

Centre for Marketing



ELECTRONIC HOME SHOPPING
A review of evidence and expert opinion from the USA and UK

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EXECUTIVE SUMMARY

Home shopping currently represents only about 4% of the total retail market for both the UK and the US. However, with the growth of new technologies such as two-way television and Web-connected computers, there is renewed interest in shopping from home. Unless the total retail market grows, and most analysts do not expect that it will, electronic based home shopping will erode profits from current retail forms.

This study reviews the current published evidence on the future of electronic home shopping.

Among the factors that limit use of the electronic home shopping today are:

- The lack of sufficient bandwidth to efficiently deliver multimedia applications
- The lack of consumer access from the home. Many households with computers do not have modems; those that have modems usually have older, slow speed ones
- The range of goods and services offered today is not large, and there is relatively little advantage to ordering online
- The absence of a (perceived) secure payment system for online transactions

Most analysts predict that it will be five to ten years before there is a more complete infrastructure for electronic home shopping, or that sales from online transactions will begin to displace current forms of retailing. The SOHO market (small office/home office) may be one of the first to engage in online shopping, if it provides time-savings and convenience. There is also evidence that the sale of electronically delivered goods e.g. music, video, print, etc. will accelerate online. Although most retailers of durable goods find electronic home shopping to be a distant threat, it is a spectre that concerns them. These concerns include:

- Customers who generate the largest profits for a store could defect to electronic home shopping first. Existing retail stores may find it unprofitable to maintain dual business operations- one to support home shopping, and a second for in-store sales.
- Niche firms could emerge online and skim the most profitable items and the most profitable customers from retailers.
- As the shape of retailing changes, manufacturers or distributors could sell to customers directly.
- Consumers will use 'intelligent agents' to search across retailers, and locate information like the best price or wider selection .

While it is unlikely that the development of electronic home will bring overnight change it raises fundamental issues about the future market role for consumers, producers, and retailers.

1- TWO SCENARIOS OF ELECTRONIC HOME SHOPPING

Scenario I : The consumer's story

It's 12:15 p.m. on a workday, and Esther is planning to do some shopping and have lunch when the phone rings. A friend from overseas has rung up, and says that she is in town for the day. Esther hesitates momentarily while she works out the logistics.. then she suggests that her friend come over for a light dinner, and they go out afterwards, to a West-end show that got great reviews.

Esther hangs up the phone, and reaches for her mouse. She enters the World Wide Web, and browses this month's recipes from her favourite grocery store. She is comfortable with all of the preparations, except the directions for the crème brûlée dessert. So she clicks on a short video, which gives step by step directions. Then she flips back to the main recipe menu, and places an order for all of the ingredients. A message on the screen suggests that a French Bordeaux would be an excellent accompaniment for this meal. Would she like to order it now? Esther clicks on 'OK', and requests two bottles. She clicks a button to indicate that she had finished placing her order- a tally appears of the items she has requested, and another brief message asks whether Esther would like to place her standing weekly order, for bread, butter, milk, and bananas. She clicks 'No'. The system has her debit card number stored, but she enters her thumb print on an electronic pad to verify payment. The system 'chirps' when it recognises her.

It's 12:50 already, so Esther moves quickly to another Web site. First she searches through a list of theatre reviews, because she doesn't recall which theatre had the play she heard about. She find it, and goes to the Web page theatre site. She picks out two balcony seats from the seating plan, and reserves them for that evening.

Esther was planning to go shopping on the high-street over lunch time since she has to give a business presentation next week, and she needed a new suit. Since she doesn't have time to go the stores, she goes to her online personal Web shopper. She indicates that she would like to see a business suit, and that it should cost between £100 and £200. The shopper asks whether she would prefer to have 100 suits picked for her from all shopping services, or if she would prefer to browse key stores. She picks three favourite high-street stores, and browses their suit racks. She selects a blue suit with beige trim. The personal shopper checks the inventory to make sure that it is available in a size 12, and then asks if delivery should be handled in the normal way. Esther clicks 'Yes'.

