, and redefining Asda's specific offering to consumers, based on price competitiveness and volume trading, allied with a good fresh food range and high efficiency. Having set the recovery process in motion, this was accelerated in 1995 by the "Breakout" strategy: an attempt to position Asda as the best value for money clothing and food store in Britain. Using the armoury of higher than average store sizes, the George (Davies) clothing range, people-based service - often combining craft skills such as bakery and butchery - and a "market hall" approach to store layout, Asda improved both market share and profitability throughout the rest of the 1990's. The growth in scale demanded by the strategy drove Asda to consider a merger with Safeway in 1997, but this was abandoned as news of the exploratory talks leaked to the press. In 1999, as talks were underway with the Kingfisher group over a potential merger, US retailing giant Wal-Mart stepped in with a significantly higher bid and Asda became part of Wal-Mart's strategy for expansion into Europe. The two companies have much in common, in terms of store size, range and service ethos. Each company had been studying the other from afar for years, and it remains to be seen which party will exert most influence over the other in terms of development and change (Seth & Randall, 1999).

During the first year after the take-over, Wal-Mart pumped significant sums of money into promotional activity at Asda, whilst using key Asda management

to address operational and strategic issues in other acquisitions throughout Europe. Latterly, some of the Wal-Mart I.T. solutions, which were developed to facilitate the early implementation of ECR in the US, such as the “Retail Link” system, are being implemented in the UK.

Asda is still run from Yorkshire, with its head office now situated on the banks of the Leeds and Liverpool Canal in central Leeds, a city that has undergone a parallel rejuvenation of its own in the last decade. Having pioneered the superstore format (that is, stores larger than 25,000 square feet) from the time of the acquisition of Gem in 1965, Asda has held true to this strategy and now operates 235 stores with an average size of over 40,000 square feet. Since, the Wal-Mart take-over, financial figures need to be extracted from the global accounts with care, but the current turnover is believed to be between £9.5 and £10 billion, putting Asda firmly in the “Top 4” UK grocery chains, along with Tesco, Sainsbury and Safeway, with a market share of perhaps 12% (Sources: interviews with Asda management). (Market shares are notoriously difficult to calculate, because of the difficulty in defining total market size. For example, the expansion of supermarkets into petrol and clothes, together with the appearance of foods in non-traditional retail environments, such as petrol forecourts, means that estimates of total grocery market size vary between £70 billion and nearly £100 billion).

The strategic change process started by the “Breakout” campaign continues, with emphasis being placed on new ranges and personal and friendly selling styles. Asda’s initiatives in selling ready meals over the counter, rather than from refrigerated displays, started with the Curry Pot and extended into pizzas and Chinese ranges. That this style of presentation has now been imitated by virtually all of Asda’s competitors emphasises how innovative this was perceived as being. Asda’s desire to be seen as a serious operator in fresh and value-added foods was underlined by the opening of its first drive-through take-away food outlet, in Canterbury in 1998.

In terms of physical distribution systems, Asda was one of the last major companies to adopt the central distribution model, with six composite RDC’s

all being opened more or less simultaneously in 1989. The higher than average size of Asda's stores had allowed it to defer to move away from direct manufacturer-to-store deliveries for longer than most, and there had been other distractions during the 1980's, as discussed above. The scale of this one-stage implementation - £200 million was spent on a total of nine sites around 1989 – was such that it contributed at least in part, to the financial problems faced in 1991. It could be argued that being a late adopter of the centralised model allowed Asda to learn from the lessons of others, although the depots were still built to traditional “composite” format, with room for stock as well as picking, even though the trend to eliminate stock from RDC's was already well underway at the time of the opening of the Asda depots. Thus Asda's sites, like many others, were ultimately the wrong shape for stock-less cross-docking operations, with too much height in relation to floor-space. To some extent, this has been addressed by the addition of mezzanine floors into most of the depots: Asda spent £16 million on alterations to depots in 1996, giving a claimed 30% increase in capacity.

Once the new depot network had been settled down, Asda claimed a 10% reduction in distribution costs between 1994 and 1995, with a further 4% the following year. Having built the initial six central depots as composites, handling all temperature regimes, Asda started to move away from this in 1999. As volumes continue to grow, rather than building new composites, Asda is building new depots adjacent or close to existing sites and separating the temperature regimes between the old and new buildings. The Bristol RDC, opened as a composite in 1989, became solely temperature-controlled in 1999, with ambient goods moving to a new site across the River Severn in Chepstow. A new chilled facility in Wakefield, opened in 2000, allowed for the conversion of the original Wakefield depot to ambient goods only. This programme has continued with some of the other original sites (Source: Asda management interviews).

6.4.3 Context: Safeway

The major retailer phase of this research was carried out prior to Morrisons' acquisition of Safeway in 2004 and it is thus "old" Safeway, managed independently from Morrisons, which is considered here.

Safeway had only existed in this form since 1987, when Argyll acquired the name and UK stores from the American chain of the same name, from which, however, it remained completely independent. Like Somerfield, Safeway was the result of acquisition and consolidation strategies in the 1970's and 1980's and can be seen to result from the integration of (at least) 14 or 15 separate grocery retailers, including Liptons, Presto, Lo-Cost and Cordon Bleu. The key stages of this consolidation were the merger of Allied Suppliers and James Gulliver Associates to form Argyll, which acquired Hintons to form Presto and eventually acquired the UK operations of Safeway. This chart also contrasts the growth through acquisition of Safeway and Somerfield, with the more organic growth of the other major retailers. Whilst Tesco has made some significant acquisitions, Asda and Sainsbury's have made few and Marks & Spencer have made none (Seth & Randall, 1999).

At the time of the research, Safeway had more or less completed the process of integrating the distribution systems of Safeway UK and Presto, acquired in 1987. The rationale for the merger was to build scale, whilst combining the brand superiority of Safeway with the superior distribution systems of Presto, largely based on four purpose-built distribution centres, established after the purchase of the Hinton's chain in 1984. The key elements of this integration were the rationalising of two separate distribution centre networks into one, with the closure of some depots and the opening of a new state-of-the-art centre at Bellshill in Scotland, and the implementation of Presto systems into the Safeway sites. These systems changes included moving Safeway from a "pick-by-store" methodology (in which order picking only commences after all stock has been received with a resulting short peak in activity) to Presto's continuous stockless pick-by-line method and separating picking of faster moving lines from slower ones. On the other hand, the Safeway methodology

of distributing goods to stores on wooden pallets, rather than on metal roll cages, was extended into Presto. (Christensen 1990 and 1999). Significant changes were also introduced in transport management, with the Safeway practise of back-hauling suppliers' products into the depot network on vehicles returning from store deliveries being rolled out into the Presto depots, and transport generally being more centrally managed as a network operation, rather than the depots being left to their own individual devices.

In spite of the successful integration of the distribution systems and the enhancements developed, Safeway encountered problems with falling market share in the late 1990's, with its branding generally perceived to be over-priced. Problems were exacerbated by technical issues, including computer systems failure and generally poor on-shelf availability. Discussions with Asda about a possible takeover began in 1997, but stopped in 1999 when details were leaked to the press. However, rumours that Asda was still preparing a hostile bid were rife in 2000, at the time these interviews took place. In an attempt to turn the tide, an ex-Wal Mart CEO was drafted into the business in 2000. Among the weapons used by Carlos de Priadez to try and recover ground were more regionally-based promotions and "guerrilla" promotional tactics, whereby local stores would be allowed to plan and execute their own local major promotions to target specific local competition. Both these tactics placed a degree of strain on Safeway's distribution systems (Source: Safeway management interviews).

6.5 Joint Retailer Seminar

Having established a dialogue, together with an understanding of some of the key issues underpinning resource sharing, it was then proposed to the respondents that they (Asda, Safeway, M & S) should meet together, with a view to:

- sharing the research findings to date, on a non-attributable basis

- identifying specific potential synergetic benefits identified as part of the comparative survey of current systems.
- developing a framework for quantifying benefits which may accrue from these opportunities
- developing a framework for discussion, planning, implementation and division of the accrued benefits.

The proposed forum was a “seminar”, in the academic sense. As such, attendance was viewed as a contribution to the research process, rather than an opportunity to identify any specific opportunities for joint working with other retailers at that stage.

The first aim of the meeting was to confirm base data on the structures of operations, derived from secondary data. Thereafter, the detailed content of the individual discussions was distilled down to four questions, or topics for discussion, which were then used as the framework for the joint meeting between the three firms.

- How is it possible to define an “optimum” or “best” PD system: for example, is quality, service or price the defining characteristic?
- What role, if any, does the logistics function fulfil within corporate strategy?
- Are there any examples of retailers working together either in the field of logistics or elsewhere?
- At what level, or in what sphere of activity, would pooling of information or resources be regarded as non-contentious (start with crates / recycling, move forward through primary transport and on into order systems / stock etc)?

The joint meeting, held in April 2000, lasted for two hours and was tape-recorded for transcription. In order to allow time for note taking and reflection during the discussions, a colleague from Cranfield University, who was also supervising the project at the time, sat in attendance at the meeting to help facilitate the dialogue. After some initial reserve, all three respondents

contributed to a lively debate which covered all of the planned topics. However, it was felt by all participants that the presence of “competitors” in the room constrained contributions to some extent.

6.6 Discussion of findings

A summary data display for the three major respondents in the first case study is set out in the table below:

Variable	Asda	Marks & Spencer	Safeway
DIST	You can't escape from branding – it means the world to us. I want to see loads of Asda trucks running up and down the motorway which look "bang on"	We wouldn't want another retailer-delivered vehicle delivering to a store, because the public would see that. Does it really matter in Dover, is the question we're asking now	Via Wincanton at Bathgate, we do some Woolworths deliveries into the far North of Scotland
SERV	I think we're more focussed on our stores, and if a store particularly wants something going in a particular way, we'll do it. And we'll do everything we can to support the store. For example, half our vehicles are well and truly empty compared to our competitors because it's all designed to get the product there in a particular format, which will enable speed at the store. Because our view is that's where the real cost is, at the store, not in the logistics end	If they (Asda) are putting stores truly first and they're willing to run a half empty vehicle or whatever, then they're giving a better service	Asda's view is stronger on service, probably; I might be wrong here, but our view is that service is absolutely paramount. OK, cost is important, probably 70% service and 30% cost. We're probably 50 / 50.
QUAL	Rather than trying to fit what we do with what other people are doing, we'd prefer to just have one network of our own, both primary and secondary, and work internally to try and make it as efficient as possible	Our costs as a percentage of selling value looks a lot higher than anyone else's, but then you go through and find that they all hire their trays out to their suppliers	There's this equality thing, which is very important: you've got to make sure that whatever you're giving, you're getting
STREN	Do you think we'll ever work with another food retailer? The answer's "no" because we're trying to cripple them all BUT The whole idea of not sharing resource with other people goes against the grain of EDLC (every day low cost). It's a bit like cutting of your nose to spite your face	We talk about Waitrose because we are still not out to be a supermarket: we are still out to be a food specialist and we want to stay that way because there are enough supermarkets, so we don't want to be in that business because we could not do it.	For example Carlos is out to stamp on Somerfield and out to take on Sainsbury's. It's very much: we were talking to Somerfield and then "you are not talking to them anymore".
VALU	It's of huge competitive advantage, every aspect of logistics, and I don't for one second expect our company to co-operate. In fact, I think you'll see the opposite Wal-Mart, if you take the model of what they've done in the States, is all about doing things themselves. Of course, they learn from other people, and they will leverage resources that are shared. What they won't do is work with competitors	Over our whole supply chain, there's a kind of intellectual property rights, which, I'm not sure that by sharing something with somebody, they would be able to discern.	At the end of the day, you can invest a lot of time in making a step-change, but the competition will catch up and possibly go past you very quickly.
CONT	I want my contractors to work with other retailers, but only because, at the end of the day, that will give me the best price.	There's lots of it: that's why we painted the vehicles white and now we get the revenue. It's all still organised by the contractors, though	There's nothing to stop you having a third party facilitating a Tesco and Safeway operation out of a single site for one of those flows.
ENV		Driven by the results of a disastrous year, we are being driven into thinking about it. Not long ago, we were very protective: we wouldn't let anybody into our sites or have people wandering around our business unaccompanied. But we have changed: we have been knocked off course by the events of last year.	But, there'll come a point where congestion, the way these local transport plans and things, the way that everyone's not going to be able to go into cities with trucks

Table 10: Summary data display for the three major respondents in the first case study

6.6.1 Asda

Despite not having particularly strong views on the quality and performance of their distribution networks, the overwhelming impression given by the three Asda respondents was of their aggression towards the competition, which also had a touch of arrogance about it. Indeed, Asda's whole attitude towards the importance of competitive pressure and the degree to which it affected both strategy and operations was significantly stronger than that of the other participants, with the language used being peppered with references to battle and war.

"We cannot divorce ourselves from something which I think is a real bloodbath."

"I make no bones, when we see someone who is going under a little bit then vultures are hovering and the last thing that any of you are going to do is anything that could help them because if they have suffered you know you are going to gain."

"There's no battleground as hard as Safeway and Asda in Scotland, surely."

"Do you think we'll ever work with another food retailer? The answer's "no" because we're trying to cripple them all."

Paradoxically, however, there was one comment that perhaps indicated a grudging acceptance that, whilst this aggressive attitude was deeply engrained in their corporate thinking, it might ultimately be counter-productive to some extent: "The whole idea of not sharing resource with other people goes against the grain of EDLC (every day low cost). It's a bit like cutting of your nose to spite your face".

One retailer, Morrisons, was mentioned by Asda with respect, but this related to the way in which this retailer managed to combine a low price offering with a sense of theatre in the stores, rather than an acknowledgement of operational excellence.

Interestingly, the fact that Asda's whole motivation appeared to be driven by overcoming the competition was also reflected in the relatively few references to their customers. This makes the concept of "distance" of a supply chain activity from the customer almost irrelevant. The customer was perceived as being on the receiving end of the Asda philosophy rather than driving the strategy.

"If we could convince every customer that the product will be there and they'll not buy it anywhere cheaper, then they'll go there."

"The core essence of what we're about is about price. Of course it's about quality, particularly freshness of product and our clothing brand is absolutely critical to us, but it is about the customers truly believing that what they're buying there is better value than they get elsewhere."

This confidence also meant that any opportunity to use the distribution operation to reinforce the branding to customers was perceived as important to the business.

"You can't escape from branding – it means the world to us. I want to see loads of Asda trucks running up and down the motorway which look "bang on".

Although Asda did not particularly perceived their systems as being any better or worse than those of any other retailer, there was a recognition that the systems had to work properly and efficiently in order to support the competitive offering.

In spite of the general expression of aggression towards their competitors, however, Asda did not make any particular claims about the excellence or otherwise of their own systems. Indeed, some surprisingly self-effacing comments were made about the way in which the systems were managed and that there may well be ways in which the systems could be improved based on experiences elsewhere.

“To be honest, and you’ve seen some of this, we haven’t got a clue where some of our suppliers are, or come to that, anybody else’s”.

“We’re really excited about the roll-out of Wal-Mart’s systems next year: that’ll give us the chance to do ex-factory buying, which will really up the primary possibilities.”

There was even a recognition that systems might currently be sub-optimised, but that, by implication, this is less of an issue that pressure from, or collaboration with, a competitor.

“Rather than trying to fit what we do with what other people are doing, we’d prefer to just have one network of our own, both primary and secondary, and work internally to try and make it as efficient as possible.”

This realism about the possible shortcomings of their own systems seems to inform Asda’s attitude towards their contractors: they see the contractors as being able to bring synergies and efficiencies to the operation on the basis of their work with other retailers. In other words, Asda recognise that their business might derive benefit from being aligned with that of a competitor, but that it requires the involvement of an intermediary to facilitate this, given Asda’s stated public attitude towards the competition:

“Our preferred route is to work with a small number of partners on a commercial basis: the way they then try to make their money is to work with other retailers.”

“I want my contractors to work with other retailers, but only because, at the end of the day, that will give me the best price.”

In summary, Asda’s overall position can be described as combative and confident, to the extent that it is highly unlikely that they would want to collaborate with anyone other firm in their immediate market sector:

“It’s of huge competitive advantage, every aspect of logistics, and I don’t for one second expect our company to co-operate. In fact, I think you’ll see the opposite.”

Wal-Mart, if you take the model of what they've done in the States, is all about doing things themselves. Of course, they learn from other people, and they will leverage resources that are shared. What they won't do is work with competitors.

6.6.2 Safeway

Perhaps unsurprisingly, Safeway's attitudes and philosophies seemed to fall part-way between those of Asda and Marks & Spencer, with some evidence of attempts at collaboration and an openness to discussions about further opportunities under the right circumstances, tempered by a strong belief in the relative quality of their own operations. Safeway had been prepared to share their distribution templates and planning models with, amongst others, Somerfield and Boots, both of whom could be regarded as competitors in at least some respects.

"So, I think there are opportunities to try and utilize some of the strengths of some of the other retailers and pass some of your own strengths on to them."

On the other hand, there was a recognition that it was unlikely there would be parity of gains for the partners in such collaborations and that these would, therefore, not proceed on this basis.

"We were almost willing to give Somerfield our consolidation model.... It was very much we were giving them a lot but we had nothing coming back."

"There's this equality thing, which is very important: you've got to make sure that whatever you're giving, you're getting."

"The difficulty within that is getting the equality between the two. I have recently been on a forum with Boots and Somerfield and everythingwas Safeway giving something to those two with 40-50% benefit going to them and 5% coming back. We have pulled out of that and are not doing anything."

This readiness to collaborate under certain circumstances and with more confidence of an equality of benefit contrasts with the strong views expressed about Safeway's own perceptions of its operational capability.

"We believe, in terms of physical secondary distribution, we are the most efficient.

"If you do a like-for-like, then we're more efficient in terms of physical distribution than (Asda)."

"If you look at Tesco, again with the bench-marking we've done there, we think we're more efficient than them anyway in terms of physical distribution."

However, there appeared to be other major retailers where there was less of a gap in perceived operational quality and that there may be more opportunity to develop collaborative efforts with these firms:

"I think (the answer is) finding the right joints: Safeway and M & S might be the right joint: I doubt Safeway and Asda would be."

"I have a bit of an issue with Sainsbury's – no issue with Tesco."

"We've tried to talk to Sainsburys a couple of times but they're not so interested."

However, the change in strategic direction which was underway at the time, under the new leadership of Carlos de Priadez, had in turn changed the nature of some traditional competitive relationships and thus the possibilities for exploring collaboration:

"For example Carlos is out to stamp on Somerfield and out to take on Sainsbury's. It's very much: we were talking to Somerfield and then "you are not talking to them anymore".

Safeway appeared to have more concerns about impending external influences than the other respondents. They had made much of the time over their use of railways to transport product into the North of Scotland and thus,

by getting vehicles off the busy A9 road, could be seen to be promoting their environmental credentials.

“But, there’ll come a point where congestion, the way these local transport plans and things, the way that everyone’s not going to be able to go into cities with trucks.”

“For the past six or seven years, transport costs have been relatively inexpensive compared to warehousing costs, of establishing a new centre. That will start to change with road pricing and congestion.”

However, this external downside was balanced by the external opportunities seen as arising from working more closely with contractors to seek synergy benefits from a fit with other competing retail businesses.

“There’s nothing to stop you having a third party facilitating a Tesco and Safeway operation out of a single site for one of those flows.”

“Tesco delivering to a Safeway store or vice versa would be the most difficult thing to do, but in terms of a Tesco vehicle that’s got no Tesco livery on, it’s not a problem.”

6.6.3 Marks and Spencer

Marks & Spencer’s network is beginning to show its age. M & S was one of the first retailers to move to centralised distribution and some of the sites now date back to the early 1970’s, albeit several of them have been extended and developed. “I do not believe our system contributes in any way to our competitive advantage”.

Although the depots are physically smaller than those of the other major food retailers, the operating methodologies are very similar. “I would say that our systems are very much on a par with those of other retailers: no better and no worse”.

One area of difference, and thus opportunity, is that M & S have not made any significant use of factory gate pricing or managed primary initiatives. In fact, because most of the warehousing and transport operations are contracted to a single third-party provider (Gist), it is the contractor who appears to glean the benefits of primary and secondary transport integration rather than M & S themselves. “The sorts of things we would want to get involved in are consolidation points, and we don’t really care who else’s product is involved at that stage”.

The one food sector which sits outside the main distribution network is frozen. Until shortly before the first interviews, this had been handled through two dedicated third party sites. Falling volumes, however, had led to the need for an alternative shared-user solution. “Our frozen food business has been in decline and we’d reached the point where we were scraping the barrel in terms of trying to find any more cost saving opportunities in the two (non-shared) sites”.

One of M & S historical behaviour traits was identified as being the lack of interest in advertising. This in turn meant that they did not, at the time, attach a particularly high value to the branding of, for examples, their vehicles. However, it was perceived that in the areas which the end customer was close to, that is the store and the high street, the branding and therefore the dedication of resources mattered.

“How many of the general public are going to sit there with their binoculars outside a distribution depot?”

“We wouldn’t want another retailer-liveried vehicle delivering to a store, because the public would see that”.

However, even this assertion appeared to be only important in their own heartland, perhaps where senior management or their families might have been able to see it. In other words, it was perceived as being important that M & S trucks were seen in Kensington High Street or near Marble Arch but “Does it really matter in Dover? That’s the question we’re asking now”. If

remoteness from Head Office is as significant to the method of operations as distance from the end consumer, then M & S should have more opportunity than most to take advantage of collaborative operations.

As already discussed, the relatively low sales volume (compared with the other UK supermarkets) combined with national coverage, means that the M & S national RDC network is almost certainly more expensive to run. "Our costs as a percentage of selling value looks a lot higher than anyone else's". Even with lower volumes, stores and the buying teams still demand deliveries of fresh foods to stores at least twice a day. "The food business was saying 'these sheds and lorries cost a fortune', but we were saying to them 'because you want this and you do that, that's why it costs you a fortune'". This is exacerbated by the fact that the logistics infrastructure has had to scaled to deal with the peaks of a trading pattern that are even more marked than those of the competition. "We peak more than any other retailer at Christmas: it's a particular threat to us as we have a lot of customers that come at Christmas and don't come the rest of the year".

So, whilst efforts have been made to rationalise and contain costs (the depot network was reduced from eight RDC's to six), there are implications for distribution driven by other elements of M & S' core value set. "The bottom line comes to pound notes, but there are other factors: environmental and HR ones, for example". Costs would not be optimised at the expense of service either to the stores or to the end consumers. This would tend to make M & S less likely to participate in collaborative initiatives, as these would be more likely to achieve savings in costs, at the possible expense of service, rather than making improvements to service per se.

It is questionable as to whether Marks and Spencer have ever acted in an aggressive way towards their competitors. "We are all big boys: we should be prepared to work together". Quite apart from the inconsistency of this approach to their paternalistic and human relations-based historical ethos, their strategy was traditionally based on niche differentiation based on a clearly defined set of quality values and they thus perceived no need to

annihilate the competition through price or volume. Having then hit a crisis of strategy, they were too small and specialised a player to adopt aggressive market tactics and are, therefore, more likely to seek co-operative, rather than competitive, solutions than some of the other retailers. "Not long ago, we were very protective and wouldn't let anybody into our business, but we have changed. We have been knocked off course by the events of last year". Attitudes to competition, however, were seen to be vary depending on which retailer was under discussion. The relationship (or lack of one) between Tesco and Sainsbury was often held up as being an example of competitors between whom collaboration would be highly problematic. M & S were more nervous of Sainsbury than, say, Asda, who at the time were in the process of being acquired by Wal-Mart. "In principle, I have agreement that we can share with anyone if it reduces cost. In practice, I think we'd probably be OK with most things (with Asda) because it's a different relationship to that between Sainsbury's and Tesco's". "We talk to Waitrose, because we are still not out to be a supermarket, we are out to be a food specialist".

"We're not really competing with Asda on the food side. It's yet to be tested how far we'll get into bed together".

There was also an interesting view that, since logistics per se did not contribute to competitive advantage, then it might be used to grow the overall size of the cake available to competitors, rather than any one firm's slice of it. "By working together on this, we think we can develop a market advantage, as opposed to an individual competitive advantage".

Some of the other criticisms of M & S strategy levelled after the 1998 / 99 results (amongst others, Mellahi, Jackson and Sparks (2002)) are recognised by M & S. "Traditionally, we have always adopted an attitude of 'we know best', but now we are looking to other people".

Finally, however, M & S appear to believe that there is one area of their supply chain where they can derive competitive advantage, and that is in the values which they are able to add throughout the supply chain, but particularly

in sourcing, product design and manufacture. One respondent referred to this as their intellectual property. “Tesco are competing very much on price: for us, it’s more about intellectual property; it’s how you make the whole thing work”.

6.6.4 Tesco and Somerfield

Although not part of the main research, the responses from Tesco and Somerfield were consistent with some of the findings from those firms questioned in depth and the key headlines are set out in the table below. In short, Tesco hardly mentioned competitors at all: a reflection, perhaps, of their market dominance with the result that they can afford to be self-sufficient in all areas with no perceived benefit to themselves arising from collaboration. Tesco’s only real interest in collaboration was essentially negative and driven by fear of further press interest in their scale and influence.

Given the already negative press coverage about the scale of Tesco’s market share and profits, it was assumed that the media would certainly be suspicious, and probably hostile, about the actual business intentions underlying any collaboration with a competitor.

“How would Mrs Housewife in the UK react to us doing joint issues regarding distribution?”

“If you look at the press this week, there is still this view – not only from the tabloid media, but also from a number of people across the country who are saying “Yes, but they’ve still got a strangle-hold on retail”. If they then perceive: “Hey, these guys have got a strangle-hold on retailing and they’re also starting to work together, is that a concern?”

