December 2004

Online Supermarkets: Emerging Strategies And Business Models In The UK

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17th Bled eCommerce Conference

eGlobal

Bled, Slovenia, June 21 - 23, 2004

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Abstract

The Internet has facilitated the emergence of new strategies and business models in several industries. In the UK, significant changes are happening in supermarket retailing with the introduction of online shopping, especially in terms of channel development and coordination, business scope redefinition, the development of fulfilment centre model and core processes, new ways of customer value creation, and online partnerships. In fact the role of online supermarket itself has undergone some significant changes in the last few years. Based on recent empirical evidence gathered in the UK, this paper will illustrate current developments in the strategies and business models of online supermarket retailing. The main evidence has been collected through an online survey of 6 online supermarkets and in-depth case studies of two leading players. Some of the tendencies are comparable to what happened in retail banking with the introduction of Internet banking, but other tendencies are unique to the supermarket retailing industry. This is a rapidly evolving area and further studies are clearly needed.

1 Introduction

The Internet has facilitated the emergence of new business models in several industries. Previous research has revealed that the integrated models of retail banking have been challenged in the last few years, typified by the deconstruction of the integrated banking models and processes (Yousept, Nyotoprabowo and Li, 2002; Li, 2001; Seitz and Stickel, 1998). Many similar changes are happening in supermarket retailing with the rapid growth of online home shopping services. Changes in terms of channel development and coordination, products/service offering, value proposition model, and operations have been particularly significant. Based on recent empirical evidence gathered in the UK through in-depth case studies and online survey, this paper seek to integrate these different aspects to understand how the introduction of online supermarket influences one's business model design, offering a broad – helicopter – approach in understanding the phenomena. This paper will illustrate the development of online supermarket strategies and business models in the UK.

In the next section, previous studies on aspects of online supermarket retailing business models will be critically reviewed and related issues will be highlighted. Following that, different frameworks from previous studies will be integrated to fulfil the objectives of this study. The research design and the background of the empirical work will then be illustrated, and some emerging tendencies will be discussed. This is still a rapidly evolving area, and new research is clearly needed along several themes, which will be highlighted in the final section of the paper.

2 Previous Studies And This Research

The development of online supermarkets has undergone through two major phases. The first phase happened during the Internet boom, when virtual supermarkets were set up in the US. Examples include Peapod, Streamline, Webvan, HomeGrocer and GroceryWorks. Most of them have been closed down during the Internet bust (e.g., Webvan, Streamline, HomeGrocer). The ones that survived have been bought by brick and mortar incumbents: Peapod was acquired by Royal Ahold and GroceryWorks by Safeway.

Soon after the establishment of various virtual supermarkets, a new phase began when established brick and mortar supermarkets entered the online grocery shopping arena by adopting a 'click and mortar' strategy. In the US, there are Albertson's, Safeway, Wal-Mart, Publix, Lowes Food, and Santoni's; whilst in the UK there are Tesco, Sainsbury's, Asda, and Iceland. These players, by combining the strength of traditional retailing with Internet shopping, have achieved rapid growth. In addition, some old brick and mortar retailers also took over their virtual challengers and continued the development of the e-grocery business by integrating new concepts with the conventional grocery business (Tanskanen, Yrjola and Holmstrom, 2002).

Studies of UK online supermarket strategies and business models have been very limited. Most existing studies were conducted in the US or Scandinavian countries where the history of online supermarket is a little longer. Most studies in the UK have focused on a specific aspect of online supermarket, such as the delivery centre model (Roberts, Xu and Mettos, 2003), the marketing aspect (Murphy and Bevan, 2001), a specific company's operation (usually Tesco) (Delaney-Klinger, Boyer and Frohlich, 2003; Child, 2002; Ring and Tigert, 2001; Seybold, 2001) or the general impact of the Internet on the Industry (DTI and PricewaterhouseCoopers, 2002). However, more recent studies began to examine both UK and US players in terms of marketing, operations and supply chain in a more integrated fashion (Boyer, Hult, Splinder and Santoni, 2003; Ellis, 2003).

In the last few years many studies of online supermarkets have investigated issues concerning process design and physical distribution (Burt and Sparks, 2003; Kamarainen, 2001; Punakivi and Saranen, 2001; Punakivi, Yrjola and Holmstrom, 2001; Yrjola, 2001; Smaros and Holmstrom, 2000), potential value proposition in online supermarket (Anckar, Walden and Jelassi, 2002; Tanskanen, Yrjola and Holmstrom, 2002), different online adoption models of grocery retailers (Charitou and Markides, 2003; Ring and Tigert, 2001), as well as the customer perceptions and marketing aspects of online supermarket (Zeng and Reinartz, 2003; Allen and Fjermestad, 2001; Seybold, 2001; Morganosky and Cude, 2000). These studies have provided a rich background on different aspects of online supermarket business. However, none of these studies have investigated how these changes are reflected in emerging business models in this sector.

2.1 Business Model

Business model is the architectural configuration of different key elements of company's value creation system. It explains how a company create value to customers, generate revenue and therefore sustain its viability over a given business environment (e.g., in Chesbrough and Rosenbloom, 2002; Amit and Zott, 2001; Ethiraj, Guler and Singh, 2000; Hamel, 2000; Van der Heidjen, 1996). In the last few years the concept has been used in analysing the impact of Internet on a firm's competitive advantages (Ethiraj, Guler and Singh, 2000), evaluating new avenues for innovations in sources of value creation (Afuah and Tucci, 2003; Amit and Zott, 2001), and sharing knowledge of strategic nature and communicating Internet related business strategy to business partners (Osterwalder, 2002).

Hamel (2000) introduced a framework of business model, which enables the integration of different areas which this study is interested in, such as strategy, business definition , value chain configuration and process design, value offering, revenue generation, pricing model, value network, channel management, and customer relationship (Figure 1). As such, this framework will be used as a starting point of our analysis.

