

Tesco

Leading UK supermarket group, Tesco, can serve millions of Internet customers with home deliveries from its of its stores. In doing this it is not alone – its main rivals, ASDA and Sainsbury's, also offer home deliveries driven by orders over the Internet. Tesco also runs an on-line bookshop. These are recent developments which have been facilitated by the power and potential of information technology (IT).

Price cutting, an important competitive strategy in retailing, does not truly distinguish one food retailer from another, as price cuts can be followed by rivals, although creative advertising can suggest a price differential when one really does not exist. Supply-chain cost savings, also facilitated by IT, however, can be an important source of advantage and improved profitability.

This case looks at how Tesco exploited IT in the early 1990s to drive competitive advantage.

Since the case was written in 1996 events have moved on, but the basic strategic issues raised here remain pertinent and relevant. Tesco, for example, now shares live sales information with its suppliers and, by embracing IT themselves, more and more suppliers are linked electronically to Tesco. Again using the power of the Internet, e-markets allow any retailer to post up 'confidential' information but limit access to it through password-driven 'firewalls'. Going beyond the advantages discussed in this case, the Internet allows retailers to invite suppliers to engage in bids or auctions when either the retailer has a specific shortage or a supplier has excess inventory.

This case has two themes:

- the use of information technology by Tesco to strengthen its competitiveness, and
- the role of information technology in forging strategic linkages between Tesco and its distributors and suppliers.

Information technology has both reduced costs and strengthened Tesco's competitiveness by improving its overall level of customer service.

The case is designed to be used in conjunction with Chapters 9 and 13.

This version of the case was written in 1996 by John L. Thompson with the co-operation of Tesco. It is for classroom discussion and should not be taken to reflect either effective or ineffective management.

Introduction

In the mid-1990s Tesco overtook Sainsbury's to become the market share leader for UK groceries. By the 1960s Tesco had become successful with a policy of 'pile it high, sell it cheap', the philosophy of the founder, John Cohen. Tesco concentrated at that time on relatively small supermarkets close to town centres. The shops offered only a basic level of comfort and service. In the 1970s it became apparent that future growth and prosperity required a new strategy. Tesco appeared to have too many small stores, poor warehousing and stock control and weak administration systems. The strong concentration on price was limiting the total service, and strategically implied a focus, rather than a broad appeal. Desiring a strong market presence, Tesco sought to reposition itself. The new strategy would be based on quality and service in a pleasant shopping environment, together with competitive prices.

In the 1970s Tesco had some 600 stores. This number was systematically reduced to 337 in 1987 through a series of closures and new openings of single-storey units with car parking. Redesigned new superstores have been built in carefully selected locations and a further 57 stores were acquired in 1994 when Tesco bought the Scotland-based Wm. Low Group. In 1995 Tesco had 519 stores in the UK plus 105 Catteau stores in France and 44 Global stores in Hungary. The UK stores comprise:

- superstores
- compact stores – smaller supermarkets
- metros – town centre stores designed to serve specific local needs, and
- express stores – convenience stores adjacent to a petrol forecourt.

The total product range of some 17,000 food and non-food items is available in only the largest stores; the smaller ones carry just 3000 lines. Products are

sourced from around the world, although British goods are used whenever it is possible and appropriate. Three of Tesco's eight stated objectives relate specifically to the stores and product range:

Tesco is committed to:

- offering customers the best value for money and the most competitive prices
- improving profitability through investment in efficient stores and distribution depots, in productivity improvements and in new technology
- working closely with suppliers to build long-term business relationships based on strict quality and price criteria.

The early Tesco stores (the company was founded in the 1930s) concentrated on canned and processed foods – fresh foods were added in the late 1970s. In addition, Tesco has invested in scanning technology and distribution systems. The aim was to be at the forefront of retail technology, and use information technology (IT) for competitive advantage as well as cost savings. Tesco looks to have sufficient product on the shelves to cover a maximum day's sales without needing substantial on-site warehousing. It is both cheaper and easier to restock shelves outside peak shopping hours. Implementation of the IT strategy has required close co-operation with suppliers.