Somerfield appear to be suffering from even lower self-esteem than the then-troubled Marks and Spencer and, as such, appeared to be prepared to countenance more or less anything, including collaboration at any level, in order to try and drive out costs and improve service.

Variable	Tesco	Somerfield
DIST	“How would Mrs Housewife in the UK react to us doing joint issues regarding distribution?”	
SERV	Delivery on time is now getting as important as some of the cost drivers	We’re even looking to move fresh deliveries the same way, and possibly down to even less if necessary. The whole of service has gone out of the window,
QUAL	We’ve actually moved certain products from what we call the first wave onto second wave, which again gets better utilisation of your vehicle fleet and also gives us that volume through some of the what were traditionally low periods of the 24-hour working day	It’s obvious that our business isn’t too profitable and that our distribution costs are higher than those of all the others. Kwik-save really don’t give a toss how things get to the store, as long as it can get there as cheaply as possible
STREN	It is a very, very competitive industry where we are looking throughout the business on a daily basis at what our competitors are doing	There’s every chance we’d work with other food retailers, but, to be honest, they probably wouldn’t want to work with us. I suppose we’d probably avoid Tesco on the basis that we’re scared of them There are certainly some retailers who we would not regard as competitors: Marks & Spencer and Waitrose, for example, are in a completely different part of the market to us
VALU	I think it’s all about “what can we do internally?”, but that we’ll eventually turn round and say “have we actually taken everything we can do and, if we take the total amount, do we need assistance from outside. Because it’s been handled by a third party, there is a general assumption that “OK, that’s acceptable”	Any synergies, which don’t carry some kind of commercial compromise, are possible. For example, I guess we could even be interested in looking at a Sainsbury vehicle driving past our door and carrying on to do a delivery in Cornwall.
CONT	Because it’s been handled by a third party, there is a general assumption that “OK, that’s acceptable”	We’re happy to work with any manufacturer or third party in transport: we really don’t care whose name is on the vehicle. “If you’ve got a vehicle going from A to B and if you’re cheap, then we’ll use you”.
ENV	Obviously, we’ve got the restrictions now: it will become very difficult to service stores if those restrictions get tighter. As convenience grows, the market offer and also the time of that market offer, you’ve actually got to say “Well, how do we deliver that?”	

Table 11: Summary data display for secondary respondents in the first case study

“It’s obvious that our business isn’t too profitable and that our distribution costs are higher than those of all the others.”

“We know that we need to move our distribution costs by about a percentage: not by a hundredth but by a whole percentage point of sale.”

“Our policy is definitely driven by a lack of capital and a high degree of caution.”

“We’d work with other food retailers, but, to be honest, they probably wouldn’t want to work with us.”

6.7 Conclusion

Of the seven dimensions explored through the analysis of the major retailer data, there are marked differences between the frequency of occurrences of data referring to them and, within individual factors, marked differences between some of the retailers.

Although there are some anomalies in the patterns, with, for example, Marks and Spencer having a specific interest in thinking about issues either upstream from the consumer or otherwise “out of sight”, it is clear that the most important informing factors are those around relative quality of systems and competitive strength compared to perceptions of that of the direct competitors, as the frequency of references in figure 24 shows.

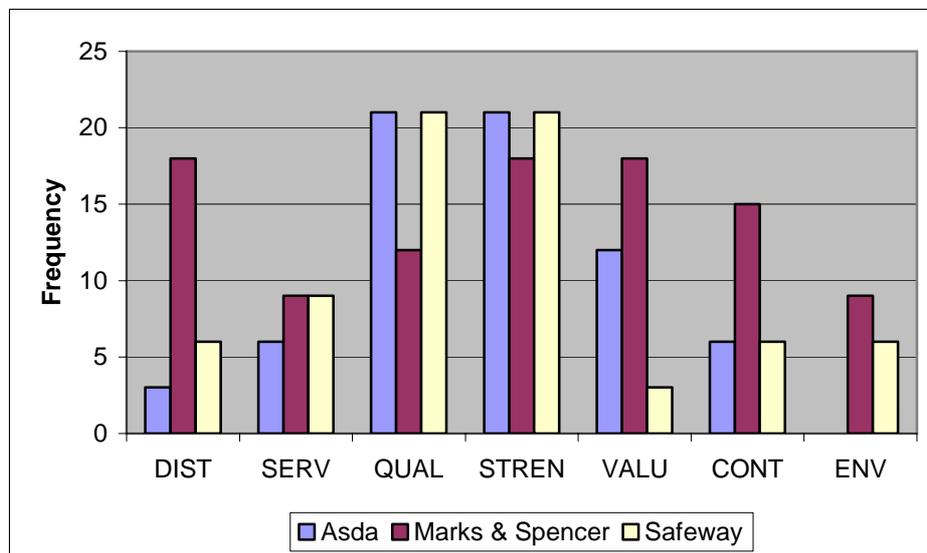


Figure 24: Comparative frequency analysis of data codes in the retail case

Whilst the confidence and aggression showing in Asda’s responses was not entirely unexpected, Safeway’s positioning in this respect was surprisingly

close to that of Asda. Marks & Spencer's market positioning appeared to be sufficiently different to that of its competitors that neither the quality of systems nor relative strength appeared likely to have a strong influence on the propensity to collaborate. However, although Marks & Spencer appeared to attribute real value to their systems and their interaction with their contractors, all of these activities were deemed sufficiently remote from the consumer as not to make a significant marketing contribution.

It would be tempting to infer that size, in terms of market share or profit, is the single biggest influencing factor in terms of potential collaborations. However, the differences in overall share between, for example, Asda and Safeway are not that significant. The relative aggression seems to be associated with a confidence about future strength and the ability to steal market share from competitors, rather than current positioning. The Tesco responses in this area were particularly interesting, although they do not form part of the core analysis. There was a clear sense that Tesco has now reached such a mass that the external environment can be almost completely controlled. On the other hand, there is not a massive difference between the market shares of Marks & Spencer and Somerfield but, in spite of recent problems, there was a marked difference in the levels of confidence between the two businesses. Although Asda made no mention of the influence of external and environmental influences, the other two retailers did and it is intended to retain this dimension in the model for the net case studies.

Other points of interest include the marked difference between the relative positioning of M & S towards the role of contractors when compared with the others. It should also be noted that the Asda data contains no references at all to external factors.

Since the originally proposed conceptual framework and resulting code table had been developed on the basis of extensive familiarity not only with the major retailer context but also, to a lesser extent with the specific firms involved, it is not surprising that there were very few examples of data which did not fit the proposed model. It is, therefore, not intended to make any

changes in the framework or model, both of which are generally supported by the data from the first case, at this stage.

There were clear limitations to these findings in that they were context specific and based on a limited number of respondents. They did, however, provide a framework which, it was suggested, might offer a different perspective for the consideration of parallel supply chains: that is, that not every single element of a competing supply chain needs to be competitive, without compromising overall competitiveness. Having established this tentative framework, the intention was then to try and look for examples of practical application where it might be tested, challenged and enhanced.

Whilst examples of actual co-operative activities between the major UK food retailers were hard to find, two examples of inter-firm co-operation in physical distribution did come to prominence shortly thereafter. In Bristol, a number of competing retailers in the Broadmead shopping centre came together to share an urban transshipment and delivery operation and, in the UK brewing industry, two major competitors came together to share a common distribution network. Both of these examples appeared to offer the opportunity to test the tentative models developed with the food retailers.

7 Second case study: Broadmead Shopping Centre, Bristol

The first exploratory case was conducted in a context where the literature and trends in operational and organisational development, specifically Efficient Consumer Response (ECR), suggested that horizontal collaboration across competing supply chains ought to take place, but where, in reality, there were no examples of significant or successful applications of this thinking. This first case was undertaken to test and critique the model developed to explain horizontal collaboration, or the absence of it, in terms of organisational and environmental enablers and / or inhibitors.

The research was designed to then reappraise the model design, using data collected in situations where horizontal collaboration was in place and appeared to be working. The original hope and intention was that such examples existed amongst the major UK grocery retailers. Although there were some small-scale examples of tentative collaboration, particularly in upstream areas like common trays and primary consolidation, nothing worthy of further research emerged in its own right and it was necessary to look elsewhere. One of the unexpected advantages of the length of time spent on the preparatory stages of the research (literature review, methodological and philosophical considerations etc), together with the fact that, for personal and professional reasons, it was necessary to suspend the research project for three years from 2001 to 2004, was that the concept of horizontal logistics collaboration was an idea whose time had not quite come. Although this research stems from ideas and writing from the late 1990's, the fact that there are still only limited examples of application may simply be that the time was not right, rather than the concept of itself being flawed.

As the research associated with the first case was being brought to a conclusion in 2004 with a short series of interviews to examine whether the

data collected prior to the three-year interlude was still valid and relevant, reports of successful and substantial applications of collaboration began to appear in the trade press. The two panels below indicate one of the developments which appeared to be gathering pace that year: consolidation of competitors' deliveries to tackle problems of urban traffic congestion.

3.2.1 Freight scheme cuts city centre lorry traffic

A unique scheme to tackle Bristol's city centre traffic congestion and pollution has already seen a 51% reduction in delivery vehicle movements serving participating retailers in and around the city's Broadmead Shopping Centre.

The Bristol Freight Consolidation Scheme has so far recruited ten retailers and Bristol City Council is now working with supply chain experts Exel to encourage more Broadmead businesses to sign up to the initiative.

Bristol City Council selected Exel to implement and manage the consolidation centre for a trial period of eight months. The trial began in May and so far 10 retailers, including Lush, Monsoon, Tie Rack and Accessorize have been recruited.

Besides reducing traffic congestion and pollution, the retailers benefit from definite delivery times, more effective stock replenishment and improved staff planning and productivity.

(Press release from Bristol City Council, 30.7.04)

<http://www.bristol-city.gov.uk/PressReleaseViewer/viewer.html?pressReleaseId=235399>

The major retailer case had focused on the question that, since there seemed to be compelling evidence for the benefits of horizontal collaboration, facilitated by other collaborative initiatives such as ECR, why were there few, if any, practical examples of implementation. The Broadmead experiment, on the other hand, appeared to offer an example of actual implementation, without any apparent explanation as to how it had come about or what it may indicate in terms of trends and applications elsewhere. At first glance, therefore, the Broadmead trial appeared to offer an opportunity to test the tentative model and conceptual framework developed to explain the major retailer context in an actual implementation, albeit in a context somewhat different to that of the first case study.

Joined-Up Thinking (Motor Transport, 2.9.04 - extracts)

The idea of consolidating retail deliveries at one point is not new – it has already proved successful at Heathrow – but an experiment in Bristol is aiming to take it further.

There has been some success in consolidating inbound deliveries for shopping centres in various sites, notably Exel's Heathrow operation for BAA – but this serves a compact site run by a single entity.

.... what is happening at the Broadmead centre in Bristol, where an EU-funded experiment is being undertaken by Exel, with the aim of reducing environmental impact, cutting vehicle miles and improving service to retailers.

The process began in March last year, with contact being made via consultancy TTR (Transport and Travel Research), and Exel identifying the stakeholders in the project: these included Bristol City Council, the board of the Broadmead shopping centre, the Galleries (a separate mall within Broadmead) and the local chamber of commerce, Business West.

The first step, according to Exel commercial manager Ian Foster, was understanding the market. "There is a wide spectrum of users, from retailers who might have one delivery a week to those who would have five or six a day," he says.

For the purposes of this trial, they didn't look at the whole retail community.

"We looked at 20 or 30 businesses," says Foster. "In terms of delivery type, we focused on vans – on retailers who get lots of small deliveries from couriers".

The operation is not large: the warehouse covers only 600 sq m and the transport operation involves a single 7.5-tonner. But the initial results have been significant, with a 51% reduction in vehicle trips for those retailers using the scheme. This compares reasonably well with the figure of 66% achieved at the Heathrow site.

The retailers involved are certainly enthusiastic; Lizzie Lane, store manager of "fresh cosmetics" retailer Lush, has arranged deliveries on Mondays and Fridays. "We'll agree a delivery time – and I haven't had any problems," she says.

But this trial is on a small scale, and will have little impact on the half-million vehicle trips made in Bristol every day.

In order to appraise the suitability and feasibility of the Broadmead case for further research, it was clearly necessary to understand more about it. The press articles were apparently based on releases issued by Bristol City Council and Exel Logistics, so the media contacts at these two organisations were followed up in the first instance to gain a deeper understanding of the operation prior to seeking fuller access. Both organisations supplied media packs and contact details for further information. Telephone contact was established more or less immediately with the named manager at Exel, who not only agreed immediately to be interviewed but also provided other contacts within his organisation. The relevant member of Bristol City Council agreed to be interviewed and arranged contact with the permanent (ie non elected) staff member responsible for the establishment and management of

the contract. This individual in turn offered to arrange contact with a sample of the retailers involved in the trial.

No changes were proposed to either the tentative conceptual framework or the associated model variables before the start of the Broadmead case. Similarly, the structured interview, supported by observation and secondary desk research, had proved satisfactory as a method of data collection and no changes were made to the methodology for the second case. Interviews were tape recorded and transcribed verbatim, manually coded using the same variable set as in the first case and then iteratively reviewed and distilled to allow pattern coding to emerge.

7.1 Case Study Protocol

In April, 2004, Bristol County Council launched an Urban Consolidation initiative, funded by the European Union through its Civitas / Vivaldi programmes and operated by Exel Logistics. The operation is designed to serve retailers in the Broadmead shopping centre in Bristol, of whom 17 had joined the scheme by December, 2004. The case study design was based on semi-structured interviews with a number of the key stake-holders in the operation:

- The political sponsor and operational administrator on behalf of Bristol City Council (“Facilitator”).
- Senior managers responsible for the operation on behalf of Exel Logistics (“Contractor”).
- Managers from four of the retailers who joined the scheme from its inception and have continued to use it since (“Retailer”).

As discussed in the chapter on Methodology, the unit of analysis in cases where co-opetition has not been implemented will be the individual firm or firms who have elected not to exploit opportunities for collaboration. The unit

of analysis in cases such as Broadmead, where there is evidence of co-opetition, will be the stakeholders within that defined operational example.

In cases where co-opetition can be seen to have been implemented or favoured, the stakeholder parties (facilitators, contractors, retailers) are regarded as units of data collection within the single unit of analysis.

Interviews were conducted with each stakeholder group as follows:

- Facilitator (Bristol City Council): single two-hour interview with the Councillor responsible for transport policy and the staff member responsible for policy implementation.
- Contractor (Exel): telephone interview with the manager responsible for implementation and face-to-face interview with the Senior Manager responsible for operations and strategy development in the area of shared solutions.
- Retailer: face-to-face interviews with four of the first retailers to sign up to the scheme. These interviews were all conducted on the retailers' own premises and were accompanied by site tours and a demonstration of the relevant operations. These retailers were nominated by the staff member from Bristol City Council on the basis that they ought to represent a fair cross section of the total businesses involved and were operationally different enough to represent a range of possible interests in and reactions to the trial.

7.2 Brief History of Urban Transhipment

McKinnon (1998), in a review of previous literature on the subject, describes how interest in urban transhipment was first raised in the 1970's, waned in the 1980's but began to be rekindled in the 1990's. He points out that transhipment is a misleading term, in that it covers a number of very different scenarios:

- The consolidation of small loads for onward delivery on large vehicles.
- The disaggregation of large loads into smaller units for delivery on small vehicles.
- The consolidation of small parcel loads onto single smaller delivery vehicles.

The scenarios can be summarised in the difference between the “small order problem” and issues associated with (environmentally unfriendly) large vehicles.

These differences in interpretation and focus in part explain why the initial interest in the concept faded. Other important factors were the decentralisation of commercial activities away from town centres and towards edge-of-town facilities, with good road connections of their own, together with the general shift towards the centralisation and retailer-control of distribution, which facilitated the consolidated (and efficient) delivery of large single loads to a single store on a single vehicle. One model which survived various research initiatives and discussions throughout the last three decades was that of “peripheral transshipment”: edge-of-town consolidation of small orders for independent stores who could not aggregate sufficient delivery volume for a single efficient delivery. The growth of environmental concerns, particularly relating to CO₂ emissions and the damage allegedly caused in city centres by the new 38 tonne vehicles, reinforced interest in this model. McKinnon (1998) concludes that, whilst there is little merit in dislocating the existing centralised distribution systems of the larger retailers, there may be a role for, among other things, developing transshipment of small orders, consolidated for delivery to smaller retail outlets in inner urban areas.

The European Commission established a forum for logistics providers, academics and policy makers called Best Urban Freight Solutions (BESTUFS) in 2000, which sought to raise the profile of the debate on the potential and benefits of urban consolidation. The project was initially funded for four years and was intended to identify and promote best practices with respect to urban freight transport. (deliverable D1.2 final from www.bestuufs.net/). The group

developed wider interest in the subject in 2001 and 2003, with two international conferences being held on so-called “city logistics”. These included specific analysis of two actual applications of the concept in Germany (Kuhler, 2001 and Kuhler & Groke, 2003). The first UK successful and enduring UK implementation was by third-party provider Exel Logistics to the various small retail outlets at Heathrow Airport, London (DfT, 2002). The BESTUFS group went on to launch BESTUFS 2 to “to identify, describe and disseminate best practices, success criteria and bottlenecks with respect to City Logistics Solutions (<http://www.bestufs.net/index.html>). The other main initiative covered in the project was road pricing, which featured alongside analysis and commentary on eight urban transshipment cases across Europe, including Heathrow (Egger and Ruesch, 2003).

A further review of the literature on the subject, together with a survey of 67 existing schemes, was carried out by the University of Westminster in 2005, which identified the difficulties of objectively measuring and trading off costs and benefits. A formal model was proposed to assess future opportunities to ensure that this trade off did not act as an inhibitor to developments (Browne et al, 2005).

7.3 The Bristol Experiment

Bristol is one of five European cities taking part in an EU-funded initiative called Civitas, designed to look at opportunities and developments in urban transport. A sub-set of this programme, called Vivaldi, provides specific funding for specific trials of worked examples of ideas generated through the scheme, so that costs and benefits can be evaluated over time before making further changes and developments to urban transport policy. As part of this work, Bristol has sponsored trials on things like low-emission buses, a commercial vehicle driver’s access atlas, “dial-a-ride” schemes and access to home delivery services for elderly citizens without access to the internet. The idea of trialling an urban transshipment centre to service the pedestrianised Broadmead Shopping Centre, in the centre of Bristol, was first mooted in

2003. Although Bristol City Council were aware that 3PL Exel Logistics were already running similar operations at Heathrow Airport and Meadowhall Shopping Centre in Sheffield, the proposed operation was put out to formal tender, with Exel being the only respondent. The operation was set up on a trial basis in April 2004, with all costs, including the consolidation warehouse and delivery vehicle, being met from EU funds by the Council. The trial was subsequently extended in November for a further 6 months. Participating retailers instruct their suppliers / hauliers to deliver goods according to their existing schedules, but to a dedicated Exel warehouse at Emersons Green, just off the M4 to the north of Bristol. There, Exel receive and consolidate the goods for onward delivery to stores, according to a delivery schedule agreed with the retailers.

7.4 Findings

The pilot study stage of this research suggested a number of factors which might influence the decision as to whether retailers might chose to take part in such a co-operative venture. However, as the case study interviews confirm, there are a number of key differences between the participants in the Bristol experiment and the major food retailers previously discussed:

- the extent to which these competitive relationships differ between much smaller (non-food) retailers: generally, firms placed a much higher emphasis on service to stores than on competitive advantage or differentiation.
- the supply chains of these smaller retailers are less developed: central warehousing has been generally implemented but, because of the smaller delivery unit sizes, transport is still largely carried out by general carriers.

- the additional costs of the transshipment operation are (currently) borne by the EU via Bristol City Council and thus there is no on-cost to the participants.

The circumstances under which horizontal supply chain collaboration might take place were set out graphically, based on the conceptual framework underpinning this research, at the start of the first case study.

The environmental context for this second case study differs from the first in a number of important key areas, which in turn affect the influence of the following variables.

Environmental Variables	Major Retailer Case	Urban Consolidation
Logistics system characteristics	Mature central distribution model, with high levels of transport integration and resource control or ownership. “Just in time” methodologies to underpin availability and freshness.	Some retail-controlled central stockholding but no central transport structures and all transport with multi-user contractors. Availability supported by in-store stock. Lack of availability promotes switching or opportunism.
Market structure	High levels of concentration with a small number of large and powerful players	Highly fragmented: up to 300 retailers in the immediate market
Competition	Competition targets clearly identified and competitive stance embedded in strategy	Niche propositions replace direct competitive strategies
Cost drivers	Clear trade-off between cost and service, determined by strategic market positioning	Better service apparently available at no additional cost
External influences	Fears over anti-competitive perceptions in the media and in government impede collaboration. Possible resource shortages encourage protectivism.	Presence of brokers to facilitate shared solution. Threat to overall market size posed by new out-of-town development.

Table 12: Contextual effects on the key data headings

Before considering the validity of the proposed model in the context of the Broadmead case, through a detailed examination of the seven variables, these contextual differences between the two cases are explored in more detail.

7.4.1 Logistics system sophistication

Although centralised warehouse systems for order consolidation were in place for at least some of the retailers, transport delivery systems were “immature” in that they were generally contracted to a mixture of carriers on a shared-user basis. This immaturity appears to be an enabler to the use of a new consolidation methodology.

All of the stores surveyed were small, with weekly volume ranging from just 4 boxes (Tie Rack) to up to 50 pallets (Mastershoe). However, three of the four stores (the ones which were part of national chains) received their stock from a central warehouse, although transport was then sub-contracted to a mixed range of carriers. The fourth store was part of a very small local chain, which had no centralised operations in place. The contrast with the “major” High Street retailers thus appears to be that warehousing has matured to the centralised model for even the smallest of stores, but transport is still operated on an immature spot-market model. All of the shops confirmed that the switch to using the consolidation service just required that their carriers be given the new delivery address. Generally, suppliers were required to deliver to a central warehouse, with orders and controls managed from the centre, but with stores having some degree of control over the final transport delivery leg. The data includes numerous references to the contrast between the relatively uncontrolled and unsophisticated nature of the former supply arrangements, and the new more robust supply arrangements:

“We’ve used every delivery company under the sun....it was a bit of a shambles”

“We can rely on what time these people are going to turn up....it is dependable”

“We don’t have to have someone with a key letting themselves in”

“Deliveries used to be.....a bit of a nightmare: now, they’re pretty reliable”

The contrast between the supply arrangements between these smaller outlets and the bigger chains was also noted:

“(We didn’t look at) Marks & Spencer, House of Fraser because.....they’re already doing their own consolidation, aren’t they?”

“The best fits come where you have got less sophisticated supply chains....a lot of this stuff does not go through any sort of central distribution as we would recognise it”

Although national volumes for each store allows for central consolidated warehousing of supplier volumes, transport volumes are so small and variable as to offer limited opportunity for internal optimisation. Although there are no direct costs incurred by the stores in this trial, there was a view that the service improvement achieved might justify an on-cost in the future, particularly where operational benefits for other elements of the supply chain are identified or new value added services developed:

“Arguably, they (the carriers) are deriving some benefit....which could be contributing to the scheme”

“A lot of the consolidation is not store on store, it’s consolidating several deliveries for one store”

“It makes the new (Shopping Centre) development more attractive....because you need less delivery bays, less conflict and make it more appealing for retailers to move there, knowing that they’ve got a smooth delivery solution”

“Neither of them (Heathrow or Broadmead) breaks even at the moment, but will do over their life as additional services are provided”

7.4.2 Market Structure

When the project was first mooted, Bristol City Council carried out a survey of all the businesses in Broadmead and established that there were 300 trading overall, of which at least 120 were likely to be relevant to the consolidation exercise. These cover a whole range of types of goods and services, including fashion, electrical and electronics, homewares, gifts and entertainment. The first case study looked at grocery, where consumer behaviour can generally be characterised by a single weekly visit to a preferred outlet, perhaps

supported by top-ups or distress purchases. Broadmead is aimed at the casual leisure shopper, who, whilst they might have a pre-determined set of purchases in mind prior to visiting, is perhaps more likely to buy on impulse and unlikely to limit their interest to one store or product group at the expense of another. In other words, whilst all of the shops in Broadmead are, in a sense, competing for the same overall consumer spend, it is harder to draw direct correlations, such as every pound spent in retailer A can be clearly identified as a pound lost to retailer B. There will be a more complex web of inter-dependencies and consumer decisions and, as such, the competitive positions of each business vis a vis its rivals is less pronounced and markedly less aggressive:

“It (sharing with competitors) wouldn’t bother me at all. As long as we get our stuff – it’s only a delivery. I know some companies get very funny.”

“It’s totally different to what we sell.”

“As long as the stock gets here on time and it’s not damaged, then I don’t really have (any issues with competition).”

7.4.3 Nature of competition

None of the stores surveyed perceived the other involved parties as competitors, even where they were operating in similar markets. There was a clear view that sharing space on a truck had no bearing whatsoever on the offering to the ultimate consumer, particularly since the trucks were all operated by third parties and were not part of any marketing or branding.

“As long as it turns up on the day....it doesn’t bother me at all”

“It doesn’t matter who else’s stuff is on the truck”

“I don’t really have any issue with sharing this resource (with competitors) as long as the stock gets here on time”

“There have been a couple of times when they’ve had to do a second run for us.....or Accessorize....wouldn’t have got their products on time”

“There is not really a competitive angle in this. At no stage has anyone said “Is my product on the same truck as so-and-so’s?”

“Because of the relative size of these retailers, they all gain an equal benefit”

7.4.4 Cost drivers

Because of the absence of on-costs for consolidation, there was generally little interest in the systems for measurement or the kpi’s (with one exception, where the environmental benefits were closely aligned to the strategy of the store). However, there were measurable (and unexpected) “added value” benefits which could contribute to the sustainability of the initiative.

