

Emerging Virtual Models for Global e-commerce - world wide retailing in the e-grocery business.

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ABSTRACT:

This paper looks at emerging models for world wide retailing in an electronic market environment. The authors begin by providing some definitions of virtual cultures and a set of models of virtuality which can describe an electronic market. This is then explored within the context of electronic grocery retailing to describe avenues to global expansion. Available virtual forms are determined both by pre-defined communication links and the extent to which these can be substituted by virtual ones, but also by the intensity of virtual links supporting the virtual form adopted. It is argued that seven models suffice to provide and describe a comprehensive dynamic framework of change. It is suggested that for strategic advantage virtual e-groceries must align their management models and communication processes with their virtual culture.

KEY TERMS: Virtual Organisations, World Wide Retailing, e-Grocery, e-Business, Virtual Culture and Change

INTRODUCTION:

Recent changes in technology have given rise to a variety of applications of the term 'virtual' as applied to organisations. One definition suggests that organisations are virtual only when cooperating to produce deliverables across different locations, at differing work cycles, and across cultures (Gray and Igbaria, 1996; Palmer and Speier, 1998). Another suggests that the single common theme is temporality. Virtual organisations centre on continual restructuring to capture the value of a short term market opportunity and are then dissolved to make way for restructuring to a new virtual entity. (Byrne, 1993; Katzy, 1998). Yet others suggest that we define virtual organisations by the intensity, symmetry, reciprocity and multiplexity of the links in their networks (Powell, 1990; Grabowski and Roberts, 1996). Whatever the definition (and this paper offers a way to resolve many of the ambiguities) there is a consensus that different modes of virtual being are appropriate responses to inter and intra-organisational transactions (Hoffman et al, 1995; Gray and Igbaria, 1996; Goldman et al, 1995) and consequently, different organisational structures are appropriate responses to different situations. (Palmer and Speier, 1998; Davidow and Malone).

Few would resist the premise that a virtual organisation allows for greater flexibility and faster responsiveness but the resulting advantages have yet to be measured. There is an assumption that an organisation with little fixed investment in infrastructure will be more responsive to a changing marketplace, hence more likely to attain global competitive advantage; but this ignores the very real power which large integrated organisations can bring to the market in terms of sustained innovation

over the longer term (Chesbrough and Teece, 1996). Similarly, proponents of the virtual organisation also tend to underestimate the constraining force of virtual links. Bonds to create a virtual organisation together may strongly inhibit flexibility and change rather than nurture the concept of the opportunistic virtual organisation (Goldman et al, 1995).

For this reason Aldridge (1998), suggests that it is no accident that the pioneers of electronic commerce fall into three categories: start-ups with no existing investment or legacy systems to protect; technology companies with a vested interest in building the channel to market products and services; and media companies, attracted by low set-up costs and immediate distribution of news and information. Similarly, Whiteley (1999) makes an *a priori* division between "hot cakes" and "dead ducks". He argues that internet business channels only work for some trades. Delivery problems, uncertainty factors and costs will prevent items such as groceries, clothing and consumer durables - the "dead ducks" - succeeding in an e-market. "Hot cakes" are things like software, intangibles, books and CDs, and specialist items. His reasoning is that difficult deliveries, costs and delay, coupled with the inability to charge less, inhibit the development of e-business in the majority of physical goods. Whiteley (1999) argues that for these types of goods there will be "large operators who run a marginal e-commerce operation on the back of their conventional facilities (and they will undoubtedly present their results as a success). However for these types of goods most shoppers will want to visit a conventional store and see/feel the goods, possibly stop off for coffee and then take their purchases home, real time, in a plastic bag" (p. 20). Why then is the retail grocery market worthy of study?

RETAILING AND E-GROCERY MARKETS

The retail grocery trade in developed countries accounts for between 30 – 50% of all retail spending on physical products, depending upon income levels and definitions (Wileman and Jary, 1997). As each person in a cash-based economy buys food, this puts retail grocers in a market class of their own. This has given rise to sophisticated networks of supermarket chains expanding by virtue of their advantages of economy of scale, buying power, brand marketing and cross-marketing with loyalty and group promotion packages.