Every opportunity must be taken for retailers, suppliers and manufacturers to work closer together. We must move further away from the old retailer-versus-supplier arguments and accept that, if we are to grow, we can only do this together and on the basis of co-operation and mutual understanding.

(Lord MacLaurin, Chairman since 1985)

Before discussing the utilization of information technology by Tesco, an introduction to the key success factors for supermarket retailing and supply-chain management in the 1990s is provided as background information.

Key success factors for supermarket retailing

Successful supermarket chains must satisfy certain key success factors:

- The location of the stores is critical. Easy access for cars, and sufficient parking places, is essential.

In addition, new out-of-town shopping developments provide important opportunities.

- The product range. Larger stores, quite simply, offer wider ranges.
- Product availability. Shelves must be stocked and quickly replenished. However, large stocks in stores are costly, and in-store 'warehousing' must inevitably be at the expense of selling space.
- Competitive prices – which in turn depend in part on controlling costs.

If customers visit the store regularly, and buy more items, then the retailer's turnover and profits will both increase.

The cost of distributing grocery products from the point of manufacture to the retail outlet accounts for between 12 and 20% of their value. These costs can be reduced by investment in IT, which may be used to reduce both transport and inventory costs. Seizing this opportunity requires close co-operation between the manufacturers and the retailer and, quite often, a linked contribution from specialist distributors. IT has also allowed retailers to offer additional services, such as 'cashpoint banking' when switch cards are being used for payment. More recently, Tesco has been a pioneer of loyalty or frequent-purchase cards. Tesco's Clubcard has a magnetic strip which records a customer's purchases and awards a credit for use with future purchases.

The increasing predominance of retailer own-brand food products has increased the need for close co-operation between the store chain and its suppliers, and an expectancy that the retailer would develop expertise in *food* technology. Food legislation makes the retailer responsible for the composition and quality of products marketed under its brand name. Tesco was a late starter with own-brand products, but it has since developed one of the largest food-technology departments in the country and been a pioneer of ethical product labelling.

The importance of distribution

Effective distribution can reduce costs while improving the overall level of service. The distribution or supply chain encapsulates the storage, handling and movement of goods from the point of manufacture to the point of sale. This distribution can be direct from

the manufacturer to the individual retail stores, and in the early 1980s some 90% of grocery products were moved this way. A large Tesco store would see between 50 and 60 different lorries every day, each dropping off just a portion of its load. Now 90% of products are distributed via intermediate warehouses, and a store will be fully supplied every day by three large container lorries. Depots, though, must be able to give the stores a fast response time if the system is to be effective. This changeover has led to enormous savings and benefits, but it has only been possible through harnessing the potential of IT.

The intermediate warehouse may be run by the retailer; it is more likely that it will be run for the retail chain by a specialist distribution company. Distribution to the warehouse is known as *primary distribution*; the movement on to the retail stores is designated *secondary distribution*. Primary distribution is still normally provided by manufacturers.

Tesco utilizes 18 regional warehouses for the secondary distribution of all of its products in the UK. These comprise:

- eight multi-temperature food warehouses for frozen, chilled and ambient short-life foods
- five dry grocery centres for canned and long-life foodstuffs
- one national centre for Home 'n' Wear
- two bonded centres for wines and spirits
- two centres for slow-moving items.

Multi-temperature composite warehouses (described in detail later in the case and an invention of Tesco) require very specialized skills, and consequently Tesco utilizes the services of expert distributors to run seven out of its eight. The whole of the north of England, from a line drawn westwards from The Wash, together with Scotland, is served by three warehouses, all run by Glass Glover. The sites, all near motorway junctions, are at Doncaster, Middleton (in Lancashire) and Livingston, which is between Glasgow and Edinburgh. Glass Glover specializes in food warehousing, and Tesco's business constitutes over 40% of its revenue. Although it also provides similar facilities for Littlewoods, ASDA, Leo and Safeway, Tesco is substantially its major customer. However, Tesco's other

warehouses are run by National Freight Corporation (2), Hunter Distribution and Hays Distribution, and in these cases, Tesco is only a relatively small client.