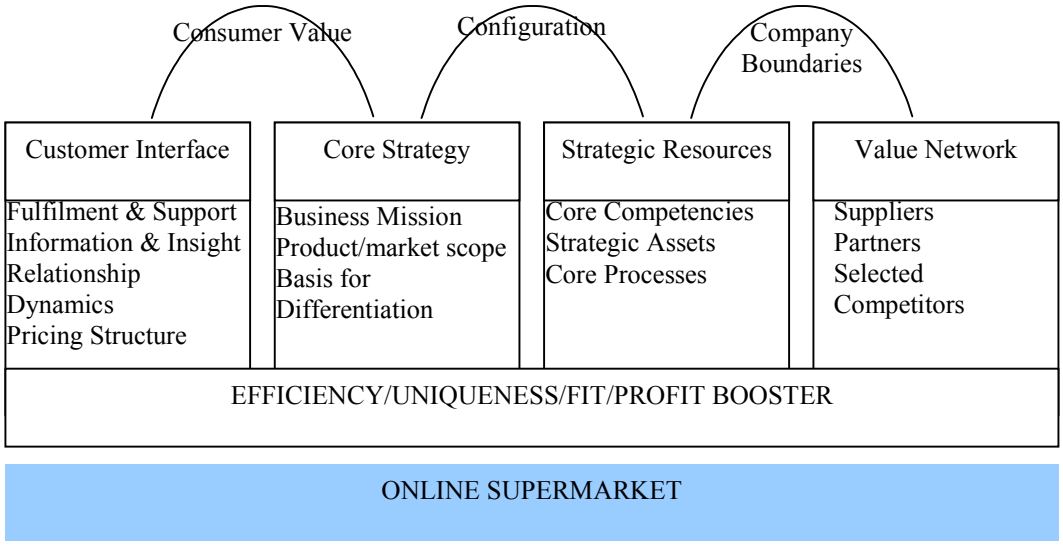

Figure 1: *Business Model Framework (Source: Hamel, G. (2000). Leading The Revolution. Boston, Harvard Business School Press: 96)*

2.2.1 The Fulfilment (Picking) Centre

A key element of online supermarket is how fulfilment is handled (Boyer, Hult, Splinder and Santoni, 2003; Ellis, 2003). There are three models available. The first is *to piggy-back* on an existing supermarket, which is referred to as 'in-store picking'. The model can be adopted by using stores owned by the online supermarket itself or its partner(s). The second is to serve the online supermarket's customers by building a dedicated picking centre. With this model a company can serve a wider area and reduce the cost of picking. Furthermore, food quality as well as availability can be improved (Roberts, Xu and Mettos, 2003), but this model requires a significant upfront investment (e.g., Webvan spent $25m for each automated picking centre (www.cnbc.com)).

A third option is the so called hybrid model - an operational option between in-store picking and a dedicated fulfillment centre (Yrjola, 2001). This model is created by

incorporating Local Distribution Centres into traditional grocery supply chains. This option requires the redesign of the supply chain for various product groups; and in doing so the overall supply chain costs can be reduced by bypassing some stages for the picking for online customers (Tanskanen, Yrjola and Holmstrom, 2002).

2.1.2 The 'Last Mile' Problem

The problem of home delivery represents a major challenge for any B2C e-commerce (Punakivi and Saranen, 2001; Punakivi, Yrjola and Holmstrom, 2001). An important aspect is the delivery time window offered to customers (Punakivi and Saranen, 2001). There are three delivery concepts: attended, unattended delivery and self pick-up. In an attended delivery, a customer must wait during an agreed time slot. Different combinations include 1 or 2 hour delivery windows, and the fulfilment of delivery in reference to when orders are placed: next day delivery or longer (Murphy and Bevan, 2001; Punakivi and Saranen, 2001; Punakivi, Yrjola and Holmstrom, 2001). In unattended delivery, fulfilment is conducted using 'reception box' and 'delivery box'. 'Reception box' is a refrigerated box which is installed in customers' site and 'delivery box' is an insulated box (Kamarainen, 2001; Punakivi and Saranen, 2001; Punakivi, Yrjola and Holmstrom, 2001).

Our literature research also highlighted a series of other issues, including value networks and company boundaries, the nature of customer value and channel complementarities. These issues will all contribute to the discussion of online supermarket business model, which this paper is interested in.

2.2 The Framework For This Study

This study uses the business model building blocks by Hamel (2000) as a starting framework. However, Hamel failed to specify how some elements could be investigated, so we will combine this framework with various concepts from previous studies in our analysis.

The first concept is 'disruptive strategic innovation'. Charitou and Markides (2003) argued that online supermarkets represent a particular innovation in supermarket retailing business model, which is 'disruptive' (it is different from and in-conflict with the 'norms' in the industry), and 'strategic' (it challenges the rules of the game). 'Strategic innovation' can be investigated by analyzing a company's decisions on *who* the target customers are, *what* part of the customers' value system is being satisfied and *how* such needs/wants are satisfied (Markides, 1999a). It is argued that by challenging the rules of the game, strategic innovator has the potential to beat the competition and acquire incumbents' market share.

The second concept is the 'web strategy' (Hagel III and Singer, 1996). 'Webs' are clusters of companies that collaborate around a particular architecture (a technological standard/other common platform) to deliver independent elements of an overall value proposition that grows stronger as more companies join the set. Particularly, online supermarkets are based on 'customer webs' which are organized around the behaviour and spending patterns of a particular market. Each member of a web is wholly independent, only pursuing its economic self-interest in adopting web-like behaviour.

Thirdly, in terms of strategic resources and configuration, the discussion delineated previously on different e-fulfilment models and 'last mile' problem are used to analyse process design in adopting online supermarket ventures. Related to these issues is the

delivery charge. Due to the nature of product offering in supermarket businesses, the low-cost provision of the Internet can hardly be exploited. The cost involved are often compensated with some form of charge, which are the only major differentiating factors on pricing strategy between different online players (in addition to their traditional pricing).

Lastly, in terms of customer interface, it is important that the configuration of different channels to market is analysed (as Hamel, 2000). Murphy and Bevan (2001) have developed a study that can be adopted for this research. We adapt their method of assessment for online supermarket to fit in Hamel's framework in conjunction with other studies outlined in this section. Therefore, instead of seeking to understand customers' perceived value from online supermarket as did Murphy and Bevan, we analyse channel complementarities as well as critical success factors for digital channels of supermarket retailing.

3 Methodology

This paper is based on an intensive research of the UK supermarkets in offering online services. Given the nature of the key issues, a *qualitative*, interpretive approach has been adopted (following Yin, 1994). Rather than proposing hypothesis to be tested, qualitative approach is more interested in *"formulating* (research) *questions to be explored and developed in the research process..."* (Mason, 2002)(p. 19). In this paper the research question posed is, "How the adoption of B2C Internet enterprises are materialised in the design of UK supermarkets' business models?" Related to this, the paper is also interested in appreciating the emerging business models in the UK online supermarkets.

To provide a background and to provide a broad – umbrella – approach to answer the research question, we first conducted a qualitative, online survey of *all* supermarkets providing online grocery services in the UK: Asda, Iceland, Ocado, Sainsbury, Tesco and Waitrose[1]. The findings from this survey, along with the framework described in the previous section, were then used as to the basis for two intensive case studies, which serve as the main empirical work for this research. The choice of case studies was significantly determined by accessibility to high-powered personnel (to act as key informants).

