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# Network evolution and the growth of artisanal firms: a tale of two regional cheese makers

**Richard K. Blundel**

This paper explores the growth trajectories of two specialist food producers and the business networks in which they are embedded. The context is provided by a brief overview of today's complex and dynamic food industry supply chain, seen from the perspective of a small, craft-based firm. The sector chosen for this study, English regional cheese making, is characterised as displaying a long-standing tension between industrial and artisanal modes of production. The conceptual framework combines insights from the network and resource-capability literatures. This blend of ideas prompts several questions relating to the transfer and appropriation of artisanal knowledge in a network setting. The empirical section provides some illustrations of the processes in action. It charts the development of two regional farm-based cheese makers from their inception in the early 1950s up to the year 2000. The analysis identifies distinct 'episodes' characterised by significant structural and processual changes at both firm and inter-firm levels. A series of network maps is used to highlight the distinct pattern of linkages formed by each firm. The maps are supported by a commentary that draws on the managers' own perceptions of the changes, including the reasons why they occurred, and the consequences for their businesses. The discussion section points to underlying structures and mechanisms that appear significant in explaining the surface-level events. The paper concludes by outlining the practical implications for firms in similar situations and assessing the extent to which the findings may be generalised to other business networks.

*Keywords:* networks; supply chains; growth; resources; capabilities; artisans; food.

*In the literature, relations between buyers and producers have been more part of an ideological debate than the subject of thorough research.*

Schmitz and Knorringa (1999: 5)

## **1. Introduction**

### *1.1 The approach adopted*

This paper tackles a practical question with the help of a network perspective. The question is simply stated: How are small, artisanal producers affected by their participation in the complex and dynamic business networks that form around today's supply chains? In essence, it explores a special case of the thesis that networking activity can have beneficial effects on small firm performance (Birley 1985, Aldrich and Zimmer 1986, Larson 1992, Aldrich 1999). The literature review suggests that business network concepts, in combination with intensive research methods, have the potential to overcome limitations and anomalies found in previous work on supply relationships. The core of the paper is a comparative account of two farm-based cheese making firms, which charts their development during the second half of the 20th century. The context is provided through an overview of the supply chain from a specialist food producer perspective, and an historical introduction to regional cheese making in England. The discussion and conclusions focus on the practical implications for artisanal firms. They also comment on certain methodological issues arising from the research and suggest how it may be extended in the future.

### *1.2 The food industry and the specialist producer*

The European food industry is experiencing a number of complex and inter-related changes that have serious implications for the smaller, specialist food producer:

- Further liberalisation of European Union agricultural and food sectors under Agenda 2000 is leading to increased cross-border competition.
- There is continuing industry concentration at all levels in the supply chain, from farm inputs through agriculture to distribution and retail.

- Food manufacturers are experiencing greater regulation of food quality and food safety by national and European agencies, and the associated costs of due diligence.
- New information and bio-technologies are spawning many innovations in food production, manufacture and retailing.
- Novel patterns of food consumption, in an otherwise static retail market, include trends towards exotic, organic and prepared foods.

One result of these changes is that many of Europe's smaller, specialist food producers have found themselves becoming active or prospective participants in supply relationships with much larger 'customer' firms. Multiple food retailers, such as Carrefour-Promodès, Tesco, Auchan and Ahold, have secured dominant positions in their home markets, where more than two thirds of retail sales in the main grocery categories are now accounted for by four or five large firms. The process of concentration is set to continue at a pan-European level, as competitive pressures drive geographic expansion and consolidation (Hughes 1994, Galizzi and Venturini 1996, Traill and Pitts 1998, Vaughan 1999). Given this situation, what are the practical implications for the small supplier? Can these giant customer firms assist in their development, or is any supplier that becomes entangled in such a relationship bound to suffer from abuses of 'buyer power'? Public concern over perceived negative outcomes has prompted public agencies, notably the European Commission (DGIV) and the UK's Competition Commission, to launch extensive inquiries. However, to date, the findings have been equivocal (1). For example, a major comparative study of buyer power in four European countries found that:

*'There is a clear difference between buyer power when exercised against small manufacturers as opposed to large multinational manufacturers. In the former case, even when exercised by groups with no retail seller power, buyer power may have adverse effects on the food producers - at worst threatening their survival, and, at least, constraining their capacity for independent decision-making with respect to, for example, product variety and innovation. **Having said this, we found little specific evidence of harms to small producers in practice**'.* (Dobson Consulting 1999: 160 - emphasis added)

As the opening quotation suggests, one explanation for these inconclusive results is that the issues have been lost in ideological posturing (Schmitz and Knorrinda 1999). However,

another reason for the lack of progress can be traced to inherent limitations in the research methods applied to this question. The following sections draw on recent insights from the business networks and industrial marketing literatures with the aim of developing a fresh approach.

## **2. Literature review**

### *2.1 New perspectives on business networks*

The 1990s saw the rise of network perspectives in various fields, including industrial marketing (Håkansson 1996, Harland 1996, Ford 1990). Networks have come to be regarded as distinct organisational forms, worthy of study in their own right, rather than mere hybrids, combining market mechanisms with hierarchy (Richardson 1972, Best 1990, Håkansson and Snehota 1996). However, it remains difficult to establish clear causal links between networking activity – with customers or other network actors – and firm-level performance (Johannisson 1995, Chell and Baines 2000). Two broad conceptual problems can be identified. Firstly, there is a tendency to aggregate firms together, with insufficient attention being paid to qualitative factors such as owner-manager orientation, industry sector or business location (Curran and Blackburn 1994, Chell and Baines 2000). Secondly, inter-firm relationships have sometimes been portrayed in ways that exaggerate the degree of stability and inter-firm co-operation. In practice, network relationships are often ‘fluid processes’ (Hogarth-Scott 1999: 672), in which actors are informed by past experiences and future expectations, and where capabilities and competition play a dynamic role (Penrose 1959, Teece *et al.* 1997). For example, a recent study suggests that, whilst engaging in relationships with multiple retailers, small-medium suppliers in the fresh produce sector are extending previously limited repertoires of capabilities (i.e. vegetable growing for wholesale markets), to embrace: importing, new product development, value-added processing, marketing and promotion (Blundel and Hingley 2001). The findings support the view that inter-firm links provide a vehicle for the transfer of routines, and thus influence the evolution of firms (Aldrich 1999: 236). These ‘beneficial’ transfers are, however, contingent upon firms gaining the (customer-defined) status of ‘developmental supplier’ status, indicating that network governance is an important mediating factor, influencing outcomes at firm level (Jones *et al.* 1997). As Schmitz and Knorringa (1999: 17) have argued, the real issue is not *whether* relationship-based resource transfers occur, but the *circumstances* in which are likely to benefit a supplier. At this point, organisational knowledge emerges as a central issue.

## 2.2 *Networks and artisanal knowledge*

Many small European producers retain substantial or residual craft features, despite the encroachment of mechanised modes of production (e.g. Bianchi 2001). How do network relationships affect the distinctive knowledge bases of such organisations? For the purposes of this paper, artisanal firms are characterised as drawing heavily on a core of tacit knowledge that is used to reproduce traditional and often geographically-specific practices. Many of these practices involve hand-working, creating variability in output and idiosyncrasies in the final products. It is precisely the capacity of artisanal products (e.g. food, ceramics, furniture, jewellery and textiles) to incorporate these valued and inimitable characteristics which provides such firms with a source of sustainable advantage (Barney 1991, Keane *et al.* 1996). For this reason, artisanal firms experience an acute form of the ‘generic’ strategic tension between cost and differentiation (Porter 1985). In recent years, considerable research effort has been invested in studying the dynamics of small high-technology firms and innovation networks (Rothwell 1989, Clark and Staunton 1993, Nonaka and Takeuchi 1995, Robertson *et al.* 1996, Conway and Steward 1998, Keeble 1998). In contrast, comparatively little attention has been paid to craft-based enterprises. Whilst artisanal knowledge is of a different order to that of the ‘high-tech’ firm, its creation, modification and transfer across network dyads appears to be open to similar analytical approaches (Grant 1996).

## 2.3 *Towards an integrated framework?*

This paper is concerned with the impact of vertical inter-firm relationships, and other network linkages, on the growth of artisanal firms. Growth is seen as a process that encompasses quantitative *and* qualitative changes in a firm’s structure and activity. This points to a modified resource-capability perspective, as a way to capture the dynamics and trajectories of growth. Edith Penrose’s path-breaking study, *The Theory of the Growth of the Firm* (1959) remains a valuable guide, anticipating recent insights into the inherent dynamics of firm capabilities (Teece *et al.* 1997) and the strategic nature of managerial and entrepreneurial knowledge (Nonaka and Takeuchi 1995, Spender 1996). However, Penrosian conceptions of entrepreneurship and management require re-interpretation in the changed conditions of today’s business networks (Johannisson 2000: 368) (2). As the innovation network literature has indicated, capability development needs to be recognised as a ‘multi-level phenomenon’,

occurring within the firm, in network relationships, and in the wider context of governing institutions and markets (Johannisson and Monsted 1997, Dyer and Singh 1998, Burkinshaw and Hagström 2000: 2, Jones 2001). Research methods need to reflect these complexities. For example, *generic* measures of buyer power, based on the concentration ratios in defined markets, are unlikely to capture fine-grained differences between firms. Similarly, cross-sectional techniques cannot trace the subtle changes that occur as inter-firm relationships develop over time. Tsoukas (1989) outlines a more promising approach, which links intensive case-based research designs to a realist perspective. Easton (1995) suggests that this combination may be the most appropriate way to research industrial networks. Firstly, it has the potential to deliver a plausible explanation of the observed differences in firm performance. Secondly, by giving greater recognition to the richness and complexity of unfolding situations, it may also provide useful insights for practitioners.