There is a number of advantages to using such specialists:

- The skills required are different from those needed to run a successful retail chain.
- The retailer is better able to focus on its core skills and competencies.
- Cost savings – it is likely that there will be improved efficiencies and productivity. In addition, the capital investment in the facilities and the trucks is provided by the distributor.
- The stores, quite frequently located in expensive, prime sites, are not required to carry any unnecessary stocks.

The contractor's purpose is clear and unequivocal – to provide a cost-effective, high service level, distribution system. Success requires close co-operation (utilizing IT), mutual understanding and trust. Given this, distribution, stock control and replenishment become a single, integrated system.

Key success factors for supply-chain management

There are five critical factors:

- Automated data capture in stores using electronic point-of-sale (EPOS) – examined in detail in the next section.
- Electronic data interchange (EDI) for the rapid transmission of sales and stock data, order confirmations and delivery schedules. EDI requires that the computer systems of the retail chain and its suppliers are linked directly. EDI is also described in greater detail later.
- Pre-planning with suppliers. This implies that basic schedules are agreed in advance but that arrangements are sufficiently flexible to take account of demand changes which were not forecast.
- Decision support systems to help forecasting, planning and inventory management.
- Streamlined distribution to utilize these links and the improved information to achieve high levels of service cost effectively.

All the technology to achieve this is available; the challenge is one of implementation and achieving the potential. The systems require substantial investment; the benefits will only be achieved if retailers are able to establish network arrangements with their suppliers. In addition, and very significantly, the impacts upon people must be tackled.

IT on this scale implies that decisions concerning product ranges for stores, shelf layouts and stock levels, and replenishment orders are centralized. Store managers and staff may be empowered in respect of the *customer care and service* that they provide, but they will not control the product and stock decisions. In addition, the multi-temperature warehouses with large frozen sections have been described as the 'coal mines of the 1990s'.

Electronic point-of-sale

EPOS systems rely on products being bar coded at source, which again requires co-operation with suppliers. Check-out systems scan the bar code. This provides an instant record of sales and stock movements out of the store, data which can be used for several purposes:

- stock replenishment from the warehouse
- analysing actual against forecast sales to monitor and modify orders with suppliers
- evaluating profitability. The central computer will contain information on the margin and relative profitability of every item, and this can be added to the sales data. Sales may be increasing, for example, but these additional sales may be of the company's least profitable products (*this cost and margin information is not normally made available to individual store managers*)
- making decisions concerning which products to boost and promote and which ones to drop. Every time a new product is added to a store's range, something has to give way for it.

Another benefit of bar coding and EPOS is the elimination of the need to price every single product. The price can be displayed where the products are shelved; the EPOS system inputs the price once the bar code is read. This means that products can be

put out onto shelves very quickly after they are received into the store. (This benefit is clearly available to Tesco and the other food supermarkets. For retailer such as Boots and WH Smith it is available only for certain products. In the case of cassettes and compact discs with their ranges of different prices, for example, every individual item has to be priced separately). In addition, price changes can be implemented rapidly. By the end of 1992 every Tesco store had up-to-date scanning technology.

IT and the supply chain key success factors

IT can be utilized to strengthen the link between the retail chains and their customers in a number of ways. Sophisticated models have been developed to predict demand patterns for individual stores (and possible new locations) by capturing data on the size and dispersion of the local population, age groupings, incomes, socioeconomic groupings and car ownership. Clubcard purchasing information is captured at the point of sale and stored in a database for tracking exactly what individual, identifiable customers are buying. This information and forecasting can be used to target particular customer groups and to provide the 'right' range of products. This in turn provides a high level of customer service, and at the same time it should improve the retailer's profitability. Forecasts can be updated and modified with EPOS information.