Food retailers are by far the largest retailing group in the UK accounting for almost 38 per cent of UK retail sales, whilst the large grocery retailers alone account for 30 per cent of all UK retail sales. There are a relatively small number of large grocery retailers, each of which operates a large number of stores (on average the large grocers operate 113 stores each, compared to an average of 1.3 stores per retailer for the food sector as a whole), generating a large per-store turnover. The top five large grocery retailers account for 48 per cent of all sales (London Economics, 1997).

In comparison, clothing retailers represent 7 per cent of total UK retail turnover. There are some multiples in this sector, although nowhere near as many as in food retailing, with an average of 1.9 stores operated by each retailer. Electrical and music goods retailers make over 5 per cent of all UK retail sales.

The emergence of larger retail operators has enabled the use of more efficient methods of distribution. Over time, wholesalers have more or less disappeared from many of the retail markets, with large retailers dealing directly with manufacturers. This trend has probably been greatest in the grocery retail market; between 1982 and 1992, retail turnover increased by 125 per cent whilst turnover from delivered wholesale trade increased by only 59 per cent. At the same time the method of delivery has changed enormously as retailers have become more efficient. Before the emergence of multiple retailers, most deliveries to retailers were made by manufacturers or

wholesalers. Such deliveries were of an assortment of products to individual retail outlets. Nowadays, manufacturers tend to deliver large amounts of a particular product in each delivery to a retailer's own centralised warehouse. The retailer has, in effect, internalized the wholesaling and transportation function into its own activities. The advantages of centralised warehousing include: reduced stock levels; reduced delivery visits per store; reduction of necessary storage space in stores themselves; fewer incidents of running out of stocks and empty shelves in the outlet; and lower shrinkage.

The increasing quantity of data that can now be collected and collated by retailers has improved their ability to judge how consumer preferences change over time. As a method of exploiting this new information advantage, many grocery and other retailers have developed stronger relationships with suppliers and have become involved in product development (Hogarth-Scott and Parkinson, 1994)

Advances in technology also have consequences for the nature of retailing itself. The traditional, and, still by far the most popular, form of shopping is one where consumers travel to the retailer to purchase products. However, other forms of retailing, such as mail order, teleshopping and interactive television are all viable alternatives. Moreover, home shopping, especially through teleshopping and interactive television, is likely to increase as technology progresses. It is difficult to know how directly these new forms of retailing compete with more traditional retailers, not least because data on home shopping is currently not collected very rigorously. Clearly, though, any significant growth in these new forms of retailing will be detrimental to traditional retailers and will have considerable effects on the structure of the retail market. The question, of course, is whether there will be a significant growth in these new forms of shopping and whether traditional retailers will adapt to provide these new channels to market, or whether new entrants will occupy the market niche first.

It has been suggested that Interactive Home Shopping (IAHS) might threaten the established supermarket presence by disintermediating the bricks and mortar real estate and associated management capital. Supermarkets are currently testing the potential for IAHS to alter their methods of dealing with customer requests. Trials are under way on at least seventy Web sites in over 17 countries at present (Bos, 1999), but what is not clear is the management strategies behind the deployment of resources in this way. It is likely that virtual forms of organisation will arise to extend or replace existing business models in the grocery trade. To understand therefore the stages of growth and management of organisational change it would be helpful to identify useful models for this industry. This is the current research area.

This paper addresses these aspects as follows. Firstly, a definition of virtual organisations is developed and related to the concept of virtual culture. This is discussed in the context of electronic retailing and the e-grocery business. Seven emerging virtual models are identified - the virtual face, co-alliance, star alliance, value alliance, market alliance, virtual broker, and the virtual space.

Each of these models requires different management and communication processes to maximise and maintain strategic advantage but also to embrace dynamic change. The paper discusses the implications within the context of each model and the e-grocery business. The authors suggest that transformation from one model to another may be the efficient response to market stimuli, and that choice of some forms may preclude the efficient transformation into others. It is not suggested that there is a correct or evolutionary direction of change, rather that there are more predictably appropriate configurations in given circumstances.

VIRTUAL ORGANISATIONS AND VIRTUAL CULTURES.

Virtual organisations are electronically networked organisations that transcend conventional organisational boundaries (Barner, 1996, Berger, 1996, Rogers, 1996), with linkages which may exist both within (Davidow and Malone, 1992) and between organisations (Goldman et al, 1995). In its simplest form, however, virtuality exists where IT is used to enhance organisational activities while reducing the need for physical or formalized structures (Greiner and Mates, 1996). Degrees of virtuality then exist which will reflect:

- ♦ The virtual organisational culture (strategic positioning);
- ♦ The internal and external networks (intensity and nature of links tying the stakeholders together); and
- ♦ The market (IT dependency and resource infrastructure, product, customer).