### **3. Methodology**

#### *3.1 Creating an analytically structured narrative*

The research findings take the form of two linked case studies. These are incorporated into an analytically structured narrative, highlighting the key processes unfolding in an historical perspective. The aim is to combine intensive and extensive research methods in order to build a plausible explanation of the generative mechanisms in the context of each firm and its network relationships (Tsoukas 1989, Wilson and Vlosky 1997, Sayer 2000). Inductive case studies have a useful explanatory role to play. As Eisenhardt (1989: 534) suggests, they represent a research strategy, ‘which focuses on understanding the dynamics present within single settings’. Cases are selected from a population of interest (i.e. small, artisanal food manufacturers), based on their theoretical usefulness (i.e. today’s contrasting network morphologies). Evidence is triangulated through the use of multiple data collection methods (Yin 1994), which are summarised below. Analytically structured narratives have been described as ‘case-like cameos in which the temporality of events and placeness of spatiality are implicated’ (Clark 2000: 113). They contrast with the typical ‘business school’ case study, by addressing underlying, long-run and generic factors, as well as those that are more explicit, short-run and specific (Whipp and Clark 1986, Clark 2000). The principal episodes (Giddens 1987) are identified and substantiated in the text. A series of network maps is used to depict each episode, and to clarify the textual explanation. Partial networks have been abstracted (Mitchell 1969). These are ‘focal’ (or ‘ego centric’), in that they are centred on a

specific firm. The linkages included on each map are those that comprise the principal routes through which the business is believed to engage in exchanges beyond its boundaries (Conway and Steward 1998). Given the size and management structure of the firms, it is appropriate to base this on the perceptions of the owner-managers. However, the researcher played a role in refining the maps and identifying ‘blind’ links. The accompanying text is also used to comment on the nature of the ‘connectivity’, that is, the kind of interaction occurring through these linkages.

### 3.2 *The secondary research and fieldwork*

The study draws on various secondary sources including historical accounts of dairy farming, cheese making and food retailing in the UK, technical information on cheese production and marketing, industry statistics and media coverage. Additional background evidence was obtained through interviews and informal discussions with industry specialists, including farmers and retailers. The main fieldwork comprised visits to small cheese making businesses, two of which are reported in this paper. The first set of interviews and visits took place in March 1998, with a second visit in August 2000. On each occasion, semi-structured interviews were conducted over several hours, using an *in-vivo* approach, with an informal checklist of topics giving scope for respondents to express views in their own terms (Strauss 1987). The researcher also spent time observing the cheese making process and visiting local retail outlets. Checklist topics were prepared in consultation with dairy sector specialists and were piloted using another dairy farmer. Each interview was tape recorded and subsequently transcribed in full. Informal content analysis was used to identify important examples, themes and patterns in the data. The network maps were drafted by the researcher and refined during extended discussions with the firms’ managers. In each case, it was possible to verify details for the earliest period (i.e. the early 1950s) with family members who were directly involved in operating the business. Follow-up calls were made to confirm the accuracy of the maps and transcript material. The interval of more than two years between the interviews provided an opportunity to probe for changed perceptions of ‘productive opportunity’ (Penrose 1959) and to relate any changes to knowledge flows through the firm and its business network.

### 3.3 *Critique*

Case study methods may be challenged on the grounds that they produce overly-descriptive ‘idiographic’ accounts which are not readily generalisable (Yin 1994, Hedström and Swedberg 1998: 15) (3). Proponents of analytically structured narratives argue that case material can be used to identify plausible explanatory mechanisms, a degree of rigour being imposed through the use of triangulated sources of evidence and in the analytical technique of retrodution (Tsoukas 1989, Clark 2000, Sayer 2000). The following sections comprise an introduction to the cheese-making industry in England and a structured narrative that seeks to analyse three related issues:

- The contrasting dynamics of the network architectures surrounding each firm;
- The relationship between architectural changes and inter-organisational knowledge and resource flows;
- The differing outcomes at firm level, particularly in relation to artisanal and industrial modes of production;

#### **4. Industrial and market context**

##### *4.1 Cheese-making in England - craft and industry*

England has a long history of farmhouse cheese making, and can boast many cheeses associated with particular localities, such as Cheshire cheese. These cheeses are known as ‘territorials’. However, production is now concentrated in large processing plants, known as ‘creameries’, and is dominated by a single type, Cheddar (table 1). The retail sales value of cheese in the United Kingdom is approximately £1.5 billion (Euro 2.5 billion). Again, Cheddar has the lion’s share, accounting for 57 per cent of retail sales by volume (Dairy Crest 1999). Cheddar cheese originates in the English county of Somerset and was recognised as a distinctive variety long before the industrial revolution. Cheddar’s more recent status can be traced to production methods introduced in the mid-19th century (Cheke 1959). These innovations, which standardised production and reduced wastage, were a domestic response to competition from imported cheeses. However, the new methods were rapidly adopted by manufacturers in Canada, the United States and other countries, who were also able to exploit new transportation and storage technologies, notably railways, steamships and refrigeration. This led to an influx of cheap imported cheese, which served England’s emerging, urbanised mass market. Foreign competition was met with by an increase in the

number of English ‘cheese factories’ (i.e. creameries). The intensified rivalry between creameries and farmhouse cheese makers has continued to the present day. Farmhouse cheese makers tend to produce local, territorial cheeses. Consumption of territorials has declined steadily in recent years, but residual regional loyalties mean that that per capita consumption of Cheshire, for example, is higher in the North West than in the South East of England (n.b. in table 1, ‘long-life’ refers to pressed cheeses, including Cheshire, which may be matured over longer periods; blue veined cheeses, such as Stilton, occupy a distinct market niche). The scale of England’s retreat from its indigenous cheeses is illustrated by the rise of Mozzarella, which is now the most common type produced in the UK, after Cheddar. In contrast to the Italian original, ‘English’ Mozzarella is made on an industrial scale, primarily for food manufacture (i.e. as an ingredient in pizzas and similar products) (Bianchi 2001).

\* *Insert table 1 about here*

In comparison to other European countries, the UK’s retail cheese market includes a high proportion of imported products, the bulk of which now originate in other EU countries, notably France and the Netherlands. Small quantities of fine cheese have been imported for many centuries. This trade continues, alongside the larger volumes of cheeses produced by international food firms, including branded cheeses, such as *Philadelphia* (Kraft Jacobs Suchard) and *Boursin* (Unilever), and supermarket ‘own-label’ products. Exports from the UK to other EU countries doubled during the 1990s, but this was offset by a larger volume increase in imports in the same period (table 2).

\* *Insert table 2 about here*

Most of the cheese now retailed in England is pre-packed, accounting for somewhere between 75 and 80 per cent of total volume sales. Loose cheese, sold from the specialist delicatessen is very much the minority sector (Mintel 1999). Overall volume sales of most English cheeses are currently either stable or in decline. However, there are variations. For example, volume sales of stronger-tasting ‘extra mature’ cheddar increased by 21 per cent between 1998 and 1999, reflecting changes in consumer purchasing behaviour. There has also been an increased demand for organic cheese, though this remains a small proportion of retail sales.

## 4.2 *Industry structure and the firms studied*

There are about 300 companies involved in the manufacture and supply of cheese in the UK. They can be divided into three broad categories:

- Large dairy food companies
- Small-medium cheese makers (often farm-based)
- Small farm-based cheese makers

Today's retail cheese market is dominated by the UK-based dairy company, Dairy Crest, and four overseas corporations: Glanbia, New Zealand Milk, Kraft Jacobs Suchard and Kerrygold. In the last decade, these companies have also begun to act as 'category managers' (i.e. first-tier suppliers to specific multiple retailers, co-ordinating supplies for a particular product area). In this case, the category manager cuts, pre-packs and distributes all of the cheese delivered to the multiple retailer, including that obtained from third party producers. Several cheese makers in the second grouping of small-medium firms continue to be farm-based, though they source milk more widely and usually have specially built cheese making facilities. **Belton Cheese**, one of the firms investigated in this study, is in this intermediate category. The third group is usually distinguished on the basis that cheese is made on dairy farms, using only milk from the farm herd. However, the picture is confused by the fact that a few artisanal producers do not maintain their own herds. Cheese output from small, farm-based cheese makers is estimated at approximately 8,000 tonnes per annum, representing just two percent of total UK production (MAFF 2000). **Appleby's**, the other firm featured, is in this third category (4).

## 5. **Findings: a tale of two Cheshire cheese makers**

### 5.1 *A distinctive regional history*

This paper traces the development of the two cheese makers, Appleby's and Belton, over five decades. Both businesses are located on dairy farms at the edge of the Cheshire Plain, a predominantly rural region in the North West of England to the south of Manchester. For several centuries, this has been known as one of England's best dairying areas. In addition to

the beneficial effects of soil and climate, farmers in the area have built up distinctive capabilities in breeding dairy cows and making cheese. The process of knowledge sharing and capability development is recorded by a late seventeenth century traveller, Celia Fiennes, who notes that farmers worked co-operatively to produce ‘greate’ (i.e. large) Cheshire cheeses for the emerging regionalised markets of pre-industrial England:

*‘Thence I went to Nantwich five long miles [...] from Nantwich to Chester town fourteen long miles the wayes being deepe [...] what I wondered at was that tho’ this shire [i.e. county] is remarkable for a greate deale of greate Cheeses and Dairies, I did not see more than twenty or thirty cows in a troupe feeding, but on enquiry I find the custome of the country to joyn their milking together of a whole village and so make their greate Cheeses’.* (cited in: Cheke 1959: 109)

Small scale, farm-based cheese making in Cheshire continued into the early twentieth century, despite the competition from the cheese factories. However, almost all production was halted during the Second World War, as the Government introduced a series of strict controls on agricultural production. When these wartime restrictions were eased in the early 1950s, many English dairy farmers took the opportunity to (re-) establish on-farm cheese dairies. Many of these businesses have since failed or been discontinued. This account is of two who have been successful, albeit in different ways.