It was stated earlier that IT offers the potential both to speed up stock replenishment and to reduce the costs of distributing the products. If costs are to be reduced throughout the supply chain, the information must be shared and suppliers kept informed of changing trends. If a retailer used sales information purely to generate orders to its suppliers – and over a period of time demand fluctuated – the suppliers would only be able to meet demand quickly if they held high levels of stock. For short-life products this is often impractical. Moreover, they would be required to interpret the changing orders that they were receiving from the retailers to try and clarify any changing trends. Their interpretation may well be different from that of the retail buyers, and this could be a recipe for waste or lost opportunity. The suppliers could either overestimate or

underestimate demand changes and change their production schedules accordingly. If the retailers share their forecasting and interpretations the total system can be run more effectively. EDI enables suppliers and retailers to be in constant contact. Initial forecasts can be provided together with an anticipated schedule of orders. This can be updated on a constant basis. Suppliers should then be able to meet demand without undue waste.

IT can also be used to minimize duplication. The fewer times that actual deliveries and the support documentation need to be checked, the speedier and cheaper is the system.

Finally IT systems can also monitor warehouse efficiencies – space and vehicle utilization, delivery times linked to route planning, etc.

The Tesco supply chain

Electronic data interchange

Tesco supplies its 500 stores mostly from 18 regional warehouses. These depots handle some 17,000 food lines together with household, health and beauty products and wines and spirits. These are sourced from 2500 different suppliers. In the past, linking 2500 suppliers and 500 stores has implied a large volume of paper orders and paper invoices. The switch to linked computer systems began in the early 1980s, when most deliveries were still direct to the stores. The changeover began with the centralization of Tesco's purchasing from its major suppliers. Sales representatives were no longer required to call on stores and collect their orders. In 1986 Tesco first began to transmit orders electronically via Tradanet.

Tradanet is an EDI service operated by International Network Services Ltd, and it requires that Tesco's suppliers join Tesco in subscribing to the system. Each user has an electronic computer link into the system, and within the system each has both a 'post box' and a 'mail box'. In other words, a user can transmit information (such as an order or an invoice) into the system via its post box. This is then instantaneously switched to the mail box of the intended recipient. Information is received by periodically checking the mailbox and it can again be integrated into the recipient's internal information system for immediate action. Over a period of time

both Tesco and its suppliers are in a position to learn how to maximize the benefits offered by such a system of fast and reliable information transfer.

The initial suppliers who pioneered the system with Tesco were Birds Eye (Unilever), Coca-Cola, Colman's, Nestlé, Schweppes and Spillers Foods. By the early 1990s three quarters of Tesco's long-life products and over half of their short-life products were handled via the Tradanet system. The vast majority of Tesco's purchase orders is now dealt with centrally.

Composite distribution

EDI has been developed in parallel with composite, multi-temperature food warehouses and trucks, which can accommodate the need for storing and transporting different food products at different temperatures. Frozen foods need to be kept at approximately -20°C ; cold chilled fresh meat and fish is handled at 0°C ; fresh produce and provisions should be retained between $+5$ and $+10^{\circ}\text{C}$. Grocery products such as biscuits, breakfast cereals, cakes and crisps should be kept at ambient temperature. Historically this has required five different types of truck.

Exhibit 1 illustrates a typical Tesco composite distribution warehouse. The total size is in the order of 25,000 square feet (2300 square metres), and each section can be managed individually to take account of the different handling and operating procedures that are necessary. Tesco pioneered these warehouses, opening the first one in 1988. Each of the eight existing warehouses serves about 50 stores in a defined region using specialized vehicles. A composite distribution trailer contains flexible bulkhead partitions and can be utilized as one, two or three sections at different temperatures. The coolest compartment would be at -20°C , the middle at 0°C and the third would be at $+10^{\circ}\text{C}$.

The Tesco system

See Exhibit 2.

Tesco's central buying division negotiates supply terms and prices with suppliers, and agrees a target schedule. In reality they are selling shelf space, and Tesco will generally look to stock a brand leader, their own-label variant and possibly one other alternative. For long-life products a 13-week rolling fore-

Exhibit 1 Layout of a composite distribution centre.