It's now 1:35 p.m., so Esther spends the rest of the afternoon at the office. At 5 p.m. she leaves for the train station. There is a small food depot at the station with fresh food storage, and the shop assistant hands Esther her bag of groceries. She picks out some fresh flowers, and selects an extra baguette.

At 6 p.m. Esther is busy preparing the crême brûlée. The door-bell rings, and there is evening delivery from the Royal Mail. They bring a box with two bottles of Bordeaux, a parcel with the new suit, an evening paper, and a promotional offer from several restaurants in the theatre district.

Scenario II: The supplier's story - jc@classicbat.co.uk

Click on the word 'cricket' and Classic Bat will appear. This company, which produces hand-made cricket bats, hockey, and cricket equipment, started its life in the mid-80s as a hobby. It expanded in 1991, and went on the World Wide Web this year with cricket information, a 20 page catalogue and advice on bat care. Since then, its export sales have more than doubled and they account for about 20% of turnover.

As a small company (turnover of around £300,000, 6 employees) Classic Bat had limited resources for promotion and advertising. It can't afford to sponsor top players. However, with the Web, they seem to find Classic Bat. Aravinda de Silva, star of the victorious World Cup side, was interested in the company's protective wear and was dispatched a complementary sample.

The company also uses the Internet as a cost-effective way to reach a younger generation who surf its pages.¹

2- INTRODUCTION TO THE STUDY AND DESCRIPTION OF PROCEDURES

2.1 Aim of the report

Electronic home shopping is an evolving industry and there are many scenarios, from the perspective of 1996, of how it will develop. Some people imagine that it will radically change how consumers shop, and 20th century stores will become as obsolete as the five-and dime-store or the open-air medieval market. Others believe that electronic home shopping is just another channel, and it will supplement existing retail channels like in-store shopping, telephone ordering, catalogue, and direct-mail. The two preceding scenarios, 'The Consumer's Story' and 'The Supplier's Story'- remind us that a change in technology can bring new opportunities to both consumers and retailers. The scenario about cricket bats is factual, and it is an example of how the technology of electronic shopping can encourage new firms to enter the market, irrespective of their size and geography.

The consumer scenario is fictional, but few of the elements mentioned in it are beyond the scope of present technologies. In this scenario, the consumer is motivated by the need to save time, to gain access to a wide selection, and to search for the lowest price. The infrastructure for home shopping (from the office) provides a secure system for transacting payment, convenient and efficient delivery, memory based on past transactions, and prospective advertising. While the technology solves many problems, it may also create new ones, like the intrusion of shopping transactions into the work environment by 'time-poor' employees.

In this document we try to set out how future electronic home shopping might develop, and we examine the forces that are setting it in motion today. Our objective is to review the recent evidence on home shopping, and provide some preliminary answers to questions such as: Is electronic home shopping similar to current home shopping activities? Is electronic home shopping a growing market? Is there evidence that consumers will choose it? We also examine the results of recent trials and experiments in electronic home shopping.

In doing so, we look at a number of different retailing forms, and we are careful to not overplay the evidence from current retailing on the Internet. Most future electronic home shoppers are not Internet users, and may not even own a computer today. Mass retailers who have set up online shopping sites, have had slow sales and we attribute this, in part, to the difference between their traditional customer base and the profile of the average Internet user. Conversely, small, specialised retailers who currently succeed on the Internet often have a customer base familiar with computers, technology, or information management. These companies have also succeeded with a low volume of transactions, since they have other channels for customers to reach them, like catalogue sales or telephone ordering.

2.2 Methods and structure of the report

In preparing this document, the sources for our study have been the published views of key players in the retailing industry, the literature on the diffusion of recent past innovations, and evidence from reported trials and surveys on interactive media. We have also conducted interviews with home shopping experts in the UK and the US.

We include several appendices with this report :

Appendix A is a summary of trials that use interactive television as a channel.

Appendix B focuses on the world's first 'commercially viable videotex system', the French Minitel. Home shopping is one of many services which have developed on this system, since its conception in 1983. What are the lessons and experience for electronic commerce from this electronic home network?