## 5.2 *Two farming businesses*

The Appleby family can trace its history of cheese making in this area over several generations. Lance and Lucy Appleby, purchased Hawkestone Abbey Farm in 1943. In 1951, they started making cheese in a converted stable adjacent to the farmhouse kitchen. Lucy (‘Mrs’) Appleby has been involved in the business throughout the period, though day-to-day operations are now managed by her son, Edward (EA) and daughter-in-law, Christine (CA). Another son and daughter-in-law manage a second farm in the family partnership, and are also involved in aspects of the cheese making business. The Appleby’s produce 80 tonnes of traditional, cloth bound cheese per annum, using 800,000 litres of raw (i.e. unpasteurised) milk from their own dairy herd. Their product range comprises three varieties of Cheshire - white, coloured and smoked - and a Double Gloucester cheese in various sizes. In addition to family involvement, the business employs an experienced cheese maker and one assistant. On the current European Commission definition, Appleby’s Cheese might be

regarded as a ‘micro’ business. However, since this enterprise forms an integral part of a larger farming portfolio (Carter 1998), it is treated here as a small firm. Appleby’s is now the only Cheshire cheese maker using traditional methods and raw milk from the farm.

Cheese has been made at Belton Farm since the early nineteenth century. In the 1920s, Stanley Beckett left the family textile business in Manchester to work at Belton Farm as a farm student (i.e. apprentice). He was promoted to farm bailiff, became a tenant and subsequently purchased the farm. Stanley revived cheese-making at Belton in 1953, initially at one end of the farmhouse using milk produced from the farm. During the 1970s, the farm and cheese making businesses were taken on by Stanley’s son John. Today, his son, Justin Beckett (JB) runs Belton Cheese supported by a small management team. Belton produces just over 4,000 tonnes of cheese, in nine territorial varieties and several different sizes, including traditional cylinders and the large blocks used for pre-packed cheese. The firm continues to operate from Belton Farm, which is located on the edge of a small market town, and employs approximately 30 people.

### 5.3 *The regulated market: 1951 to 1982*

Both the Appleby and the Beckett families began their cheese making businesses in an intensely regulated market, presided over by an organisation which exerted monopoly powers over milk purchasing and supply. The Milk Marketing Board (MMB) was a statutory body, established in England and Wales in 1933 as the sole purchaser of milk from its farmer members, and the sole seller of milk to the processing sector. In addition, all farm-made cheese was sold exclusively through the MMB and its agents.

- \* *Insert ‘A guide to the network maps’ about here*
- \* *Insert figure 1: APPLEBY NETWORK MAP: 1951-1982 about here*
- \* *Insert figure 2: BELTON NETWORK MAP: 1953-1994 about here*

In this period, the business networks of both firms contain similar linkages, both ‘upstream’ and ‘downstream’ (figures 1 and 2). The obvious difference is the link upstream between Belton and the Milk Marketing Board. This is the source of Belton’s additional milk supply for cheese making. The current owner-manager’s comments on his grandfather’s entrepreneurial skills in securing supplies from a highly regulated monopoly, based on the

use of pre-existing storage facilities, illustrate a capability that has helped to shape later network developments:

*INTERVIEWER: You mentioned that your grandfather was very good at getting extra milk.*

*JB: [H]e managed to work the milk up [i.e. obtain larger amounts]. What would happen with the Milk Marketing Board Board system was that, if you were able to take volumes of milk in at the weekend, bank holidays, Christmas and Easter - we always had plenty of storage capacity here - and he always made a point of always buying it, never saying no. (B: 2000).*

In contrast, Appleby's produced their cheese using milk from the farm's own dairy herd, and chose not to supplement it from outside sources. However, despite the differences in raw materials sourcing and consequent scale of production, both Appleby's and Belton produced a similar product during the initial period. This was, typically, a large (50lb / 22.7kg) cheese, which was collected weekly by the MMB, or their agents. Payment was on a fixed scale, based on a pool price. Cheeses were graded by the MMB, on the basis of which a bonus payment was calculated. Neither firm had any control over, or awareness of, the subsequent cutting, packaging, distribution and retailing of their product (i.e. these were 'blind links', see guide to the network maps).

#### *5.4 The emergence of supermarket multiple retailers: 1960s*

The similar network architectures outlined in figures 1 and 2 were stable for thirty years. However, this apparent continuity masks some important changes in the wider network, which both firms are able to trace the early 1960s. Appleby's detected an increasing pressure from the supermarkets for cheese to be supplied in different formats, primarily to rationalise the pre-packing of large volumes of cheese, and for ease of storage. There were two major innovations: hard territorial cheeses were formed into large rectangular blocks and traditional cylindrical cheeses were given a wax coating:

*INTERVIEWER: So was there any incentive to change? We were talking last time about innovation, new products you might have developed. Did you make any changes to the product over that time [i.e. 1951-1982]?*

*EA: No incentive at all, no. I think the first real incentive that came in was the early [19]60s when waxing came in, when the supermarkets started and they wanted blocks, because they wanted to be able to cut two ounce [55 g] pieces. That was when the first innovations came in, but other than that, no, everybody made 50lb [22.7 kg] cheese, and that was it.*

*INTERVIEWER: So you did make the block versions?*

*EA: No, we never made blocks (A: 2000).*

At this point, the product flows through the network began to change, though the structure remained intact. Some farm-based cheese makers, including Belton, began to supply cheese in the block format, suited to pre-packing, whilst Appleby's and about nine other firms continued to make cylindrical Cheshire cheeses. Of these, some focused on waxed cheeses, whilst others continued with traditional cloth binding:

*CA: That was when it started splitting up. There was people like ourselves who remained traditional, making calico [i.e. cloth-wrapped cheese], there was traditional cylindrical cheeses that started to wax, and then some of them expanded and made block cheeses. So, instead of all making traditional calico-bound cheeses, this is farmhouse makers now, it split into three categories really, and that is how it has remained now, just leaving ourselves [...] we're the only ones cloth binding (A 2000).*

This three-way product categorisation provides a clear example of a strategic isolating mechanism (Jones 2001). Block cheese makers pursued a trajectory that took them closer to the supermarkets and hence to a more industrialised production system. They grew in terms of output, and now occupy the intermediate grouping of small-medium producers, outlined above. The course followed by those small firms that did not produce block cheese is more complex. There has been a steady decline in the overall number of firms concentrating on cylindrical Cheshire cheeses. Only four firms out of the original ten have survived to the present day, and one of these – a prize-winning cheese maker – ceased trading at the end of the year 2000. There have been a few new entrants over the last decade, though their cheeses are branded with the producer's name rather than the cheese variety. Why have some artisanal producers prospered, when others have been unable to continue in business? The mechanisms driving these changes can be explained more fully by referring to the Appleby case (figure 3).

### 5.5 *Liberalisation of cheese marketing: early 1980s*

Until the early 1980s, the Appleby's continued to sell all of their cheese direct to the Milk Marketing Board (MMB). Their standard product was still the large (50lb / 22.7kg) cheese, at a volume of approximately 12 cheeses per day over a five-day week. In 1981, as a precursor to liberalisation of the milk market, the MMB's processing and manufacturing activities were transferred to a separate division, called Dairy Crest. In a related development, cheese makers were allowed to sell their products direct to the market. The Appleby family took this opportunity. In 1982 they established contact with a specialist retailer in London. Members of the family began delivering cheeses direct to several retail and wholesale customers, transporting them to London in the back of the farm's Land Rover. This proved to be a very effective promotional device, and additional customers were obtained primarily by word-of-mouth. Today, Appleby's has a customer base of between 60 and 70 specialist retailers and distributors. The spread of customers has a pragmatic logic (i.e. 'nobody owes us very much at any one time'), but it also reflects the family's ethos, which is to build close relationships with firms committed to supplying a traditional product. The family continues to deliver personally, now using an insulated van. They have tried to ensure that there is a link between the farm and the customer, and arrange regular tastings in retail outlets. They have built relationships with both their 'own' retailer customers and other retailers who are supplied via their wholesalers.

\* ***Insert figure 3: APPLEBY NETWORK MAP: 1982-2000 about here***

Appleby's changed network architecture, illustrated in figure 3, has remained fundamentally unchanged over the last 18 years. However, the new network linkages sparked fundamental changes in the business, as the family developed its knowledge of downstream actors and established a brand identity supported by close personal ties. One of these firms, Neal's Yard Dairy, is acknowledged as being particularly influential, combining specialist retailing with a wholesaling role, and providing access to other specialist retailers. The Appleby's recognise that these downstream links have proved effective in differentiating their product and hence providing a defence against commoditisation, a strategy that some small cheese makers have not pursued:

*CA: To be quite honest, we've got a very good reputation in the marketplace, that we've built up over 20 years, and we offer a very good product, a very good service, and we control supply and demand very finely. We've never got too much cheese in stock so that we have to sell it off cheaply or feel under pressure from our buyers. We never feel under pressure from our buyers [...] If you've got 20 per cent more cheese than you've really got a market for, then you're soon in trouble, aren't you.*

*EA: Basically, we've built a brand, haven't we?*

*CA: Yes.*

*EA: In this day and age, brands are wonderful things! (A: 2000)*

Belton's business network was largely unaffected by the initial downstream liberalisation of milk marketing in 1982. The Beckett family decided to retain the close downstream links between Belton and the MMB's dairy processing successor, Dairy Crest. (figure 4). Hence, in 1982, the network architectures of Appleby's and Belton diverged dramatically. Belton proceeded on a route that exposed it to the increasing influence of multiple retailers and other large customer firms. This prompted two further waves of restructuring in the next decade.