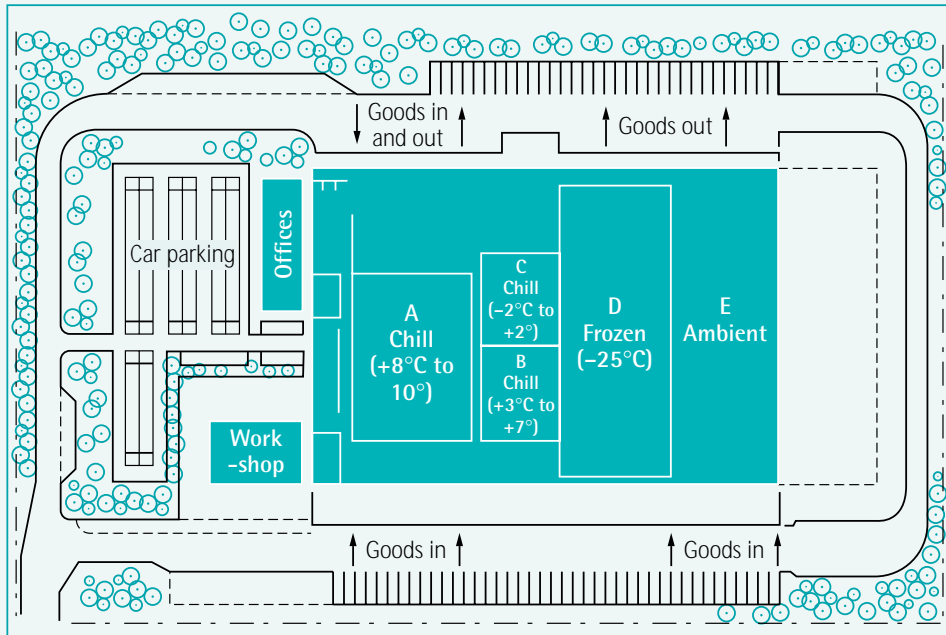
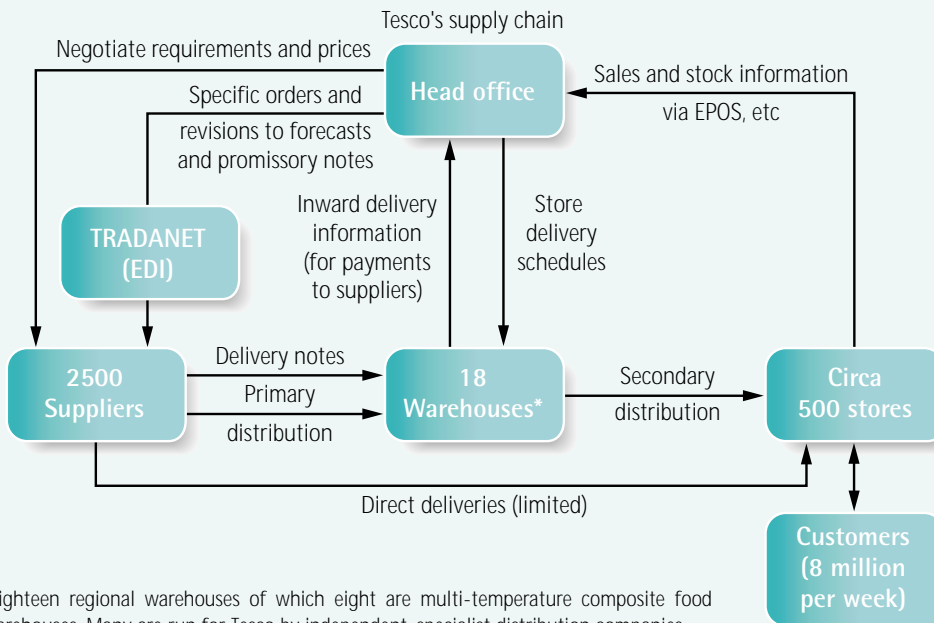


Exhibit 2 Tesco's supply chain.



cast is provided; for fresh goods it varies between one and six weeks. Where the number of weeks is very small, the forecast is broken down into individual days. The system is suitably sophisticated: when a supplier is unable to promise to meet Tesco's asking requirements, the orders can be immediately recycled to an alternative, competing supplier. Tesco has now gained sufficient experience and its forecasts, updated continually with EPOS data, provide an accurate estimate of likely demand. Tesco and its suppliers are both seeking to be profitable, and to reduce any unnecessary costs, and perceive that it is in their mutual interest to share information.