All of the stores involved in the trial noted that the shared consolidation operation had brought new added values to transport, which had not been available under the previous autonomous arrangements. These included:

“Exel transfer the boxes to cages, empty the cages and take the empties away”

“We hope to build on the scheme and provide some value-added services for retailers”

“We (Exel) have 120 boxes for you: how many do you want and which ones do you want first?”

“We get a report every month telling us how many lorries we’ve saved”

“They hold it, put it onto pallets.....and build up a reasonable amount of stock between delivery days”

“We don’t really bother with all the figures: it’s not an interest”

“We have a weekly system to show how the business is progressing”

“They offered to provide us with insulated boxes”

“They would carry the things up the stairs for us”

“We get a newsletter: numbers, but I can’t remember!”

“We have kpi’s in place for on-time deliveries and stock loss and also for the target of the 40 retailers”

Although the extent to which some of these added values was appreciated varied from outlet to outlet, there was common recognition that the overall offering was more comprehensive.

7.4.5 External Influences

This operation was wholly funded by the EC via Bristol City Council at no cost to the retailers. Although it is highly unlikely that the initiative would have taken off without the external stimulus of the Vivaldi project, some of the parties involved made reference to environmental and social concerns.

“They saved 66% of lorries coming in, which is really good”

“I’d rather it all went in one big lorry than we had six or seven lorries coming in”

“It’s trying to do something more imaginative and creative....with the freight sector”

“The area has over 90,000 deliveries per year....we’re trying to reduce the transport impacts and conflict between vehicles”

However, this interest in external factors was tempered by some pragmatism about a totally integrated solution:

“It is believed that there are a number of retailers in this market who might be interested in buying a transport-only solution, as oppose to the full supply chain offering”

“We use them at Heathrow, because it’s compulsory there”

The Broadmead shopping centre was also perceived to have been under threat from the development of a major new out-of-town centre, at Cribbs Causeway, near Bristol. Although the effect of this development on overall trade had not been as bad as expected, plans are afoot for an extension to Broadmead in an attempt to try and draw some of the lost business back into the city.

7.5 Discussion – Implications for the Model

The key themes emerging from the Broadmead case study have been discussed in the context of the key differences between this case and the grocery retail study, on the basis that the differences between the two contexts may go some way to explaining why collaboration has been possible in Broadmead, whereas it continues to appear elusive in grocery retailing, in spite of evidence that the contrary position ought to be true. However, do these contextual considerations undermine or reinforce the validity of the model posited as a framework for this research? Certainly it appears to be the case that the relative significance of the some of the variables might vary from context to context, because of the differences discussed above. For example, inter-firm competition was a significant factor in the grocery retailing case and therefore comparative perceptions of relative strength and systems quality vis a vis the nearest competitors were important. In Broadmead, these appeared to be significantly less importance. Similarly, grocery retail supply chains are sufficiently long and complex as to give meaning to the concept of distance of an activity from the end consumer. The less sophisticated supply chains in Broadmead did not carry associations of distance, and many of the respondents actively talked about the proximity of supply chain activity to the customer and the resultant visibility of it. Environmental issues and concerns were not of great significance in grocery retailing, whereas they appeared to be important to the Broadmead participants. To some extent, this was undoubtedly a case of respondents wanting to be seen to saying the right things, about congestion or air pollution for example. To some extent, this mirrors the concerns among the grocery retailers of appearing to be anti-competitive, but there was also a sense among the Broadmead retailers that there were other, threats in the environment, such as the drift to out-of-town shopping centres and conflict for resources such as loading bays and booking slots.

The effect of these contextual characteristics at Broadmead on data analysis is that some of the variables need to be viewed as linked together. Unsophisticated supply chains, such as those evidenced here, do not carry the concept of “distance” as such with them, but still have a contribution in terms of service to the customer. A later finesse to the model in this respect might be that distance matters more in developed (and thus value-adding) supply chains, whereas it is of less significance when the offering is less sophisticated.

Similarly, because the notion of inter-firm competition was less pronounced, concerns about the quality of supply chains were less developed. It should also be remembered that many of the respondents in the Broadmead study were seeing the supply chain only from the perspective of the store itself, where assortment and availability are everything. Respondents in the grocery retail study had a broader view of the total supply chain and might, therefore, be expected to be more concerned about issues associated with upstream activities.

A summary of some of the key data identified against the original variable codes is set out in the table below.

Var'ble	Promoter	Contractor	Customer
DIST	people can see it and think "well, at least they're doing something"	there is a branch called Vivaldi, which is all about sorting out the money for "Demonstration Projects" and that's what this is.	we did a big press thing, which was quite frightening: all these people asking me hard questions with long words that I didn't know the answers to! But, it was quite good.
SERV	one of the people benefiting is the retailer and that's a value added service to them that we should perhaps be thinking about charging them for	Neither of them breaks even at the moment, but will do over their life as additional services are provided.	I'm at this end, and as long as I receive my stock and it comes in in a condition so I can sell it at the right time, that's all that bothers me
QUAL	did they perceive a problem? Did they experience conflicts? Were they constrained in any way?	Because of the relative size of these retailers, they all gain an equal benefit. It would be fair to say that they are smaller operations and not particularly sophisticated	because you know exactly when it's going to come, you can deal with it
STREN	Come and join the scheme because it's already got all these big established retailers on board	All of this has no bearing on competition, or what they might perceive as competitive advantage. Small retailers generally do things when they see other people doing them.	As long as the stock gets here on time and it's not damaged, then I don't really have (any issues with competition) It (sharing with competitors) wouldn't bother me at all. As long as we get our stuff – it's only a delivery. I know some companies get very funny
VALU	the deliveries are making more time to do what they want to do, which is selling things instead of having to manage deliveries	that the best fits come where you have got less sophisticated supply chains	You can always set your watch by what time they're going to turn up. I'd rather that it all went in one big lorry than we had kind of six or seven lorries coming in.
CONT	we were looking for a contractor, because it's so far adrift from our core business	Bristol were looking for a model and Exel were looking for a city application	Anyone can carry things: anyone can deliver everything and everybody charges much the same
ENV	We're trying to improve air quality, reduce the transport impacts and also conflict between vehicles in delivery bays	the prime agenda of the customer is sustainability	the sort of ethics that we had behind the company, they kind of involved us more on an environmental level, lowering the vehicle emissions and stuff like that

Table 13: Summary data display for respondents in the Broadmead case study

7.5.1 Distance / Service (“Customer Offering”)

For all of the key participants, the visibility of the scheme to third parties, including consumers, was an expected and desirable outcome of the collaboration. This was of more significance to the Council and Exel than to the retailers.

“Because the van is marked up like that, it’s kind of advertising the project in itself when it goes around Broadmead and people....can see it and think “well, at least they’re doing something” (City Council)

“The obvious (gain) was when we got the front page “Lorry scheme a brilliant idea” in the editorial (Bristol Evening Post). I think it does sort of indicate that the support that we’ve had from all concerned.” (City Council)

“There was a mutual coming together of minds: Bristol were looking for a model and Exel were looking for a city application.” (Exel)

Some of the retailers (Past Times, Lush) ran their own central warehouses, but there was no recognition or mention of any supply chain activities other than the single transport leg from the warehouse or supplier to the store, usually by general parcels carrier. The concept of relative distance of supply chain activities was therefore not relevant in this case. Arguably, the transport leg, being the only activity in the control of the individual stores and thus able to be the subject of the collaboration, is the nearest supply chain activity to the customer. But, because it does not carry any individual retailer branding (in terms of livery) or any special, unique or value-adding attribute as far as customer offering is concerned, it is of no competitive interest whatsoever. However, the proximity of the operation to the end consumers was picked up by all of the retailers in consideration of the importance of delivery service and thus availability for the consumer:

“Never had anything go missing – nothing. Delivery paperwork all comes through OK – perfect. Nothing – not a problem at all. We used to do with our old companies, when it was individually delivered, but since it’s come through those guys, nothing.” (AR)

“If the cost is not a lot of difference between what we were paying originally and what we’re going to be paying to use Exel, I think they will keep it on because it’s been so good.” (JW)

“You know, the only difference is dependability – on timeness – and bringing the stuff directly to you rather than hanging around”.

There is a potential paradox in this duality of role for the final transport leg. For the major retailers, where the store brand is everything, it is an opportunity to reinforce the branding on the truck. For smaller retailers, or in markets where the product is the brand, this advertising opportunity is less important.

7.5.2 Strength / Quality (“Competitive positioning”)

The positioning of all of the retailers in this respect could be described as “modest”, with most making mention of the shortcomings of their systems. This was supported by the Council and by Exel, both of whom believed that the collaboration initiative would improve service generally. Again, the unsophisticated nature of the previous arrangements meant that there was little or nothing in place in terms of comparative service or cost benchmarking at the store level and thus no perceptions of relative weakness or strength. There were, therefore, virtually no references to the other participants as competitors and none of the aggressive language which characterised discussions with the grocery retailers.

“It (sharing with competitors) wouldn’t bother me at all. As long as we get our stuff – it’s only a delivery. I know some companies get very funny”.

“So it’s (their goods) totally different to what we sell”.

“It doesn’t matter who else’s stuff is on the truck: quite frankly it doesn’t.”

“As long as the stock gets here on time and it’s not damaged, then I don’t really have (any issues with competition).”

There were also references to a necessary need for parity of benefit, an issue first brought up in the grocery retailing case.

“Because of the relative size of these retailers, they all gain an equal benefit. It would be fair to say that they are smaller operations and not particularly sophisticated.”

“The best fits come where you have got less sophisticated supply chains.”

“Small retailers generally do things when they see other people doing them.”

“The large retailers are clearly inappropriate because of their efficiency.”

7.5.3 Value

The model developed for the grocery retailing case considered the extent to which existing supply chains were deemed to add value to a firm's operations. Unsurprisingly, bearing in mind what has gone before, the apparent value added to the operations by the collaboration itself in the Broadmead case was of greater significance. As with the “customer offering” variable of cost and service, it may be appropriate to develop the model in the light of the second case, in that the presence of perceived current high added value may be an inhibitor to collaboration, whereas opportunities to add new value where little or none exists, may be a facilitator.

“Neither of them (Broadmead or Exel's other operation at Heathrow airport) breaks even at the moment, but will do over their life as additional services are provided.”

“You can always set your watch by what time they're going to turn up.”

“I'd rather that it all went in one big lorry than we had kind of six or seven lorries coming in.”

“If they'll pay or not depends on the price, but there would probably be some value in the fact that it's predictable.”

“(It's) a value added service to them that we should perhaps be thinking about charging them for.”

“One retailer...has indicated that they were expecting that request (for a charge) to come. That doesn't surprise them, which does seem to suggest that they do see some value in having this service, even at a cost.”

“It actually makes their development more attractive. It is in their commercial benefit, because you need less delivery bays, less conflict, it makes it more

appealing for new retailers to move there, knowing that they've got a smooth delivery solution.”

“if the cost is not a lot of difference between what we were paying originally and what we're going to be paying to use Exel, I think they will keep it on because it's been so good.”

7.5.4 Contractors / Environmental (External factors)

Because of the lack of centralisation and absence of centralisation, all of the retailers bought in third party transport services prior to the Broadmead trial and thus the use of contractors was not perceived as an issue. Physical distribution was not regarded as a core skill of either the retailers or the Council and was naturally devolved to a third party. Whilst this leaves a potential gap in the data and analysis for this particular case, it might also reinforce the proposition put forward in the conceptual framework, based on Whiteoak's (1999) proposal, that third party contractors could provide the neutral facilitation of cross-channel collaboration between competitors. This is perhaps too great a leap of logic at this stage. The proposition that neutral facilitators might replace in-house systems in competitive environments is not relevant in a context with unsophisticated systems and an absence of perceived competition. However, the presence of a contractor in this instance certainly seems to allow the proposed trial to be developed and implemented more quickly than might otherwise have been the case.

“Exel are interested in the concept of co-opetition in supply chains, for commercial reasons.”

“They (Exel) were very keen to do an urban – a city centre – trial, because it seems the logical progression of the good work they've done at their other two sites.”

“I don't think we ever wanted to get into the business of being van drivers. But, whether it was a whole package solution or some smaller part that we were looking for a contractor, but it's so far adrift from our core business.”

“There was a mutual coming together of minds: Bristol were looking for a model and Exel were looking for a city application.”

Unsurprisingly, since the original motivation for the trial had been to look at opportunities to reduce environmental damage from urban traffic and congestion, there were numerous references to the positive influence of “green” politics. However, other external factors were mentioned as being influential, including the operational impacts of congestion, particularly at store back doors, and the need to be more efficient in the face of competition from elsewhere, particularly alternative out-of-town shopping centres.

“It was certainly one of things that the (European) Commission picked out as being one of the most innovative things that was going on. They were very interested in it.”

“Another aspect was to look at how delivery systems could be more efficient, particularly building upon the sort of perceived take-off of e-commerce.”

“The area has over 90,000 deliveries per year, so there’s a considerable scope for reduction in that total through consolidation. We’re trying to improve air quality, reduce the transport impacts and also conflict between vehicles in delivery bays.”

“It came about when Cribbs Causeway was being built and the threat that that presented to Broadmead. People were talking about losing sort of 40% of their trade.”

“It actually makes their development more attractive. It is in their commercial benefit, because you need less delivery bays, less conflict, it makes it more appealing for new retailers to move there, knowing that they’ve got a smooth delivery solution.”

“The prime agenda of the customer is sustainability, in terms of reducing vehicle movements and reducing emissions.”

“We get a report once a month telling us how many lorries we’ve saved.”

“They knew the sort of ethics that we had behind the company, they kind of involved us more on an environmental level, lowering the vehicle emissions and stuff like that.”

7.6 Conclusions

There were several important contextual differences between the grocery study and the Broadmead case, of which supply chain sophistication, market structure and nature of competition were the most significant. This had the effect of changing the relative emphasis of some of the variables contained within the model. However, no evidence was collected which contradicted the original model. The core premise underpinning the research is that there are factors which, under different circumstances, will either promote or inhibit inter-firm supply chain collaboration. The Broadmead case appears to support that notion, albeit while also providing a richer understanding of the circumstances under which an inhibitor might become an enabler and vice versa. The learnings from the Broadmead case, as applied to the original framework and data from the first case can be summarised:

Distance: The distance of a supply chain activity from the end consumer can be a facilitator for collaboration between sophisticated supply chains. It is not a relevant or valid measure in simpler supply chains.

Service: The prioritisation of service over cost may inhibit collaboration between mature supply chains. Parity of gains in service and cost may facilitate collaboration.

Strength: Perceived relative strength over a competitor will inhibit collaboration.

Quality: Perceived relative systems quality compared with a competitor will inhibit collaboration. Perceived parity of potential quality gain will facilitate collaboration.

Value: Perceptions that supply chains add competitive or strategic value will inhibit collaboration. Parity of perceived value will facilitate collaboration.

Contractors: The presence of contractors will facilitate collaboration.

External Environment: Shared perceptions of environmental threats or opportunities will facilitate collaboration. Ownership or control of a potentially short resource will inhibit.

8 Third Case Study: Tradeteam

The grocery case study was carried out in a context where horizontal collaboration between competing supply chains does not generally exist, in spite of evidence to suggest that it should. The model to explore the facilitators and barriers to such collaboration was developed from that work and then tested in the Broadmead case, an example of co-operation between competitors, facilitated by third parties. During the course of the Broadmead case study, deeper contacts were established with one of these third parties, Exel Logistics, who were also a key partner in another example of horizontal collaboration which had emerged since the research first started, namely the Tradeteam operation in the UK brewing industry.

An informal meeting was held with a member of the Exel senior management team in January, 2005, as part of the process of collecting background contextual information for the Broadmead case. The conversation moved on to consider other potential areas for development in this respect, specifically that Exel are interested in the concept of co-opetition in supply chains, for commercial reasons. In particular, Exel are looking at the hotel, leisure and catering (HOLECA) markets, with a view to attempting to take business away from food-service contractors such as Brakes and 3663. It is believed that there are a number of retailers in this market who might be interested in buying a transport-only solution, as oppose to the full supply chain offering of Brakes and their competitors. There are also believed to be opportunities in consolidating products from several dedicated sites in the Midlands for delivery within the M25. Tradeteam was cited by this respondent as another example of what Exel call an "Industry Platform": the solution of choice for all of the major players in a given industry sector. According to this respondent, This pub delivery operation was set up as a joint venture, with Exel owning 51% and Coors 49%. The under-pinning themes are "one system, one fleet, one back office".

EXEL AND INTERBREW ANNOUNCE AGREEMENT TO OUTSOURCE LOGISTICS ACTIVITIES

Proposed contract worth around £500m

(London, 10 June 2002) – Exel, the world leader in supply chain management, today confirmed that Interbrew has announced its intention to outsource to Exel's Tradeteam business the ongoing development and operation of its UK retail drinks distribution network.

Tradeteam will provide services to Interbrew UK until at least 2010, and the agreement is expected to have a total turnover of around £500m over the life of the contract. The deal will be subject to relevant regulatory clearances and finalisation of detailed commercial terms but it is expected that as part of the deal approximately 1,500 Interbrew employees will transfer to Tradeteam.

The decision supports Interbrew's focus on its core sales, marketing and brewing activities in the UK. The proposed agreement with Tradeteam will provide Interbrew with enhanced distribution capabilities and help drive significant performance efficiencies that will underpin the success of the business going forward. It is expected that outsourcing secondary distribution operations to Tradeteam, the leading specialist drinks logistics operator, will allow Interbrew to focus on developing the strong position of its leading brands.

The award confirms Tradeteam's position as the leading independent drinks distributor in the UK and will continue to support Tradeteam's role in providing a competitive independent route to market.

Stewart Gilliland, Chief Executive of Interbrew, UK and Ireland commented: "Exel's Tradeteam has established itself as the leading independent distributor in the UK market. This deal recognises Tradeteam's strengths and will allow Interbrew to generate significant improvements in performance in our core activities."

Graham Fish, Group Commercial Director for Exel added: "Tradeteam has been a strong example of how customer focus and innovation has created significant value for our customers. This agreement with Interbrew confirms Tradeteam's leading role in creating competition and efficiency in the industry."

Exel Logistics press release, 10th June, 2002

Desk research, in fact, revealed that the establishment and development of Tradeteam was more than just a straightforward joint venture between manufacturer and logistics provider, and that the operation has actually evolved into a three-way relationship between two rival manufacturers and Exel for reasons which were outside the scope of the original rationale. Having started out as a jointly-owned distribution operation between Exel and Bass, the manufacturer partners are now the international brewers Coors and InBev. In order to understand this operational and commercial context better, it is necessary to look more closely at the detailed history of the venture.

8.1.1 Exel Logistics

The previously nationalised National Freight Company was sold to its employees in 1982 and renamed the National Freight Consortium (NFC). After a series of modest acquisitions in the following years, the company was

rebranded as Exel Logistics in 1989, with the aim of building a global business. Exel was launched in the USA in 1992, in Mexico in 1993 and then began major expansion through acquisitions in Europe and the Far East. The Exel brand was launched globally in 2000, following a merger with the Ocean Group. Further major purchases included Power Logistics in 2002 and Tibbett & Britten in 2004. Most recently, Exel itself has become the subject of a takeover by global giant Deutsche Post, who have announced plans to merge Exel's UK operations into their DHL logistics brand, albeit with the management of the new integrated brand being taken over by the existing Exel UK team.

8.2 Development of Tradeteam

Tradeteam was established in September 1995 as a joint venture between Bass Brewers and Exel Logistics. Bass paid £15.5 million for its 49.9% holding; in return, Tradeteam paid Bass £31 million to take over 45 distribution centres and 700 vehicles.

In August 2000, Bass sold its brewery operations, including the Carling and Bass brands and the stake in Tradeteam, to Interbrew. After the sale, what remained of Bass, essentially hotel and catering operations, was renamed Six Continents plc. However, the sale of Bass was subsequently blocked by Steven Byers, the Trade and Industry Secretary, on the basis that the enlarged Interbrew would have a 32% UK market share. Interbrew sold most of the breweries and the Tradeteam stake to Coors in February 2002. Confusingly, Interbrew retained the Bass brand name for draught ale, but contracted production of this brand out to Marstons brewery.

Coors first reported on its stake in Tradeteam in its 2003 Annual Report. At that time, the assets of the venture were worth \$129.4 million and, the report notes, "Tradeteam also delivers products for other UK brewers".

In June 2002, Interbrew outsourced its distribution operations to Tradeteam, in a 10-year deal worth £500 million over the life of the contract. 1,500 Interbrew employees transferred to Tradeteam. Thus two major competitors in the UK brewing industry – Coors and Interbrew – share a common distribution system, albeit part-owned by the former. This appears to have increased the size of the Tradeteam business by 70%. According to Press Releases at the time, Interbrew made this move to allow them to focus on core sales, marketing and brewing activities, as well as providing enhanced distribution capabilities and improved efficiency. “This deal recognises Tradeteam’s strengths and will allow Interbrew to generate significant improvements in performance in our core activities”, said Stewart Gilliland, Chief Executive of Interbrew, UK and Ireland.

In August 2004, Interbrew, then the world’s third largest brewer, joined with the fifth largest, Companhia de Bebidas das Americas (AmBev), to form InBev, the largest brewer in the world. The origins of Interbrew can be traced back to 1366 in Belgium. The combined company has a portfolio of more than 200 brands, of which the leaders are Stella Artois, Brahma and Becks.

In February 2005, Molson and Adolph Coors combined to form the Molson Coors Brewing Company, with the UK operation continuing to trade as Coors Brewers, based in Burton, of which the main brands are Carling, Grolsch and Worthington. Based on the purchase of most of the former Bass operations from Interbrew, Coors now claim to be able to trace their UK heritage back to William Worthington in the 1740’s and now have a 20% share of the UK market.

Tradeteam has also secured contracts with outlets, as opposed to suppliers: in 2002 it announced deals with JD Wetherspoons, to supply promotional lines from a number of independent breweries as well as Guinness and Corona Extra, and Associated Church Clubs, to supply products from Interbrew, Coors and Carlsberg-Tetley. However, “weaker performance” by Tradeteam in the third quarter of the financial year was reported by Exel in October 2004. In

January 2003, Tradeteam was reported as having 3,500 employees across 57 sites, delivering 13 million barrels of beer annually to 25,000 outlets.

InBev's strategy is founded on its brands, described on its corporate web-site as the "cornerstone of our relationships with consumers". Competitive advantage will be sustained by investment in brands. Bass remains one of the key multi-country brands in InBev's portfolio, even though its production is now outsourced.

Coors' strategy is similarly based on the strength of its brands, particularly in respect of their perceived quality: "We're passionate about beer and determined that everyone else should feel the same". Coors was the first UK brewery to achieve the ISO 9002 quality standard. The brands are supported by five values: integrity, quality, excelling, passion and creativity.

8.3 Research Protocol

A rationale for case study research in this area was discussed in the background to the previous case, the Bristol Broadmead Consolidation Centre. Because of the nature of the phenomenon under consideration, a case study approach is also relevant in the Tradeteam example. The unit of analysis under consideration is the shared logistics operations for Coors and Interbrew operated by Tradeteam. The desk-based background research has not only set the context for the case, but has also identified the three key stake-holders in the operation.

The same basic research tools were used in this case: semi-structured interviews lasting an hour or more that were tape recorded, then transcribed, after which the data was manually coded, reduced and analysed. Pattern codes were sought in line with the seven variables set out on the contextual framework.

As mentioned above, the initial contacts were identified opportunistically and then used to identify more specific operational respondents. This third case was intended to gain further understanding of whether the conceptual framework and its seven variables had validity in a second actual example of logistics collaboration. It was not, therefore, intended to try and gain a deep and rich insight into the workings of the brewery industry or even into the Tradeteam example itself, but rather to expose the proposed model to an actual implementation. As will be seen later, this case also appears to afford the opportunity to propose how the model might be calibrated at some stage. On this basis, and bearing in mind the definition of the unit of analysis, key respondents were identified from within the Tradeteam operation itself (Business Development Director), Coors and InBev (Contract Managers). However, after an initial discussion, the InBev contact declined to be interviewed for unspecified reasons, and further approaches to InBev via their Head Office by both telephone and e-mail were declined. This does not appear to reflect any sensitivity about the Tradeteam operation of itself, but is rather a manifestation of a corporate policy towards disclosure of commercial information. Whilst this refusal of access was disappointing, it does not fundamentally undermine the validity of this case. Understanding the attitudes, experiences and motivations of each side of the dyad ought to be possible through access to one of the two manufacturer parties, albeit accepting that access to both manufacturers might have been a better outcome.

In the analysis of the data which follows, BA is the Tradeteam contact and FB is from Coors.

8.4 Findings - Contextual Issues

In the Broadmead case study, a number of key contextual differences, compared with the grocery study were noted. Consideration of the brewery industry under the same contextual headings reveals some similarities to the other cases, but also some important key differences.

	Grocery study	Broadmead case	Tradeteam case
Logistics system characteristics	Mature central distribution model, with high levels of transport integration and resource control or ownership. "Just in time" methodologies to underpin availability and freshness.	Some retail-controlled central stockholding but no central transport structures and all transport with multi-user contractors. Availability supported by in-store stock. Lack of availability promotes switching or opportunism.	Single, manufacturer-controlled stockholding echelon, with non-integrated radial transport for final leg deliveries. Availability supported by stock. Combines stock levels of small retailers with centralised platform of major retailers.
Market structure	High levels of concentration with a small number of large and powerful players	Highly fragmented: up to 300 retailers in the immediate market.	High levels of concentration, as in major retail.
Competition	Competition targets clearly identified and competitive stance embedded in strategy.	Niche propositions replace direct competitive strategies.	Competition almost exclusively driven by brands and marketing effort.
Cost drivers	Clear trade-off between cost and service, determined by strategic market positioning.	Better service apparently available at no additional cost.	Assuming that basic cost parity achieved, service is prioritised to minimise switching.
External influences	Fears over anti-competitive perceptions in the media and in government impede collaboration. Possible resource shortages encourage protectivism.	Presence of brokers to facilitate shared solution. Threat to overall market size posed by new out-of-town development.	Legislative pressures led to divestment of activities. Strong contractor presence.