### *5.6 Liberalisation of milk marketing and its aftermath: 1994-1998*

John Beckett took over Belton Farm in 1970. Three years later, the family started building a new cheese dairy across farmyard, and cheese making moved out of the farmhouse for the first time. In the same year, John Beckett also established Belton Cheese as a Limited Company. Belton supplied waxed and block cheeses alongside 'traditional' wheels and cylinders (n.b. known as 'trads'). They also expanded their product range, supplying a number of different English territorial types. This was a period of volume growth. However, as Justin Beckett reflects, traditional differences between territorial cheeses were eroded in this period, as production methods became standardised and sources of variation, such as the different starters (i.e. bacterial cultures which make the cheese set) used in particular regions, were displaced by generic products. They are now engaged in a conscious effort to recover artisanal knowledge as a basis for product differentiation:

*JB: The other thing we have been keen to do over the last few years, with Brian and Jim now, is that we have been developing the [starter] strains, and the way we actually make the crumbly cheeses, and actually going back to the traditional recipes.*

*INTERVIEWER: So it's a kind of rediscovery?*

*JB: Yes, I think that was lost in the 1970s, 1980s and early 1990s. There has been a lot of cheese that just wasn't - didn't happen really. So now I think that's really interesting, the way that it is coming back [...] We believe now, and certainly in the tasting panels that our customers are doing, there is a difference. We've worked on that. (B: 2000)*

In November 1994, there was a second liberalisation. The UK milk market was deregulated and the MMB was disbanded. Initially, its role was taken on by a voluntary farmers' co-operative called Milk Marque, which recruited farmers accounting for more than 65 per cent of milk production in England and Wales. However, there was intense competition for supplies from liquid dairies and food companies. Milk prices were variable, with premiums available for particular specifications (e.g. high butterfat or protein content, as required for some manufacturing processes). These factors contributed to more dynamic relationships, as farmers moved between milk purchasers in order to secure the best price for their output (Bates and Pattison 1997). In this period (1994-1998) Belton's network architecture was still essentially unchanged, the new names replacing their former MMB equivalents. The firm sourced from Milk Marque and from a new regional co-operative, The Milk Group. It continued to sell most of its cheese through Dairy Crest (figure 4). In contrast, Appleby's response was to sever their remaining links with Dairy Crest:

*CA: We stopped supplying them virtually completely [...] By this time we had got our own price list, as opposed to them buying and paying us what they were paying, we'd got a price list and immediately they were disinterested, because they wanted to buy it, obviously, at their price. (A: 2000)*

This decision had implications in other parts of the firm's network. For example, Appleby's relationship with the Farmhouse Cheesemakers Association was terminated (membership was restricted to Dairy Crest's suppliers), and new links were created through the newly-formed Specialist Cheesemakers Association (figure 3).

\* ***Insert figure 4: BELTON NETWORK MAP: 1994-1998 about here***

### 5.7 *Recent developments: 1998-2000 - Belton builds a milk field*

It was not anticipated that major changes in network architecture would occur in the relatively short interval between the interviews (March 1998 to August 2000). However, during 1998 and early 1999, Belton reviewed its position as a milk *purchaser*, deciding to end its relationship with the MMB successor, Milk Marque, and to build its own ‘milk field’, comprising direct supply links with local dairy farms. In 1998, Justin Beckett commented that some large creameries were creating these network links:

*JB: So originally [in 1994] Milk Marque had about 80 per cent of the milk, and I think that is now [in 1998] about 50 per cent. What has happened is that certain people - some of the bigger players - have actually gone and got their own milk deals, direct supplies. (B: 1998)*

The subsequent change in Belton’s network architecture was explained as resulting from a number of technical factors, affecting the cheese making process. However, ‘one of the key problems’ identified was traceability (i.e. access to information on raw materials). This development illustrates how the dynamics of one set of linkages affect another. Pressure on traceability was exerted downstream, from Belton’s packers and retailer customers; the inability to communicate this upstream, to Milk Marque, prompted the breakdown and the creation of a new set of links (figure 5)

*JB: And towards the end [of the relationship with Milk Marque], right at the end when we said, ‘look, you know, you’ve just got to, this is no good, we need to get Farm Assurance on board, we’ve got to prove due diligence and all the rest of it, and improve our quality and the consistency of the cheese, you know, we need it’. And even at the end they wouldn’t give us that. And it was just the last straw, I think, was [...] in the summer of 1998, we were getting tanker loads of 3.7 per cent butterfat, so it was completely out of balance, the compositional quality of the milk. We had no way of persuading the producers who were on those routes to improve it, as they were in a predominantly ‘white water’ region [i.e. where most milk is sold as fresh liquid milk, rather than for processing]. (B: 2000)*

The recent change in upstream relationships has provided Belton with a degree of control over compositional quality and consistency of milk supply. The firm now operates a purchasing system, which is similar to that of much larger processors. New capabilities have been introduced by recruiting a former dairy farmer and applying a pre-existing ‘template’ of linked routines, which includes training and auditing farms in the milk field:

*JB: So we decided to put a milk field together in April 1999 and we picked up our first farms on 1st April 1999. We have 35 farms [supplying] direct, within a 20 mile radius of [Belton Farm], collected daily, all Farm Assured, all RSPCA Freedom Foods approved. We’ve put in - we have a guy who’s an ex-producer who did a lot of training, who has put manuals on farms, so all our nutritional and health records, all our farms are audited with the National Dairy Scheme, and we spend a lot of time with our producers, in producer meetings [...] they wanted to join us because we offer quite a good bonus scheme to encourage them. We also take big discounts off if anybody isn’t up to scratch - low butterfats and proteins. And we’ve seen tremendous results from it, both in yield and in consistency of the make. (B: 2000)*

#### 5.8 Organic milk and the network

In 1998, the managers at Belton were fully aware of the productive opportunity presented by organic cheese, in the form of a premium arising from the supply shortfalls and rising consumer demand. They also perceived many capability-related obstacles, including the conversion of a modern dairy herd, which operates with low levels of farm labour:

*JB: The only premium they [i.e. retailers] are prepared to pay is on organic, and they will pay anything if they can get it - and they can’t get it, that’s the problem [...].*

*INTERVIEWER: [...] With organic produce becoming a premium product, with customers willing to pay more for that, will it feed through from organic milk into organic cheeses?*

*JB: It is being consumer-driven, definitely. I mean, it is not something that we want to do. [...], the growth is huge - we are being asked by our customers to produce organic [...] It’s a very difficult area. I mean, it’s going to come, I think, but it’s being resisted. (B: 1998)*

Since that time, the pace of change has been rapid. Soon after the move into direct purchasing of local supplies, Belton built its first international links to secure supplies of

organic milk for cheese making. Downstream pressures have thus contributed to a further extension of Belton's upstream network. The multiple retailers have encouraged Belton's expansion into organics. Pressure has been exerted directly, through personal contacts with retail buyers, and indirectly, through the category managers. Belton's response also illustrates how newly-developed capabilities (i.e. in negotiating direct supply contracts) can be deployed in order to grasp an emergent productive opportunity:

*Interviewer: So how does the organic supply fit into this new system?*

*JB: One of the problems with organic was that we just could not get supplies of English organic, and we tried. I've been trying for 18 months, two years to try to get milk, English milk, and I just couldn't. So we took the decision to start buying milk in from the Continent and mainly to supply one retailer with organic initially and then it developed on that we were talking to the category manager and they were very keen on it, so we took the plunge really, and quite a risk in that we - we brought milk in from Belgium and we rejected it, [...] it had problems [...] so we rejected it, turned it back. We actually found that the best milk was from Denmark. It comes over now on the ferry, it takes 17 hours to Immingham, and then goes from Immingham to here which is about five hours. So it is actually fresher than every other day collected Milk Marque milk. (B: 2000)*

One perceived advantage of Belton's diversification into organic cheese is the firm's efforts to foster relationships with other category managers, and to engage more directly with retailers, are strengthened (figure 5). However, the firm is not standing still. Its own dairy herd is being converted to organic production, and it is also helping members of its milk field to convert. This is another example of the complex layering of an evolving network. The newly-formed network architecture is already channelling knowledge that seems set to prompt a further round of structural change. Why is this happening? Because network actors are also agents, securing productive opportunities by perceiving impending changes. In this instance, capability development has been stimulated by the manager's ability to anticipate customer requirements (i.e. intensified demand for locally-sourced organic milk when the current domestic shortfall is overcome).

The other striking change in the Belton network during this period is the increase in links to regulatory bodies. The firm has obtained certification for food safety, food quality and traceability, including environmental and animal welfare issues connected to the

manufacturing process (i.e. RSPCA Freedom Foods, Soil Association, Farm Assurance, European Food Safety Inspection Service (EFSIS), and ISO9000). As with the upstream developments, the need for new capabilities has been met by employing a manager who was previously located in another part of its network. In this instance, Belton recruited a quality manager, formerly employed by one of its category managers. Dynamic interactions between upstream and downstream actors have fuelled the increased complexity of Belton's network, and a broadening of firm-level activity (figure 5).