For the online survey, we qualitatively examined the websites of these companies using a framework we built from previous studies (section 2.2.). There are however, some limitations to this research design, especially in capturing the intangible aspects. We recognise that several aspects of the business model cannot be fully captured through a survey, such as the ones related to strategic motives and strategic inspirations. These aspects were investigated in the case study research.

In addition to examining the websites, we also conduct actual online shopping, contacted the customer service of these companies, and gathered secondary information from newspapers, published studies and other sources, but we did not conduct a survey of customers. In examining the element of customer value as well as customer interface we followed Murphy and Bevan (2001): a basket of items was produced containing "*products that can be described as commodity, commonly available from most supermarkets, therefore serving as a useful means for this survey*" (p. 284). Such an

[1] In the UK, there are in total 15 groups of supermarket retailers. Out of these, 6 offer online grocery shopping. Due to the small number of the population, instead of sampling, we have surveyed them all.

approach is taken to examine the different value offering of various online supermarkets and how it impacts their business models. The products we used for the testing comprise: Bread (Hovis medium sliced), Milk (semi-skimmed 2 pints), Ice cream (1 litre of chocolate flavour), 4 large baking potatoes, 1 multipack of Walker crisps, 5 bananas, and 1 jar of cherry jam. A shopping team was then assigned to conduct the shopping process on different supermarkets' websites.

Table 1: *Survey Questions*

QUESTIONS
What are the different products on offer?
What is the fulfilment centre model?
What is the delivery service model?
Delivery details and times
Are there delivery cost?
How much of the UK population covered?
What are the areas of partnerships concerned with the online offerings?
What are the different channels to conduct shopping?
What is the size of the range?
Are the prices the same as in physical store?
How are the products categorized?
How & when do you pay?
How safe is it?
Speed and ease of use?
Any recipe details and ingredients available?
Can you create regular shopping list?
Can you use loyalty cards and coupons?
What happens if deliveries make mistakes?
Is there any help mechanisms or ways of contacting stores for guidance?
Is the online basket information easy to use and alter?
Can you get product information on labelling detail?
Is the product on offer same as in store?
Can you alter & update order?
Any comments on site?

The main empirical base of this research is an intensive case study approach of two global supermarket retailers. Semi-structured interviews were carried out with senior managers so that a strategic perspective on online supermarket and their future developments can be obtained. Views from IT/IS Directors and some senior managers as well as people in charge of new electronic channels were also collected to understand how strategic views are translated into actions in each of the supermarkets. Each interview lasted for at least one hour (some of them considerably longer), often followed by e-mail and phone calls to clarify particular points. In addition, a significant amount of information was gathered from secondary sources,

such as company annual reports, press releases, newspaper clippings and other studies. The web sites of these companies were visited and examined and their services were tried out. A relatively complete profile of each case has been built up by combining and verifying information from different sources. Overall, 5 interviews for the first case study company, and 3 interviews for the second were conducted.

4. Online Survey: Some Emerging Tendencies In The UK

The first phase of the empirical work comprise of an online assessment of all 6 online supermarkets in the UK**.** The results are summarised in table 2:

Table 2: Online Survey: Elements Of Business Models In UK Online Supermarkets

	Elements of business models	Asda (Asda @t Home)	Iceland	Ocado	Tesco (Tesco.com)	Waitrose (WaitroseDeliver)	Sainsbury (Sainsbury's To You)
Core Strategy	**Products on offer**	Grocery, music/ videos/books/dvds/ games, pharmacies, home&leisure and financial service	Grocery and Appliances on a separate section	Grocery	Grocery and financial services, telecoms, wine, electrical, dvds/books/ musics/ videos/games, nutri centre, utilities, ISP, travel, diets/health services	Grocery and wine, gifts, limited specialist travels and lifestyle solutions.	Grocery, music/ videos/ books/ dvds/games, wine, banking, telecom, utilities, wine, electrical
Strategic Assets	**Fulfilment centre model**	In-Store	In-Store	Dedicated Fulfilment Centre	In-Store	In-store	Dedicated and in-store
	Delivery service model	Attended	Attended	Attended	Attended	Attended	Attended
	Delivery details & times	Next day if ordered before 5 pm, 7 days a week, anytime between 10 am-10pm; 2 hour slot; pick up service	Next day if ordered before 3 pm, anytime mon-fri from 10 am-8 pm; 2 hour slot	Can book 21 days in advance, Mon-Fri 10 am-10 pm, Sat 8 am-10 pm; 1 hour slot	Mon – Sat between 9am - 11pm, and Sunday between 10am - 3pm, can book up to 3 weeks in advance; 2 hour slot	Mon-wed & fri 8 am – 8 pm, Thurs 8 am -10 pm Saturday 8 am -6 pm, Sunday 10 am-12 pm; 2 hour slot; pick up service	Next day, anytime mon-fri 10 am-10pm, Saturday 10 am -8 pm, Sunday 10 am-4 pm; 2 hour slot
	Delivery charges	£4.25, free order>99	No but order must >£40	£5, order must>= £25, free for order >=£75	£3.99-£5.99 depending on delivery time	£5, min order £50	£5 any order
	Proportion of UK population covered	Households served by 30 stores around England and Wales (30% of UK population)	98% population	12.5% of UK population across Greater London, Hertfordshire area	96% population	Data not available, less than Ocado	75% of population
Value Network	**Partnerships**	Financial services	none	Grocery: Waitrose	Financial Service; Telecom; Women Portal, Health Portal, Travel, utilities, Game/ Musics/ Books/Videos/Electric al	Delivery service (Ocado) and premium general merchandise)	Financial services, utilities, telecom, travel, art,