Culture is the degree to which members of a community have common shared values and beliefs (Schein, 1990). Tushman and O'Reilly (1996) suggest that organisational cultures that embrace new technology, are highly decentralised, and also change oriented are more likely to embrace virtuality and actively instantiate these both within and without the organisation. Virtual culture is then a perception of the entire virtual organisation (including its infrastructure and product) held by its stakeholder community and operationalised in choices and actions which result in a feeling of *globalness* with respect to value sharing (e.g. each client's expectations are satisfied in the product accessed), and time-space arrangement (e.g. each stakeholder has the feeling of a continuous access to the organisation and its products).

Networks can be groups of organisations, but also groups within organisations, where maintenance of communication is paramount to the successful evolution of a virtual entity as an operating e-business. However, the ability to establish multiple alliances and the need to retain a particular identity creates a constant tension between autonomy and interdependence, competition and cooperation (Nouwens and Bouwman, 1995). These relationships are often described as value-added partnerships based on horizontal, vertical or symbiotic relationships. These in turn relate to competitors, value chain collaborators and complementary providers of goods and services all of whom combine to achieve competitive advantage over organisations outside these networks. The nature of the alliances which form the virtual organisation, their strength and substitutability, define the inherent virtual structure.

Markets differ from networks since markets are traditionally coordinated by pricing mechanisms; in this sense, the electronic market is no different. But further "central to the electronic marketplace is the ability of any buyer or seller to interconnect with a network to offer wares or shop for goods and services. Hence, ubiquity is by definition a prerequisite" (Steinfeld et al, 1995). There are different risks associated with being a market-maker and a market-player and different products will also carry different risks. Criteria for successful electronic market development include products with low asset specificity and ease of description and a consumer market willing to buy without recourse to visiting retail stores. (Wigand and Benjamin, 1995). Necessarily, the most important asset to an electronic market is the availability of pervasive Information and Communication Technology (ICT) infrastructures providing a critical mass of customers. A virtual organisation is both constrained and supported by the electronic market in which it operates and the stage to which its business environment has developed as an e-business.

Figure 1 shows this set of relationships.

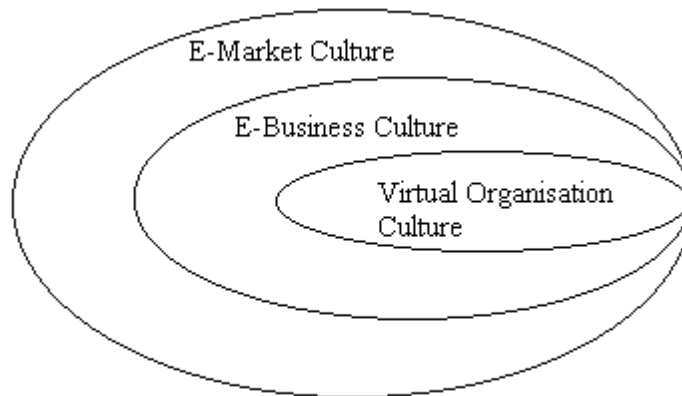


Figure 1. Virtual Organisations and Virtual Cultures

MODELS OF VIRTUALITY

This paper identifies seven different models which describe virtual organisational form. These are: virtual faces, co-alliances, star alliances, value alliances, market alliances, virtual brokers and virtual spaces.

The value of each of these forms lies in their being an appropriate response to the communication and transaction needs within a given nexus of market forces and opportunities.

The Virtual Face

Put simply, virtual faces are the cyberspace incarnations of an existing non-virtual organisation (often described as a “place” as opposed to “space” organisation). They create additional value such as enabling users to carry out the same transactions over the Internet as they could otherwise do by using telephone or fax. The interactivity of communications now available may provide an impetus for a shift in focus of activity as these services need not simply reflect and mirror the activities of the parent organisation but even extend these. We already see the scope of activities extending by use of facilities such as electronic procurement, contract tendering, electronic auctions or trying for new markets by participating in an electronic mall with or without added enrichment such as a common payment mechanism. There is obviously an extremely tight link between the virtual face and the parent organisation as what is happening here is simply that a fresh communications channel has been forged between the existing corporate structure and supply chain and the customer. This model is used by the vast number of companies offering web pages with varying degrees of interactivity to complement rather than replace other channels to market. In some cases organisations find that the different communication challenges require them to establish an entirely new management model independent from the parent group – this has been proposed in a number of electronic retailing situations where the traditional forms of supermarket management cannot be successfully maintained in an electronic market.