Table 14: Comparison of Tradeteam contextual factors to the other cases

Of these, the factors to emerge most strongly from the Tradeteam case interviews were that competition is between brands, rather than supply chains and that, being relatively simple and of common format, the supply chains themselves do not contribute to competitive advantage.

8.4.1 Logistics Systems

As was noted in the Broadmead, major retailer supply chains tend to be at the forefront of logistics developments and other sectors lag behind them in many respects. There are some parallels between the move to retail centralised distribution and the consolidation of logistics activities within the brewing industry. The typical supply chain structure comprises stock in vats or tanks at the brewery; stock in kegs or cans at the distribution centre and a straightforward radial transport operation to make final leg deliveries.

“Brewery supply chains tend to be fairly simple.” (BA 28.4.05)

“They (brewers) monitor the stock levels and the forward orders and they replenish our network to meet forecast demand.” (BA 28.4.05)

There is a strong contractor presence: as well as the Tradeteam operation for Coors and InBev, third party provider Gist operates the Carlsberg network. Unlike UK food retailer operations, distribution is still largely manufacturer-driven, as opposed to being retailer-led. This is largely explained by the strength of the brands. There are some small exceptions. The pub chain JD Wetherspoon has set up its own in-house centralised distribution operation. Arguably, Wetherspoons could be seen as an attempt to develop a branding for the retail outlets to compete with, or at least complement, the brands of the brewers whose products they sell.

This contrasts with the major retailer case, in which the retailers see themselves as the important brands, rather than the brand strength of the product ranges they sell.

“For us, it’s all about the individual products whereas for them, the brand is all they’ve got.” (FB 13.5.05). Perhaps the one exception to this contention would be Marks & Spencer where, given that the range is virtually 100% own label, the product branding and store branding are one and the same thing.

8.4.2 Market structure

Tradeteam view their total target market as being 60,000 pubs across the UK, although there are in total 130,000 licensed premises including other types of outlets, such as clubs and hotels, etcetera. Their estimate for the average

turnover of a pub is £10,000 per week, so the overall market size is estimated to be £60 billion: a bit smaller than the total grocery market. However, like grocery, the market has become somewhat polarised. There are two major players in the pub sector: Punch and Enterprise, who between them own something like a third of all the outlets. On the supply side, there are basically just four national brewers – Coors, Interbrew, Carlsberg and Scotco – with a second tier of two so-called “super-regionals”, Greene King and Wolverhampton and Dudley.

None of the respondents was in possession of firm market share data for their respective operations. At the operational level, the business is managed on the basis of numbers of pubs or barrels throughput (a barrel is 26 gallons). Scotco are estimated to have 30% of the pubs, Tradeteam 25% and Carlsberg in third position with 11% or 12%. After this top three, the rest is very fragmented. Tradeteam’s next major target for business growth is the 8,000 strong chain of pubs operated by Punch, currently with Carlsberg: the contract for this work comes up in the next two years. Also, although quite a bit smaller, the Spirit group of pubs come up at about the same time and that would also be an attractive target for Tradeteam, giving them overall market dominance.

8.4.3 Competition and Supply Chains

The Tradeteam operation is a clear and distinct example of an active and fully intentional collaboration between close competitors.

“The propositions that Coors and Interbrew see themselves as competitors and collaborators are both true.” (BA 28.4.05)

The factor which emerges most strongly from the data, however, is that this close competition is absolutely defined by the relative strength of brands and marketing effort. Market share is driven absolutely by the marketing effort invested behind the brands and all other areas of supply chain activity are seen as subservient to this. It is taken as a given that service, in terms of availability and cost, must be provided as a matter of routine, but once established, this provides nothing further in terms of competitive advantage.

Because all of the brewing groups can, to a large extent, offer a full range of products to their pub customers, pubs can switch their entire range fairly easily. There is thus a perceived need to ensure that service levels are maintained to avoid switching.

“In a sense, Tradeteam is just a reaction to what is effectively factory-gate pricing. The pubs want the brands, the delivery service, the technical services and they want to be able to go to whoever they want and have all of that lot consolidated for them into one supply chain solution.” (FB 13.5.05)

8.4.4 External Influences

The biggest external influence over both the market and its associated supply chains has been the emergence of the major pub chains, following legislation to separate beer manufacture from retail supply in 1989. The so-called Beer Orders was a piece of legislation limiting the numbers of pubs which could be owned by anyone, including the brewers. Prior to that time, Bass owned all their pubs in what was essentially a captive vertically-integrated market. After the legislation, they had to divest themselves of all their pubs. New pub retail groups were created as a result and all of these started to implement some of the practises observed in the operations of successful retailers in other fields. They said things like “we don’t want 10 different supplier vehicles turning up at my pub”. They were after things like FGP (factory gate pricing). “I want consolidation of suppliers based on what my punters want” (BA 28.4.05)

The decision to consider doing something different with the supply chain was a response to a changing market. The brewers have also seen an ever-increasing trend in drinking at home and purchases from supermarkets: there has been a concurrent fall in drinking in pubs by as much as 3% a year. “The Bass view at the time, therefore, was that they had these damn great networks, pubs switching volume between suppliers and a decline in volume as well. There were lots of good reasons to try and get rid of a load of the infrastructure.” (BA 28.4.05)

8.5 Discussion – Implications for the model

As in the Broadmead case, the relative influence of the model variables was different again in the Tradeteam case from that of the major retailers. Because the supply chains are fairly simple and a standard model, based on manufacturer-driven distribution centres, has been widely applied, the concepts of distance of supply chain activities from the consumer and relative service and quality measures between competitors are a little less meaningful in this case, whilst still valid. The consumer is likely to be far less aware of all supply chain activities in the brewery industry than in grocery supermarkets or even High Street shops so the concept of “distance” is less useful here. Furthermore, the trade-off between cost and service appears to be less absolute and mutually exclusive in this case. Of far more interest in considering logistics collaboration are the perceptions of the nature of competition and attitudes towards the outsourcing of non-core or non-value adding activities, and thus the presence of contractors in the market.

A summary of some of the key data identified against the variable codes is set out in the table below.

	Contractor	Manufacturer
DIST	The areas of competition are marketing, brand strength and quality of product. Everything else is very much a back office thing.	The long-term real relationships have not all gone, but they're certainly moving away. So everything is down to brand strength, it's not controlled by distribution.
SERV	They thought it might have an impact on the level of service to the end point.	The pubs want the brands, the delivery service, the technical services and they want to be able to go to whoever they want and have all of that lot consolidated for them into one supply chain solution.
QUAL	(The old distribution system) was not any kind of competitive advantage.	Distribution isn't about competitive advantage, and it provides as good a service as the competition, then it is able to build volume because it provides a multi-user platform.
STREN	Sometimes, when you and try and bring businesses together, there is more resistance from the bigger ones, because they believe they have less synergy to gain than the smaller ones. The propositions that Coors and Interbrew see themselves as competitors and collaborators are both true.	It may well be the case that the small producers get an easier route to market than they might otherwise have done, but you have to ask if we're really competing with them. It's not about competing on distribution, but much more about "what are we selling versus what they are selling?"
VALU	Interbrew had already had the chance to look at Tradeteam and Whitbread Distribution Services and worked out that there were synergies between them.	We never viewed distribution as any kind of differentiator in this market. Distribution is viewed just as a service that is required.
CONT	They went after a JV (joint venture) because giving up your logistics at that stage was seen as being just too radical.	The Bass core business is about producing and selling brands, so let's get into bed with a distribution professional, so the solution is seen to be independent.
ENV	Doing something different with the supply chain was a response to a changing market.	People were looking for different solutions, rather than all of the traditional routes to market.

Table 15: Summary data display for respondents in the third case study

8.5.1 Distance / Service ("Customer Offering")

Supply to and consumption in pubs tend to take place at completely different times of the day, so there is an argument that no supply chain activities are actually visible to the end customer. In terms of the concept of distance, this gives all logistics activities sufficient distance from the consumer, allowing

distance not to be an inhibitor and thus allowing collaboration to take place, within the framework of the model.

“For them, the areas of competition are marketing, brand strength and quality of product. Everything else is very much a back office thing.” (BA 28.4.05)

Traditionally, there were strong relationship at the “back door” between the brewery dray-men making the deliveries and the landlords and managers of the pubs.

“From our point of view, the people most in contact with the customers were the drivers.” (FB 13.5.05) But this has now changed, and the professional managers brought in to manage the assets of the new pub chains appear to have distanced themselves from these more traditional arrangements: “The long-term real relationships have not all gone, but they’re certainly moving away.” (FB 13.5.05)

However, although the distribution function is increasingly regarded as disconnected from retail operations, given the importance of branding to competition, branding has to be removed from supply chain assets in order to facilitate collaboration.

“From a very early stage, we neutralised the appearance of the original fleet, removing all the things like Bass logos, and Stella and Boddingtons stickers, so we got to the blue and silver we run now.” (BA 28.4.05)

The relative importance of service over upstream distance is evidenced by an example in which it was proposed that common stock, supplied by other manufacturers, for both the brewers be managed as a single pool by Tradeteam. This was recognised as being economically and operationally feasible and desirable, but was not implemented because of concerns over service to the pubs.

“We put it (shared common stock) to them and Coors were happy with it, but Interbrew struggled with the idea. They said it was all to do with things like who got the first call on the stock and who got the freshest stock. They thought it might have an impact on the level of service to the end point.” (BA 28.4.05)

This is reflected in the fact that switching between suppliers remains a concern for brewers, with competitors being able to offer a full range of

competing products, albeit with brand strengths not necessarily being comparable.

“We operate effectively as a wholesaler. In this case, we can certainly lose the business if we don’t give them what they want.” (FB 13.5.05)

“There are now lots of routes to market. We could certainly lose business if we weren’t able to provide the service.” (FB 13.5.05)

“The issue now is that when we talk to a group of perhaps 300 or 400 pubs, they look at the total 40,000 deliveries we make and say “What kind of service am I going to get?” (BA 28.4.05)

In the Broadmead case, customer service was perceived to have improved as a result of the collaboration. In Tradeteam, the collaboration has allowed for the full range service now demanded by customers to be delivered, which could also be regarded as an overall improvement.

8.5.2 Strength / Quality (“Competitive Positioning”)

The major important organisational characteristic or trait to emerge from the major retailer case was “arrogance”. However, in Broadmead, the apparent “modesty” of the retail respondents was noted, largely driven by their relatively small size of operations and niche positioning. In the brewery industry, the equivalent concept might be described as “realistic”. There was a recognition that the real competition is in the brands and that almost everything else, therefore, should be approached in a rationale and objective way. If service levels can be maintained and costs reduced through collaboration, then this should be seriously considered.

“Everything is down to brand strength, it’s not controlled by distribution.” (FB 13.5.05)

“So, if distribution isn’t about competitive advantage, and it provides as good a service as the competition, then it is able to build volume because it provides a multi-user platform.” (FB 13.5.05)

“It was not any kind of competitive advantage (to Interbrew).” (BA 28.4.05)

“We can use both companies as a point of reference to demonstrate that sharing a distribution route does not compromise competitiveness.” (BA 28.4.05)

This objectivity extends to questioning the assertion, raised in the major retailer case, that there needs to be parity of opportunity for gain between prospective participants.

“Sometimes, when you try and bring businesses together, there is more resistance from the bigger ones, because they believe they have less synergy to gain than the smaller ones.” (BA 28.4.05)

Major or stronger retailers would be reluctant to collaborate with smaller or weaker players, on the basis that the latter would have more to gain from the partnership. The brewers, on the other hand, did not regard this as significant. “It may well be the case that the small producers get an easier route to market than they might otherwise have done, but you have to ask if we’re really competing with them.” (FB 13.5.05)

“It’s not about competing on distribution, but much more about “what are we selling versus what they are selling?” (FB 13.5.05)

“But here, there wasn’t even any resistance from Coors, even when they were 90% of the Tradeteam business and we wanted to bring in much smaller customers. In fact, from their point of view, this was the whole idea in view of the changes going on in the market: to try and use up excess capacity.” (BA 28.4.05)

Although participants might have been expected to argue that the common platform offered them, to some extent, an advantage over other firms who had not joined, there were actually some views that the operation was far from perfect.

“Would you believe that Tradeteam operates on three different ERP systems, because of where it came from? We have the Coors system, because that is driving their product in and taking their orders. The same is true for Interbrew and then we have our own third system for dealing with our own direct relationships with the pub groups. However, it’s not a complete mess: there is a common transport planning system – we use DIPS – and this takes

downloads from all three systems and makes up a common plan.” (BA 28.4.05)

8.5.3 Value

It is certainly the view of the participants in Tradeteam that the distribution function offers nothing in terms of adding value to the customer offering. “We never viewed distribution as any kind of differentiator in this market. Distribution is viewed just as a service that is required. It certainly doesn’t allow us to win any new business. I may be slightly different, but I don’t think we could win volume because of distribution or supply chain operations, no matter how good they are: people come to us because they want the brands. It’s definitely the case that retailers can fail because of their supply chains – just look at Sainsburys – but, as long as it’s all working OK, does it really make a difference? I don’t think so.” (FB 13.5.05)

This is not necessarily a view shared universally across the industry, however. Carlsberg, who operate to a similar model in terms of contractor-operated, manufacturer-driven warehousing, have chosen not to collaborate with competitors. “They believe very strongly that they must have total control of their routes to market.” (BA 28.4.05)

“Carlsberg.....they see the distribution service as providing a competitive advantage. They didn’t want to get into shared user and definitely saw their drays as a competitive advantage. For them, it was all about keeping traditional values.” (FB 13.5.05)

The influence of the major retailers, arguably at the vanguard of logistics developments in the UK, continues, both in terms of offering a model for adoption by retail pub groups and through the implementation of factory gate pricing and other interventions in the supply of products from the brewers to the major supermarkets.

“The pub market is now much more aligned to the retail sector. They’re looking at Tesco, Sainsbury and at the various retail supply chain models, with things like e-trading and factory-gate.” (FB 13.5.05)

It's interesting to see that those very same retailers are not interested in sharing their resources to the same extent. It intrigues me that Tesco can get so much into FGP, which might give them a short-term benefit and they could have got all of that a different way. (FB 13.5.05)

Furthermore, it is argued that retailer initiatives in this respect might actually be counter-productive: brewery distribution is already effective and any slavish desire on the part of an individual retailer to extend their influence up the supply chain might introduce either inefficiency or additional risk.

"Now they collect in full loads, but we could have got this full load benefit for them anyway and, in the meantime, they've had to take on all the risks. I really don't understand why they've bothered." (FB 13.5.05)

8.5.4 Contractors / Environmental (External factors)

One of the key contentions of the proposed model was that the active presence of contractors in a market, allied to a willingness on the part of firms to out-source non-core activities, were enablers for implementation of collaborations. Brewery distribution has been seen as non-core for most of the major players for some years. Even Carlsberg, who seek to maintain control of their supply chain for the time being have contracted out the actual operational management.

Tradeteam is particularly interesting, in that it initially represented a staged move from in-house operations to collaborative out-sourcing, via a joint venture with the logistics provider. This could be seen as an attempt to deal with organisational inertia or political barriers to change within an organisation. "The JV was basically just a dressed-up sort of out-sourcing. Bass had probably decided this 10 years ago, but they didn't go for straight outsourcing. Instead, they went after a JV (joint venture) because giving up your logistics at that stage was seen as being just too radical. (BA 28.4.05)

Having established the principle of partial loss of control over logistics, once the joint venture had to be divested as part of the Bass disposal, there were no further barriers to complete divestment of control to a third party.

“They sold Tradeteam as part of the deal with Coors, but realised that they could still realise the same synergy benefits through outsourcing.” (BA 28.4.05)

Furthermore, once the first major player had started to divest itself of distribution operations, it was perhaps easier for other players to follow suit.

“Interbrew had clearly decided that they wanted to give their logistics away.” (BA 28.4.05)

Interestingly, the contractor responsible for running the stand-alone operation for Carlsberg attempted to facilitate some collaborations of its own in the market-place, which was

“Gist were already running an NDC at Northampton to service the retail trade and therefore put up a proposition to Interbrew, which said “we’ll synergise with a third party, in this case Carlsberg, on your behalf”. (BA 28.4.05)

Having challenged and addressed organisational barriers to change, the use of contractors is consistent with focusing on core skills. “The Bass core business is about producing and selling brands, so let’s get into bed with a distribution professional, so the solution is seen to be independent.” (FB 13.5.05)

Contractors, particularly those with experience of working in shared-user environments also have the expertise to deal with organisational concerns about sharing the visibility of commercially sensitive data with competing collaborative partners. “Tradeteam are scrupulous about not talking to each one about the other one’s business: there are Chinese walls around these things.” (FB 13.5.05)

The single biggest environmental factor driving the Tradeteam collaboration appears to have been the fundamental changes in the shape and dynamic of the market, driven by the separation of beer manufacture from retailing by the 1989 Beer Orders, together with later legislative actions on market dominance.

“What had been a completely vertically-integrated industry was in a market which needed to change.” (FB 13.5.05)

“Doing something different with the supply chain was a response to a changing market. Having built up these systems over the years, there are loads of reasons why the brewers still might want to get rid of them. Fundamentally, it’s driven by a change in the market.” (BA 28.4.05)

These fundamental changes furthermore created the opportunity for “rational” players to question the structure and value of their existing supply arrangements.

“There were lots of good reasons to try and get rid of a load of the infrastructure.” (BA 28.4.05)

People were looking for different solutions, rather than all of the traditional routes to market. We couldn’t carry on protecting the position of where we were. There was a definite opportunity to set up an industry platform.” (FB 13.5.05)

8.6 Conclusions

There were contextual similarities and differences between the brewery case and the first two cases. Market dominance by a small number of key players and common distribution models reflected the major supermarkets, whereas an emphasis on product branding, service and a resulting emphasis on “front of house” rather than “back office” functions was closer to the context of the small retailers in the Broadmead case. Again, this example of collaboration has not rendered any of the variables in the model completely irrelevant, but suggests that their relative significance as inhibitors or facilitators will vary in different contexts as described. A multi-dimensional nature may need to be introduced to the model therefore, which sets the seven suggested variables up against the contextual factors discussed in the second and third cases. This is set out in the following table:.

	Logistics System Character	Market Structure	Basis of Competition	Cost Drivers	External Influences
DIST					
SERV					
QUAL					
STREN					
VALU					
CONT					
ENV					

Table 16: The setting of logistics variables against contextual variables as a result of the Tradeteam case

Each cell of the table can then be populated by a contextual measure to predict combinations of circumstances in which horizontal collaboration might be more likely to take place. For example, where logistics systems are undergoing an evolutionary or even revolutionary change, and thus competitive advantage is, to some extent, achievable at the leading edge, then distance of a supply chain activity from the end consumer may be an important predictor for collaboration. Similarly, a market based on competitive product branding, rather than outlet or “system” branding might be more likely to see collaborative developments.

This proposition, together with the tentative development of these explanatory dimensions will be explored in the context of a comparative analysis of all the data across all three case studies.

9 Chapter Nine - Cross-Case Analysis

Three cases have been examined to try and gain an understanding of the existence of, and inter-relationships between, various factors which might act as facilitators or inhibitors for horizontal supply chain collaboration between competing firms. These cases have not been established as equal or equivalent in the sense that they were not intended to be three pieces of parallel work of equal scale and contribution. Rather, the major retailer case was the context which was used to develop a theoretical model based on the non-application of collaboration in an environment which prior research suggested was appropriate and relevant for such collaboration. This model was then re-examined against the findings from two further cases in which horizontal collaboration has been successfully implemented. The scale of the three cases was not balanced in the sense that the majority of time and effort was invested in the first case, to try and understand the types of issues which might be in play. These issues included attitudes to competition and market structure generally, as well as more focused exploration of attitudes to the more operational details of supply chains and physical distribution operations. It was not the intention of this research to achieve a similar depth of understanding about the contexts of non-food retailing or the brewery industry. Both these latter industrial contexts were, to a large extent, incidental to the more practical task of testing the validity of more general assertions about the role of supply chain and logistics strategies in the broader context of competitive industry. In other words, the research is about the potential for logistics collaboration, not about the retailing or brewing industries. Nonetheless, it appears that the relative influence of some of the enabling and inhibiting factors to the eventual operationalised outcome is, to some extent, context-specific. It is, therefore, useful to summarise some observations about the similarities and differences between the three industrial contexts. In the chapters examining the data from the second and third cases in detail, key points of difference from the original supermarket case were examined under the five headings of:

- Logistics system characteristics and level of maturity and complexity.
- Market structure.
- Nature and basis of competition.
- Ability or willingness to trade off cost against service.
- Source of environmental threats and ability to control or influence these.

In order to draw a more measured set of comparisons across the three cases, a continuum of possible parameters can be developed for each of these five headings.

This cross-case analysis seeks to identify patterns to explain the relative influence of the contextual variables on the supply chain variables, with a view to redrawing the original conceptual model. To aid the exploration and understanding of these patterns, an attempt is made to map the common characteristics of the players in each context, wherever such commonality can be identified, against a dimension for that variable. This scaling is not numerically based or rooted in any other mathematical relationships, but is intended to give some visual representation of the strategic and market characteristics of each context relative to the others. Such expression in a linear format is clearly something of an over-simplification and a multi-dimensional framework would be required to capture all the possible variations. However, such simplification serves to surface the key differentiating factors and their potential influences.

9.1 Logistics system characteristics

The data from each case was reduced to the following summary observations.

Supermarkets	Broadmead	Tradeteam
Mature central distribution model, with high levels of transport integration and resource control or ownership. “Just in time” methodologies to underpin availability and freshness.	Some retail-controlled central stockholding but no central transport structures and all transport with multi-user contractors. Availability supported by in-store stock. Lack of availability promotes switching or opportunism by consumers.	Single, manufacturer-controlled stockholding echelon, with non-integrated radial transport for final leg deliveries. Availability supported by stock. Combines stock levels of small retailers with centralised platform of major retailers.

Table 17: Summary of the key contextual characteristics of the three cases

Logistics systems can be described on the basis of positioning on the following ranges, with evidence generally suggesting a move away from the first of each dyad towards the second, representing the increased sophistication of the supply chain:

- Direct store delivery to centralised consolidation and distribution.
- Multiple safety stock locations to stockless cross-docking.
- Long cycle and response times to more frequent and rapid “just in time” deliveries.
- Complete manufacturer control to complete retailer control.

The order of these four dyads’ development is deliberate: centralisation has tended to be followed by stock reduction and reduced cycle times. The degree of retailer control over the processes has tended to increase in parallel with three phases of development. Therefore, the overall degree of sophistication can be described as the extent to which the first three stages of the process have been achieved.

Major supermarkets: all three phases in place, with retailer control largely in place achieved and thus, in terms of the dyad, highly sophisticated.

Tradeteam: centralised, but still with significant stock and longer cycle times and only early signs of retail intervention: semi-sophisticated.

Broadmead: deliveries largely direct to store, with limited examples of intermediate stock. There is little or no retailer control over the distribution function, which is generally, therefore, unsophisticated.

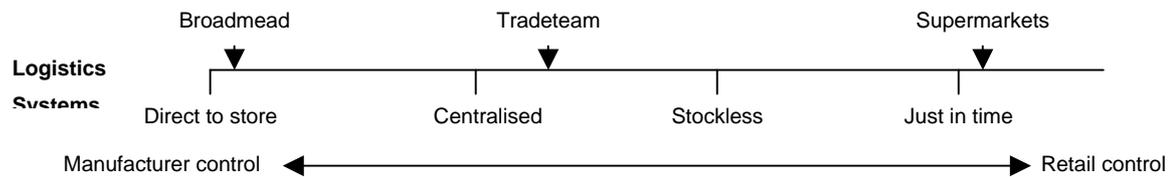


Figure 25: The relationship between the locus of control and logistics system characteristics

9.2 Market structure

Supermarkets	Broadmead	Tradeteam
High levels of concentration with a small number of large and powerful players	Highly fragmented: up to 300 retailers in the immediate market	High levels of concentration, as in major retail

As discussed in the introductory chapter, the UK grocery retail market is almost unique in terms of its levels of concentration, driven by apparent customer preference for the superstore and the weekly shop, as opposed to other trading formats and shopping habits favoured in other economies. In Europe, only Holland comes close to the levels of concentration achieved in the UK, with the “big four” accounting for over three-quarters of the market and, as media commentators have increasingly commented, more than one in every eight pounds spent in the UK going through the tills of Tesco. Whilst there are some variations between the major players in the mix and range offered, for example, Sainsbury emphasising the fresh ranges and Asda majoring on clothes and non-foods, there is nonetheless a general consistency based on the premise that all the major firms do offer a fully

comprehensive range of groceries, facilitating the consumer preference for a weekly one-stop shop.

This concentration is reflected in the brewing industry, largely driven by global consolidation and rationalisation, not only in the pursuit of manufacturing economies of scale, but also because of the development of global brands. The UK's Campaign for Real Ale might be regarded as one of the more successful campaigns of its type in the world, but the remaining regional specialist brewers of traditional products still retain only modest market shares, with the majors complementing their international lager and long-life brands with a presence in the real ale market. Respondents in the second case described a market dominated by just four major national players, followed by two regional groupings.