Suppliers are mainly asked to deliver to Tesco's various warehouses, and consequently a fresh-food supplier will have just eight delivery points. The actual orders are increasingly transmitted by EDI. Tesco argues that these new systems have meant lower costs and greater certainty for suppliers, and in turn lower prices for Tesco.

Suppliers on EDI send a delivery note ahead of the delivery itself, allowing Tesco to deal quickly with any shortages that might arise. Some products are received into warehouses for holding in stock for a limited period; other deliveries are sorted for immediate onward movement. Each store supplied by the warehouse has its own cages in each section of the warehouse, and the goods are placed in these cages to await loading and transfer. Quality and quantity are both checked thoroughly at the goods inwards points of the warehouse; and unpacking to allow fast and easy shelving in the stores is often another service carried out within the warehouse.

Once a delivery has been scanned and the quality approved, Tesco sends a promissory note electronically to the supplier. This in effect promises to pay for what Tesco has received; and sometime later payment can also be made by electronic funds transfer. The significance of this is that suppliers are not required to send any invoices, which takes out of the system a need for Tesco to carry out a further checking procedure. The onus is handed back to the suppliers to ensure that they are being paid for exactly what they think they have supplied to Tesco.

In the stores, portable data-capture machines are used for checking shelf stock levels, and this infor-

mation is transmitted back to head office to supplement the EPOS data. Replenishment needs, together with any revisions to products and stocks, are calculated centrally and the details are communicated to the stores, the warehouses and the suppliers. The system transmits data to the warehouses in the form of printed labels, which are run off on the warehouse computer. Each label represents a case of a determined size, of a particular product, which is to be delivered to an identified store. When a delivery from a supplier has been unloaded the labels are merely transferred to the boxes as they are checked off and then moved to the appropriate cages for each store. Stocked items are removed from inventory using similar procedures.

Short-life food products are normally distributed to the stores in full container loads between midnight and 8 am. It is anticipated that these will then be sold that day. This accounts for most produce, provisions, and fresh meat, poultry and fish. There are likely to be two deliveries each day to the largest stores. Approximately 60% of the anticipated daily requirements will be delivered before the store opens; the remaining 40% sometime during the day. Long shelf-life products are delivered separately between 8 am and 8 pm to spread out the demands for unloading and shelving. These would typically cover expected demand on the following day.

The network and interdependency

Tesco does not just provide orders. Central buyers agree forecast expectations with suppliers, followed later by call-offs or definite confirmations. This enables suppliers to plan more effectively, but in return they are required to deliver quickly ex-stock. Before EDI, orders were delayed for at least 24 hours in the post; faster movement of information means shorter supply times.

As suppliers have systematically joined Tesco's network, which is sometimes described as a 'community', they have been provided with considerable early support by Tesco. Seminars are used to 'inform suppliers of EDI, to clarify Tesco's objectives, and to tell them about future plans. EDI is not just for orders and invoices, but to broadcast forecast information, and receive up-to-date product information'. The

emphasis is on sharing. 'Retailers and suppliers need to work closely together to achieve their common aim of providing an excellent service to customers . . . suppliers are no longer dependent purely on their own forecasting. There are fewer surprises, and both partners develop a better understanding of each other's business.'

The system can only work effectively when there is common agreement about such factors as case sizes, volumes and weights, and no deviation in practice. Suppliers must deliver in an agreed format, and essentially exactly as Tesco expects their supplies. Cases and individual products must all be correctly bar-coded. Tesco is dependent upon this at the point of check-out in the stores.