The virtual face model commends itself, especially to small companies, as a starting point. Vince Belladonna, manager and co-owner of Dewsons, a franchised retail grocery store in Perth Western Australia was the first person to make interactive home shopping a reality on the continent, purely as an opportunistic extension of existing business. His store had always provided a home delivery service, mainly for the elderly who had difficulty in shopping. It was a free service that spread by word of mouth. As a result enquiries came in from younger customers who, for a variety of reasons, wanted to use the service. The cost of providing the service on a widespread and regular basis was becoming prohibitive, so Belladonna looked for ways to recover this cost before he was forced to drop the service altogether. The idea of a Web based computer shopping system commended itself and Belladonna found a small local company willing to design and provide the web site and online ordering system.

The system viability was tested in a rough and ready way by asking customers whether they would be interested in a web order and home delivery service, were it to be provided. Looking at US experience, Belladonna estimated that the service would cost A\$10 (US\$6) to provide and that he would recover this directly by imposed surcharges.

In April of 1997 a pilot system, lacking full ordering and database functionality, was tested on the Web. The favourable response, with inquiries coming from twenty kilometers in each direction, pushed the full site into operation in June 1997. Three unexpected facts emerged from the operation. Firstly, the number of customers was greater than expected. Secondly the range of goods purchased was wider than expected. Thirdly the shopping basket was up 30% on store customers with less price sensitivity displayed.

So what has the website meant to Dewsons? The virtual face has transcended previous limitations set by geography and pre-established supplier links set by the terms of a franchise. It has enabled them to expand into areas beyond their secondary catchment area. They have established new regular users, both domestic and commercial. A one on one relationship has been established with these customers leading to more loyal customers. It has also given them the opportunity to directly market to these clients. The total basket purchased is profitable due to the volume and lesser promotion items being purchased. In dollar terms, the home delivery section returned on average A\$ 6,000 (US\$4,400) in sales per week by mid-1999.

The Co-alliance

Co-alliance models are shared partnerships with each partner bringing approximately equal amounts of commitment to the virtual organisation to form a consortium. The composition of the consortium may change to reflect market opportunities or to reflect the core competencies of each member. Focus can be on specific functions such as collaborative design or engineering or in providing virtual support with a virtual team of consultants. Links within the co-alliance are normally contractual for more permanent alliances or by mutual convenience on a project by project basis. There is not normally a high degree of substitutability within the life of that virtual creation. This organisational form is not new, but its attractiveness as a virtual model are a consequence of the benefits flowing from low friction communications in real time and the ease with which such structures can be assembled and restructured.

This form of cooperation is by no means a new response to business circumstances: the novelty lies in the speed and efficiency with which such alliances can usefully form, perform their tasks, and reform owing to efficient communications, and hence the ease with which the other partners can treat the partners as a virtual (single) entity existing for a specified time.

Within the grocery trade co-alliances are commonly instantiated, not between retailers who tend to compete or fight for mergers and takeovers, but between retailer and manufacturer – the rise to prominence of “own brand” and “retail brand goods” demonstrates how effective this can be. For many retailers own brand goods may be provided to provide a low cost/low quality alternative to market brands which carry high costs of promotion and marketing, or they may be marketed as premium brands in their own right using the retailer’s brand image. This has successfully been implemented with high visibility within the UK as evidenced by the success of Marks & Spencer, Tesco, and Sainsbury’s brands commanding high recognition and trust from the consumer.

An example of this virtual model in practice is demonstrated by a group of small breweries who formed an alliance as an alternative channel to market and as a means of reaching a wider market by sharing marketing cost. The Scottish Craft Brewers Co-operative (SCB Co-op) is the common virtual face of six small Scottish breweries, all now highly dependent on each other. The co-op was formed to deliver wide area sales and marketing functions for the participant enterprises that had hitherto served only their immediate locales across Scotland. SCB was created to effect the best use of the small companies’ limited resources by using a common interface, ordering and partnering system.