The Broadmead shopping centre represents another type of shopping: that of the leisure experience, where a multitude of smaller brands and groups occupy their own specialist niches, with only the occasional department store offering any kind of breadth which might pose a competitive threat to the smaller chains.

However, both concentration (numbers of players) or scale (relative size of players) are less important than the concept of the number of sub-markets involved. Food retailing is a discrete market and, with certain exceptions, one firm's gain in market share is another firm's loss. Similarly in brewing, demand is finite and there is therefore, at one level, a single market. Leisure shopping, as in Broadmead, is a more complex mix of smaller markets and it is difficult to draw conclusions about how spending in one outlet might affect spending in another.

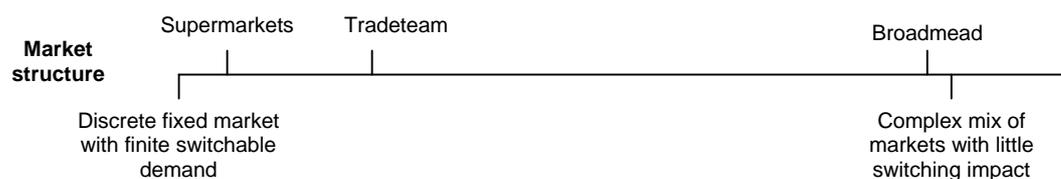


Figure 26: Differing market structures in the three cases

9.3 Basis of competition

Supermarkets	Broadmead	Tradeteam
Competition targets clearly identified and competitive stance embedded in strategy	Niche propositions replace direct competitive strategies	Competition almost exclusively driven by brands and marketing effort

Retailers, both large and small, and manufacturers generally base their marketing proposition on two entirely different premises. For the manufacturer, the branding and identity is largely based on the product, whilst for the retailer, the store format and identity are the branding, rather than the goods offered. There are exceptions: in Marks and Spencer, with its high reliance on own-label, the branding of range and store identity are blurred. Some manufacturers also operate their own retail outlets, Thorntons for example, again blurring the distinction. However, at a general level, the distinction between the branding efforts of Tesco and InBev are clear. The brewers no longer have any control over their outlets, so the emphasis is exclusively on the brand. In summary, the retailers' proposition is based on their infrastructure: where the outlets are, what they contain and how it is set before the consumer.

The same principle holds good for the relatively much smaller retailers in Broadmead, with an added dimension. Whilst within a given niche, like mobile phones, there may be up to a dozen competing firms in a single city centre, there are dozens of other niches and although consumer spending is ultimately finite, the respondents in the third case gave no sense that cosmetics firms were competing with footwear outlets or home furnishings with clothing. This places these smaller outlets somewhere between the two poles described above. The format branding and the product branding tend to be much closer together: Lush cosmetics and Tie Rack are two good examples of this, with the distinction between the store branding and the product much harder to discern: promotion of one implies promotion of the other.

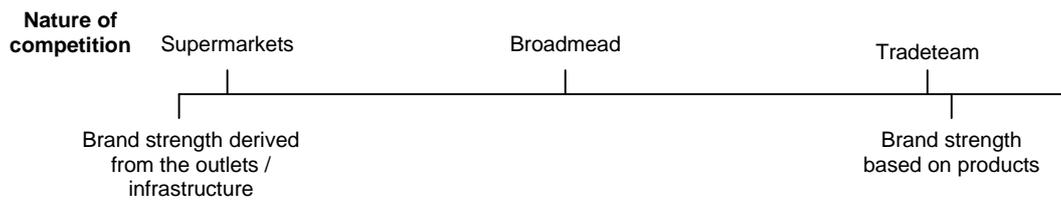


Figure 27: Different sources of brand strength in the three cases

9.4 Cost or service drivers

Supermarkets	Broadmead	Tradeteam
Clear trade-off between cost and service, determined by strategic market positioning	Better service apparently available at no additional cost	Assuming that basic cost parity achieved, service is prioritised to minimise switching

It is more difficult to distinguish between the contexts in terms of the positioning on the “traditional” Porter strategy trade-off between cost / price and service. However, if the responses are considered individually, rather than grouped by case, different positions can be noted. For example among the major retailers, Somerfield and Marks & Spencer both commented that service would, on occasions, be compromised in order to keep costs down, whereas Sainbury and Asda required that the trade-off be much more actively managed to optimise cost and service as far as possible. However, whilst the major retailers, therefore, could be regarded as split between an orientation towards service and cost, in all cases there was a recognition that an active trade-off position between cost and service was desirable as part of the strategic and operational offering.

On the other hand, the retailers in the Broadmead example were all more oriented towards service rather than cost, over which they generally did not have much control. The fact that the collaborative initiative improved service was welcomed even if the long-term cost implications were not fully understood.

In the brewery case, service was perceived as essential to avoid switching, and little mention was made of the need to improve or control costs. Although it is not suggested, therefore, that costs are not an important determinant of brewery operations, there were significantly more references to the need to maintain service levels.



Figure 28: Differences in attitudes to service and cost across the three cases

9.5 External influences

Supermarkets	Broadmead	Tradeteam
Fears over anti-competitive perceptions in the media and in government impede collaboration. Possible resource shortages encourage protectivism.	Presence of brokers to facilitate shared solution. Threat to overall market size posed by new out-of-town development.	Legislative pressures led to divestment of activities. Strong contractor presence.

A number of separate contextual issues are dealt with under this single heading, including shortages of potential resources, unfavourable media coverage, legislation limiting commercial activity and damage to the marketplace. There is also an important sub-text in the extent to which the external influence is critical or not, either on the basis that it can be controlled or, on the basis that it comes from beyond the immediate competition and is thus “outside the marketplace”, it is not important because it will potentially impact on all competitors equally.

The major retailers perceive the major significant threats to (or opportunities for) their operations as coming from their direct competitors, rather than from

outside. So whilst some concerns were expressed about the potential for damage to their image and credibility arising from possible anti-competitive collaborations or the operational difficulties which might result from resource shortages, there was little reference to perceived threats from the outside environment. In a market with such high levels of concentration it is perhaps not surprising that the major players should have some self-belief and confidence in their ability to control external events, to some extent at least.

At the other extreme, the Broadmead retailers felt themselves to be under pressure not just from green environmental concerns generally, but also from the specific possibility that the market for town centre shopping in Bristol would be adversely affected by the opening of a new out-of-town centre and that there was, therefore, a need to be more efficient and to be seen to be joining in efforts to promote a sustainable solution for the city centre.

Tradeteam was set up as a reaction to the vertical dis-aggregation of the supply chain, following legislation to separate manufacture of beer from the ownership and management of retail outlets. In both the Tradeteam and Broadmead examples, the external environment was seen as posing something of a threat to continued business operations, whereas the major food retailers perceived the threat as coming from the internal market, with the external environment potentially offering opportunities for protectionism and differentiation.



Figure 29: Perceptions of the environment as threat or opportunity

9.6 The overall influence of context

This analysis does not seek to try and attach some objective units of measure to these suggested contextual dimensions. Instead, the intention is simply to

try and map the three cases along the dimensions relative to each other in order to try and develop a reference framework in which the relative importance of, and inter-dependence between, the enablers / inhibitors to potential collaboration can be discussed and explored in more detail. No scale is therefore set against the following summary table which sets out the approximate contextual profile of the three cases, but which distils the complex issues in play in each of the contexts down to a few words for ease of comparison in the analysis of variables.

	Supermarkets	Broadmead	Tradeteam
Logistics system maturity	High	Low	Medium
Market prone to switching	High	Low	High
Basis of branding	Outlet	Mixed	Product
Importance of service	Negotiable	Medium	High
Threat from environment	Low	High	Medium

Table 18: Supply chain variables as either enablers or inhibitors to collaboration

Seven possible variables were proposed as potential enablers / inhibitors in the conceptual framework developed at the start of this research. These were set out as a code table at the start of the major retailer case study, including possible examples of their manifestation in the case examples.

Category	Code	Description
Impact on customers	Distance – 1.1 DIST	Physical distance from head office or “Distance” of activity up supply chain
	Cost / service – 1.2 SERV	Extent to which costs are compromised to satisfy store / customer demands
Quality	Perceived quality of logistics system relative to competitors – 2.0 QUAL	Extent to which a firm perceives itself to be better / worse than the competition in terms of cost and / or service. Potential for equal gain or loss arising from collaboration.
Strength	Perceived market strength relative to competitors – 3.0 STREN	Attack / defence positions in respect to named competitors and growth targets
Importance of PD	Extent to which PD systems contribute to competitiveness – 4.0 VALU	Extent to which PD is regarded as integral to the customer offering and differentiated from competition
Make or buy	Use of contractors – 5.0 CONT	Use of “white trucks” and other technologies to pursue integration synergies
Environmental	Legislative or social pressures to reduce environmental impact or other external pressures – 6.0 ENV	Degree of perceived threat from empty running, road tolling, curfews, resource shortages, market forces

Table 19: Original tentative data coding table

Three case studies have been carried out, two in contexts where forms of horizontal logistics collaboration have been implemented and one where it has not, in spite of evidence to suggest that this would be a logical outcome. In trying to understand the differences between the contexts and situations, it would appear that what might be a facilitator under one set of circumstances might become an inhibitor under another set. Alternatively, a variable that

might play an important role as an enabler or inhibitor in one context might have a very trivial role, or no influence at all, in another context.

The data from each case has been distilled and analysed to provide insight into the relative roles and importance of the variables in each of the cases. This evidence can now be collated to bring a comparative contextual analysis to bear. This is summarised as a table of key cross-case data drawn from all cases, supermarkets (S), Broadmead (B) and Tradeteam (T). The data has been classified as to whether it suggests an enabling or blocking role in each context. A blank cell in the table indicates that there were no significant references to this variable in the data from a particular case. The points listed are not the enablers or inhibitors as such, but rather provide an indication of whether horizontal collaboration is more or less likely in the context of each of the key data codes.

As with the contextual dimensions proposed above, the classification of any data as enabler or inhibitor is arbitrary in most cases. Generally, items classified as enablers cannot be turned into inhibitors simply by not being present or being present in a relatively small scale. On the other hand, items identified as inhibitors could be reclassified as enablers if they were either not present at all or present in some different scale. So whereas distance of a supply chain from the end customer might be an enabler, closeness to the customer is not necessarily an inhibitor. On the other hand, late deliveries might be an inhibitor whereas on-time deliveries could be an enabler.

		Enabler	Inhibitor
DIST	(S)	Does it really matter in Dover?	We wouldn't want another retailer-liveried vehicle delivering to a store because the public would see that.
	(B)	People can see it and think "well, at least they're doing something"	
	(T)	everything is down to brand strength, it's not controlled by distribution.	Everything else is very much a back office thing.

SERV	(S)	The real cost is, at the store, not in the logistics end.	Service is absolutely paramount. OK, cost is important, probably 70% service and 30% cost.
	(B)	As long as I receive my stockat the right time, that's all that bothers me	Neither of them breaks even at the moment.
	(T)	They want...all of that lot consolidated for them into one supply chain solution.	They thought it might have an impact on the level of service to the end point.
QUAL	(S)	You've got to make sure that whatever you're giving, you're getting.	We'd prefer to just have one network of our own, both primary and secondary, and work internally to try and make it as efficient as possible.
	(B)	Because of the relative size of these retailers, they all gain an equal benefit.	It would be fair to say that they are smaller operations and not particularly sophisticated.
	(T)	The old distribution system) was not any kind of competitive advantage.	It provides as good a service as the competition.
STREN	(S)	The whole idea of not sharing resource with other people goes against the grain of "every day low cost".	Do you think we'll ever work with another food retailer? The answer's "no" because we're trying to cripple them all.
	(B)	Small retailers generally do things when they see other people doing them.	As long as the stock gets here on time and it's not damaged, then I don't really have any issues with competition.
	(T)	The small producers get an easier route to market. It's not about competing on distribution, but much more about "what are we selling versus what they are selling?"	There is more resistance from the bigger businesses, because they believe they have less synergy to gain than the smaller ones.
VALU	(S)	You can invest a lot of time in making a step-change, but the competition will catch up.	It's of huge competitive advantage, every aspect of logistics.
	(B)	The deliveries are making more time to do what they want to do, which is selling things.	The best fits come where you have got less sophisticated supply chains.
	(T)	We never viewed distribution as any kind of differentiator in this market.	Distribution is viewed just as a service that is required.

CONT	(S)	I want my contractors to work with other retailers.	We painted the vehicles white and now we get the revenue.
	(B)	It's so far adrift from our core business.	Anyone can carry things: anyone can deliver everything.
	(T)	The core business is about producing and selling brands, so let's get into bed with a distribution professional	Giving up your logistics at that stage was seen as being just too radical.
ENV	(S)	We have changed: we have been knocked off course by the events of last year.	Not long ago, we were very protective: we wouldn't let anybody into our sites.
	(B)	The sort of ethics that we had behind the company	Improve air quality, reduce the transport impacts and also conflict between vehicles
	(T)	Doing something different with the supply chain was a response to a changing market.	

Table 20: Examples of influencing variables as enablers or inhibitors for collaboration

9.7 Distance

The concept of distance of a supply chain activity from the end customer was mentioned in some of the very first interviews in the major retailer case study, as well as already being recognised as a concept in the literature (Bengtsson & Kock, 2000). Generally, the concept was used to describe upstream activities, far removed from the sight of the customer, including unitisation equipment or transport and transshipment activities which did not involve the final delivery leg to the High Street store. Several respondents in the supermarket case study, however, also made reference to remoteness in terms of physical distance from the firm's head office: out of sight, out of mind, as it were. It was suggested that things could be done differently as the geographical extremes of the distribution network from how they might be done in London or the other cities.

However, although this was a recurrent theme in the major retailer data, it did not figure at all as an issue in the Broadmead case study and was only an incidental consideration in Tradeteam. Physical distance was clearly not an issue at Broadmead, as all of the chains were participating in the collaboration with the full knowledge of their head offices, which, in the case of Mastershoe, was only a few miles away anyway. Supply chain distance was obviously also not relevant at all at Broadmead, as the very simple manufacturer-led supply chains did not have any significant upstream stages, and the collaboration was taking place very close to the final customer. Similarly with Tradeteam, the final delivery leg was part of the collaboration and thus, in theory, highly visible to the customer. The main issue here appears to be that distance is only important in highly developed and sophisticated supply chains, as discussed in the section on contextual issues above.

Distance, both physical and theoretical, appeared to be an issue for the major retailers but less so for smaller retailers and the brewers. By definition, distance along a supply chain can only exist in developed chains which contain multiple echelons, so the data on this variable can be combined with the contextual note on supply chain development to form the proposition that greater distance, or remoteness from the customer, can be an enabler to collaboration (and shorter distance an inhibitor) in sophisticated supply chains, but has less or no influence in simpler systems.

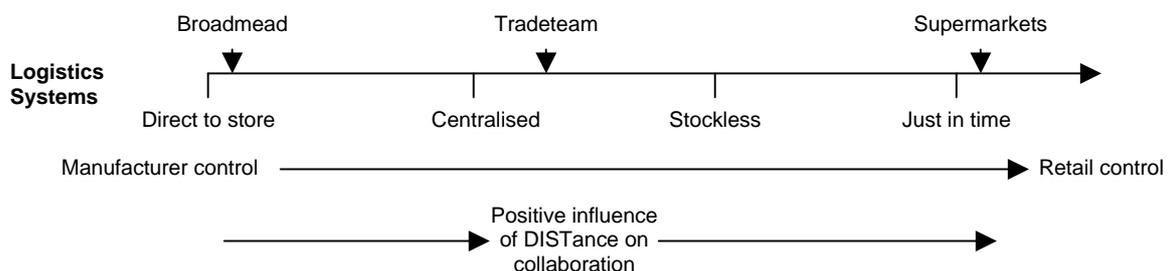


Figure 30: Distance from the consumer and from head office control is an enabler for collaboration

9.8 Service

The possible trade-off between logistics system costs and service levels to stores emerged from analysis of the data from the major retailer case study, albeit more markedly from the stronger players amongst the major firms. Asda place particular emphasis on store service, even where this meant that transport resources were sub-optimised. Among the weaker players, Somerfield and, perhaps surprisingly, Marks & Spencer acknowledged that stores might not always get the service they wanted in order to try and drive out costs and raise efficiencies.

Service levels were also held to be important in the Broadmead and Tradeteam cases, but appeared to be much less negotiable or variable. For the smaller retailers in Broadmead, service obviously had the potential to impact significantly on store performance, but the retailers were not generally able to influence it unduly and were certainly not in a position to make positive steps towards actively trading of cost and service. The fact that the collaboration in urban transshipment generally appeared to have delivered service improvements was welcome, but came as a largely unexpected benefit. When asked if this improvement was likely to be worth an increase in costs when the City Council support for the project finished, most acknowledged that this decision would rest with their head offices and would, therefore, be effectively out of their control.

The Tradeteam case had strong parallels with major retailers in the sense that service levels were seen as a necessary defence against customers switching supplier or outlet. However, there was no suggestion that service could be traded against cost, as was the case with at least of the some, major retailers. Reference was made to parity cost levels being established and thereafter, customer service was one of the key drivers for the continuing operation. In the contextual notes, the contrast was made against environments in which service can be traded against cost as opposed to those where service is non-negotiable. Whilst it is not argued that cost is more important than service to

major retailers, it is a more significant consideration than in the other two contexts. The fact that collaboration has occurred in these two contexts would support the proposition that such collaborations are more likely to take place in situations where service, rather than service balanced against cost, is a key driver of logistics strategy decisions.

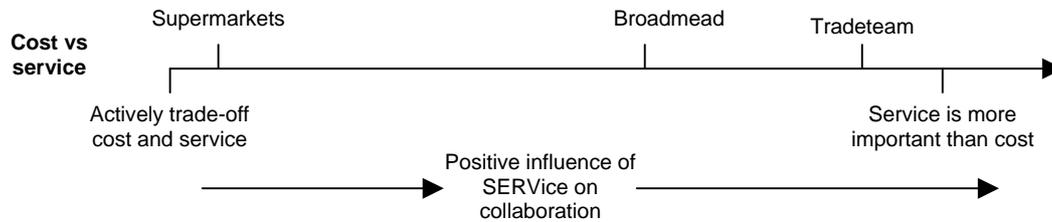


Figure 31: Greater emphasis on service over cost is an enabler for collaboration

9.9 Quality

This is the first of the seven variables for which there appears to be a common set of attitudes and perceptions across all three cases, even though these cases clearly represent logistics systems of very different levels of sophistication and thus perceived quality. The variable under examination, however, was how a firm measured or perceived the quality of its systems relative to those of its competitors, so relative quality compared to other markets or sectors is not relevant. The main point which was identified in all three cases was the relative amount of investment and return in the collaboration relative to that of its partners. In two of the three cases, there was a perception that the all participants needed to have parity of inputs and outputs in order for the collaboration to work. In the Tradeteam case, where it was noted that smaller regional players were being allowed to participate in the scheme, to which they would contribute relatively less than the bigger players and stand to gain more, the smaller regional players were not perceived as direct competitors, and there was an argument that the presence of these “specialist” providers complemented the offering of the major firms and this improved the overall market proposition.

Another point emerging from the major retailer data and subsequently supported in the Tradeteam case is that logistics innovations are easy to copy. Thus, a firm might gain temporary competitive advantage from some improvement in its supply chain systems but this is eroded over time. Eventually, all possible internal optimisation has been achieved and it is necessary either to accept that no further benefit is achievable or, alternatively, to look outside for synergies with other, possibly competing, firms.

These two value-related issues (acceptance that developmental gains are short-term only and that parity of investment and return are required) appear to be enablers in all situations and are thus not context-specific.

9.10 Strength

The trade-off between service and cost / price, which is rooted in traditional Porter-type models of competitive strategy, is referred to above in evaluating the role of attitudes to service as an enabler to collaboration. Later and more complex competitive models include that of co-opetition, which is based on the notion that collaborating competitors can enlarge the overall size of the market “cake”, rather than fighting over their relative shares of a fixed cake. This issue comes through strongly in two of the cases. The major retailers, operating in a highly price-competitive and saturated market place tended to use very aggressive, almost military language in their discussions. The market was described as a battlefield and competition as bloody and fatal. This is not the language of co-opetition: in supermarket retailing, one company’s gain is another’s loss. The inherent paradox of this was recognised by the most apparently aggressive player, Asda, who could understand the cost advantages of collaboration, which would have been consistent with their overall commercial strategy, but could not see past the immediate hostility to their competitors to unlock these benefits.

In contrast, the participants in Tradeteam talked of the need to develop as broad an offering as possible to the market-place, actively joining the products of different firms together to ensure that customers would not feel the need to switch suppliers.

In Broadmead, the “growing the cake” argument can be reinterpreted in the light of both the threat to the market overall arising from the new nearby out-of-town development, and also by the expected pressures from local and national government on getting private transport, and thus suppliers and customers, out of the city centre. Because of the specialised niche nature of most of these firms, strength relative to the other firms operating in the area was simply not an issue.

From the point of view of case context, therefore, both market structure and the nature of competition are relevant considerations. The food retail market is fairly finite in total size, although evidence suggests that the substantial growth may be possible in non-food areas, albeit at the expense of other specialised retailers from markets which were traditionally viewed as separate from grocery. In this sense, the major grocers’ market can still be seen as a “fixed cake” game. The brewery market is still developing and changing and the shape of the cake has yet to be finally determined. In Broadmead, there are no absolute limits to the size of the market and firms are not trading off each other in terms of market share. Competition in food retailing is essentially about the branding of the store, including its location and range. These inter-related matters can be summarised as infrastructure, and the systems with which the infrastructure is serviced. In the Tradeteam case, competition is about brands and not about the way in which those brands are delivered, or necessarily to where. The shops in Broadmead sit somewhere between these two extremes.

Perceptions of relative strength, therefore, will be an inhibitor to collaboration in “fixed cake” environments and will matter much less in growing or growable markets. Perceptions of strength will also be an inhibitor in contexts where the infrastructure and systems, rather than the products, are the differentiator.

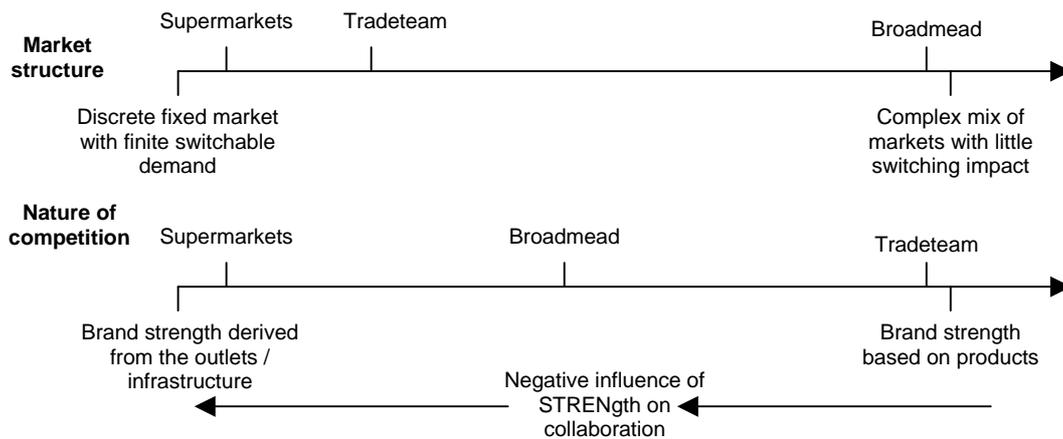


Figure 32: Perceived relative strength is an inhibitor to collaboration

9.11 Value

Perceptions of the contribution made to competitive strategy by logistics systems varied in across the three cases. Because of the scale of their total operations, all of the retailers believed that their systems were still capable of being improved and that, at the leading edge, each improvement might offer some sort of competitive advantage. If retailing is considered as an offering based on infrastructure, as discussed in the context of the nature of competition, then the perception that logistics systems are an integral part of the proposition is understandable if not defensible. The smaller retailers, however, with their unsophisticated supply chains over which they perceived themselves as having little control, did not see any commercial advantage in logistics system, which could be compromised through collaboration.

The Tradeteam data appears to support the contention that competitive advantage only arises ideas in logistics are essentially easy to copy, competitors will sooner or later all end up with similar systems. Having accepted this thinking, therefore, it is argued that competitors might as well pool their system as quickly as possible in order to concentrate on the real area of competition and, as discussed above, look at ways to grow the collective “cake”, or at least protect it from external threats.

This variation in attitudes to the value contribution of logistics are, like the distance variable, consistent with the context variable of supply chain development and sophistication, but in the opposite sense that movement towards sophistication will tend to increase the likelihood that perceived value will block collaborations. Greater value is attached to sophisticated supply chains by their owners, which has the tendency to act as an inhibitor to collaboration. On the other hand, the lower value attached by their owners to less sophisticated supply chains will tend to enable collaborations.