\* ***Insert figure 5 BELTON NETWORK MAP: 1998-2000 about here***

### 5.9 *Changes in the Appleby network: regulation, supply and the Internet*

In comparison to Belton, the basic structure of the Appleby network changed very little in the last 18 years, and the business has not 'grown' significantly in volume terms. However, as in the 1960s, further probing reveals evidence of several change dynamics operating beneath the apparent 'calm' and continuity at the surface. Some of these have already had an impact at firm-level, whilst others which seem likely to do so in the future. This section outlines three of these changes. Firstly, there has been a perceived increase in regulatory pressure:

*CA: Talking about change, there was very little pressure from Environmental Health Officers in those days [the 1960s], very little pressure to pasteurise cheese, all this sort of thing. Whereas now it is quite different, there are pressures from these groups. There's pressure from the public, pressure from the media, pressure from the Environmental Health Officers, all the time, isn't there? (A: 2000)*

These are similar pressures to those identified at Belton, but they have been experienced in a different way. At Belton, downstream linkages (i.e. the category managers) have played a more significant role, and the firm has embraced several certification schemes, which require 'industrial' quality assurance procedures. Appleby's, a smaller firm with less intensive regulatory pressures from its customers, has relied on more traditional control mechanisms, based on tacit knowledge. These include the herdsman's awareness of the health of the farm's dairy cows – a key determinant of milk quality – and the avoidance of certain practices, such as seven day production and butter-making in the cheese dairy, which are known sources of problems in the cheese. The firm is clearly sensitive to the increasing cost

of regulation, and the threat that it may pose to the integrity of this artisanal product, a challenge that is typified by the debate over pasteurisation.

Secondly, the firm has developed closer links with certain key suppliers. In 1998, Appleby's were having some technical problems with a new cloth sleeve, which they had considered as a cost-effective replacement for traditional binding cloths. The subsequent interviews revealed that a new direct linkage with this supplier had been formed, following a period of collaboration when they attempted to solve the sleeve problem:

*CA: We've actually now switched all our calico purchases, like the rolls of calico plus strips, to this [named company].*

*INTERVIEWER: So it's the same company?*

*CA: Yes, but whereas before, we were buying through an agency, who we buy our rennet and everything else from, now we buy direct from them. Basically, it was just one of those situations where we used to buy from the cheese supply company and now we have sourced it direct and are getting a better price. And it came about from doing this experiment, and work with the stockings [cloth sleeves]. (A: 2000)*

In addition to the economic imperative of 'a better price', this sequence of events illustrates a two-way relationship between learning and the formation of network linkages.

Lastly, network flows are changing as a consequence of increased interest in retailing specialist foods, such as cheese, via the Internet. The Appleby's have experienced this change in the form of requests from wholesale customers to supply smaller, packaged cheeses that can be distributed directly via mail order. Despite close downstream relationships with conventional retailers, the current network contains no direct connections with internet-based retailers. However, in discussion it was apparent that knowledge obtained through network links was being used to assess the challenges of the Internet. This included reflections on earlier experiences in supplying a conventional mail order business. At present, the main knowledge flows, influencing the Appleby's perceptions of this productive opportunity are via long-standing *informal* links. For example, they have been able to talk to friends who have already begun to experiment with the retailing of specialist foods via the Internet. As a

consequence of this interaction, the Appleby's have identified several additional capabilities that would be required to operate a business of this kind, and are understandably cautious:

*CA: [D]istribution is a problem, distribution is expensive, and you're talking about guaranteeing next day delivery and all this sort of thing. Well, we're not - it's just not something we're geared up necessarily to do ourselves, but we've got to support these people who are trying to do it, really, and make sure they have got the products to do it. I don't know if it's going to be as wonderful as everyone makes out, is it? [laughter] (A: 2000)*

In a subsequent conversation regarding likely Internet developments, several delicatessen websites based in the UK, USA and other countries were identified, each of which featured Appleby's Traditional Cheshire cheese. Half a century on, the essential processes of artisanal cheese making continue largely unchanged. However, as has been seen, the continuity in production methods contrasts with radical changes to the firm's business network.

## **6. Discussion: network relationships, learning and strategy**

### *6.1 Changing network patterns and flows*

The tale of two cheese makers illustrates one approach to studying the growth of firms within business networks. It presents networks as dynamic, idiosyncratic, *living* phenomena, which need to be viewed at multiple levels, unfolding over time. It also directs attention to deeper, long-running processes, which become 'visible' on occasions. For example, a change in overall network architecture, such as the 1982 MMB liberalisation, provided an opportunity for dramatic changes in the downstream linkages of one firm, as they took distribution into their own hands (Appleby's). The same network-level change in the other firm (Belton) was absorbed with no disruption to the downstream flows. However, continuity at the surface can also mask changed network flows. These changes are the product of generative mechanisms, which may leave the structures in place (at least, for a time), whilst transforming the activity taking place within them. One such mechanism, the rationalising logic of today's supermarkets, has been unfolding since the concept of multiple retail stores was introduced in the late nineteenth century. In the 1960s, it had the effect of dividing cheese makers into three distinct strategic groups. Firms such as Belton adopted production routines that would lead to, and be reinforced by, closer relationships with the multiple retailers, whilst Appleby's

retained traditional processes. However, the *network*-level consequences of this change did not become apparent until new distribution channels could be formed post-1982. At the time of writing, these processes are working themselves out on the Internet, transforming the zones of manoeuvre of particular firms. Innovation in ‘business to business’ market software is sparking further cycles of supply chain rationalisation. At the same time, specialist suppliers are exploiting new productive opportunities in the ‘business to consumer’ market.

## 6.2 *Network linkages as a resource?*

These findings support the insight that network relationships can operate as a resource at firm level, but one that is necessarily embedded in a specific social structure (Granovetter 1985). These ‘inherited’ factors shape learning, and hence the growth trajectory of firms:

*‘Firms learn, but in the context of what they can know. The disposition of the availability of knowledge is structured by the structure of social relations. What firms know is determined by their position in an industrial network’.* (Kogut 1993: 145).

Belton’s strong links with its category manager, Dairy Crest, have enabled it to acquire the kinds of knowledge that are required to operate in its area of the supply chain. Similarly, Appleby’s links with a number of specialist retailers and wholesalers have enabled it to capitalise on its differentiated product range, by reaching higher margin markets and learning how to ‘build a brand’. However, these firms are not simply the passive objects of network-level forces. This detailed analysis of the co-evolution of individual firms and their networks represents a challenge to the determinist flavour of many industry-level evolutionary accounts. A steady decline in the number of small, farm-based Cheshire cheese makers appears to support the standard determinist reading. However, it ignores the countervailing effects of entrepreneurial networking (Johannisson 2000), highlighted by the Appleby’s decision to board their Land Rover and create new pattern of network relationships. The evolutionary counter-argument would be that Appleby’s occupy a classic market niche, shielding them from the harsh forces of selection. This is an inadequate explanation, because it relies on a retrospective reading of the evidence, which fails to address the *process* of occupation. It also sheds no light on the way that capabilities were exercised and developed, as the firm sought to maintain the isolating mechanism upon which its success is based. Clearly, there are dangers of exaggerating intentionality in these accounts, and one might question the extent to which firm-level learning was imposed by powerful network actors,

rather than being the product of independent action (Child 2000). However, by considering the strategising of these two firms over an extended period, this study provides some support for Penrose's emphasis on the role of entrepreneurial agency in shaping future productive opportunities (Penrose 1959).

### 6.3 *Networks and capability development*

The different network relationships formed by the two firms have played a key role in capability development. Belton's recent upstream expansion, creating its own milk field, has required it to develop new skills in logistics, quality assurance and training. The firm's downstream links to the larger dairy product manufacturers provided both an incentive for the change (i.e. multiple retailer-driven requirements of CCQ) and a model for achieving it. Having moved into direct supply, Belton was also able to extend these newly-acquired capabilities, initially by sourcing organic milk direct from farmers in Denmark, and subsequently by helping farmers in its local milk field to convert. This sequence provides empirical support for earlier work on the co-evolution of capabilities and industry (Levinthal and Myatt 1994, Jones 2001), whereby the creation of new network links can generate a cycle of 'second-order' learning (Argyris and Schon 1978) within the firm:

*'By establishing a new set of linkages, whether by choice of a new submarket to serve, or a new internal organizational structure, management sets in motion a new direction for the development of the firm's capabilities'.* (Levinthal and Myatt 1994: 46)

Sometimes these linkages can be intermittent - and potentially 'invisible' to cross-sectional research methods - yet still provide a vehicle for learning. For example, though Appleby's post-1982 distribution channels have been concentrated on the specialist market, the firm has supplied one of the larger retailers on a few occasions. These links proved to be temporary, but were described in positive terms and acknowledged as a source of knowledge:

*INTERVIEWER: Is there someone with a distinct quality control role?*

*CA: Yes, that's me. We certainly have to be aware of that. It's quite good though, selling to the larger companies, such as [named retailer]. They have helped us to be aware of things that perhaps we were not aware of before [...] Well, I just think you sort of bear in mind their*

*point of view all the time; you must not reject them, you have to accept that that's what the marketplace expects and that it's a very high standard. (A: 1998)*

This study also suggests that the direction of capability development is the product of a complex mix of interacting forces, embedded within the business network. The resource-capability literature is frequently over-optimistic regarding the 'assumed biddability' of organisational resources (Scarborough 1998: 226). For example, taking the organic milk case, several other explanatory factors can be introduced:

- Recent increase in demand for organic products, including cheese, by UK consumers.
- Current UK supply of organic milk is limited and fully absorbed by liquid milk market.
- Multiple retailers encourage category managers to supply organic cheese.
- Current batch sizes of organic cheese are uneconomic for category managers.
- Category managers encourage their smaller cheese makers to supply organic.