As the virtual face of the co-alliance, the website (<http://www.lugton.co.uk>) has advertising and trade potential but further extends this by linking to two other partners in a market alliance: Safeway and Asda stores, each of which stock some SCB products in regional stores. Both Asda and Safeway supermarket chains are experimenting with IAHS in different forms to provide themselves with virtual faces. Interestingly, away from this market alliance linked by SBC, Asda and Safeway are rivals in the fiercely competitive UK supermarket environment.

The Star Alliance

Star alliance models are coordinated networks of interconnected members reflecting a core surrounded by satellite organisations. The core comprises leaders who are the dominant players in the market and supply competency or expertise to members. These alliances are commonly based around similar industries or company types. While this form is a true network, typically the star or leader is identified with the virtual face (perhaps by brand ownership) and so the core organisation is very difficult to replace whereas the satellites may have a far greater level of substitutability. Communication channels are controlled by the core and this may lead to quite hierarchical communication structures.

A case which may be viewed as a star alliance is that of Doug Carlson's greengrocer.com, a startup supplier of fresh fruit and vegetables in Australia. This was founded on the belief that others, like him, would appreciate groceries of choice delivered. Accustomed to the ease of having a regular boxed grocery delivery, Carlson had come to resent the fact that the selection was chosen for him, so he looked to implement an IAHS site, believing that it could prove a profitable venture. In this case, greengrocer.com is not tied to any specific suppliers – fresh fruit markets and wholesalers are visited according to season and product range. The success of this venture has led to plans for expansion into other cities.

The Value Alliance

Value alliance models bring together a range of products, services and facilities in one package and are based on the value or supply chain model. Participants may come together on a project by project basis but generally the general contractor provides coordination. Where longer term relationships have developed the value alliance often adopts the form of value constellations where firms supply each of the companies in the value chain and a complex and enduring communications structure is embedded within the alliance. Substitutability has traditionally been a function of efficiency and transaction costs: searching for, evaluating, and commencing operations with potential partners has been a costly and slow business procedure, relying as it does on information transfer, the establishment of trust and business rules across time zones, culture, currency and legal frameworks. These have determined the relative positioning of partners on the chain and the reciprocity of the relationship. This model is particularly suited to taking advantage of communications efficiencies not previously available and therefore changing components extremely rapidly in response to evanescent market forces and opportunities. An example of a value alliance is Peapod.com, described below as a virtual component of a market alliance model.

The Market Alliance

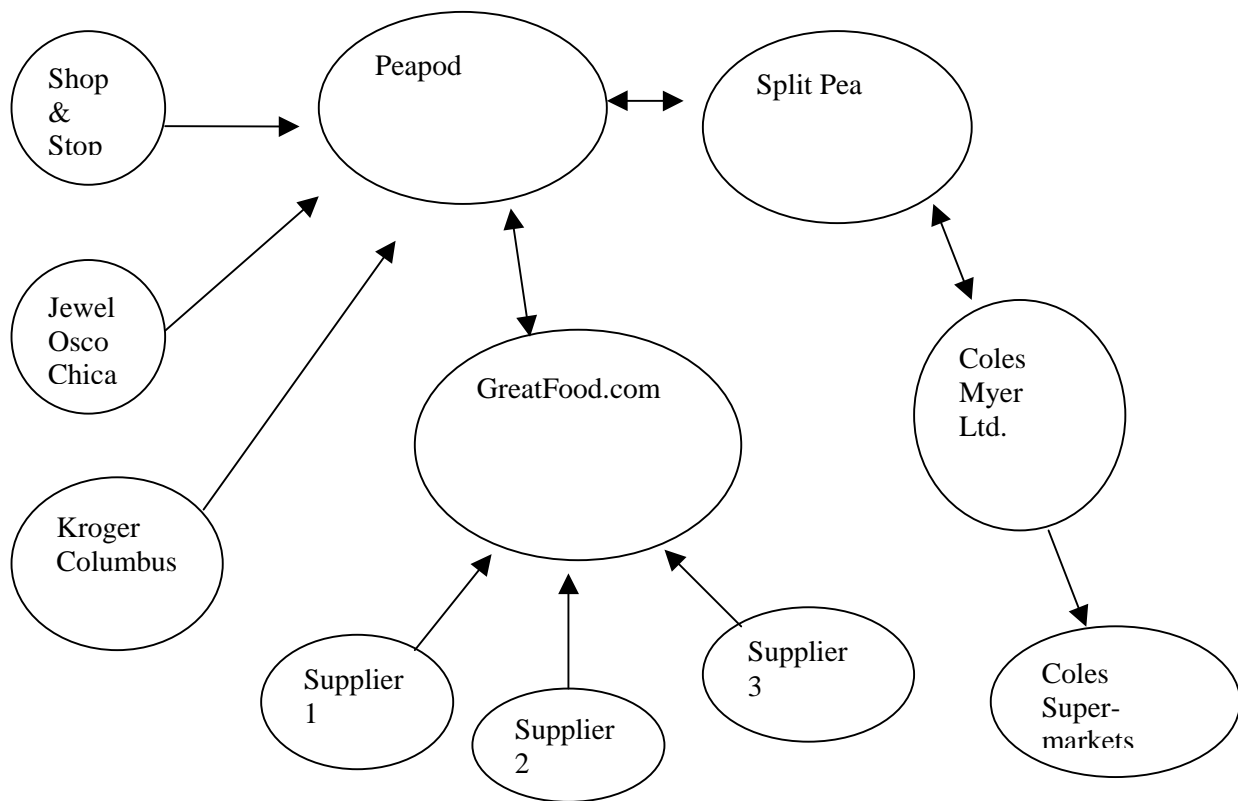
Market alliances are organisations that exist primarily in cyberspace, depend on their member organisations for the provision of actual products and services and operate in an electronic market. Normally they bring together a range of products, services and facilities in one package, each of which may be offered separately by individual organisations. In some cases the market is open and in others serves as an intermediary. These can also be described as virtual communities but a virtual community can be an add-on such as exists in an e-mall rather than a cyberspace organisation perceived as a virtual organisation. Fast and responsive communication channels are essential to preserve such alliances which could only have formed occasionally and relied on duration to be cost-effective hitherto. An existing example of a market alliance in the grocery trade is depicted in figure 2 as seen below:

Peapod.com operates in eight major US conurbations supplying grocery and pharmacy items using interactive home shopping through Web ordering, credit card processing and home/office delivery. They offer a range of items selected from partner stores in each area. [Only three are displayed for clarity.] The company solicits active Web recruitment partners by offering a reward program to owners of web sites who accept links on their sites – rewards are provided in the form of set payments for each referred customer's first and third purchase. The company developed proprietary software and logistics to support its operations and then spun these away from the core grocery delivery business.

Split Pea Software was formed in December 1998 to act as an independent licensing arm for the IAHS shopping and delivery systems and technology. These systems include the server-based shopping application together with business applications such as fulfillment management, product database administration, customer support and Peapod's one-to-one targeting engine. Peapod owns only a minority interest in Split Pea which is majority owned by senior management.

Split Pea, was formed upon the successful conclusion of negotiations leading to a licensing agreement with the large Australian Retail chain operator, Coles Myer Ltd.. Coles Myer has exclusive use of the technology owned by Split Pea within Australia and New Zealand, but Split Pea is seeking to license many of its software services and delivery services elsewhere. Coles Myer is currently testing the system for Coles Online, the virtual face of its Coles retail grocery chain, with an introduction in Sydney.

Figure 2. Market alliance model



Coles Online is the virtual face of a large retail grocery chain operating across much of Australia under the name of Coles. This company has no links to other companies or services on its site as yet and operates by selecting goods from existing Coles grocery stores and operating a home delivery service, despite the fact that Coles Myer owns and operates other large chains with non-competing interests, such as the Target clothing stores and the Officeworks office supply and stationery chain.

In addition, Peapod has formed an alliance with another major internet food distributor, GreatFood.com, which is dealt with in more detail below as an example of the broker model in its own right.

The Virtual Broker

Virtual brokers are designers of dynamic networks. These prescribe additional strategic opportunities either as third party value-added suppliers such as in the case of common web marketing events or as information brokers providing a virtual structure around specific business information services. This has the highest level of flexibility with purpose built virtual organisations created to fill a window of opportunity and dissolved when that window is closed. New intermediaries using the Internet (such as e-Bay and the many auction enterprises) epitomise the growing trend to take fast and inexpensive

communications across time and space for granted and to configure themselves for advantage accordingly.