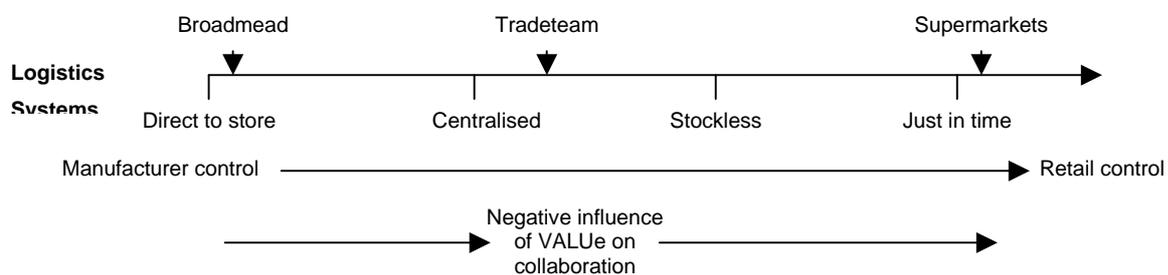


Figure 33: Perceived logistics competitive value is an inhibitor to collaboration

9.12 Contractors

Third party logistics contractors were present and being actively used in all three contexts. Obviously, in the Broadmead and Tradeteam cases, a third party contractor exclusively provided the supply chain activity which formed the basis of the collaboration. As discussed in the analysis and evaluation of the development of retail logistics systems in chapter one, contractors have formed part of the systems mix since the 1960's. There are various reasons for this, including defensive tactics against industrial action, availability of capital and requisite skills, all bound up in the recognised rationale of transaction cost economics. Given that the active presence of contractors in the major retailer context has not led to collaborations of the types seen in the other contexts can, other than perhaps in arms length closed book shared user operations, can to some extent be explained by the degree of control exercised over the contractor by the retailers. Amongst the Broadmead

respondents, there was no sense of having, or even wanting, any strong or direct control over supply chain activities. Delivery of goods to the stores was seen very much as a “black box” activity: a range of suppliers can offer the service and they are all more or less as good or as bad as each other as each other at providing it.

The brewers’ key rationale was about key competence: their strategy is based on competition through brands and the activities required to support this are best bought in from the relevant expert providers. However, a degree of control is exerted by the manufacturers and, certainly, in the first instance a joint venture was implemented, partly to deal with internal political issues but also to ensure that the service levels required were delivered operationally.

As seen with other variables above, the major supermarket retailers demonstrate a desire to control their supply chains very closely and therefore control any contractors operating therein. This includes not only issues of detail, such as livery, but also the ways in which operations might be integrated. Specific reference was made to the fact that it was desirable for contractors to work with a number of retailers, as this would deliver arms length closed book savings, which might be described as covert or inactive collaboration. The contextual analysis seems to suggest that, whilst the presence of contractors enables collaboration, the desire to control the detailed operations of those contractors is an inhibitor to collaboration. In this instance, the originally proposed definition of the variable (the mere presence of contractors) needs further qualification on the basis of the data: the salient issue is the degree to which contractors can be, or actually are, controlled by the contracting party.

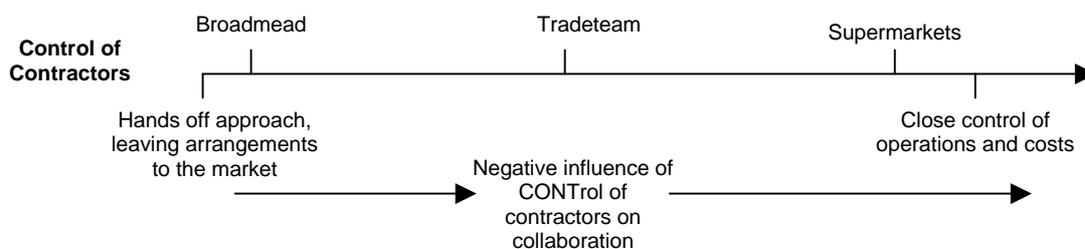


Figure 34: Desire for control over third parties is an inhibitor to collaboration

9.13 External Environmental Factors

The environmental variable is closely aligned to the whole external context, as discussed at the start of this chapter. At one extreme of the range of attitudes to environmental pressures are the major retailers, who see all the significant threats to their operations as being internal to their own market, rather than from the external environment. This is not to say that the supermarkets do not have strategies and policies to deal with environmental issues in the sense of sustainability of operations or impact of their activities on the environment (using the word in its more familiar sense). There are also legislative effects arising from these latter points, requiring, for example, the supermarkets to recycle waste packaging and reduce their emissions and consumption of non-renewable resources. However, all of these external influences are likely to have a similar impact on all players evenly, and therefore are not perceived as a competitive or operational threat per se. An adequate response to all of these matters can be developed and managed, with the more significant source of external threat perceived (currently) as coming from the competition. Arguably, this may change in the future. The current ground-swell of media opinion over the allegedly excessive market share of the majors and the possible abuse of power which may result, may grow into a shift in public opinion which Government may eventually have to respond to with further legislation.

In the brewing industry, such legislation has already been enacted and therefore a real external event has, to a large extent, been instrumental in promoting collaboration. Similarly, the Broadmead retailers shared two perceived common threats: traffic congestion in city centres (and possible local government over-reaction to it affecting their operations) and the loss of trade to an out-of-town shopping centre. In both cases, significant threats and the related opportunities, were perceived as coming truly from outside the nearby competitive environment and very much from the outside world. The external environment cannot effectively be controlled by these players and

these external effects therefore are seen to act as facilitators of inter-firm co-operation.

The extent to which business threats sit outside the market and cannot be easily controlled can, therefore, be a positive influence on collaboration.

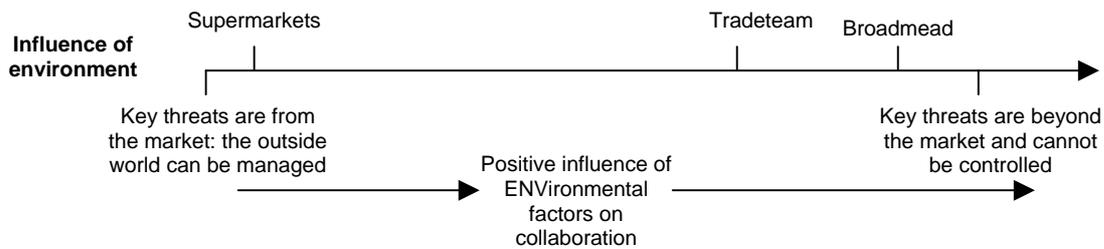


Figure 35: Perceived inability to manage the environment is an enabler for collaboration

9.14 Relationships between the variables

Based on this analysis, the inter-relationships of the seven key model variables can be summarised:

	Enabler	Blocker
DISTance	Distance from consumer in complex supply chains	Closeness to consumer in complex supply chains
SERVice tradeoff	Service-led ethos	Service traded off against cost
QUALity	Parity of gain / loss	Imbalance of gain / loss
STRENGTH	Product based competition in a flexible market	Outlet based competition in a finite, switchable market
VALUe	Unsophisticated supply chains under manufacturer control	Sophisticated supply chains under retail control
CONTRol of contractors	Hands off approach, controlled by the market	Policy of close control of operations and costs
ENVIRONMENT	Key threats outside market and cannot be controlled	Key threats within market and environment can be managed

Table 21: The role of seven model variables as enablers or inhibitors to collaboration

9.15 Conclusions from the cross-case analysis

It is self-evident that examples of horizontal supply chain collaboration between competing firms exist, just as the opportunity for such a collaboration appears not to have been taken in a context where history and current trends suggest that it should. The examples of application and non-application have been juxtaposed in an attempt to test the validity of a model for collaboration, based on a series of supply chain and contextual variables which might act as enablers or inhibitors under certain circumstances. This research was intended to be grounded in a single context then tested and critiqued in the light of experience from two other contexts. When the data from the three contexts is aggregated, it appears to suggest that the positive or negative effect of each of the supply chain variables can be seen to have a correlation with a contextual variable in all but one case. This two dimensional relationship between supply chain variables (distance, quality etcetera) and contextual variables (market structure, nature of competition) is an enhancement to the original model which has emerged as the research has progressed. The research suggests that the original model is still, of itself, robust and meaningful, but further dimensions will need to be developed in order to make the model more predictive.

- An increase in distance or remoteness of a supply chain activity from the arena of end competition (the final consumer) has a positive effect in the model, but obviously only in contexts where such distance can exist, specifically in more complex supply chains.
- The nature of the market-place has an impact on the service variable, service considerations more likely to influence collaboration in markets where high service levels might actually increase the overall market.
- Perceptions of relative quality of supply chains influence collaboration to the extent that they allow judgments on parity of investment and gain from collaborations to be made. Such perceived parity has a positive effect.

- Perceptions of competitive strength are a potentially negative influence in markets where the overall size is finite and thus gains are only made by encouraging switching. Relative strength is also a negative influence in markets where the differentiator is the outlet or infrastructure, rather than product branding.
- The value attached to a supply chain can be negative influence, particularly in more sophisticated chains which have tended to be controlled by the retailers
- The extent to which the supply chain owner is driven by wanting to have detailed control of operations and costs influences the extent to which the active presence of third party contractors in the market is a positive influence on collaboration.
- Attitudes to the environment and, specifically, whether strategic threats are deemed to come from within the market itself or from the outside world, apparently influence the extent to which the environment enables collaboration.

The original conceptual framework was used to set seven supply chain variables in a framework of potential influences on collaborations, as set out in figure 9 in chapter one.

This original model was developed after the first case to try and incorporate the existence of general contextual variables, together with a sense of scale, progress along which would seem to facilitate collaboration. The refinement was expressed as movement along the dimensions towards the centre of a series of concentric circles, as set out in figure 23 in chapter six.

A third representation can now be developed to combine the logistics system variables discussed and analysed with the contextual variables, influencing the positive or nature of the initial variables, which have emerged from the research. This representation takes the original seven model variables and adds to them as follows:

- The original ENVironmental variable is now split into the contextual variables NATURE, which considers the extent to which a firm can influence the external environment and SOURCE, which considers whether the key environmental threats come from within the immediate competitive market or beyond it. This allows for the contextual variable of external influences to be integrated.
- Three of the contextual variables are summarized as the nature of COMPetition within a market, the extent to which a firm takes a HANDS on or off approach to the close control of its contractors and the extent to which supply chains in a market have matured over TIME
- The fifth contextual variable – that of customer orientation in terms of service and cost – is included within the original SERVICE variable.

Thus the seven logistics system and five contextual variables are now combined into a single table of eleven potential variables. These are set out in table 22, with the original and new variables grouped. The ability of each variable to act as either facilitator or inhibitor is explained in each cell. For example, the effect of service is positive on collaboration in contexts where service is prioritised over cost. However, contexts where cost is more important than service tend not to encourage collaboration.

	Encourage	Discourage
9.15.1.1 Original Variables		
SERVice	Prioritise service over cost	Trade off service for cost
DISTance	Remote from customer	Near to customer
STRENGTH	Equal to or weaker than competition	Stronger than competition
QUALity	Equal to or poorer than competition	Better than competition
VALUe		Perception on added value
CONTRACTors	Active presence	
9.15.1.2 New Variables		
COMPetition nature	Competition by product brand	Competition by fascia brand
ENVironmental threat NATURE	Cannot be influenced or controlled	Can be influenced or controlled
ENV threat SOURCE	External to the market	Within the market
HANDS off / on	Cede close control	Retail operational control
TIME	Simple manufacturer systems	Complex retailer systems

Table 22: Revised table of the variables based on the cross-case analysis

The dimensions of these have been made consistent so that, for nine of them, their positive or negative influences on collaboration can be set out. The remaining two are not “balanced”, in the sense that one can act as an inhibitor but not an enabler, and the other can act as an enabler, but not an inhibitor. An alternative representation of the same relationships is given in figure 36.

	Encourage collaboration		Discourage collaboration
	Weaker than or equal to competitors	STRENGTH	Stronger than competitors
	Poorer than or equal to competitors	QUALITY	Better than competitors
	Service paramount	SERVICE	Trade off service against cost
	Activity remote from consumer	DISTANCE	Activity near to consumer
No perception of logistics added value		VALUE	Perception of value added by logistics
No contractor presence in the market	Contractors active in the market	CONTRACTORS	
	Based on product branding	COMPETITION	Based on infrastructure branding
	Cannot be controlled	NATURE OF ENVIRONMENT	Can be controlled
	External to the market	SOURCE OF THREATS	Within the competitive market
	Delegate control	CONTROL	Retain close operational control
	Immature, simple logistics systems	TIME	Developed, sophisticated logistics systems

Figure 36: Revised model of the relative influence of internal and external factors on collaboration

9.16 Validity of the model and analysis

Based on the data collected in this research, it is not possible to draw robust conclusions about the relative strength of influence of these variables within the model. This point will be discussed in the context of the limitations of the research and its findings and possible further specific research on this point will be proposed.

The design of this research included an analysis of the available methods and tools available, before concluding that a case-based approach would be used. The subsequent analysis of the data collected, with the patterns which have emerged as a result of this, has sought to substantiate that the selected variables accurately reflect the phenomenon under consideration, and that there is a validity to the overall construct of the research, as described by Yin. These quantum, relative influence and possible inter-dependence of these variables have then been considered in relation to the variability of contexts under consideration in order to try and posit causal relationships. Specifically, the presence (or absence) and scale of contextual variables have been used to try and explain the role of model variables as either enabler or inhibitor for collaborative operations, in order to try and address the need for internal validity within the research. It was not the intention that this model, and the research designed to test and enhance it, would be significantly generalisable. The phenomenon under consideration is very context-specific: the physical supply chains of retail organisations and it the explanatory model proposed is believed to be generalisable to the whole of this context. The extent to which consideration of this context alone puts limitations on the research, and how this issue might be dealt with, are considered shortly.

10 Summary and conclusions

Before drawing together and summarising the findings from each of the three case studies and trying to draw conclusions from them, this section begins with a review of the research process, including design and methods used. The findings can then be set in the context of the original review of the literature and resulting hypotheses to see how closely the end results match expectations, and what contribution this research makes to the existing body of work in the fields of retail logistics and supply chain management. The process concludes with lessons learnt during the project, together with analysis of the possible limitations of the research and issues which this might raise for further research.

10.1 Summary of the Project

The original research interest was driven by observation of UK grocery logistics, an area of operations described by various authors as being amongst the most efficient and innovative in the world. However, it was noted that all good ideas in logistics and distribution are fundamentally very easy to copy and, therefore, whilst some competitive advantage might be gleaned from such innovations in the very short term, in the longer run, competitors catch up and a set of best practices will tend to be universally applied by all players. This logic tends to suggest, therefore, that logistics systems offer no competitive advantage in the longer term and are therefore a suitable area of operations for collaborative working between competitors.

The key trends which characterised the development of the UK food retailing market, and the logistics systems supporting it, were concentration of market power into a handful of large firms, centralisation of infrastructures and the development of rapid cycle times and stockless “just in time” distribution. The next stage of the evolutionary process appears to be the migration of the

Efficient Consumer Response ethos across the Atlantic from the USA. Based on the notion of collaborative effort between competitors in areas of shared interest to serve the customer better and thus try and grow the market overall, some commentators noted that physical distribution, and transport in particular, might form such an area of mutual interest for UK retailers. Furthermore, the active presence of third party contractors in the UK market might provide a way to overcome organisational resistance and inertia in the pursuit of such co-operation.

Transaction Cost Economics was proposed as a framework to explain how contractors might enable collaboration, with recent models on the nature of competitive strategies, principally co-opetition, offered as an explanation of how shared operations might exist in competitive environments. This proposition was supported by findings from research on upstream supply chain activities in a number of different industry sectors in Sweden. Beyond this Swedish research, both an initial contextual review and then a more systematic review of the literature found that not only were there few examples of horizontal collaboration in practise, but also that very little more had been written on the subject following the pioneering work of Whiteoak and Fernie. This point was confirmed in an interview with Phil Whiteoak, conducted towards the end of the research process. He spoke of two attempts to instigate collaborations of the kind proposed by himself and John Fernie, using third party contractors to facilitate the process and provide the necessary IT. Both foundered for pragmatic reasons: one became simply too complicated technically and the other was over-shadowed by efforts across the industry to cope with the predicted technical problems associated with the new millennium: the so-called Y2K "bug". Whiteoak also offered the view that transport managers still tended to be too conservative to support such a change. He also expressed frustration at the extent to which retailers still appeared to want to control every single element of their own supply chains, as evidenced by factory gate pricing, rather than relinquishing control to allow the market to come up with more efficient shared solutions.

The original analysis of the literature and observations in the food retailing context were summarised in the three propositions, that distribution does not contribute to competitive advantage, its contribution is time and context specific and that, therefore, pooling might have an overall operational and commercial benefit. This suggested four gaps in knowledge, in terms of

- (i) enablers and inhibitors
- (ii) prerequisites
- (iii) measurement of benefits and
- (iv) the potential role of third parties.

Six hypotheses were set out to try and explain these gaps and develop a framework to explain where and how horizontal inter-firm collaborations might take place:

10.1.1.1 Enablers and inhibitors

1. Logistics collaboration between competitors is influenced by factors that either facilitate or obstruct co-opetition.

10.1.1.2 Prerequisites

2. Collaboration is more likely in the presence of external factors, such as resource shortages, legislation or social and environmental pressures.
3. Collaboration is more likely once a firm has exhausted all opportunities for internal optimisation within its own logistics systems.
4. The inclination to collaboration is influenced by the extent to which firms perceive they are in competition with potential collaborators.

10.1.1.3 Measurement of benefits

5. Collaboration is more likely where costs and benefits are clearly measurable and performance measures can be agreed.

10.1.1.4 Potential role of third parties

6. Active and intentional collaboration is more likely to take place when brokered by a third party, either operationally or in order to apportion costs and benefits.

These six hypotheses might be joined together into the two related questions: in the face of logic to support its existence, why do horizontal logistics collaborations not take place, and how might such collaborations be facilitated or blocked? A number of alternative research strategies were critiqued, with the conclusion that such “how” and “why” questions are generally best addressed using case-based methods. In this particular context, it was proposed that case research would provide a rich and thick picture of the organisational, commercial and strategic factors in play because of its suitability for the consideration of a complex, holistic situation, such as a complete supply chain or inter-firm relationship in a real life setting.

The UK grocery retail market was selected as the first case, not only because of its highly developed logistics systems and the establishment of a collaborative paradigm in the guise of ECR as discussed above, but also because of opportunistic considerations associated with access. Senior management contacts were initially identified with three of the top five supermarkets and, later, with two more. Interviews were conducted with these individuals and then, as some of the key issues and influencing factors began to be surfaced, some of the respondents were brought together for a joint discussion on the subject. All of the material collected was sent back to the respondents for review and, if necessary, veto or censorship, although this was not taken up. The data was manually analysed, using data and pattern codes developed as part of the case study protocol.

Seven separate dimensions or supply chain variables emerged from the analysis of the first case, some of which appeared to be more significant than the others in their roles as potential inhibitors or facilitators of collaborative effort. The initial conclusions of this first case were published in 2002.

The research programme was then suspended for three years, for personal and professional reasons. It was restarted by revisiting some of the original retail respondents and by identifying some new contacts, with a view to seeing if the retail context had changed significantly. These updated contacts confirmed it had not, but a review of the literature from the intervening period suggested that phenomena of interest were starting to occur in other contexts. Therefore, the model for potential horizontal collaboration which had been refined after the major retailer case was tested in two further contexts, where actual collaboration appeared to be taking place. Contacts were identified from the media, who in turn identified further contacts.

Both of the two examples of collaboration initiatives, at Broadmead shopping centre in Bristol and the Tradeteam brewery distribution operation, brought new dimensions to the seven proposed supply chain variables. Specifically, additional value was added to the proposed model in that both cases suggested contextual variables which affected not only the relative importance of the variables but also whether individual variables might have a positive or negative effect on the potential collaboration under certain circumstances. A case-based approach was selected to try and understand how and why certain phenomena were or were not occurring in selected logistics contexts. The three cases have not negated any of the propositions contained within the original framework and model but have, instead, built on each other to create a fuller possible explanation of the factors and issues influencing possible collaborations. The extent to which this model is still limited in its potential application is discussed later.

The literature review concluded that very little had been written about the potential for, and application of, horizontal logistics collaborations, particularly in specific industry contexts where historical trends suggested they might logically take place. The research was, therefore, exploratory in nature and was not intended to provide a robust and widely generalisable conclusion. Because of the contexts under consideration, large numbers of inter-

connecting cases supported by a great volume of interview data, were not available. Instead, the research design concentrated on depth of data in the major retailer case in the first instance, with the initial tentative conclusions then tested in two other contexts. Because of the relatively small number of cases and respondents, this research is prone to the pitfalls of case-based work as described by Yin: that it lacks rigour, that it is limited in scope and that it can take too long and become too large to be of value.

In order to address these potential weaknesses, it should be noted that:

- The proposed constructs were discussed with the respondents during their development and the conclusions were fed back to the respondents for comment as they were developed.
- The causal relationships between the variables and the contexts were developed as the second and third cases brought deeper insight to the first case.
- The model, constructs and variables were intended to be context-specific and thus only generalisable to a wider environment on the basis of further research.
- Care has been taken to archive all data collected, including tape recordings, full transcripts, interview notes and other material collected during the course of the research, together with diary notes. This provides an audit trail into the way in which the data has been built up as the framework for the model has developed.

Finally, to repeat a point made in the section on methodological design and considerations, this research was intended to be exploratory from the start. This research and its conclusions are intended to be set out as a tentative proposition which might yet grow into something more substantial and significant through further research by others.

10.2 Summary Findings

The initial proposition for this project was that horizontal collaboration in logistics between competing firms was a logical step in the evolutionary process that had seen supply chain management develop from earlier initiatives in physical distribution, and then logistics. This development was further under-pinned by the fact that, given the short term nature of logistics competitive advantage, logistics could be removed from the field of competitive strategy. It was proposed, therefore, that a set of factors could be described which would explain the circumstances under which such collaborations would, or would not, take place.

The data from the first case suggested seven variables which might offer such an explanation. These seven logistics variables were then enhanced with five environmental variables which would explain their relative strength and direction of influence.

The first hypothesis was that logistics collaboration between competitors is influenced by factors that either facilitate or obstruct co-opetition. The first two of these potential factors emerged from the literature and were reinforced by the case data. The distance of a supply chain activity from the end consumer was identified as being of significance in the research conducted into collaborations in the Swedish brewing and lining industries by Bengtsson and Kock, with the specific conclusion that some lower-level activities relating to empty beer kegs could be shared between competitors. The potential role of contractors as the “glue” in an ECR-enabled collaborative network was discussed by both Fernie and Whiteoak. These first two variables were then complemented by a further five which emerged from evaluation of the initial data in the major retailer case, and subsequently confirmed and developed in further conversations with those respondents. These can be summarised as organisational perceptions of their own worth and the worth and contribution of their logistics capability, when compared to other competing firms. This worth is expressed as the relative competitive strength or aggression, the

extent to which the service offering is compromised by costs, the extent to which logistics is perceived as adding to competitiveness and the extent to which threats and opportunities arising from the external environment can be controlled.

For this hypothesis to be proved, it is not necessary to establish an absolute causal link between each of these variables and an observed outcome, nor to attach some objective and measurable value scale to each variable. The research sought to try and describe the kinds of environment in which collaboration might or might not take place. The data shows a recognition of these factors and that their consideration is a topic of “live” debate among senior managers in these contexts. The hypothesis could be said to be proven by the fact that these posited variables can be used to explain the differences between actual implementations (Broadmead and Tradeteam) and the non-implementation in food retailing. For example, food retailing tends to be more cost-driven, with more sophisticated supply chains and a relatively fixed competitive environment, in which one player’s gain is another’s loss. The food retail market is characterised by aggression between players and by a general desire to control all matters of detail.

In fact, the research suggests it is possible to go further and not only establish the existence of these factors, but also to bring into consideration some evaluation of the contextual environment and use this to determine the scale and positive and negative impact of each variable. Again, the variables suggested have been drawn from an analysis of the data as well as reflection on the context. These contextual, or explanatory, variables have a resonance with the logistics and organisational variables. For example, notions on the attitudes towards competition by a retail firm are bound up in the competitive structure of the market place. Similarly, attitudes to the value of a logistics system will be bound up in the logistics structures inherent in a particular market. In summary, seven logistics system and five contextual variables have been identified which will exert an influence to facilitate or inhibit collaboration. In their short-hand form, the potential relationships between these influencing factors can be summarised in a table.

		Logistics system variables						
		DIST	SERV	QUAL	STREN	VALU	CONT	ENV
Contextual variables	Logistics system maturity							
	Market prone to switching							
	Basis of branding							
	Importance of service							
	Threat from environment							

Table 23: Potential relationships between influencing factors

An alternative perspective is that these variables can be combined into a single array of eleven inter-acting variables, as described in chapter nine.

The second hypothesis, that collaboration is more likely in the presence of external factors, such as resource shortages, legislation or social and environmental pressures, was a sub-set of the first hypothesis. Having established the existence of the factors influencing collaboration, consideration is then given to which of these factors are outside the organisation. Although reference was made to numerous potential external influences, such as driver shortages, fuel prices, road tolling and other legislative restrictions on road transport, none of the respondents in any of the cases ascribed high level of concern to any of them. The general response was that, given a reasonably level playing field, all parties would have to deal with these issues on a common basis. However, one of the contextual variables which emerged was the extent to which firms believed they could exert some kind of control over the external environment. At the more aggressive end of the range in this respect were some of the major retailers, who suggested that their interest in environmental matters was largely limited to controlling public perceptions of their actions and intentions through the media. At the other extreme were small retailers, who perceived threats

coming from new outlets, and the brewers, who had determined to restructure their industry in response to legislative developments.

The data, therefore, supports the existence of general factors which might inhibit or facilitate collaboration, but does not appear to support the contention that the presence or absence of any particular external environmental factors will make collaboration any more or less likely. What appears to be of significance is the extent to which the external environment overall is perceived as important and the extent to which the firm believes it can control it.

That said, it is still possible that the external issues perceived so far have simply not been significant enough to overcome other organisational or competitive barriers and lead to defensive collaborations in response. For example, fuel prices were seen as a major public and commercial concern in 2001 and might have been expected to prompt a rush of initiatives to share transport resources in order to minimise empty running and achieve maximum fuel usage. In fact, it appears that the public have got used to the idea of high fuel prices, not only for their own vehicles, but also in the impact that raw material costs might have on the prices of consumer goods on the shelves. Similarly, the shortage of new drivers entering the industry was seen as being potentially very significant three or four years ago, with some sources talking about national shortages of more than 80,000 drivers. However, following the accession of Eastern European countries to the EC, there has been an influx of immigrant drivers to the market and it seems that the issue is now less important, for the time being at least. So, if the second hypothesis is unproven, this may just be because the industry sectors under investigation have yet to suffer an environmental impact of sufficient size to merit a change in behaviour or thinking.