Customer Value/Interface	**Channels**	Phone, Internet, Physical Shopping	Phone, Internet, CD Rom, Digital TV, stores	Internet only	Telephone, Internet, Pocket Shopper, stores	Telephone, Internet, Physical Shopping	Internet, interactive digital TV, Physical Shopping
	Size of the range	>14,000 lines food/non food	+/- 4,000 lines	+/-11,000	20,000 lines	+/- 11,000 lines	+/- 17,000 lines
	Prices same as store	Yes	Yes	Yes with Waitrose's Store	Yes	Yes	Yes
	Products categoriza-tion	Aisles, colour coded, shelves & Search facility	Aisles & shelves, Search facility	Categories & shelves, Search Facility	Departments, aisles, shelves details	Aisles & shelves, search facility	Aisles & shelves, search facility
	How & when to pay	Credit/Debit card, upon checkout	Credit/Debit card upon checkout	Credit/Debit card, upon checkout, John Lewis card, monthly	Credit/Debit card	Credit/Debit card upon checkout, john lewis card, bill sent monthly	Credit/Debit card upon checkout
	Security	Encrypted with 128 bit encryption	Encrypted with 128 bit encryption		Encrypted with 128 bit encryption	Encrypted with 128 bit encryption	Encrypted with 128 bit encryption
	Speed	12 min	12 min	16 min	12 min	17 min	16 min
	Recipe and ingredients available	Yes	Yes	No, must go to Waitrose's page	Yes	Yes, really interesting	Yes, quite a good range of this
	Regular shopping list	Yes,	Yes,	Yes	Yes.	Yes	Yes,
	Loyalty cards & coupons	No	Yes, e-Vouchers	Vouchers, John Lewis Card	Yes, clubcard, e-Vouchers, can use Sainsbury's coupon	John Lewis card, no coupon	Yes, Nectar (e-Vouchers) and Tesco's vouchers
Customer Value/Interface (contd.)	**Help / guidance**	Yes, 'help' section, phone, email	Yes, 'help' section, phone, fax, post, email.	Yes, 'help' section, arrange a home visit, phone, email	Yes, 'help' section, phone, email	Yes, 'help' section, phone, post, email.	Yes, 'help' section, phone, post, email.
	Is the online basket information easy to use and alter?	Yes, the basket is shown all the time on the corner of page	Yes, the basket is shown all the time on the corner of page	Yes, the basket is shown all the time on the corner of page	Screen shows last 3 orders every time, basket can be viewed fully separately	Yes, summary of basket showing last order and total price all the time	Yes, the basket is shown all the time on the corner of page
	Labelling details on product information	Yes on some	Yes on some	Yes on some	Yes on some	Yes on some	Yes on same
	Product on offer same as in store?	Yes	Yes	Yes with Waitrose	Yes	Yes	Yes
	Alter & update order	up to 5pm on the day before order is due to be delivered	up to 3pm on the day before order is due to be delivered	Yes, even on the day of delivery, but with cost (need to call)	Yes, before 4 pm a day before delivery	Yes before midday on delivery/collection	Easily use and pleasantly arranged
	Other comments on site	Comprehensive and easy to use	Really user friendly and really comprehensive	Simple, comprehensive and easy to use.	Really user friendly and really comprehensive, but cluttered with so many different products/ services/solutions	Quite good, help section could be better	up to 9pm on the night before order is due to be delivered

The survey highlighted a series of issues. The first is the change towards 'Martini' Style Shopping: Anytime, Anywhere and Anyhow. There is an increasing demand for shopping ubiquitously. Technologies are fast becoming widely available and consumers are increasingly mixing internet and offline shopping with growing confidence. Different channels ranging from telephone to wireless devices are now utilised by supermarkets to provide their offerings.

Our online survey also revealed a series of Critical Success Factors for Digital Channels: speed and ease of use – including shopping list facility; performance; product categorisation – building virtual reincarnation of stores; online basket function and security. Also, most retailers recognise the importance of the learning curve in using the online channel by customers – a significant factor confirmed by Ellis (2003). They are trying to take customers beyond the online shopping learning stage as soon as possible.

Thirdly, the business scope of most supermarkets has been expanding rapidly, often in goods/services that have never been thought of previously, such as utilities, telecoms, financial services, and even travel. As such, the industries in which online supermarkets are competing have changed. Fourthly, supermarkets are utilising their online arms to create a new bundle of products/services to offer *life-style solutions*. Typically around Food and drink related services, some supermarkets offer party organising (e.g., Waitrose with 'by invitation'), online diet recipes (e.g., Tesco with iVillage), health centre, wine class travel, and others.

Choosing the fulfilment model is one of the most important considerations in designing an online shopping service with significant cost implications. The comparison of the actual costs (£24 for in store fulfilment and £15 for dedicated centres – as revealed in www.ft.com) and the delivery premium charged by different online supermarkets (£3.99 - £5.99) reveals how hard it is to make the business profitable. This is further complicated by the delivery details and routes. Most supermarkets are adopting 2-hour delivery slots, except for Ocado with a 1-hour delivery slot. UK players are quite conventional in their delivery service models, all of which adopting attended delivery concept.

5. Online Supermarkets In The UK: Key Issues Emerging From The Case Studies

The online survey was followed by two intensive case studies, which not only confirmed most of the issues discussed in the last section, but several other new trends have also been identified. Similar tendencies have also been found in the banking industry (Yousept, Nyotoprabowo and Li, 2002), implying they are generic rather than sector specific.

5.1 Online Supermarkets: Strategic Innovation Through The Customer Web

Home shopping has been around for quite some time. In the early days, the operation was conducted using catalogue and call centres: phone and fax, similar to those in the fashion retailing industry. However, these activities proved to be too expensive for supermarkets as food's margin was very small. As revealed by E-commerce General Manager in Company A, Internet was then seen as a medium that offered a cheaper alternative for home-shopping. UK players were also very much inspired and challenged by virtual pure play new entrants in the US, and they started to embrace the online home shopping

model. Call centres were replaced by websites and customers were encouraged to conduct their home-shopping via the Internet.

Nevertheless, exploiting growth opportunity is merely the tip of the iceberg. More fundamentally, the online shopping phenomenon mirrors the manifestation of two strategic thinking: strategic innovation and web strategy. Online supermarket signifies the conduct of strategic innovation: changes in one's business model that is different from the traditional ways of competing within the particular industry[2]. In particular, 3 adoption models are identified in the online supermarket context: virtual pure play, baby e-supermarket and hybrid – brick and click – model. Each of them will be discussed later.

Furthermore, the case studies have revealed a particular characteristic of Internet-enabled strategic innovation in the supermarket business: the exploitation of the 'customer web'. By exploiting the ownership of customer relationship, a unique customer database can be built, which create the necessary economic incentives to mobilise other web participants interested in reaching the same customer segment. Such characteristic is also apparent in Financial Service companies and some other unique companies (such as Reader's Digest).

On the one hand, online shopping infrastructure facilitated the advancement to existing customer database which will strengthen the customer web. Company B for example revealed that online supermarkets allow them to understand goods that customers would want but unavailable. Internet's virtual nature offers the possibility to build a limitless shopping site which may attract more customers – potentially expanding the customer web. On the other hand, the infrastructure has also enabled a somewhat rudimentary form of web strategy implementation in supermarket business.

Web strategy can be adopted by arranging independent actors around the 'customer web'. The architects of the web or the web 'shapers' (in this instance the online supermarkets) maximise the size of the web by giving away value capture opportunities to other companies, referred to as 'adapters'. Hagel and Singer (1996) argued that in perfect 'web' strategy, such endeavour will result in 'increasing return': the bigger the web, the larger share of customers' wallet-spending will be available to the web. Company B (the web 'shaper') for example, has put a lot of effort into collecting and analysing their customers' spending from each transaction. Therefore, a unique customer database can be built (forming the 'customer web'), which can then lead to the identification of customers' needs outside the company's business scope definition. As such, web partners can be attracted to serve these needs. Therefore, customer database can be extended and therefore attracting more web partners to join in and so on.