Greatfood.com, founded in Seattle, Washington USA in 1996, focuses on the specialty food industry. It claims to provide a "best of category" selection with more than 4,000 products and gifts from invited suppliers. It provides an online catalogue, accepts and processes orders and arranges for direct delivery from the maker to the customer. Greatfood currently has a partner program with America Online, Yahoo, Excite and Peapod. Like Peapod.com, GreatFood advertises on its web sites for affiliates: other parties willing (for incentives) to provide links to the GreatFood site for potential customers.

The market may be described as an example of a virtual community given this company's extensive linkages and the diversity of online firms involved with its business. A detailed study of the various inter-firm relations will throw more light on the dynamics of the virtual community as an electronic marketplace. This should further facilitate understanding of the contributions of the online infrastructure to the competitive performance of participating businesses.

The Virtual Space

The seventh category proposed is that of the virtual space. In IAHS this is instantiated by companies such as Webvan, Streamline and to some extent, Peapod: three companies with the avowed aim of becoming large networks of IAHS for groceries in North America.

The virtual space is characterized by being wholly dependent upon virtual contact with the client. There is no other channel to market, nor need they be dependent upon any particular existing intermediaries between themselves and the makers/suppliers of goods and services. Unlike companies such as Peapod who form alliances and act as the virtual face for small chains of retail shops with walk-in retail outlets and existing brand image, these companies hide their warehousing and distribution chain from the customer. They may elect to choose goods and services from companies with a retail face, but they may equally elect to operate (or subcontract) warehousing and delivery service specifically designed for this channel to market. Different forms are currently emerging using this basic form, although there is evidence that the temptation to focus on 'core competencies' and form market alliances with others still operates, as shown by Streamline below.

Webvan has been operating from June 1999 in the San Francisco bay area of the USA with plans to extend across the United States in 26 cities within two years. Webvan offers major branded grocery and drugstore items with more than 300 fresh vegetables, 300 cheeses and 700 wines. In addition it operates its own kitchens for prepared meals, all from a 330,000 square foot dedicated warehouse with no public walk-in facilities. The company does not rely solely on a single supply chain and sources from major fish, vegetable and meat markets in addition to manufacturers and wholesalers, opening new channels to market for local growers and suppliers (Cone, 1999).

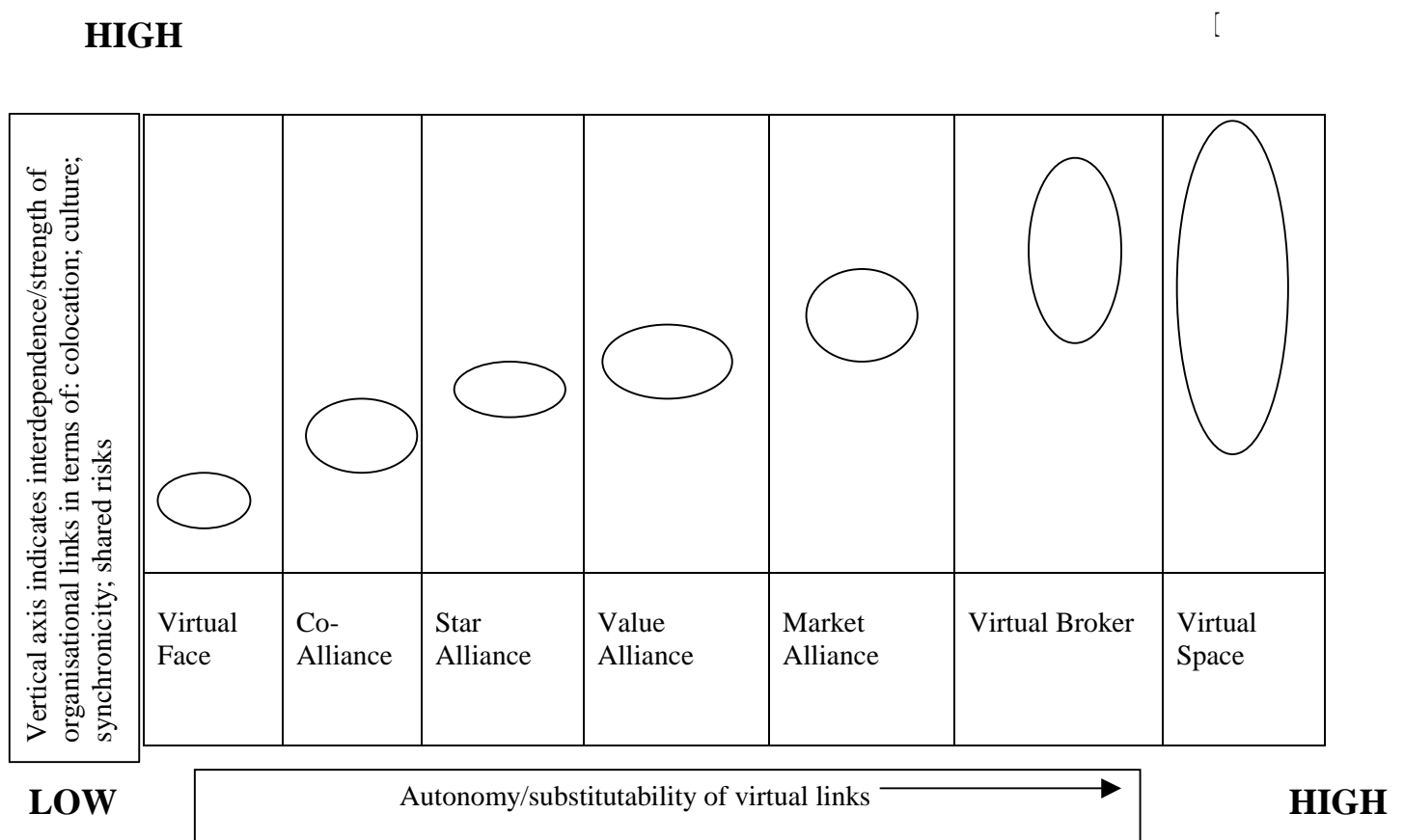
While Webvan expects to deliver to a person in place, at office or home within a 30-minute window, **Streamline** offers to install shelving and refrigeration units at the customer's premises, secured by combination locked access control. This removes the need to accept physical delivery. While the grocery supply chain comes through the company's own warehouse and distribution service, the company also has alliances with other internet-enabled suppliers for goods and services (www.webvan.com). Within the Streamline order branded services from, among others, Starbucks (coffee), Kodak (film and processing) and UPS (package collection). In addition their Web site offers