Appendix C is a list of some recent World Wide Web sites offering home shopping. Sites on the Web stretch the definition of a 'trial', since participation does not require the special installation of hardware, or selecting respondents. Most retailers say that they are using the Web today as 'a learning experience', but do not officially call it a 'trial'. This appendix also includes a discussion of Web sites that illustrate how electronic commerce is developing. The dynamic of these pages are difficult to capture in print, but they help to highlight new trends and formats in retailing. Much about future electronic commerce can be gleaned from browsing Web sites, and then monitoring changes in electronic retailing over time. The Internet is rapidly changing how we collect information, and the types of inferences we make.

3- ELECTRONIC HOME SHOPPING ON THE HORIZON : A STARTING POINT

- Shopping encompasses a wide range of products and services
- Shopping is a multi-stage process and it takes place across a variety of channels and media
- There are first mover advantages in electronic shopping

3.1 Home shopping - activities and products

There is no single definition or agreement about what constitutes home shopping. Home shopping consists of many different activities, and transacting or buying an item is one of many interrelated steps. Apart from an actual purchase or transaction, home shopping can include browsing for a good or service; collecting information about product features, prices, or warranties; securing funds for the purchase; collecting goods or home delivery; and filling out post-purchase or registration warranty cards.

There are an almost unlimited range of products or services that can be offered through home shopping. They range from products which are based on information and easily transmitted online (e.g. music, electronic newspapers) to goods which are perishable (e.g. grocery store produce, flowers) or require extensive networks for home delivery (groceries, white goods, clothing).

The home shopping market can be segmented into five main delivery channels:

- Catalogue based, e.g. general mail order
- Direct marketing, e.g. off-the-page selling, direct-mail shots and inserts
- Person to person selling, e.g. direct selling, telephone selling, network selling, and party plan
- Television home shopping, conducted over broadcast, cable, or satellite channels
- Electronic and interactive shopping, transacted in full over interactive television or the Internet/Web

Of these various channels, mail-order accounts for more than two-thirds of the home shopping market today (Figure 1).

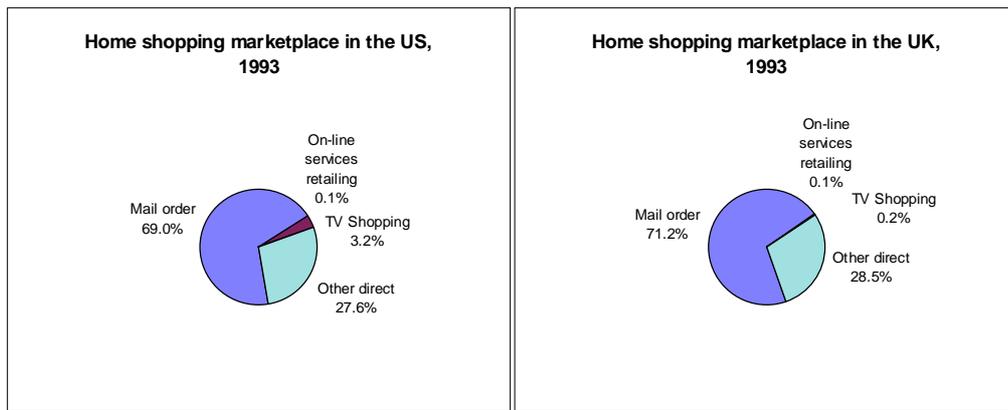


Figure 1 - Segmentation of home shopping marketplace in the US and UK in 1993²
 (Note: "Other direct for US" is estimated)

3.2 Are there first mover advantages in electronic home shopping?

Although home shopping is a thriving business, only a tiny percentage of retail transactions are currently made through *interactive* or *electronic* channels that have a video component, like two-way television, the Internet, and kiosks. However, the future threat may be large because interactive sales will capture share from the existing retail market, which is not expected to expand faster than GDP. It is estimated that a 10 to 20 percent switch in the retail market from the high street to home would lead a number of existing retailers out-of-business.³ Relatedly, high-street/ main street retailers are concerned that small niche firms could enter the electronic retailing market and skim their most profitable product lines. They also fear that non- traditional firms could enter retailing (e.g. banks, online service providers, telecommunication firms) and gain a foothold.