Nevertheless, although the concept of 'customer web' can make a significant contribution in our understanding of the online supermarket phenomenon, we cannot accept the web strategy in its full extent. The case studies did not indicate their inclination to start their strategy from the web-based network and construct their corporate strategy accordingly (which is inherent to the web strategy). The supermarkets still follow the 'traditional' approach of pursuing partnerships and alliances. Company B indicated that most actors involved in the value creation activities of their online supermarket venture are

[2] However, it is questionable the extent to which the value of such concept as 'disruptive' is useful in assessing online supermarket business. There has not been any proof from the case studies of how such strategic move (exploiting upon digital supermarket business) is 'contradictory' to the traditional – brick and mortar – model and could 'deceive' competitors in the game. The concept of 'disruptive' as proposed by Charitou and Markides (2003) is somehow blurred and sometimes contradictory with the concept of 'strategic innovation'. Furthermore, it is confusing how such concept relates to another similar concept of 'disruptive innovation' (as in Christensen and Raynor, 2003; Christensen, 1997). Therefore, the concept 'disruptive' is put aside in this paper.

strategically *chosen* by the web shaper, involving formal agreements (a form of network governance rejected by web strategy theory). We expect that online supermarkets can only exploit this strategy when they choose to *fully* embrace certain 'online channel manager' roles for their customers, such as: portal or infomediary (see the next discussion on personalisation).

The current online supermarket phenomenon can be interpreted as a combination of a 'primitive' form of web strategy and traditional embedded organisational perspectives of network level strategies (as in De Witt and Meyer, 1998). This is illustrated in figure 2: online shopping infrastructure has enabled the customer web to be a platform around which different actors are organised. There is a positive feedback loop to it. When more partners are arranged around the customer web, a richer profile of customer segment is resulted; hence more partners can be pooled in, setting in motion a powerful increasing return loop.

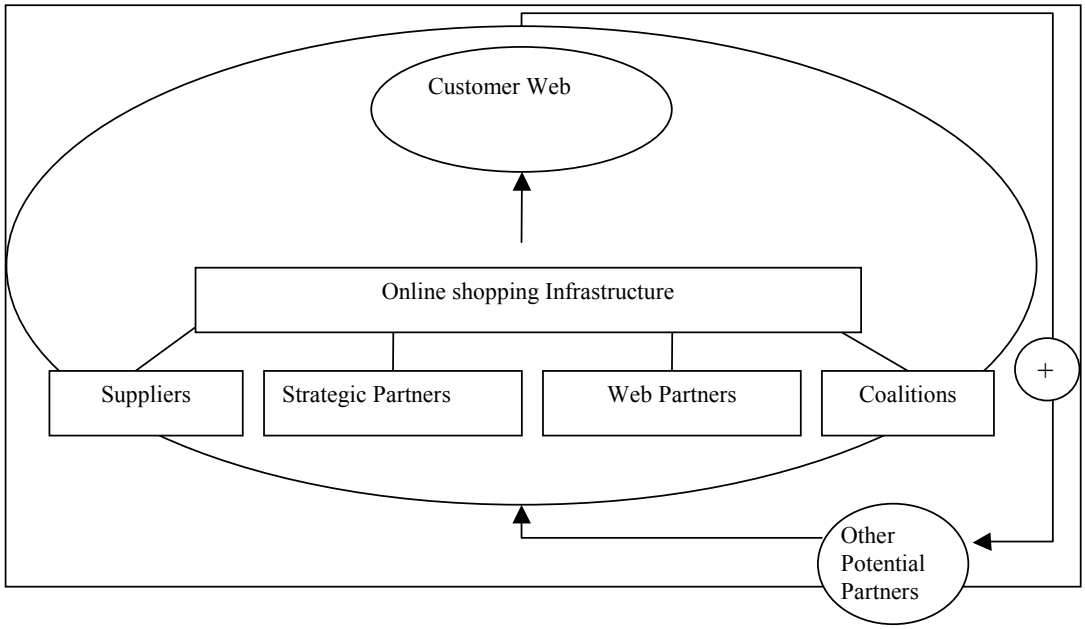

Figure 2: *Strategic Innovation through Customer Web in Online Supermarket*

The 'customer web' enabled strategic innovation is particularly reflected in two phenomena of strategic changes in the supermarket industry: grocerification and personalisation.

5.1.1 Grocerification: The Supermarkets Effect

The strategic innovation inherent to online supermarket has extended the players' business scope definition to include new services in addition to food/grocery. With large customer base, supermarkets can cross sell different products. Particularly, players can now explore opportunities from non-groceries, where profit margins are much higher.

Such redefinition confirms the significance of 'core competence' in exploiting opportunities of strategic innovation (Hamel and Prahalad, 1994). For example case study B did not narrowly understand their businesses as 'grocery provider' but as 'value provider' based on their perceived core competence of 'managing customer ownership by

providing value'. Such reconfiguration of business definition is not strictly novel as supermarkets have long pursued this strategy particularly those pioneering with the hypermarket concept (e.g., Wal-Mart and Carrefour).

However, stores' offerings were always restricted by space and high cost of customer acquisition. Internet has now enabled limitless opportunities to sell different products and services. We refer to it as 'grocerification', applying principles of grocery retailing to other products /services – convenience with high value for money –using the Internet as a cheap medium to acquire customers.

> …we have a whole range of online divisions: (Finance), (Telecom) and (Grocery)… The primary link (between these different offerings) is (our) brand, providing great value to customers. Internet technology is crucial as a primary medium to acquire customer… which is cheaper than say communicating via call centre.
>
> *(UK IT Director of Company B)*

In parallel to the positive feedback loop (as in figure 2), grocerification encourages customer 'lock-in'. By providing different offerings to customers, more share of customer's wallet-spending will be captured, catalysing more insights on their buying behaviour (i.e., a stronger customer web). This leads back to an even more expanded offerings fulfilled by suppliers, network, web or other partners, therefore more money will be spent and so on.

Business scope redefinition has challenged the basic norms in the supermarket industry and new markets being explored, a tendency we refer as the 'supermarkets effect'. Some strong supermarkets have now facilitated price efficiency and better services in a number of industries. In fact, in our current research, it has been revealed that Supermarkets represent a significant threat to Financial Service industry and are increasingly eating into the market share of existing players in the sector.