If Tesco can be more effective in communicating with suppliers than our competitors, then our business partnerships are strengthened and we get a better service, the benefits of which we pass on to our customers.

A summary of the benefits

There is a number of benefits from Tesco's supply chain, arising from the utilization of IT and collaboration with their suppliers. The main ones are as follows:

- It facilitates the achievement of the 'right' good at the 'right' place, at the 'right' time, and at the 'right' price.
- Daily deliveries to reduce stockholding in stores
 - In 1994, for example, Tesco was able to add 35,000 square feet (3250 square metres) of sales space to existing stores by cutting out in-store stockrooms.
- In turn this enables a wider overall product range.
- It is easier for Tesco to deal with a large number of suppliers, including those based overseas.
- Products should reach the stores in better condition than in the past.
- Own-label products can be easily integrated into the system, which is in the interests of Tesco, the suppliers who manufacture for them, and customers.
- The likelihood of stock-outs and the consequent loss of sales is minimized.

- The wastage rates for short shelf-life products are reduced.
- The improved efficiencies and productivity generate a stronger cash flow and improved profits for both Tesco and their suppliers. Some of these benefits will be passed on to customers in the form of lower prices.

Clearly Tesco, in common with many other leading retailers, has become increasingly dependent on IT. Exhibit 3 features the McFarlan grid, which considers the relative significance of IT for a company's current and future competitiveness; it is appropriate at this stage to decide where Tesco would currently fit.

The full potential of networked supply-chain management has not yet been achieved by any retailer, and future opportunities and challenges await the leaders.

In the USA in the 1990s, Efficient Customer Response (ECR) captured retailers' attention. ECR fosters stronger links between supermarkets, their suppliers and their suppliers' suppliers because the purchase of a particular item at a supermarket checkout automatically triggers a replenishment decision at the supplier's warehouse together with orders for fresh ingredients, cans, bottles and labels further up the line. The outcome is a reduction in inventory plus the reduced likelihood of a stock-out. Information management (concerning what customers are actually buying) enables changing trends to be spotted quickly. Retailers are essentially handing over the responsibility for stock replenishment to their suppliers. While Tesco and other leading UK retailers have expressed interest in ECR, their inventory management systems were already far superior to those of the US supermarket groups. Moreover, because of the high incidence of own-label goods in the UK, Tesco is also its own supplier for many of its products. 'ECR is now being carefully examined for the further benefits that it might bestow.'

Tesco <http://www.tesco.com>

Exhibit 3 The strategic importance of Information technology (developed from McFarlan, FW (1984) Information technology changes the way you compete, *Harvard Business Review*, May/June.

Operational dependency on information technology	High	IT systems vital for the ongoing operations of the business. Certain activities have become dependent upon IT	Current operations are dependent on IT. Future IT developments can and will be harnessed to both improve efficiency and provide (greater) competitive advantage. It may well alter the competitive strategy
	Low	IT systems useful for cost savings and efficiency. The organization is not using IT for competitive advantage	The organization is not dependent on IT but uses it for efficiency and effectiveness. Future development could be important in the formulation of new strategies
		Low	High
Strategic importance of developments in information technology			

Questions

- How does EDI impact upon the retailing industry structure?
(Michael Porter's industry analysis [See Chapter 8] provides an ideal framework for tackling this question.)
- Using the McFarlan grid: to what extent has the grocery retailing industry become strategically dependent upon information technology?
(McFarlan's analysis was briefly covered in Chapter 13. The original 'McFarlan grid' was introduced in: McFarlan, FW (1984) Information technology changes the way you compete, *Harvard Business Review*, May/June.
The grid has been revised and refined by McFarlan in later works, but the original ideas are perfectly satisfactory for the purposes of this exercise.)
- Does Tesco appear to have taken the appropriate steps to forge effective alliances within the supply chain?
- How might Tesco utilize IT and its supplier network to strengthen its competitiveness further in the future?