The recent surge of firms setting up Web sites suggests that retailers are anxious to learn more about the medium. Fear of competitors gaining a trading advantage seems to be a strong force driving many retailers to set up a corporate or product Web site. McKinsey Consulting has written that there are first-mover advantages in electronic retailing for a small segment comprised of highly skilled merchants with existing access to key capabilities like direct marketing and fulfilment (servicing orders and processing). For example, mail-order companies, and firms that use data-base marketing may want to exploit their capabilities online. On the other hand, McKinsey believes that first movers should also include those who are vulnerable if they don't act- for example, multi-category retailer and cataloguers with a heavy emphasis on branded merchandise.⁴

4- CHANNELS -OLD AND NEW- FOR HOME SHOPPING

- Traditional home shopping
- Electronic home shopping and networks
- Present and future of Internet shopping

4.1 Traditional home shopping

Electronic home shopping is a relatively new development, but other channels for home shopping are well established. Since the nineteenth century, catalogue sales have flourished in the US, and have been a staple for reaching geographically remote populations. In the UK, catalogue sales developed as a means of extending credit, and were operated through a credit 'agent'. Over the past fifteen years, the demographics of catalogue sales have changed in both countries and they now flourish among more up-scale customers with larger disposable incomes.⁵ Other forms of home shopping include telephone sales, home shopping clubs, and door to door sales. It is estimated that in the United States, home shopping accounts for just 4% of the total retail industry (including food), and that within this industry, catalogue/mail order sales represent more than 90% of the sales.⁶ In the United Kingdom, home shopping has estimated sales of £6.2 billion, and this again represents around 4% of total retail sales.⁷ These figures on the total size of the market vary from source to source, and should be only be used as estimates.

4.2 Electronic home shopping and networks

Many retail analysts consider home shopping by television, and home shopping through the World Wide Web to be a precursor of future electronic shopping. Both interactive television shopping and Web shopping have similarities- they depend upon an extensive and complex hardware system to support them, and the organisers of these channels can fulfil traditional retail functions, like promotion and merchandising. Despite their appeal, some firms have withdrawn from electronic home shopping trials because the investment in hardware and start up costs has exceeded the expected return. In the case of Web shopping, current bandwidths are often not sufficient for intensive graphic activity, 3-D product displays, and multimedia. Other infrastructure shortcomings include the perceived absence of a safe payment system, and suitable home delivery.

The market for shopping by television (see section 6.1) has not grown as fast as some analysts expected. Currently, it does not have true interactivity, because the selection and pace for viewing merchandise is not at the discretion of the viewer. Although cable capacity will provide more home shopping channels, many analysts predict that the World Wide Web will emerge as the preferred shopping channel.

To date, few retailers have found a satisfactory way to charge customers the realistic price for an electronically purchased product (i.e. to recover the cost of building the network that delivers them). This could change in the future, as retailers either reduce their high-street presence or establish purpose-built warehouses that can efficiently process orders for home delivery. Typically, it is estimated that 20% of the product price in high-street retailing is accounted for by store costs and overhead.⁸ The cost of operations varies by industry and the type of retail product that is sold but, for example, in the UK grocery industry, the cost of operations as a percent of sales total is also estimated to be about 20%.⁹

Expanding bandwidth on the Internet, compressing data, and expanding cable channel capacity are prerequisites for developing a network infrastructure for a large scale electronic home shopping operation. The transmission mechanisms are quite diverse (see section 5.1). A different, less cited alternative, might be to lay an information and communication network over the electricity grid. The advantage is that it has almost universal penetration into homes, billing access, and it does not involve digging up the streets.¹⁰

4.3 Present and future of Internet shopping

There are an estimated 20,000 merchants who conduct business on the Internet today, including business to business sales. US online shopping sales in 1994 totalled about \$200 million. However, consumers are currently spending more money on books and magazines covering the Internet than they are actually spending on electronic commerce! A US study suggests that consumers spend from \$300 to \$600 million annually on books and magazines that guide them through electronic cyberspace, whilst they spent only \$200 to \$300 million, in total, on electronic commerce over the Net.¹¹ The sale of books *about* the Net, rather than sales on the Net, reinforces the view that electronic commerce must be viewed today as a pilot of things to come.