Based on customer web, critical mass should be established by strategically choosing appropriate actors in the business model. Company B is seeking to pursue this approach. By creating a large number of strategic alliances, they offer a wide range of products/services/solutions to become the ultimate household's partner. During the interview, their IT/Logistics Director pointed out the importance of traffic generation in building critical mass and momentum.

When such momentum has been built, an online supermarket has the opportunity to become 'customer magnets' or 'category destinations', which control the electronic channel by being the sites that provide customers with virtually everything they could want similar to the concept of 'category killer' in the offline world. Ghosh (1998) predicted that customer magnets will be able to shape a particular industry, controlling customer access to suppliers and subtly sway customers' choices. Supermarkets will become customers' door to the outside world, determining the products/services they can access. As such, the promise of *increasing return* from 'customer web' enabled strategic innovation can be *fully* realised. Therefore players will benefit from competitors lock-out in parallel with customers lock-in, two conditions leading to ultimate profit booster (Hamel, 2000).

5.1.2 Personalisation: Going Another Mile

'Personalisation' is one of the most discussed subjects of digital businesses. It mirrors an extra mile for online supermarkets to amplify their exploitation of customer web in performing strategic innovation – taking the customer magnets to a bigger audience.

Online channel enables each customer to enter his/her own point of contact with e-tailers, making it possible for supermarkets to provide personalised offerings to different customers. Targeted promotions and category management can be conducted with virtually no cost, enabling optimisation of wallet-share spending from customers. Nevertheless, there is a high degree of uncertainties in customer uptake. The E-commerce General Manager of company A has clearly expressed doubts about this.

Personalisation holds a unique role in strengthening the relationships between online supermarkets and their customers. It mirrors a strategic movement of e-supermarkets in becoming customers' online channel manager. If this scenario materialises, different sets of web members can be arranged for distinct market segments. Therefore, an online supermarket can be utilised to present a trusted gateway to the World Wide Web – a true customer portal.

The literatures have also proposed some innovative personalised services. Smaros and Holmstrom (2000) for example proposed an idea borrowed from supplier-retailer inventory management (e.g., Vendor Managed Inventory and Collaborative Planning Forecasting and Replenishment). They argue that electronic link will enable access to customer information, allowing online supermarket to actively manage customer household needs. Continuously-needed items are automatically replenished by the retailers. New technologies such as RFID (Radio Frequency Identification[3]) are expected to contribute to such concepts. This mirrors a step further in customer relationship management. A lot of pessimistic views were expressed by the case studies, mostly due to failures with such attempts previously (e.g., by Streamline).

5.2 Several Issues In Designing The Business Model Of 'Customer Web' Enabled Strategic Innovations

Online supermarket signifies the conduct of strategic innovation; players challenge the rules of the game by extending their value proposition to an online home-shopping service. From such redefinition, then business processes, value network and other elements of 'how' are redesigned, calling for the whole redesign of business model itself to be able to exploit the benefits of 'customer web'. Figure 3 below describe such process.

[3] RFID is a technology that implants tiny transmitters into goods (www.ecommercetimes.com)

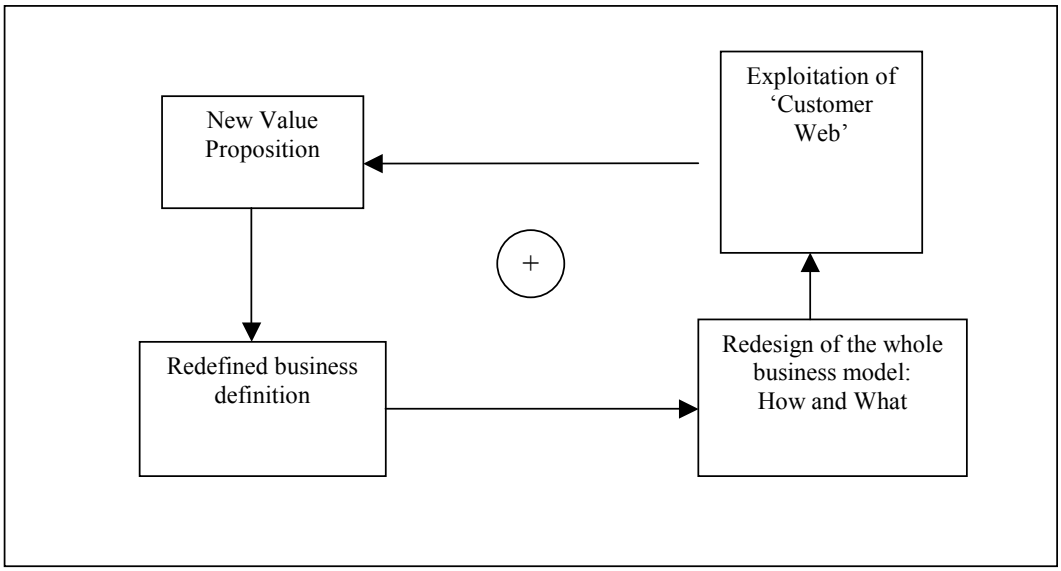

Figure 3: *Strategic Innovation Process in Online Supermarket*

Such redesign of business model involves a complex process design within and beyond organisational boundaries, along with investments and management of infrastructure.

5.2.1 Online Shopping Fulfilment Model & Delivery Service Model

Online shopping fulfilment model is an important decision in adopting online supermarket ventures, representing one of the most expensive investments in infrastructure. It determines process redesign in a supermarket business when one offers online shopping services. For this, the consideration of business volume is critical. Company A for example believed that dedicated fulfilment centres would not work for their current online business volume. They argued that operational profit was difficult in a dedicated picking centre due to the high cost associated (initial investment cost, daily fixed cost and cost of unsold grocery).

The case studies have provided us with valuable insight: infrastructure and process design, coupled with customer uptake are critical success factors in profitability and viability of online shopping business models. Decisions on placing different fulfilment centres as well as different areas-of-delivery served have to be based on the optimum trade-off between scale economies and process efficiency. Different models of delivery are needed to cater for the differences of products' nature.

In medium term, we expect that supermarkets will move to a mixed model: dedicated fulfilment centres in densely populated areas (and high demand of online supermarket shopping), and in-store fulfilment in areas with less online shopping activities. Non-grocery offerings can mostly be based on a dedicated fulfilment model or completely outsourced to third parties (as in company B). 'Hybrid' model may also be incorporated in with in-store fulfilment models in the long run. Such move will entail a major process redesign and learning for the players.

The delivery service model is also an important factor in determining process design of online supermarket venture. Processes related to the last mile problem – delivery staff and van running-depreciation – entail a significant percentage in the overall cost related to online supermarket processes (approximately 28.8% of total cost for in-store fulfilment model and 44.8% for dedicated fulfilment model, www.ft.com). Therefore, these

processes should be optimised to ensure high levels of efficiency and effectiveness, which can prove to be difficult in practice. To overcome this, one of the cases imposes differential pricing strategy to 'educate' customers in choosing their delivery time to optimise capacity utilisation.