Hence, capability development may be affected by the firm's relationships with other actors within the network, and also by actors who operate on the margins. The critical factor, from the perspective of the practitioner, is that some of these links may be 'blind'. In other words, the focal firm may not be aware of these actors.

#### *6.4 Rationalisation, differentiation and the transfer of routines*

Both firms have been under considerable pressure to rationalise production. Belton has undertaken many changes to its production system, consistent with the multiple retailers' requirements for continuous, consistent quality, traceability and cost reduction. Many of these changes (e.g. quality certification and creating a milk field) can be seen as the product of learning from downstream linkages, notably the firm's packers and category managers. Belton has also recognised the importance of differentiation. In addition to its move into organic production, the firm has sought to rediscover distinctive features of its territorial cheeses. Here, much of the learning has occurred through closer linkages with its suppliers, notably in collaborative efforts to improve its starter cultures. When viewed as a whole, the recent changes at Belton show how the firm has incorporated routines that were previously evident in its upstream and downstream contacts. In some respects, these transfers have displaced traditional artisanal knowledge. However, Belton has not been a passive recipient

and imitator. By exploiting ‘zones of manoeuvre’ (Clark 2000) within its changing business network, the firm has been able to secure much greater control over its production and marketing processes, compared to that exercised during the Milk Marketing Board era. Clearly, the ability to do so was also contingent upon institutional changes, beyond the ambit of these firms. However, the same market liberalisation has been exploited in different ways.

Appleby’s has made also rationalising changes, but the source and direction of the knowledge flows informing these actions differ from those at Belton. The main focus for innovation has been to increase efficiency on the Appleby’s dairy farm (5). For example, in 1994, a computer-controlled floating rotary milking parlour was installed. This allocates precise rations to the cattle, based on lactation and other factors. Information on this product was obtained via the informal network; members of the family had seen a similar parlour in operation during a visit to friends in Australia. In the period 1998-2000, there were several small changes to the cheese making equipment and process (e.g. replacing wooden shelving and cheese molds with modern equivalents, revising working procedures). However, more fundamental change was constrained by a strong ethos of making cheese in a traditional way, rather than ‘for a price’. The catalyst for innovation in the cheese dairy was a change in the firm’s *internal* network rather than any external linkages. Following the sudden departure of a long-standing cheese maker during 1998, Edward Appleby spent some time making the cheese. The family perceived this unplanned and unexpected ‘hands-on’ experience as prompting learning:

*CA: So little things, little old-fashioned, silly things we were doing. Yes, we’ve learned, when we got hands-on in there; it’s amazing.*

*EA: You’ve got to do it yourself first.*

However, the tension between network-level pressures towards rationalisation and the family’s desire to protect artisanal knowledge were evident as the conversation continued:

*CA: Yes, we haven’t actually altered the product, but we took away a few things we did because we had always done them, but which haven’t affected the product in any way.*

*EA: Because, like everything else, you’ve got to cut costs; and I don’t know where that ends.*

## 7. Conclusions

### 7.1 *Practical implications for craft-based firms*

The small artisanal firms populating today's supply chains face some stark choices. The preceding section analysed the growth of two small firms, indicating the different paths that each has taken over several decades. The firms have survived and remain strong, forward-looking businesses embedded within dynamic business networks. Firms can, and do, learn from their network linkages. However, there is also evidence of supplier firms being harmed by inequitable network relationships, notably those formed with larger 'customer' firms. The research suggests some provisional lessons for practitioners:

- ***Be alert to network-level dynamics:*** Small firms may benefit from a more focused and critical awareness of their business networks. This would include gaining a deeper understanding of the factors driving network-level changes over the long term. Mapping network changes, as illustrated here, could help managers to obtain - and to share - useful insights. With increased sensitivity to network dynamics, firms can be better prepared to exploit sporadic and peripheral changes. For example, both Belton and Appleby's created new network linkages in response to changes in the wider network, leading to new productive opportunities.
- ***Recognise the implications of network links:*** Firms are changed by the connections they make. Managers may not be in a position to anticipate these changes in detail, but they can make greater efforts to prepare their firms. New and existing links can be reviewed in the light of the firm's current capabilities and its perceived strategic direction. For example, there may be situations where it is time to abandon old relationships, with the explicit aim of generating new knowledge and capabilities. New linkages are always a calculated risk (e.g. Belton's entry into organic production). The capacity to take such actions is a product of managers' current perceptions of productive opportunity, yet once the actions are undertaken, these perceptions are also transformed.
- ***Creative engagement is better than preservation?:*** Artisanal knowledge can be eroded by rationalising pressures, transmitted through a firm's business network. This can lead to the argument that firms should adopt a defensive strategy, avoiding all linkages into 'mainstream', multiple retailer-dominated supply chains. However, there may be more

constructive options to pursue. For example, Appleby's dramatic entry into a *specialist* wholesaler/retailer supply chain has enabled the firm to protect its core knowledge base and to develop new knowledge and capabilities. By contrast, other firms avoid change and find themselves effectively 'trapped' in traditional but declining business networks. Inertia may prove to be an even greater threat to artisanal capabilities, and the tacit knowledge upon which they are based. The advice for firms in this situation is a special case of two previous points. Managers need to consider carefully the dynamics of their business network, and reflect on the implications of changing (or, indeed, retaining) specific relationships. There are wider ethical issues, concerning the role of craft-based knowledge in society, which fall beyond the scope of this paper. However, one practical implication of this study is that valued artisanal knowledge may be better served through *active* engagement in new network relationships, rather than by seeking to avoid change.

## 7.2 *Lessons for networks research*

This paper has contrasted the networking activities of two specialist food manufacturers over an extended period. It has traced the formation of divergent network morphologies, and has identified some distinctive firm-level outcomes. The accounts highlight the episodic nature of 'entrepreneurial' networking, a product of multi-layered interaction between resources, capabilities and 'productive opportunity' (Penrose 1959: 31). These complex interaction effects include the creation of variable 'zones of manoeuvre' (Clark 2000: 15-16), in which strategic choice is exercised (Child 2000). The paper presented a critique of studies in which atomised conceptualisations of the firm are allied to aggregated, cross-sectional measures, such as concentration ratios and buyer power. It has proposed a fresh approach, based on a combination of analytically structured narrative (Tsoukas 1989, Clark 2000, Sayer 2000) and network mapping (Conway and Steward 1998, Johannisson 1998). Analysis of continuity and change in network morphology, flow (or 'connectivity') and firm-level activity reveals a rich complexity that is effectively 'written out' of more conventional approaches, including those currently informing the competition agencies. A small supplier's ability to maintain core artisanal knowledge *is* affected by the exercise of buyer power. However, both the *extent* and the *consequences* of buyer power are neither fixed nor universal. This variability, which has perplexed the competition agencies, is the simple and inevitable consequence of each firm's unique history, which is bound into its network connections at firm, local and national levels (Johannisson and Monsted 1997, Staber 1998, Karnøe *et al.* 1999, Bianchi 2001). The account of two English cheese makers has provided some support for the

‘Aldrich-Birley’ thesis on networking and performance. However, their contrasting trajectories underline Johannisson’s important caveat (2000: 380-381), regarding the influence of organising contexts. One of the central challenges for researchers is to obtain a deeper understanding of the mechanisms that help to sustain heterogeneity and value, distinguishing generic factors from those that arise from unique histories. This, in turn, should lead to more informed contributions to public policy-making and, arguably, to more effective support for craft-based firms.

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## **Notes**

1. The UK Competition Commission’s inquiry into the power exercised by supermarkets was published on 10 October 2000. In the section on relations with suppliers, the Commission notes that, ‘*There appeared to us to be a climate of apprehension among many suppliers in their relationship with the main parties*’. The report concludes that buyer power is being exercised through practises that are harmful to suppliers and other retailers:

*‘We found that a majority of these practices were carried out by many of the main parties. They included requiring or requesting from some of their suppliers various non-cost-related payments or discounts, sometimes retrospectively; imposing charges and making changes to contractual arrangements without adequate notice; and unreasonably transferring risks from the main party to the supplier. We believed that, where the request came from a main party with buyer power, it amounted to the same thing as a requirement [...] We find that these practices give rise to a second complex monopoly*

*situation. These practices, when carried on by any of the major buyers, adversely affect the competitiveness of some of their suppliers with the result that the suppliers are likely to invest less and spend less on new product development and innovation, leading to lower quality and less consumer choice. This is likely to result in fewer new entrants to the supplier market than otherwise. Certain of the practices give the major buyers substantial advantages over other smaller retailers, whose competitiveness is likely to suffer as a result, again leading to a reduction in consumer choice. We took into account the advantages that can result from buyer power in relation to those suppliers with market power, and other offsetting benefits in relation to certain of the practices. We nonetheless conclude that the exercise of 27 of these practices by the five major buyers meeting the 8 per cent criterion operates against the public interest'. (Competition Commission 2000: 4).*

The Commission proposed a mandatory Code of Practice for all multiple retailers with at least an 8 per cent share of grocery purchases for resale. This would include the major UK buyers: Asda, Safeway, Sainsbury, Somerfield and Tesco.