The third hypothesis, that collaboration is more likely once a firm has exhausted all opportunities for internal optimisation within its own logistics systems, refers to the concept of logistics only contributing to competitive advantage at the leading edge of development and change. As noted in the

early stages of this work, logistics innovations are generally easy to copy and thus tend to be universally adopted once proven by the early adopters. Examples from recent decades include the move to centralised distribution, the implementation of multi-temperature composite warehouses, store picking “by line” on receipt and increases in cycle times based on just-in-time order and delivery. Some of these initiatives were facilitated by technology and thus can be seen as ideas whose time had come. Interestingly, within the context of food retailing, it has not always been the same players who have been the innovators. For example, as discussed earlier, Sainsbury were among the first to move to centralised warehousing, but among the last to introduce composite depots. Some firms have tended not to be the innovators, but have chosen instead to watch and wait for best practise to emerge: Asda were the last of the major retailers to embrace centralised distribution, for example, and were thus able to jump more or less straight to the composite, stockless model.

The evaluation of this hypothesis has become wrapped up in the consideration of logistics system sophistication as a contextual or environmental variable. As discussed above, the relative sophistication of supply chains appears to be a defining characteristic of some market sectors. In order to compete in major food retailing, it is necessary to invest in centralised systems and infrastructure, whereas in smaller outlet general leisure retailing, this is significantly less important. With the competitive offering in food retailing having been built on range, availability and cost, there has been constant pressure on systems innovation. This process has not yet been exhausted, and there are still initiatives in hand in, for example, primary transport integration, factory gate pricing, electronic track and trace and paperless trading. Whilst these initiatives are being rolled out by some, and then perhaps all, of the players, then there is arguably as much to gain in efficiency by concentrating on internal developments, rather than facing up to the organisational difficulties of collaborating with competitors.

The third hypothesis appears to be supported by the data. The major retailers still appear to be pursuing opportunities for enhancing their own systems,

whereas in those sectors where the systems are less sophisticated, firms are less able to look for internal opportunities and therefore, perhaps, more disposed to look favourably on external opportunities. The major retailers did not believe that they had exhausted all potential for generating their own cost savings and efficiency improvements. On the other hand, the Broadmead retailers recognised that they had little or no control over their supply chains and could not, therefore, deliver efficiency improvements in their own right. The major brewers recognised that the pursuit of purely internal efficiency gains might actually get in the way of what their market was looking for, in terms of a full service drawing a number of competing suppliers together.

The fourth hypothesis stated that the inclination to collaboration is influenced by the extent to which firms perceive they are in competition with potential collaborators. This was one of the strongest themes to emerge from the food retailing case, with all the language of aggression and war coming through strongly and frequently. This was developed into two specific variables within the coding of the data: the extent to which firms perceived their competitive strength, and the quality of their logistics systems relative to their nearest competitors. The relative strength of influence and positive or negative effect of these variables was in turn described as being influenced by the overall structure of the specific market context and the prevalent sophistication of the logistics systems in that sector. In language borrowed from some of the more recent theories on competitive strategies, specifically co-opetition, the main influencing factor for the importance of competition to potential collaboration appears to be the “fixed pie” argument. Proponents of co-opetition describe traditional competitive models, from Porter onwards, as being all about firms fighting for their respective share of a fixed pie, or finite market. One of the key arguments under-pinning co-opetition is that such collaborative efforts can actually grow the size of the market overall, to the benefit of all players therein.

In this sense, the food retail market is seen very much as a fixed pie, with one firm’s gain representing another firm’s loss. This tends to encourage war-like language and the resulting atmosphere of aggression is clearly not conducive

to collaboration. On the other hand, the Broadmead retailers by and large did not see themselves as competitors. Whilst there may be some examples of direct competition between stores, money spent in one store in Broadmead cannot be easily or directly correlated with a pound not spent in another store. Indeed, the actual collaboration at Broadmead was cited as part of a range of measures to try and deal with the threat posed by a nearby out-of-town shopping centre. This could be viewed as, if not actually growing the competitive pie, at least collectively trying to avoid it being eaten by someone else.

Some of the elements of the relationships between the brewers in the Tradeteam case were even more complex. As part of the full-range ethos, which meant that each supplier has to offer potential customers a complete selection of available brands and products, even where these are manufactured by competitors. In practise, this meant that Coors were holding stock of InBev products and vice versa, to the extent that Tradeteam were trying to broker talks about joint, shared stock, albeit to limited effect. The brewers were clear that competition was based on the brands, not the infrastructures and systems.

The findings support the notion that there is more than one view of what constitutes competition within a given market. The originally posited logistics variable dealing with aggression or relative strength has therefore linked with a contextual variable on the nature and structure of competition within a given market. The data shows how some firms might be considered competitors when others are not and, in general, supports the hypothesis that collaboration is more likely between firms who do not perceive a direct competitive threat.

The fifth hypothesis, that collaboration is more likely where costs and benefits are clearly measurable and performance measures can be agreed, was based on the notion that some inter-firm benchmarking of costs and operational quality would emerge early in the research, allowing objective comparisons to be made between competing supply chains. An attempt was made in the early

stages of the research to attempt to model average distribution costs for the major food retailers, based on statistical information already in the public domain and estimates of key performance indicators. The results, which were discussed earlier, were then shared with some of the early respondents in an attempt to validate them and try and develop some non-contentious inter-firm comparisons. However, it became clear very early in the food retailer case that this information was regarded as highly sensitive and would not, therefore, be able to be shared in any form as part of this project. The food retailers clearly demonstrated that their costs are closely measured and managed and that benefits accruing from change would thus be measurable, but this did not make inter-firm collaboration any more likely to happen.

On the other hand, in the relatively unsophisticated supply chains of the smaller general retailers in Bristol, there was little visibility of, or close control of, logistics costs at store level and this did not appear to be either enabler or inhibitor to the collaborative effort. The whole rationale for the existence of Tradeteam was a change in the operating and commercial environment and arguably tracking the changes in costs and benefits during these structural changes might have been meaningless. In any event, the collaboration was underpinned by a perceived need to concentrate on core competences and improved market offering, rather than necessarily reducing costs.

The paradox, therefore, appears to be that where costs (and presumably) benefits are able to be measured most actively and accurately, collaboration has not taken place. Collaborations have, however, been implemented both where costs cannot be measured accurately and where they do not appear to be the prime motivator for the collaboration. As such, the hypothesis appears not to have been helpful in developing a model for future collaborations.

The one point of some relevance in this respect which did emerge from this study is the importance attaching to parity of investment into, and return from, any possible collaborative effort. It was held to be important that parties to a collaboration should generally have as much to gain or lose as the other

parties in order for the venture to proceed. This parity clearly implies some kind of measure, perhaps in terms of current costs and of future benefits, but the point was not developed further. There is no suggestion that, in further cases, the need for clear cost measurement, target setting and apportionment of benefits might assume greater importance. However, in the three contexts studied, no strong influence appears to have been exerted either way by this factor.

Finally, the sixth hypothesis suggested that active and intentional collaboration is more likely to take place when brokered by a third party, either operationally or in order to apportion costs and benefits. The role of contractors has already been discussed at length, latterly in the context of it being one of the important environmental variables. The potential for further logistics collaborations to be facilitated by contractors not only accords with the original assertions of Fernie and Whiteoak, which formed part of the rationale for this research, but are also now enshrined in some of the strategic intentions of Exel. This contractor, having developed a commercial and operational model in the general retail and brewing sectors is now seeking opportunities to apply it in other market sectors, specifically hotels, leisure and catering. At the outset, it was hoped that examples of direct, active collaboration between competitors, without the intervention of a third party, might be revealed. In the food retailing case, the retailers talked directly about the possibility of sharing trains from Spain to import goods and about upstream supply chain collaborations, like common format unitisation trays, bar codes and EDI standards.

However, the organisational barriers to direct collaboration among food retailers appear to be too great to overcome, due to the structure of the market and the nature of the competition within it. Whilst these were not precisely the kinds of issues considered by Fernie (1999) when he proposed the use of third parties, the data shows that some kind of external facilitation is likely to be required to stimulate joint working. Fernie points out that, although contractors were active in the food retailing sector at the time, there was still a predisposition on the part of retailers to retain some or most activities in-

house, on the basis that they wished to retain close and detailed operational control. This desire for control appears to be consistent with the application of transaction cost economics arguments to this particular make-or-buy decision: there are often significant sunk costs in the assets and skills associated with logistics systems and therefore a preference to retain these within the organisation. Areas with lower asset-specificity, such as transport operations, are more likely to be managed in the open market at arm's length.

The desire and need to control the external environment has been discussed as an important contextual influence, particularly in the food retailer case. This sixth hypothesis, therefore, appears to be borne out by the Broadmead and Tradeteam cases, where the contractor has been highly active in facilitating the collaboration. However, the food retail case suggests that the hypothesis needs to be modified to take account of the extent to which the contractor can be proactive in bringing ideas and developments to their customers – the potential collaborators – or the extent to which they are merely passive recipients and enactors of the retailers' own strategies.

The six original hypotheses were developed into a model framework for understanding the potential for collaboration, based on experience drawn from the first case. This initial model went through two further iterations during subsequent cases to arrive at the model which was presented as part of the conclusions of the cross-case analysis. This attempts to show how the relative strength and direction (positive or negative) of six company / logistics variables will be influenced by six environmental variables, to try and explain circumstances under which horizontal collaboration in logistics might take place between competing companies.

10.3 Limitations and Contribution

The literature on the logistics developments in the context of UK food retailing, supported by detailed observations of the operating environment, suggested that logistics collaborations between competitors were a logical evolutionary phase, as yet only achieved in practise in limited sense. Attempts to explain this apparent paradox reveal the following gaps in knowledge, which this research attempts to address:

- What are the factors that either facilitate or obstruct horizontal collaboration in logistics between competitors? The research has concluded with the proposition of a model constructed with six “logistics system” variables and six environmental variables, which attempt to explain where horizontal collaborations will be both appropriate and feasible.
- What are the prerequisites for successful horizontal collaboration across supply chains? This point is also addressed by the proposed collaboration model.
- What are the potential benefits of horizontal collaboration and how these might be apportioned? This point has not been drawn out of the research, because it was not possible to explore the associated benchmarks costs and metrics associated in the sensitive contexts under investigation. Again, this might provide a useful area for further research in a context where comparative cost and performance data between competitors is not regarded with as high a degree of sensitivity.
- What are the potential different types of horizontal collaboration: for example, direct collaboration versus indirect participation in schemes administered and operated by third parties? The potential value of third party providers, acting as brokers, to provide the “glue” for further ECR solutions was described by Fernie and is supported by the findings here, with a qualification about the extent

to which prospective partners might want to retain detailed operational control of their contractors acting as a limiting factor to collaborations.

This work is context-specific and there was no intention to triangulate any of the results in other contexts. Furthermore, in any qualitative research, there is clearly the danger of there being a difference between stated and espoused attitudes and perceptions, with respondents giving answers either to project a desired image or to somehow give the answers they believe the questioner wants to hear. This issue, together with that of potential researcher bias, can be addressed by repetition of the interview process with a view to searching for inconsistencies in response and by triangulation of responses with data from other sources. However, the research was intended to be exploratory, in that possible insight into the circumstances surrounding logistics collaborations was sought, rather than some definitive explanation of how and when such collaborations would succeed and with what effect. To that extent, the research has been successful in that it has enabled the proposition, testing and development of a tentative model to explain why collaborations take place in some circumstances and not in others. As such, the intention was to develop those themes on the possible contribution of logistics and distribution to ECR initiatives in UK food retailing, as discussed by Fernie, Whiteoak and others, rather than attempting to provide some new and universal over-arching theory to underpin future developments in logistics.

Furthermore, the research only specifically considered the physical distribution components of warehousing and transport. It may be that other supply chain activities (for example inventory management, procurement, reverse logistics or communications systems) may provide equal or more valid opportunities for looking at the concept of non-competition. These might all provide fruitful areas for further related research.

A further limitation of the research was the relatively small number of cases included in the design and, within the cases, the number of contacts identified. To a large extent, both limitations are simply effects of the chosen context: in

a highly concentrated market, there are now only a small number of meaningful players active in UK food retailing and the numbers of contacts within the logistics operations of those firms with sufficient authority and experience to contribute meaningfully to the research is small. The opportunity to pursue “rich and deep” insights into the perceptions and attitudes of those firms and respondents revealed useful data for dealing with responses to “how” and “why” questions. As a result, widespread sampling across the context was not only impossible and, provided that the sample taken actually reflects the context, would not necessarily have added any more value.

As previously discussed, it was also not intended to conduct three in-depth cases in sequence, of equal size and substance. Having carried out a great deal of work in the food retailing context, the subsequent cases were intended to start to test the validity and boundaries of the model and theory developed, not to start again with new models for new contexts.

As stated earlier, the contribution of this research is not intended to be in the areas of supply chain simulation or in reappraisal of retail strategy. Rather, it lies in two areas:

- to offer a perspective on competing supply chains that allows for the sub-division of chains into elements which contribute to competitive advantage and those which do not.
- to offer an alternative to current thinking on vertical integration within supply chains, with horizontal integration explored in its place.

Of the six hypotheses set out to explore the gaps in knowledge and understanding described at the outset of this research, five appear to have had sufficient validity as to have contributed to the development of dimensions and variables of a model to explain possible horizontal collaborations. Furthermore, on the basis of the research to date, albeit in just three specific contexts, a sixth hypothesis has added value to the extent that a clear understanding of costs does not, of itself, appear to enable collaboration.

This research has, therefore, largely achieved its aims in addressing perceived gaps in knowledge on horizontal logistics collaborations. Factors that either facilitate or obstruct horizontal collaboration across supply chains have been identified and the contextual circumstances which might affect their importance and positive or negative influence developed into a model. The prerequisites for successful horizontal collaboration across supply chains have been explored and included in the proposed model. Whilst it has not been possible to quantify the benefits of horizontal collaboration and determine how these might be apportioned, the need for parity of investment and benefit has been identified. Direct, active collaboration between competitors appears to be more difficult to enact than indirect participation in schemes administered and operated by third parties.

Finally, it is worth returning not only to the original context and phenomenon of interest, but to a specific detail. Having said that the findings are not necessarily generalisable to a wider population or other contexts, it should be remembered that a key research interest was the lack of implementations of horizontal collaborations in the field of food retailing, against the specific background of the roll-out of Efficient Consumer Response. ECR has been an enabler for developments in common standards and platforms in other areas of the supply chain, such as planning and forecasting, demand management and upstream supporting technologies such as bar-code formats, electronic data interchange (EDI) standards and unitisation equipment, such as pallets and plastic crates. The research was grounded in the food retail context with firms who are all participants in ECR initiatives to various degrees. The findings, therefore, ought to be generalisable back to these contexts: what enabling work ideas into new areas, such as transport optimisation, and how can this kind of thinking be extended into other food retailing firms who have not, as yet, embraced the concept. This research and its findings has the potential to make a contribution by being applicable back into both these areas.

10.4 Opportunities for further research

The discussion around the findings from the data and the conclusions drawn from them identified four areas in which the exploratory work under consideration here might be enhanced by further research.

Firstly, the initial context, that of food retailing, was carefully and deliberately chosen because of its highly developed logistics systems and other vertical collaborative activities under the umbrella of Efficient Consumer Response. The Broadmead and Tradeteam contexts were selected, to some extent opportunistically, as being closely enough related to the first context as to allow for some connections and comparisons to be made in order to test the constructs developed from the first case. This context specificity has allowed for full consideration of the relevant issues in positing a model for logistics collaboration. An opportunity exists, therefore, to add further value to this research by applying the collaboration model to other contexts, either to confirm that it is more generalisable, or to develop it further to make it more generalisable, either by changing or adding to the variables.

Because of the specific contexts upon which it is based, the research was exploratory in nature and the findings and proposed model are, to some extent, tentative. As well as allowing for more general applications, testing of the model in different contexts, or further examples of similar contexts, will allow the research to become less tentative and more robust. It should also be remembered that some years have now passed since some of the original food retail data was collected, and that it may be worthwhile, therefore, to introduce a longitudinal element to the study, to establish whether the influences and variable factors within this single context remain the same. If a close duplication of results could be achieved in a single context over time, this might add significantly to the value of the model.

Thirdly, one of the original intentions of the research was to try and reveal some comparative benchmarking data on competing supply chains, to bring

an objective element to the contention that parallel supply chains will all tend to achieve similar cost and performance standards once best practise has been adopted. This was not possible within the framework of the research design selected, as the necessary data was viewed as too sensitive to be shared by the respondents. The desk research in anticipation of the first case provided some useful insights, but any opportunity for further research to uncover actual data to the extent that parity of costs and service could be confirmed would, again, add value.

Finally, although the general research interest was in competing supply chains, the work focused on the narrower spectrum of physical distribution activities, specifically warehousing and transport. There is some evidence of collaboration in other supply chain activities, such as bar codes and communication standards, which would certainly seem to support the “distance” argument. The model in its final proposed form is sufficiently general as to be able to be tested in the sphere of these other, potentially collaborative, supply chain operations.

10.5 A final word

One of the key issues with case study research and therefore a problem common to many researchers is that of access to suitable respondents and business activities. In this case, it was knowledge of existing contacts and close operational familiarity with the context that first raised interest in the phenomenon under investigation: to some extent, in other words, access came first and the research came later. This situation brings with it issues of potential bias, not only in the interpretation of the results and resultant conclusion, but also in the design of the research itself. This potential bias was recognised from the outset and, therefore, each decision and conclusion was challenged thereafter. No apology is made for this closeness to the subject matter and, hopefully, the outputs of the research are richer and more informative to academics and practitioners in the field as a result.

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12 Appendix 1 – Results of the systematic literature review

12.1.1.1 Application of all search terms

returned just three papers:

Collaborative planning, forecasting and replenishment: a case study in copper clad laminate industry. By: Chung, W. W. C.; Leung, S. W. F.. Production Planning & Control, Sep2005, Vol. 16 Issue 6, p563-574, 12p

Do Suppliers Benefit from Collaborative Relationships with Large Retailers? An Empirical Investigation of Efficient Consumer Response Adoption. By: Corsten, Daniel; Kumar, Nirmalya. Journal of Marketing, Jul2005, Vol. 69 Issue 3, p80-94, 15p

International Comparisons of Supply Chain Management in Grocery Retailing. By: Fernie, John. Service Industries Journal, Oct95, Vol. 15 Issue 4, p134-147, 14p

The separate “logistics collaboration” and “grocery collaboration” searches

yielded a combined total of 11 papers:

Do Suppliers Benefit from Collaborative Relationships with Large Retailers? An Empirical Investigation of Efficient Consumer Response Adoption. By: Corsten, Daniel; Kumar, Nirmalya. Journal of Marketing, Jul2005, Vol. 69 Issue 3, p80-94, 15p

Profits in the Pie of the Beholder. By: Corsten, Daniel; Kumar, Nirmalya. Harvard Business Review, May2003, Vol. 81 Issue 5, p22-23, 2p

Value-adding partnerships and co-opetition models in the grocery industry. By: Kotzab, Herbert; Teller, Christoph. International Journal of Physical Distribution & Logistics Management, 2003, Vol. 33 Issue 3, p268, 14p

International Comparisons of Supply Chain Management in Grocery Retailing. By: Fernie, John. Service Industries Journal, Oct95, Vol. 15 Issue 4, p134-147, 14p

Grocery Industry Collaboration in the Wake of ECR. By: Frankel, Robert; Goldsby, Thomas J.; Whipple, Judith M.. International Journal of Logistics Management, 2002, Vol. 13 Issue 1, p57-71, 15p

BENEFITS OF INTERFIRM COORDINATION IN FOOD INDUSTRY SUPPLY CHAINS. By: Stank, Theodore; Crum, Michael; Arango, Miren. Journal of Business Logistics, 1999, Vol. 20 Issue 2, p21-42, 22p

Hanging Together. By: Hoffmann, William. Journal of Commerce (15307557), 10/3/2005, Vol. 6 Issue 40, pL-10-L-12, 3p

The Collaboration Network. By: Cuthbertson, Richard; Collet, Francois. European Retail Digest, Dec2001 Issue 32, p7, 5p

Enterprise Logistics in the Information Era. By: Greis, Noel P.; Kasarda, John D.. California Management Review, Summer97, Vol. 39 Issue 4, p55-78, 24p

Sweeping changes in distribution. By: Heskett, James L.. Harvard Business Review, Mar/Apr73, Vol. 51 Issue 2, p123-132, 10p

The Impact of Supply Chain Partnerships on Supplier Performance. By: Duffy, Rachel; Fearne, Andrew. International Journal of Logistics Management, 2004, Vol. 15 Issue 1, p57-71, 15p

13 Appendix 2 – Results of systematic literature review (2)

13.1.1.1 The second run of the first iteration

pilot search (Collaboration / Cooperation between competitors in food / grocery / ECR), without necessarily containing any reference to Logistics, produced 87 references, of which just six were relevant (included in appendix 1).

15 were discounted, as being solely concerned with vertical integration, or collaboration and cooperation across echelons within a single supply chain.

Collaborative planning, forecasting and replenishment: a case study in copper clad laminate industry. By: Chung, W. W. C.; Leung, S. W. F.. Production Planning & Control, Sep2005, Vol. 16 Issue 6, p563-574, 12p

A Perspective on UK Supermarket Pressures on the Supply Chain. By: Towill, Denis R.. European Management Journal, Aug2005, Vol. 23 Issue 4, p426-438, 13p

Supply Chain Collaboration: Making Sense of the Strategy Continuum. By: Holweg, Matthias; Disney, Stephen; Holmström, Jan; Småros, Johanna. European Management Journal, Apr2005, Vol. 23 Issue 2, p170-181, 12p

Logistics-production, logistics-marketing and external integration: Their impact on performance. By: Gimenez, Cristina; Ventura, Eva. International Journal of Operations & Production Management, 2005, Vol. 25 Issue 1, p20-38, 19p

The Kaleidoscope Principle: A new view on collaborative CRM. By: Messenger, Steve. European Retail Digest, Winter2004 Issue 44, p7-13, 7p

Unveiling Enablers and Inhibitors of Collaborative Planning. By: Barratt, Mark. International Journal of Logistics Management, 2004, Vol. 15 Issue 1, p73-90, 18p

Positioning the Role of Collaborative Planning in Grocery Supply Chains. By: Barratt, Mark. International Journal of Logistics Management, 2003, Vol. 14 Issue 2, p53-66, 14p

The Effect of Collaborative Forecasting on Supply Chain Performance. By: Olson, John; Adya, Monica. International Journal of Forecasting, Jul2003, Vol. 19 Issue 3, p543-544, 2p

Implementation hurdles of ECR partnerships--the German food sector as an ECR case study. International Journal of Retail & Distribution Management, 2002, Vol. 30 Issue 7, p354, 7p

A Close Up View of Global Supply Chains. By: Islei, Gerd; Becker, Johannes. European Retail Digest, Dec2001 Issue 32, p15, 7p

Internationalisation of The Nordic Grocery Market. By: Gjerset, Anne Bohle. European Retail Digest, Dec99 Issue 24, p26, 3p

Collaborative planning, forecasting, and replenishment. By: Williams, Scott H.. Hospital Material Management Quarterly, Nov99, Vol. 21 Issue 2, p44, 8p

Dependency in Manufacturer-Retailer Relationships: The Potential Implications of Retail Internationalization for Indigenous Food Manufacturers. By: Collins, Alan; Burt, Steve. Journal of Marketing Management, Oct99, Vol. 15 Issue 7, p673-693, 23p

Marketing strategy. Journal of Business & Industrial Marketing, 1995, Vol. 10 Issue 4, p17, 1/3p

RETAIL INFORMATION SERVICES. European Retail Digest, Spring95 Issue 6, p65, 7p

13.1.1.2 19 were purely descriptive texts

on retail history, many dating back to the 1960's or earlier:

Selling Self-Service and the Supermarket: The Americanisation of Food Retailing in Britain, 1945-60. By: Shaw, Gareth; Curth, Louise; Alexander, Andrew. Business History, Oct2004, Vol. 46 Issue 4, p568-582, 15p

COLLECTION AND DIVERSION OF FOOD RESIDUALS IN SOUTHWEST FLORIDA. By: Jamieson, Cory; White, Jesse; Ozorez-Hampton, Monica; Nutter, Jean; Thavarajah, Bernadette. BioCycle, Jul2004, Vol. 45 Issue 7, p32-37, 4p

Stocking the Store: Co-operative Retailers in North-East England and Systems of Wholesale Supply, circa 1860-77. By: Purvis, Martin. Business History, Oct98, Vol. 40 Issue 4, p55-78, 24p

Retail Food Cooperatives: Testing the 'Small Is Beautiful' Hypothesis. By: Cotterill, Ronald. American Journal of Agricultural Economics, Feb83, Vol. 65 Issue 1, p125, 6p

Cosmopolitan and Chauvinism in American Retail Trade. By: Hollander, Stanley C.. Journal of Retailing, Spring74, Vol. 50 Issue 1, p3, 6p

Consumer Food Buying Cooperatives--A Market Examined. By: Curhan, Ronald C.; Wertheim, Edward G.. Journal of Retailing, Winter72/73, Vol. 48 Issue 4, p28, 12p;

THE DEVELOPMENT OF THE RETAIL GROCERY TRADE IN THE NINETEENTH CENTURY. By: Blackman, Janet. Business History, Jul67, Vol. 9 Issue 2, p110, 8p