Moreover, both case studies reveal that they are not prepared to be too 'adventurous' in designing their delivery service model and will stay on the attended delivery at least for the foreseeable future. Even if they were to offer unattended delivery concept, they believe that the UK market would only prepare for delivery box.

5.2.2 Emerging Models of Online Supermarket Adoption

During the conduct of qualitative online survey as well as discussion with key informants in both case study companies, three adoption models of online supermarket were identified. They are virtual pure play, baby e-supermarket and hybrid – brick and click – model. In each adoption model, some pattern relating to the related business model can be drawn, hence this understanding is essential to address the research question posed in this paper. As such, they are discussed in this section.

Virtual pure plays are non-supermarkets that come to the online supermarket arena with an online-only offering. They build businesses either by performing partnerships with existing supermarkets/food providers or starting from scratch and investing in warehouses. The model benefits from a new system to fully exploit new opportunities offered by Internet to supermarket shopping. Nevertheless, brand building is very expensive. There is also a major disadvantage in economies of scale. Within the UK market, The FoodFerry is the only virtual pure play.

Baby e-supermarkets are those online-only subsidiaries of existing supermarkets– with their own e-brand name. E-supermarkets can exploit new avenues brought about by the Internet using radically different business model (without legacy issues), while the parent supermarket can continue to operate in existing ways. Christensen and Raynor (2003) argued that such a model ensures adequate resources and attention to the new venture. Nevertheless, the parent's brand strength is usually not transferable, therefore baby e-supermarket needs to build customer base from scratch. In the UK, the only player in this category is Ocado from Waitrose.

Hybrid models are the most widely adopted model, as evident in both case studies. Existing players extend their offline operations to include online offerings under the same brand name. The adopters do not believe that the future of supermarket business is fully online, and the bulk of their business still comes from the traditional channels. Nevertheless, they seek growth from online customers. In the UK, players in this category are: Asda @t Home, Sainsbury's To You, Iceland.com, Tesco.com and WaitroseDeliver.

5.2.3 Barriers To Online Supermarkets

The case studies have revealed that for online supermarkets to take off, players must solve several problems. Firstly, security and performance should be continuously perfected and players must change customers' mindset to confidently adopt virtual shopping. Secondly, e-supermarkets need to fully develop their infrastructure. Integration between online shopping system and the back end processes is crucial.

Thirdly, supermarkets need to accelerate their strategic learning and optimise processes (Torsilieri and Lucier, 2000). Players need to fully eliminate problems in deliveries and

product picking and minimise customers' complaints. Customers should be guided through their learning curve in online shopping quickly and 'educated' to shop with profitable basket sizes (company A pointed out an average size of £74 to be profitable).

Fourthly, players need to strategically map out the roles of different channels, optimising their complementarities in effectively and efficiently delivering value. This is crucial to avoid unnecessary (large) investments in different digital channels. Company A for example needed to abandon a particular digital channel after investing millions of pounds in it due to difficulties in attaining acceptable level of business. E-supermarkets should aim to retain repeated purchases in different channels.

Despite the fundamental changes that online supermarket may bring forth, the success of such venture is dependant on many uncertainties. There is a major growth opportunity from digital shopping to compensate the increased difficulties of physical expansion of supermarket players in the UK. Nevertheless, the low margin inherent to food retail sector, coupled with (extremely) 'physical' nature of food (i.e., the relatively short period of its freshness, which means that logistic issues related to food retail business are more complicated than other retail sector) has resulted in great difficulties of materialising the low-cost provision of digital business. Players cannot simply adopt the 'popular' – amazon.com type – e-tailing model. Furthermore, there are still a lot of pessimistic views in the volume of the business. The case studies have revealed that players are still experimenting with different models. From the financial point, there is yet to be seen a significant business benefit case for online supermarkets when compared to the overall supermarket retail business.

6. Six Variables Of Online Supermarkets' Business Models In The UK: Some Emerging Tendencies

From both phases of empirical work, we identified that business models of online supermarkets normally need to deal with six different variables. Firstly, in terms of **channel development and integration**, online supermarkets may pursue a strategy somewhere in the continuum of single to multiple channels. For online only adopters to survive, strong backing from incumbents is essential. The small percentage of online market within the total grocery industry – 0.8% in the UK – presents as a major drawback for this model—questioning its viability in the future. For adopters of multi-channel integration (from branch to wireless devices), efficiency, effectiveness and complementarities of different channels need to be considered in managing multi-channel shopping. Channel portfolio management needs to be pursued along with a seamless view of customer relationship across different channels.

Secondly, in terms of **business scope definition**, online supermarket retailers may be somewhere between a grocery provider to a full household needs provider. The later typically offer a wide breadth of food/non-food offerings. Supermarkets have now entered others' market. They usually sell goods/services provided by established players in the areas, stretching their brands to cross sell new offerings. In terms of revenue generation, such redefined business scope potentially offers a better room for profit margin and can even possibly be the 'holy grail' of online supermarket business model due to the difficulties related with online food retailing. The virtual nature of online business has removed the physical constraints in pursuing grocerification to become a customer magnet.

Thirdly, an online supermarket's business model may differ in terms of **value network.** One can fall somewhere on the continuum of 'heavily networked' to 'discrete'

organisation. In addition to non-food providers, collaboration also include suppliers (e.g., in managing product information in online supermarkets' sites), selected competitors (e.g., in building common standards). If customer demand reaches critical mass, we can see a whole new arrangement of value chain based on online supermarkets in parallel to the current value chain (which is built on traditional supermarkets' arrangement). Different types of partners (web partners, suppliers, coalitions, alliances, etc.) may be positioned differently in creating and delivering customer value.

Fourthly, online supermarket retailers can differ in terms of their **fulfilment models**: dedicated fulfilment centre, in-store fulfilment centre, or a combination of both. Dedicated picking centre is beneficial in terms of capability of handling more volumes, reduction of error handling, non-disruption to existing channel, virtually life inventory to customers and reduction of cost through higher automation/improved accuracy. Nevertheless, this model bears high fixed and start-up costs, hence will not work without a significant volume. Non-grocery offerings such as books may well adopt a separated dedicated picking centre model. Only Ocado fully adopts this model, hence it will be interesting to see how viable they will be in the near future.

Online supermarkets can also piggy-back on the existing infrastructures, adopting the in-store fulfilment model. This model is easier to start with because high investment is not necessary and supermarkets do not have to fulfil certain business volume. In-store picking also ensures a consistent experience of traditional and digital shopping for customers. Nevertheless, as the volume goes higher, online operation may cannibalise the store's operation.