2. In her final contributions, Edith Penrose (1914-1986) makes an explicit call for network perspective to be addressed (Penrose 1995, 1996). However, the causal linkages between networking and the growth of a particular venture are difficult to identify (Chell and Baines 2000: 195, Johannisson 2000: 376).
3. Hedström and Swedberg (1998: 15) argue that, 'The belief in explanations that provide accounts of what happens as it actually happens has pervaded the sociological literature for decades and has produced an abundance of detailed descriptive narratives but few explanatory mechanisms of any generality. It is through abstractions and analytical accentuation, however, that general mechanisms are made visible'. This article seeks to combine rich narrative with an appropriate level of analysis.
4. The author would like to thank the owner-managers, who gave their time to participate in extended discussions, to review draft network maps and to clarify many detailed points.
5. Farm-based cheese makers are clearly affected by changes in dairy farming. Though detailed discussion is not possible here, one important aspect should be noted. Whilst milk production in the UK was stable during the 1990s, farmgate milk prices were

extremely erratic compared to those in other EU states, and are now the lowest in the EU (i.e. approximately Euro 24 per 100kg at 3.7% butterfat: MAFF 2000, table 13). This has placed an additional pressure on margins. Reduced incomes are bound to affect other farm enterprises. There have also been many exits from the industry in recent years (Bates and Pattison 1997, Deloitte & Touche 2000).

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**Table 1: Wholesale cheese production in the UK in 1999 (thousand tonnes)**

<i>Type</i>	Cheddar	Other long-life territorials	Short-life territorials	Blue vein	Mozzarella	Other	Total
<i>Volume</i>	209	28	18	10	43	53	360
<i>% share</i>	58.1	7.7	5.0	2.7	11.9	14.7	100

*Source:* MAFF, 2000, table 8 (n.b. excludes farm cheese production)

**Table 2: UK Cheese production, imports and exports in 1999 (thousand tonnes)**

Domestic production	EU imports	Non-EU imports	EU exports	Non-EU exports	Total new supply	Change in stocks	Total for domestic useage
368	236	41	48	13	584	1	583

*Source:* MAFF, 2000, table 9 (n.b. includes farm cheese production)

## Guide to the network maps

### *Actor types*

Square	Firm
Triangle	Regulatory body
Star	Advisory body
Circle	Other organisations and individuals

### *Line types*

Thin	Perceived as lower intensity relationship
Thick	Perceived as higher intensity relationship
Solid	Contractual / legal relationship
Broken	Informal / non-contractual relationship
Dotted	'Blind' relationship

### *Acronyms*

ADAS	Agricultural Development and Advisory Service
BSI	British Standards Institute
DHI	Dairy Hygiene Inspectorate
EFSIS	European Food Safety Inspectorate Standard
EHO	Environmental Health Officer
FCA	Farmhouse Cheesemakers Association
HSI	Health and Safety Inspectorate
ISO	International Standards Organisation
MAFF	Ministry of Agriculture, Fisheries and Food
MMB	Milk Marketing Board
SCA	Specialist Cheesemakers Association
TSO	Trading Standards Officer

### *Notes*

A simple mapping format has been adopted for this paper. The focal firms are shown within the grey shaded circle, each of which comprises the dairy farm and the cheese making operation. The principal network links are shown, with 'upstream' actors (i.e. suppliers) above and 'downstream' actors (i.e. customers) below. Regulatory and advisory agencies are grouped to the left and other links to the right of the map. Where there are links between the focal firm and several similar actors, the relevant symbol is repeated three times (e.g. three overlapping squares), irrespective of the number of connections; additional explanation is provided in the text. 'Blind' relationships are defined as those where the focal firm exchanges resources with an actor (e.g. a dairy farmer supplying milk via the MMB), but has little or no direct access to and / or knowledge of that actor. The objective of the maps is to illustrate and to contrast the major changes in the network architectures of the two focal firms during the period 1950-2000. Tracking the different paths taken by the two firms required three network maps for Belton and two for Appleby's. For the same reason, there are differences in the periods covered by the network maps of each firm.