What is sold on the Web today

There is some indication that consumers purchase items that they “already know” or items for which they can “define exactly what they want”.

A 1995 telephone study done by MasterCard for the National Retail Federation indicates that in the US the most popular online items are computer software, followed by information, entertainment and computer hardware.¹² Data cited in *Women's Wear Daily* estimates \$140 million was spent in the US on the Web for computer software and hardware, \$126 million for travel; \$85 million for entertainment and \$46 million for apparel.¹³ In general, items that are successfully ordered over the telephone today, like travel and flowers, may easily migrate to Internet/Web sales.

The future of Internet shopping : learning from the French Minitel

The people who purchase goods on the Web today represent a particular segment of the population: male, white, computer literate with a high level of education and income.¹⁴ It is therefore not surprising that the most successful items sold on the Web today are those that appeal to them, like computers, software, travel or entertainment. The important question for retailers is to determine what will change if the Internet becomes a mass media like television. For example, what will be popular Internet services and products in five to ten years' time? The only very large scale implementation of interactive electronic services to date is Minitel, the French videotex terminal introduced in 1982. The cheap terminal was given free to households by the state-owned French telecom company and interactive, profit-generating services rapidly mushroomed. Minitel is used by more than 14 million people. Given the size, the diversity of users and the duration of the Minitel implementation, the following points should be borne in mind when considering the possible growth of Internet sources.

- Minitel is used roughly equally by people from all social categories, educational backgrounds, gender, income ranges and ages.
- Electronic telephone directory and train timetables/ bookings are the most popular services
- Online shopping can be profitable. La Redoute, the French mail-order company gets 20% of its orders by Minitel.
- Games, chat services, sex and entertainment were the most popular items in the early years of Minitel. They are being replaced by personal banking and business transactions.
- It takes times for users to master the new medium. In particular, the convenience and ease of use of the service/terminal is very important. This might be an issue as the PC is perceived as too complex today. Hence the idea of the Network Computer (NC) as the favoured device for mass media interactive services. The Network Computer is a simplified version of a PC linked to Internet. Minitel can be viewed as a text-based precursor of the Net.

More information on Minitel can be found in Appendix B.

5- WHAT HAS STALLED THE DEVELOPMENT OF ELECTRONIC HOME SHOPPING?

- Accessibility
- A secure payment system
- Price
- Product range
- Consumer interest and concerns

5.1 Accessibility

Since the 1960's, analysts have forecast the development of interactive home shopping. There have been a series of management articles in the *Harvard Business Review* that have speculated that electronic commerce was 'around the corner', and that consumers would readily embrace this new technology.¹⁵

Television home shopping

Most US and UK households are equipped for basic television home shopping because they have a telephone and a television. Home shopping programmes are already found on cable or satellite television but their uptake is limited. Penetration of cable TV in US households is about 60%; in the UK cable has been slow to take off: In 1995, 7 million homes were passed by cable, but only 1.5 million were connected (4% of TV homes). There are also about 3.2 million homes with satellite in the UK.¹⁶

Computer home shopping

Most commercial shopping services are on the World Wide Web, which is the advanced graphical part of Internet. Estimating the true number of Internet and Web users is difficult because the Internet is not a centralised network: it is not possible to know how many users actually have access to the network and it is not possible to know which services (e.g., telnet, e-mail, File Transfer Protocol) are actually used. This difficulty is illustrated by two contradicting studies: Nielsen/CommerceNet claims there were 24 million users in the U.S. in 1995 whereas Find/SVP puts the figure at only 9.5 million, calling them the real users.¹⁷ World-wide, there were 30 to 50 million people in 1995 connected to Internet, most of them were business users with e-mail being by far the most widely used service. Internationally, only an estimated 7 to 10 million households have access to the World Wide Web.¹⁸