Fifthly, online supermarket business model can be based on the level of **personalisation** in providing the offerings and in point of contacts with customers based on different shopping habits. If successful, a supermarket retailer can provide a gateway to customers in viewing their household needs.

Sixthly, based on their **differentiation strategy**, the business model of an online supermarket can vary from low cost to premium niche. All players are pricing their products identically to their store-based offerings. Hence, online-driven pricing strategy only differs in terms of delivery prices and or minimum basket size. In the low-cost model, delivery price are usually lower, offers are usually targeted for lower middle and working class. In contrast, premium niche usually are targeted for professionals in big cities. Offerings may include premium priced life-style solutions, such as niche travelling and party organising. In all cases, online supermarkets are trying to create an emotional binding with its customers by providing a centre of learning and community.

7. Summary And Future Research

In answering the research question of: ""How the adoption of B2C Internet enterprises are materialised in the design of UK supermarkets' business models?", this research has reviewed previous studies on the use of Internet commerce in supermarket retailing and highlighted a framework to investigate online supermarkets' business models. Recent empirical evidence from online survey of 6 major online supermarkets in the UK as well as in-depth case studies of two leading players is used to examine to what extent such tendencies are happening in the UK; and a series of related issues are discussed.

7.1 Some Emerging Tendencies From The Empirical Work

In the survey, we see the move towards a new style of supermarket shopping: anytime, anywhere and anyhow (with any access device). Upon different arrangement from single to a complete portfolio of channel mix, players are increasingly trying to take customers beyond their online shopping learning stage as soon as possible. Capitalising on their online arms, supermarkets are providing new offerings outside groceries and creating new bundles of products/services. The survey and desk-based research have also shed lights on different approaches adopted by UK players in online supermarkets' operational design. They include the fulfilment and last mile issues. Players are still struggling to achieve operational margins due to high cost in fulfilling customers' demand.

The case studies further confirmed these tendencies and revealed a series of new trends. Online supermarkets are capitalising upon their core competence (unique customer database) to redefine businesses in search of new strategic opportunities. Inherent to such Internet enabled strategic innovation is the 'customer web', on which different types of actors are arranged to create and deliver value.

In particular, two phenomena are identified, which are 'grocerification' and personalisation. Firstly, online supermarkets are now moving towards household providers by applying the principles of grocery retailing (convenience and high value for money) to other offerings and exploit Internet as a cheap medium to acquire customers. To exploit increasing return, online supermarkets are investing to become customer magnets, exploiting opportunities associated with customers lock-in and competitors lock-out. Lastly, online supermarkets can become customers' online channel manager/partner through personalisation, providing customers with a gateway to the world wide web.

7.2 Online Supermarket Business Models

Online supermarket reveals the positive feedback loop of strategic innovation process involving exploitation of 'customer-web' whilst calling for the redesign of business model itself. The case studies have shed some lights on some main issues. Firstly important considerations on shopping fulfilment were highlighted, which include picking and delivery service model. Secondly, online supermarkets' adoption models were identified. They are virtual pure play, baby e-supermarket and hybrid – brick and click – model. The case studies have further pointed out several problems for supermarkets to take off: security and performance, infrastructure, learning curves for supermarkets and customers to attain profit margin and complementarities and integration of different channels in creating value.

Similar to the banking industry, the Internet has catalysed a stream of innovations in the supermarket industry – leading to the exploitation of new strategic opportunities. The differences between both industries in Internet shopping adoption mainly stem from the nature of offerings. In banking, most offerings can be delivered virtually but supermarkets need to emphasise physical movement of products. Therefore the infrastructure invested and value proposition for online adoption are particularly different.

Particularly, the study has identified six different variables in designing online supermarket business models to exploit the benefits of 'customer web' enabled strategic innovation. They are channel development and integration, business scope definition, value network, fulfilment model, level of personalisation and differentiation strategy.

7.3 Future Research

This is a rapidly evolving area with a lot of uncertainties. Therefore, further studies are clearly needed. Firstly, the emergence of new technology – especially RFID – needs to be closely watched in relation to online supermarkets' development. The case studies have revealed its significant potential in revolutionising supermarket industry's supply chain and customer relationship. Secondly, given that some elements of business model are becoming more obvious, it is necessary to examine some of these aspects in detail and paint a general picture of how online supermarket is evolving in the UK. Thirdly, one issue that has not been discussed in this paper is consumer reactions to various new strategies and models and new business practices. Fourthly, more in-depth case studies are needed in other industries to investigate to what extent some of the strategic innovations are generic rather than industry specific. Fifthly, from the theoretical perspective, a better framework for business model is needed to better analyse the impact of digital business adoption into one's business model design. Therefore, more in-depth research is needed in this manner.

7.4 Concluding Remarks

This study has looked at the value of different strategic concepts and their applications in online supermarket practices. During the conduct of the analysis, valuable learning can be particularly drawn. Firstly, the business model framework by Hamel has proven useful in integrating different aspects related with the online supermarket business. Nevertheless, the vast numbers of strategic elements included in the framework may be somewhat too broad that there is a danger of falling into an 'encyclopaedia' approach of analysis. As such, some in-depth strategic concepts such as "core competence" and "strategic resources" may not receive justifiable attention.

In this research, therefore, not all the concepts within Hamel's framework are discussed thoroughly and the discussions are restricted to integrating those interesting issues highlighted by existing literatures in the online supermarket business. It is perceived that for future studies on similar matters, an improved framework on business models may be needed. This should focus on: value proposition, revenue generation and pricing, value chain configuration, customer group and customer relationship.

Secondly, the value of 'strategic innovation' in understanding the online supermarket business (Charitou and Markides, 2003) and its role in achieving competitive advantage is not as clear cut as it was argued to be. The relationship between "what", "how" and "who" of the business definition has proven very useful in understanding how different concepts of business model relate to one another (as demonstrated in the strategic innovation process, figure 3). Nevertheless, in explaining how such strategic moves could generate competitive advantage, the theory is somehow flawed. It is true that the pioneer of online supermarket business in the UK has enjoyed first mover advantage in acquiring market share in *online* food retail business. Nevertheless, to be able to *completely* win the supermarket retail market share and beat other incumbents as well as traditional competitors by such a move (which is argued to be the value of strategic innovation (Markides, 1999a; Markides, 1999b; Markides, 1999c; Markides, 1997)) is arguably *too* naïve.

Acknowledgement

We wish to thank all individuals and companies who have contributed to the project. They have been instrumental in providing the material for this research. Without their cooperation this paper would not have been possible. We would also like to express our gratitude to the online shopping team.

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