Figure 1

**Appleby's: Network Map 1951-1982**

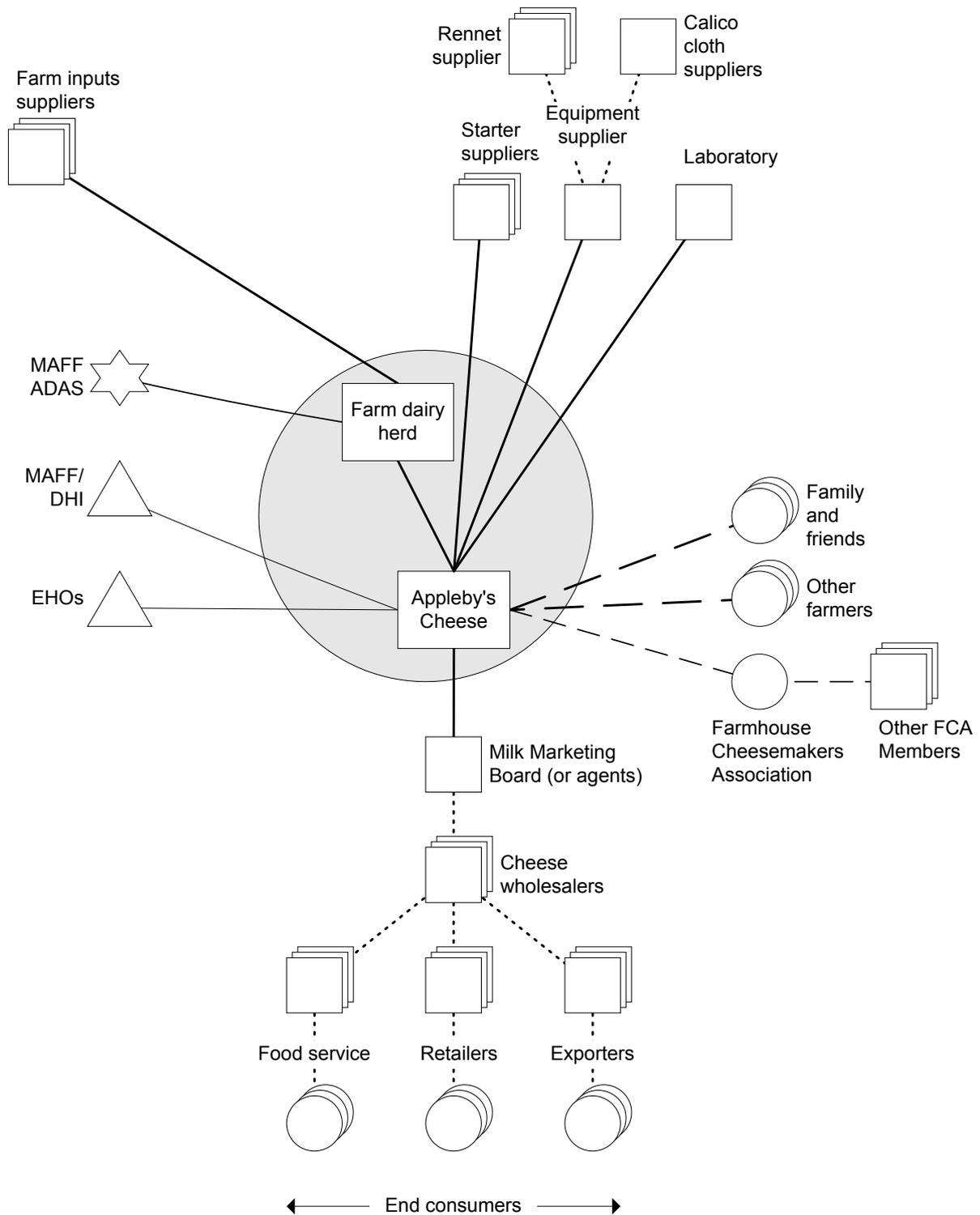


Figure 2

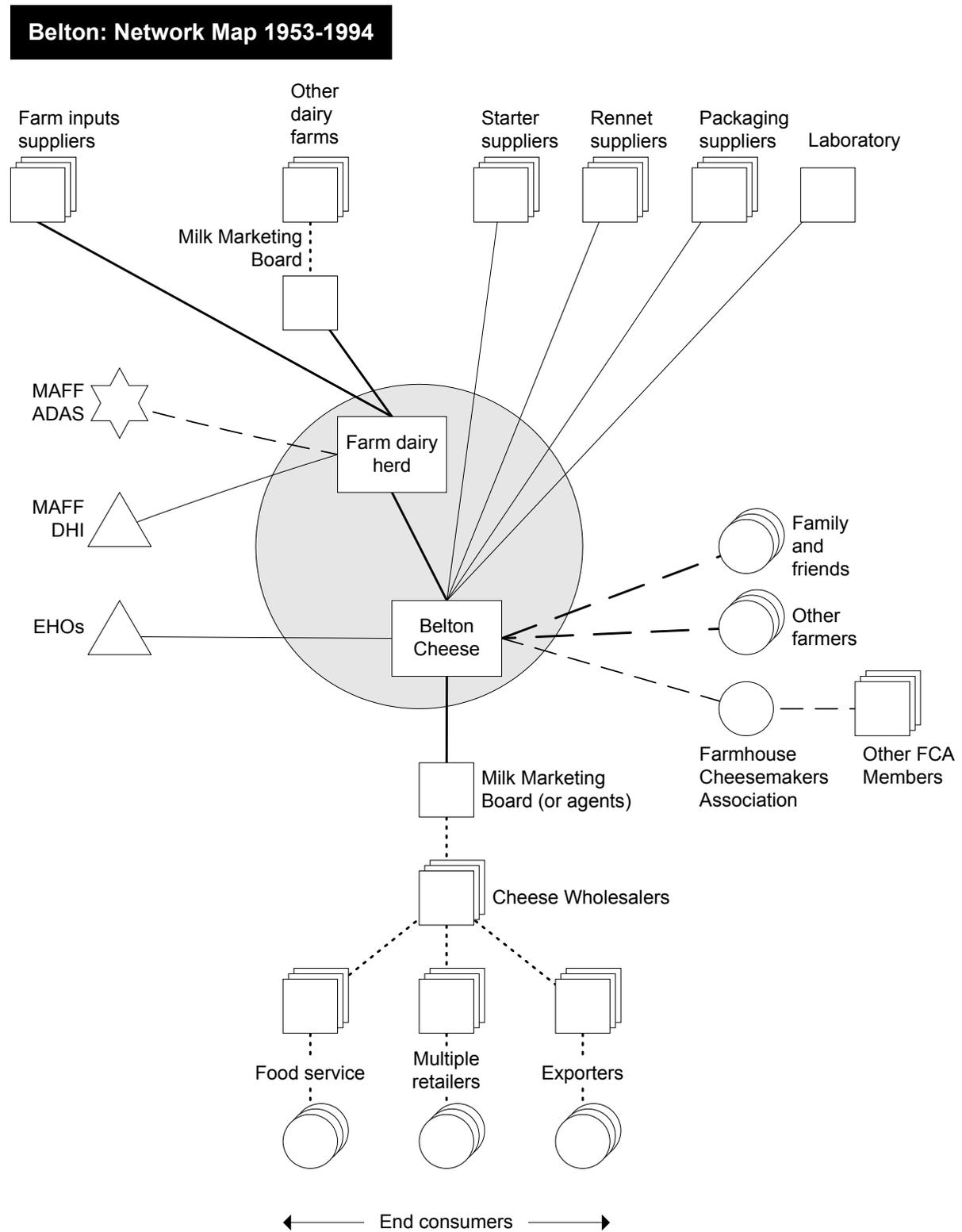


Figure 3

**Appleby's: Network Map 1983-2000**

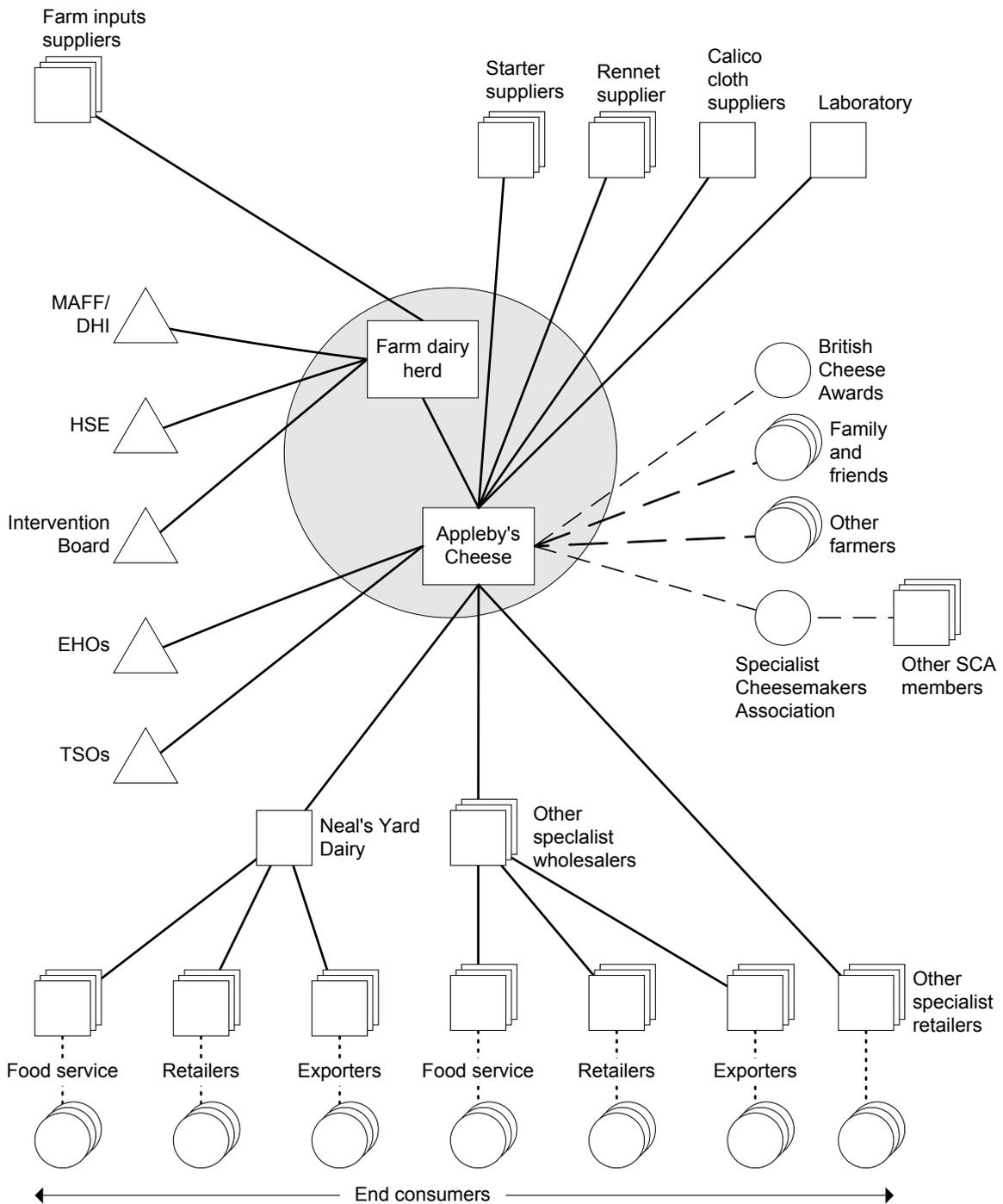


Figure 4

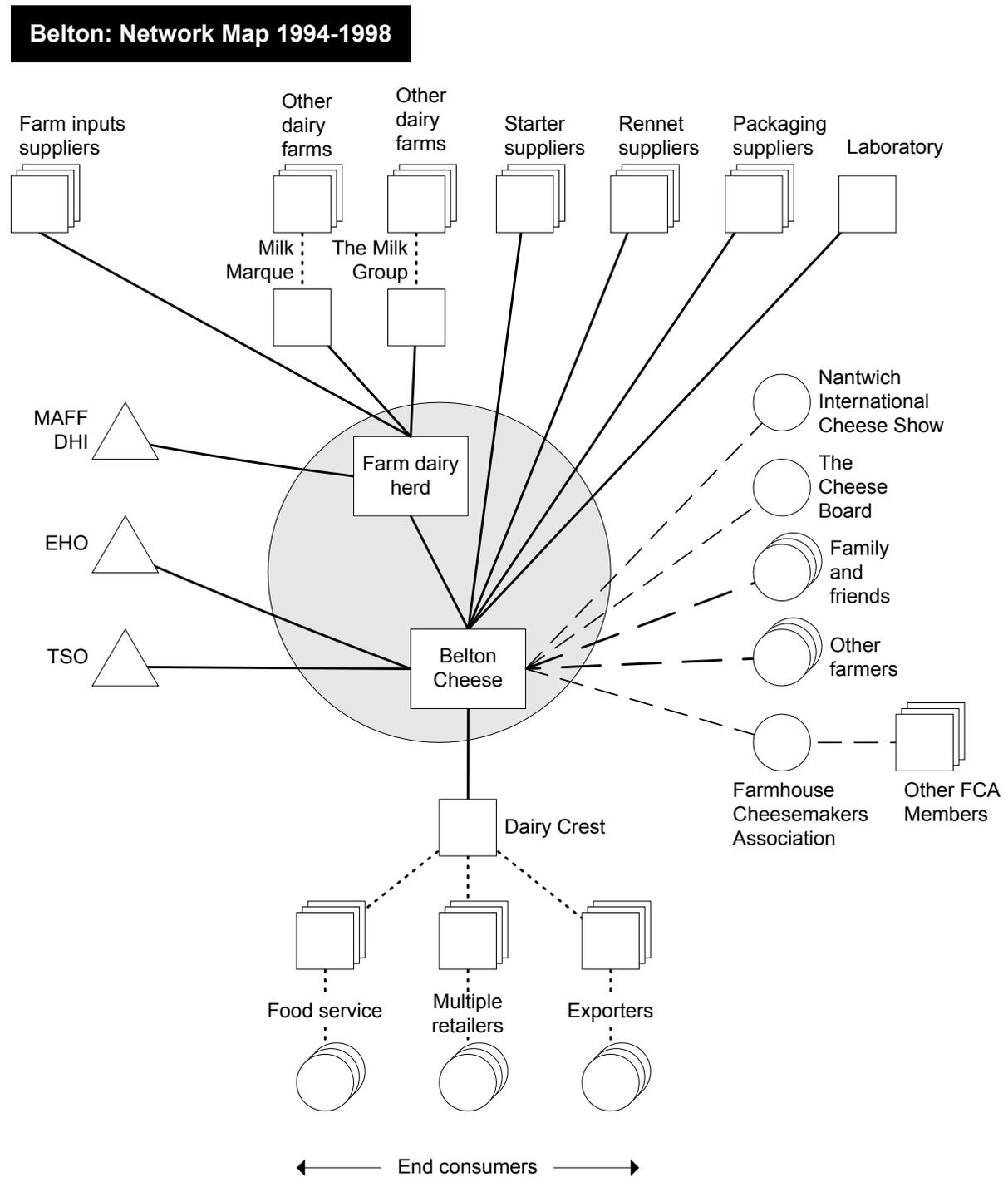


Figure 5

**Belton: Network Map 1998-2000**