links to alliance partners Barnes and Noble for books, CDNow for music, eToys for games and Outpost .com for small office and home office equipment supplies.

Peapod, once a coordinator and market alliance leader, is now creating and operating purpose-built centralized distribution centers to replace picking from existing stores owned by others. It predicts that the new warehouses will improve service, improve gross margins and allow for the charging of lower fees. Success of the initial ventures may impel the company to move to this model entirely.

As discussed previously each of these alliances carries with it a set of tensions related to autonomy and interdependence. Virtual culture is the strategic hub around which virtual relationships are formed and virtual links implemented. In order to be flexible, links must be substitutable, to allow the creation of new competencies, but links must be established and maintained if the organisation is going to fully leverage community expertise. This presents a dichotomy. The degree to which virtuality can be implemented effectively relates to the strength of existing organisational links (virtual and non virtual) and the relationship which these impose on the virtual structure. However, as essentially networked organisations they will be constrained by the extent to which they are able to redefine or extend their virtual linkages. Where existing linkages are strong e.g. co-located, shared culture, synchronicity of work and shared risk (reciprocity) these will both reduce the need for or perceived benefits from substitutable linkages and inhibit the development of further virtual linkages. Figure 3 provides a diagrammatic representation of these tensions and their interaction with the models of virtual form.

Figure 3. Models of virtual form



CONCLUSIONS.

The virtual organisation is recognised as a dynamic system (Burn et al, 1999; Sieber and Griesse, 1998) hence one where traditional hierarchical forms of structure and control may not apply. The seven models presented in this paper are not offered as mutually exclusive but as an economical means to classify the diversity of forms which an electronic business model may assume. Some of these are essentially an electronic re-implementation of traditional forms of doing business, others are add-ons for added value possibly through umbrella collaboration and others go far beyond this through value chain integration or cyber communities. What these have in common is that they now seek innovative ways to harness efficient low cost communications, change management and a rich functionality. In the e-grocery business we see examples of these models emerging and evolving as the e-market matures. Each transformation will create new opportunities for strategic advantage in this highly competitive market but also present new challenges for inter and intra-organisational management.

The virtual organisations that succeed will be those learning organisations where the storage, communication and management of knowledge is regarded as their greatest core asset. In the e-grocery world communicating and cooperating for advantage will become the primary mission in the virtual marketplace.

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