Self-Sufficiency: A Fixation in Corporate Supermarket Chains? By: Stern, Louis W.. Journal of Retailing, Spring66, Vol. 42 Issue 1, p18, 9p

The Supermarket--A Study of Size, Profits, and Concentration. By: Markin, Rom J.. Journal of Retailing, Winter64/65, Vol. 40 Issue 4, p22, 15p

MORTALITY OF SEATTLE GROCERY WHOLESALERS. By: Still, Richard R.. Journal of Marketing, Oct53, Vol. 18 Issue 2, p160, 6p

THE LOS ANGELES WHOLESALE GROCERY STRUCTURE: 1920-1946: A CASE STUDY. By: Cassady Jr., Ralph; Jones, Wylie L.. Journal of Marketing, Sep49, Vol. 14 Issue 2, p169, 9p

WAGES AND HOURS IN CONSUMERS' COOPERATIVES IN GREAT BRITAIN AND THE UNITED STATES. By: Miller, Glenn W.. Quarterly Journal of Economics, Feb41, Vol. 55 Issue 2, p294-305, 12p

Price Stabilization Attempts in the Grocery Trade in California. By: McHenry, Lorenzo Alva. Journal of Marketing, Oct37, Vol. 2 Issue 2, p121, 8p

TRENDS IN THE WHOLESALE GROCERY TRADE IN SAN FRANCISCO. By: Grether, Ewald T.. Harvard Business Review, Jul30, Vol. 8 Issue 4, p443, 8p;

COOPERATIVE RETAIL BUYING IN THE DRUG AND GROCERY TRADES II. By: White, Wilford L.. Harvard Business Review, Apr29, Vol. 7 Issue 3, p301, 11p

COOPERATIVE RETAIL BUYING IN THE DRUG AND GROCERY TRADES. By: White, Wilford L.. Harvard Business Review, Oct28, Vol. 7 Issue 1, p59, 9p

THE PRESENT STATUS OF WHOLESALE TRADE. By: Copeland, Melvin T.. Harvard Business Review, Apr28, Vol. 6 Issue 3, p257, 7p

CO-OPERATION AMONG RETAIL GROCERS IN PHILADELPHIA. By: Patterson, E. M.. American Economic Review, Jun15, Vol. 5 Issue 2, p279, 13p

DOCUMENTS AND REPORTS: Demography and Statistics. American Economic Review, Jun11, Vol. 1 Issue 2, p425, 2p

13.1.1.3 39 were purely technical

either from an IT, marketing, legal or economic perspective:

Retail Price Fixity as a Facilitating Mechanism. By: Richards, Timothy J.; Patterson, Paul M.. American Journal of Agricultural Economics, Feb2005, Vol. 87 Issue 1, p85-102, 18p

Channel collaboration and firm value proposition. By: Tuominen, Maui. International Journal of Retail & Distribution Management, 2004, Vol. 32 Issue 4, p178-189, 12p

INFORMATION GAMING IN DEMAND COLLABORATION AND SUPPLY CHAIN PERFORMANCE. By: Kefeng Xu; Yan Dong. Journal of Business Logistics, 2004, Vol. 25 Issue 1, p121-144, 24p

THE EFFECT OF PRICE PROMOTIONS ON VARIABILITY IN PRODUCT CATEGORY SALES. By: Raju, Jagmohan S.. Marketing Science, Summer92, Vol. 11 Issue 3, p207, 14p

A forecasting model to evaluate the profitability of price promotions. By: Rinne, Heikki; Geurts, Michael. European Journal of Operational Research, Feb88 First Issue, Vol. 33 Issue 3, p279-289, 11p

DOUBLE COUPONING: The Prisoner's Dilemma in Food Retailing. By: Varadarajan, P. Rajan. Business Forum, Winter86, Vol. 11 Issue 1, p4, 4p

Economies of Size and Performance in Preorder Food Cooperatives. By: Coflerill, Ronald. Journal of Retailing, Spring81, Vol. 57 Issue 1, p43, 22p

Linking Public Affairs with Corporate Planning. By: Fleming, John E.. California Management Review, Winter80, Vol. 23 Issue 2, p35, 9p

Can Ghetto Groceries Price Competitively and Make a Profit? By: Donaldson, Loraine; Strangways, Raymond S.. Journal of Business, Jan73, Vol. 46 Issue 1, p61-65, 5p

Inter-institution cooperation in distance learning. By: Mizell, Al P.; Carl, Diana R.. T H E Journal, May94, Vol. 21 Issue 10, p91, 3p

The Other Side of the Coin: The Impact of QWL Programs on the Union as an Organization. By: Cohen-Rosenthal, Edward. Labor Studies Journal, Winter84, Vol. 8 Issue 3, p229, 15p

Assessing the impact of e-business on supply chain dynamics. By: Disney, S.M.; Naim, M.M.; Potter, A.. International Journal of Production Economics, May2004, Vol. 89 Issue 2, p109, 10p

Business value of B2B electronic commerce: the critical role of inter-firm collaboration. By: Lee, Seung Chang; Pak, Bo Young; Lee, Ho Geun. Electronic Commerce Research & Applications, Winter2003, Vol. 2 Issue 4, p350, 12p

Retail exchanges: a research agenda. By: Leigh Sparks; Beverly A Wagner. Supply Chain Management, 2003, Vol. 8 Issue 3, p201-208, 8p

FORECASTS IMPROVE WITH SCANNER DATA: A SWEDISH GROCERY SUPPLIER'S JOURNEY. By: Larsson, Magnus. Journal of Business Forecasting Methods & Systems, Winter2002/2003, Vol. 21 Issue 4, p19, 4p

E-commerce and firm bargaining power shift in grocery marketing channels: A case of wholesalers' structured document exchanges. By: Nakayama, Makoto. Journal of Information Technology (Routledge, Ltd.), Sep2000, Vol. 15 Issue 3, p195-210, 16p

Viewpoint: E-commerce strengthens suppliers' position. By: Loughlin, Peter. International Journal of Retail & Distribution Management, 1999, Vol. 27 Issue 2/3, p69, 4p

CoverStory-- Automated News Findings in Marketing. By: Schmitz, John D.; Armstrong, Gordon D.; Little, John D.C.. Interfaces, Nov/Dec90, Vol. 20 Issue 6, p29-38, 10p

Online Shopping: Consumer Protection and Regulation. By: O'Neill, Barbara. Consumer Interests Annual, 2001 Issue 47, p1-3, 3p

A FEDERAL CASE. By: Dresner, Marcia. Financial Executive, May/Jun2000, Vol. 16 Issue 3, p33-36, 4p

The Right FIT. By: Shihadeh-Gomaa, Anne. Risk Management (00355593), Jan98, Vol. 45 Issue 1, p37-43, 6p

Technorisk Who's Responsible? By: Hughes, Maia L.. Risk Management (00355593), Nov97, Vol. 44 Issue 11, p20-24, 4p

BROKERS AT THE HELM Navigating the Risk Financing Frontier. By: Zarb, Frank G.. Risk Management (00355593), Jul95, Vol. 42 Issue 7, p53-58, 4p

Solutions for Agricultural Co-ops. By: Kehl, Joyce. Risk Management (00355593), Jun94, Vol. 41 Issue 6, p33-33, 2/3p

LEGAL DEVELOPMENTS IN MARKETING. By: Werner, Ray O.. Journal of Marketing, Apr71, Vol. 35 Issue 2

How Housewives Form Price Impressions. By: Oxenfeldt, Alfred R.. Journal of Advertising Research, Sep68, Vol. 8 Issue 3, p9-17, 9p

PRICE DIFFERENCES FOR IDENTICAL ITEMS IN CHAIN, VOLUNTARY GROUP, AND INDEPENDENT GROCERY STORES. By: Oakes, Ralph H.. Journal of Marketing, Oct49, Vol. 14 Issue 3, p434, 3p

MERCHANDISING THE ADVERTISING CAMPAIGN. By: Moses, Lionel B.. Journal of Marketing, Oct44, Vol. 9 Issue 2, p124, 3p

CONDUCTING SALES TESTS. By: Burgoyne Jr., John. Journal of Marketing, Oct44, Vol. 9 Issue 2, p158, 2p

PAMPHLET MATERIALS. Journal of Marketing, Jul40, Vol. 5 Issue 1, p83, 7p
Evaluating Community-based Nutrition Programs: Assessing the Reliability of a Survey of Grocery Store Product Displays. By: Cheadle, Allen; Psaty, Bruce; Wagner, Edward; Diehr, Paula; Koepsell, Thomas; Curry, Susan; von Korff, Michael. American Journal of Public Health, Jun90, Vol. 80 Issue 6, p709, 3p

The Effect of Nutrition P-O-P Signs on Consumer Attitudes and Behavior. By: Achabal, Dale D.; McIntyre, Shelby H.; Bell, Cheryl H.; Tucker, Nancy. Journal of Retailing, Spring87, Vol. 63 Issue 1, p9, 16p

REGIONAL ROUNDUP. BioCycle, Sep2005, Vol. 46 Issue 9, p18-21, 4p

GROCERY CHAIN PLUGS INTO COMPOSTING. By: Goldstein, Nora. BioCycle, Oct2001, Vol. 42 Issue 10, p48, 1/4p

Effects of Service and Communication Initiatives on Retail Grocery Consumers' Loyalty. By: Piron, Francis. Singapore Management Review, 2001 2nd Half, Vol. 23 Issue 2, p45, 16p

GAME THEORY AND EMPIRICAL GENERALIZATIONS CONCERNING COMPETITIVE PROMOTIONS. By: Rao, Ram C.; Arjunji, Ramesh V.; Murthi, B. P. S.. Marketing Science, 1995 Part 2 of 2, Vol. 14 Issue 3, pG89, 12p

A Comparative Performance Analysis of New Wave Food Cooperatives and Private Food Stores. By: Schiferl, Elizabeth A.; Boynton, Robert D.. Journal of Consumer Affairs, Winter83, Vol. 17 Issue 2, p336, 20p

Motivation of Food Cooperative Members: Reply to Curhan and Wertheim. By: Sommer, Robert; Hohn, William E.; Tyburczy, Jason. Journal of Retailing, Winter81, Vol. 57 Issue 4, p114, 4p

A PROFIT STRATEGY FOR THE SMALL GROCER. By: Griffin, Waylon D.. Journal of Small Business Management, Jan74, Vol. 12 Issue 1, p47-50, 4p

13.1.1.4 The remainder were from the (non refereed) practitioner press

or were editorials or book reviews:

ROLAND S. VAILE. By: Bliss, Perry; Alderson, Wroe; Grether, E. T.; Jones, Fred M.; Frey, Albert W.; Jeuck, John E.; Lyon, Leverett. Journal of Marketing, Apr56, Vol. 20 Issue 4, p333, 4p

Competition and Collaboration in European Grocery Retailing. By: Dobson, Paul W.. European Retail Digest, Autumn2003 Issue 39, p13-21, 9p

Editorial. By: Cavinato, Joseph L.. International Journal of Physical Distribution & Logistics Management, 2004, Vol. 34 Issue 1, p10-11, 2p

European CPFR Insights, facilitated by Accenture, ECR Europe, 2002. By: Cuthbertson, Richard. European Retail Digest, Sep2002 Issue 35, p1, 1p

14 Appendix 3

14.1.1.1 The final iteration of the search

sought to identify papers which discussed collaboration and co-opetition in logistics, without necessarily containing any references to grocery, food or ECR. 85 papers were identified, of which just 7 were relevant to the research topic and included, therefore, in appendix 1.

38 were discounted, as being solely concerned with vertical integration, or collaboration and cooperation across echelons within a single supply chain.

Collaborative planning, forecasting and replenishment: a case study in copper clad laminate industry. By: Chung, W. W. C.; Leung, S. W. F.. *Production Planning & Control*, Sep2005, Vol. 16 Issue 6, p563-574, 12p

A new approach for understanding hindrances to collaborative practices in the logistics channel. By: Bonet, Dominique; Paché, Gilles. *International Journal of Retail & Distribution Management*, 2005, Vol. 33 Issue 8, p583-596, 14p

An Examination of Collaborative Planning Effectiveness and Supply Chain Performance. By: Petersen, Kenneth J.; Ragatz, Gary L.; Monczka, Robert M.. *Journal of Supply Chain Management: A Global Review of Purchasing & Supply*, Spring2005, Vol. 41 Issue 2, p14-25, 12p

Ten guiding principles for high-impact SCM. By: Fawcett, Stanley E.; Magnan, Gregory M.. *Business Horizons*, Sep/Oct2004, Vol. 47 Issue 5, p67-74, 8p

Analysis of the relational capital between logistic partners. By: De Oro Celestino, Diego Jesus Cuello; Estirado, Luis Miguel Delgado; Olalla, Marta Fossas. *International Journal of Services Technology & Management*, 2004, Vol. 5 Issue 5/6, p1-1, 1p

A business model for the new economy. By: Walters, David. International Journal of Physical Distribution & Logistics Management, 2004, Vol. 34 Issue 3/4, p346-357, 12p

Retailer- vs. Vendor-Managed Inventory and Brand Competition. By: Mishra, Birendra K.; Raghunathan, Srinivasan. Management Science, Apr2004, Vol. 50 Issue 4, p445-457, 13p

An advanced agent-based order planning system for dynamic networked enterprises. By: Azevedo, Américo L.; Toscano, Cesar; Sousa, Jorge P.; Soares, Antonio L.. Production Planning & Control, Mar2004, Vol. 15 Issue 2, p133-144, 12p

Organizational identity and network identification: relating within and beyond imaginary boundaries. By: Huemer, Lars; Becerra, Manuel; Lunnan, Randi. Scandinavian Journal of Management, Mar2004, Vol. 20 Issue 1/2, p53-73, 21p

AN ASSESSMENT OF SUPPLIER-CUSTOMER RELATIONSHIPS. By: Rinehart, Lloyd M.; Eckert, James A.; Handfield, Robert B.; Page Jr., Thomas J.; Atkin, Thomas. Journal of Business Logistics, 2004, Vol. 25 Issue 1, p25-62, 38p

Understanding supply chain management: critical research and a theoretical framework. By: Chen, I. J.; Paulraj, A.. International Journal of Production Research, 1/1/2004, Vol. 42 Issue 1, p131-163, 33p

Applying collaborative transportation management models in global third-party logistics. By: JC, Tyan; FK, Wang; T, Du. International Journal of Computer Integrated Manufacturing, Jun/Jul2003, Vol. 16 Issue 4/5, p283, 9p

Towards a comprehensive SCP-model for analysing strategic networks/alliances. By: Klint, Mats B.; Sjöberg, Ulf. International Journal of

Physical Distribution & Logistics Management, 2003, Vol. 33 Issue 5, p408-426, 19p

Collaborative networking in a multi-stage industrial channel. By: Fujimoto, Hisao. International Journal of Physical Distribution & Logistics Management, 2003, Vol. 33 Issue 3, p229, 7p

A STRUCTURAL EQUATION MODEL OF SUPPLY CHAIN MANAGEMENT STRATEGIES AND FIRM PERFORMANCE. By: Wisner, Joel D.. Journal of Business Logistics, 2003, Vol. 24 Issue 1, p1-26, 26p

Attaining world-class R&D by benchmarking buyer–supplier relationships. By: Hurmelinna, Pia; Peltola, Satu; Tuimala, Jarno; Virolainen, Veli-Matti. International Journal of Production Economics, 11/1/2002, Vol. 80 Issue 1, p39, 9p

The Collaborative Supply Chain. By: Simatupang, Togar M.; Sridharan, R.. International Journal of Logistics Management, 2002, Vol. 13 Issue 1, p15-30, 16p

The rhetoric and reality of supply chain integration. By: Fawcett, Stanley E.; Magnan, Gregory M.. International Journal of Physical Distribution & Logistics Management, 2002, Vol. 32 Issue 5, p339, 23p

LOGISTICS MANAGERS' LEARNING ENVIRONMENTS AND FIRM PERFORMANCE. By: Ellinger, Alexander E.; Ellinger, Andrea D.; Keller, Scott B.. Journal of Business Logistics, 2002, Vol. 23 Issue 1, p19-37, 19p

Unlocking the Supply Chain to Build Competitive Advantage. By: Walker, Brian; Bovet, David; Martha, Joseph. International Journal of Logistics Management, 2000, Vol. 11 Issue 2, p1, 8p

From the Editors. By: Douglas M. Lambert; Martin G. Christopher. International Journal of Logistics Management, 2000, Vol. 11 Issue 2, pii-ii, 1p

THE GLOBALLY COMPETITIVE FIRM: FUNCTIONAL INTEGRATION, VALUE CHAIN LOGISTICS, GLOBAL MARKETING, AND BUSINESS COLLEGE STRATEGIC SUPPORT. By: Anderson, Shirley C.. Competitiveness Review, 2000, Vol. 10 Issue 2, p33, 13p

Institute of Management Services Report on Productivity. Management Services, May2000, Vol. 44 Issue 5, p29-29, 1/2p

Conflict, Power, and Evolution in the Intermodal Transportation Industry's Channel of Distribution. By: Taylor, John C.; Jackson, George C.. Transportation Journal, Spring2000, Vol. 39 Issue 3, p5-17, 13p

Marketing/Logistics Integration and Firm Performance. By: Stank, Theodore P.; Daugherty, Patricia J.; Ellinger, Alexander E.. International Journal of Logistics Management, 1999, Vol. 10 Issue 1, p11, 14p

Automatic Replenishment Programs and Level of Involvement Performance Implications. By: Ellinger, Alexander E.; Taylor, John C.; Daugherty, Patricia J.. International Journal of Logistics Management, 1999, Vol. 10 Issue 1, p25, 12p

BUILDING SUCCESSFUL LOGISTICS PARTNERSHIPS. By: Lambert, Douglas M.; Emmelhainz, Margaret A.; Gardner, John T.. Journal of Business Logistics, 1999, Vol. 20 Issue 1, p165-181, 17p

Defining supply chain management: a historical perspective and practical guidelines. By: Rhonda R. Lummus; Robert J. Vokurka. Industrial Management & Data Systems, 1999, Vol. 99 Issue 1, p11

An empirical investigation into supply chain management. By: Spekman, Robert E.; Kamauff Jr., John W.. International Journal of Physical Distribution & Logistics Management, 1998, Vol. 28 Issue 8, p630, 21p

Reconfiguring the Supply Network Using Current Performance Data. By: Ross, Anthony; Venkataramanan, M. A.; Ernstberger, Kathryn W.. Decision Sciences, Summer98, Vol. 29 Issue 3, p707-728, 22p

Supply Chain Management: A Strategic Perspective. By: Bechtel, Christian; Jayaram, Jayanth. International Journal of Logistics Management, 1997, Vol. 8 Issue 1, p15-34, 20p

Developing and Implementing Supply Chain Partnerships. By: Lambert, Douglas M.; Emmelhainz, Margaret A.; Gardner, John T.. International Journal of Logistics Management, 1996, Vol. 7 Issue 2, p1-17, 17p

Alliance Formation Motives: A Comparison of International Perspectives. By: Frankel, Robert; Whipple, Judith Schmitz. International Journal of Logistics Management, 1996, Vol. 7 Issue 2, p19-32, 14p

Benchmarking programs: Opportunities for enhancing performance. By: Rogers, Dale S.; Daugherty, Patricia J.; Stank, Theodore P.. Journal of Business Logistics, 1995, Vol. 16 Issue 2, p43-63, 21p

ACHIEVING A MANAGEMENT BREAKTHROUGH IN INBOUND LOGISTICS BY IMPROVING THE EFFICACY OF OPERATIONAL DECISIONS. By: Holmström, Jan B.; Aavikko, Pekka. Production & Inventory Management Journal, 1994 3rd Quarter, Vol. 35 Issue 3, p1-8, 8p

A Methodology for the Strategic Management of International Manufacturing and Sourcing. By: Sweeney, Michael T.. International Journal of Logistics Management, 1994, Vol. 5 Issue 1, p55-65, 11p

Hypergame analysis of the stability of relationships between computerbased logistics systems. By: Graham, Ian; O'Doherty, Fiona; McKinnon, Alan; Baxter, Lynne. International Journal of Production Economics, Feb1992, Vol. 26 Issue 1-3, p303-310, 8p

The Role of Global Procurement in the Value Chain of Japanese Steel. By: Berkowitz, Marvin; Mohan, Krishna. Columbia Journal of World Business, Winter87, Vol. 22 Issue 4, p97, 13p

14.1.1.2 22 were technical papers,

either from an IT, marketing, economic or legalistic perspective:

PERFORMANCE BENEFITS THROUGH INTEGRATION HUBS. By: Christiaanse, Ellen. Communications of the ACM, Apr2005, Vol. 48 Issue 4, p95-100, 6p

MODELING THE RELATIONSHIP BETWEEN FIRM IT CAPABILITY, COLLABORATION, AND PERFORMANCE. By: Sanders, Nada R.; Premus, Robert. Journal of Business Logistics, 2005, Vol. 26 Issue 1, p1-23, 23p

Strategic Indicators of B2B e-marketplace Financial Performance. By: Laseter, Timothy M.; Bodily, Samuel E.. Electronic Markets, Dec2004, Vol. 14 Issue 4, p322-332, 11p

An intelligent logistics support system for enhancing the airfreight forwarding business. By: Lau, H. C. W.; Choy, K. L.; Lau, Peter K. H.; Tsui, W. T.; Choy, L. C.. Expert Systems, Nov2004, Vol. 21 Issue 5, p253-268, 16p

Virtual supply-chain management. By: Gunasekaran, A.; Ngai, E.W.T.. Production Planning & Control, Sep2004, Vol. 15 Issue 6, p584-595, 12p

Collaboration and integration through information technologies in supply chains. By: Neubert, Gilles; Ouzrout, Yacine; Bouras, Abdelaziz. International Journal of Technology Management, 2004, Vol. 28 Issue 2, p259-273, 15p

The Impact of E-collaboration Tools on Firms' Performance. By: Cassivi, Luc; Lefebvre, Élisabeth; Lefebvre, Louis A.; Léger, Pierre-Majorique. International Journal of Logistics Management, 2004, Vol. 15 Issue 1, p91-110, 20p

Simulation in the supply chain context: a survey. By: Terzi, Sergio; Cavalieri, Sergio. Computers in Industry, Jan2004, Vol. 53 Issue 1, p3, 14p

Logistics management in China: A case study of Haier. By: Chen, Jason C.H.; Lin, Binshan; Li, Lingli; Chen, Patty S.. Human Systems Management, 2004, Vol. 23 Issue 1, p15-27, 13p

Intelligent Cyber Logistics Using Reverse Auction in Electronic Commerce. By: Jeong, Woo Seok; Han, Sun Gwan; Jo, Geun Sik. Journal of Organizational Computing & Electronic Commerce, 2003, Vol. 13 Issue 3/4, p191-209, 19p

Serviceflow management for health provider networks. By: Ralf Klischewski; Ingrid Wetzel. Logistics Information Management, 2003, Vol. 16 Issue 3/4, p259-269, 11p

Agent-based product-support logistics system using XML and RDF. By: Choi, Jangwon; Kim, Yeongho; Park, Yong-Tae; Kang, Suk-Ho. International Journal of Systems Science, May2002, Vol. 33 Issue 6, p467-484, 18p

IT APPLICATIONS IN SUPPLY CHAIN ORGANIZATIONS: A LINK BETWEEN COMPETITIVE PRIORITIES AND ORGANIZATIONAL BENEFITS. By: Sanders, Nada R.; Premus, Robert. Journal of Business Logistics, 2002, Vol. 23 Issue 1, p65-83, 19p

Organizing Distribution Channels for Information Goods on the Internet. By: Dewan, Rajiv; Freimer, Marshall; Seidmann, Abraham. Management Science, Apr2000, Vol. 46 Issue 4, p483, 13p

The impact of IOS-enabled business process change on business outcomes: Transformation of the... By: Chatfield, Akemi Takeoka; Bjorn-Andersen, Niels. Journal of Management Information Systems, Summer97, Vol. 14 Issue 1, p13, 28p

ANTITRUST: NEW RULES IN EUROPE. By: Bridgeman, Lester M.. Journal of Transportation Law, Logistics & Policy, Spring2004, Vol. 71 Issue 3, p342-343, 2p

Competition, Collusion, and Confusion: The Impact of Current Antitrust Guidelines on Competition. By: Strutton, David; Herndon, Neil; Pelton, Lou E.. Industrial Marketing Management, Feb2001, Vol. 30 Issue 2, p243-253, 11p

Putting the Hurt on Workers' Compensation Fraud. By: Anthony, Alanna. Risk Management (00355593), Oct98, Vol. 45 Issue 10, p33-36, 4p

Customer Service in Travel & Transport. Management Services, Apr97, Vol. 41 Issue 4, p43-43, 1p

ACHIEVING A MANAGEMENT BREAKTHROUGH IN INBOUND LOGISTICS BY IMPROVING THE EFFICACY OF OPERATIONAL DECISIONS. By: Holmström, Jan B.; Aavikko, Pekka. Production & Inventory Management Journal, 1994 3rd Quarter, Vol. 35 Issue 3, p1-8, 8p

Developing market-driven product strategies. By: David W. Cravens; Nigel F. Piercy; Ashley Prentice. Journal of Product & Brand Management, 2000, Vol. 9 Issue 6, p369, 20p

Cooperative and competitive conflict for quality supply partnerships between China and Hongkong. By: Wong, Alfred; Tjosvold, Dean. International Journal of Physical Distribution & Logistics Management, 1999, Vol. 29 Issue 1/2, p7, 15p

Maritime liner shipping and the stevedoring industry: market structure and competition strategies. By: Midoro, R.; Musso, E.; Parola, F.. Maritime Policy & Management, Apr2005, Vol. 32 Issue 2, p89-106, 18p

14.1.1.3 2 dealt exclusively with the development of mathematical theories

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