In the United States, where one-third of households have access to a computer, only one-half of these same households have a modem, and many of these modems have low transmission speeds.¹⁹ This has led one source to estimate that in the US, only 6% of household currently have Internet access. In the UK, less than 2% of households with a home computer access the Internet and those that do are largely using it for business purposes rather than education and leisure.²⁰ Currently, most users access the Internet from work or school, and these are not traditional environments for conducting shopping activity.

Network issues

Interactive home shopping, using a computer or a set-top box, depends upon sophisticated network connections. The development of interactive services and their increasing use of multimedia tools and documents, including pictures, sounds and video, contribute to a greater bandwidth demand. The current infrastructure may not be able to cope with this increasing need for data transmission, particularly since the last mile to the home usually is still copper cable. Among technologies that are being developed to offer broadband networks are:²¹

- **ISDN:** Integrated Services Digital Network (ISDN) provides additional channel capacity, and allows computer-based interactive multimedia service today. Future advances in fibre optic transmission and packet switching may support new broadband communications to the home, but they may not be available for some time. T1/DS1 and DS2 are higher-speed data-grade lines that could also be used to deliver faster speeds.
- **Cable modems:** This allows a computer to connect to the coaxial cable used to bring cable television signals into the home. Cable modems provide much greater speed than modems based on telephony, but they are not expected to be widely available for five to seven years.
- **ADSL:** The Asymmetric Digital Subscriber Loop is a new technique, based on digital signal processing technology, which increases the effective bandwidth of existing (copper) telephony wires to the home by managing the data flow. It is currently used in a few test markets, like the Kingston trial (see Appendix A).
- **Broadcast Systems:** Existing broadcast systems, including Direct Broadcast Satellites (DBS), terrestrial television, and wireless cable, do not have inherent interactivity. They need a back channel which can be low bandwidth so that customers can communicate with the sender. One solution is a wireless service called interactive video and data service (IVDS) which provides a two-way control channel for broadcast television. Another alternative is to provide the back channel over the existing telephone lines.

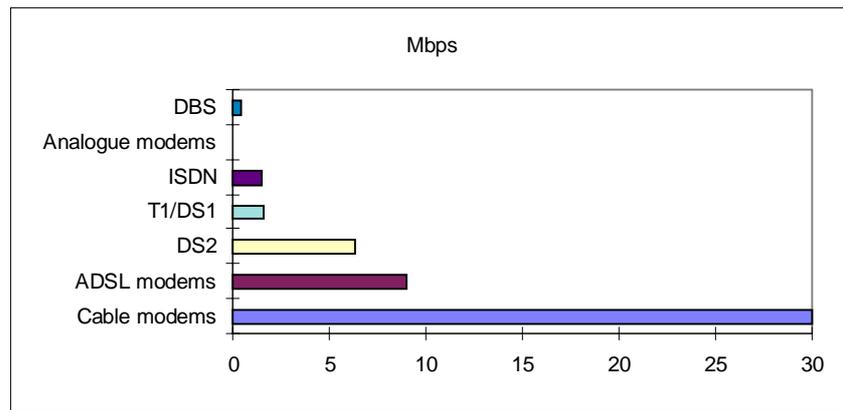


Figure 2 - Maximum downstream speed of different transmission technologies (in Mbps)²²

Users' familiarity

Accessibility can also be viewed as the ability to find and navigate online services. Many computer users are still uncomfortable or unfamiliar with this. Women, who shop more frequently, and make more purchase decisions than men, have been, until now, less frequent users of online services. However, a recent US study suggests that this gender gap is narrowing. Women make up to 41% of the 17 million US adults who say they have used the Internet or other online services in the previous month.²³

5.2 A secure payment system

The security of payments over the Internet/Web has been a source of considerable debate. It is a linchpin in the development of the infrastructure for electronic home shopping. Although there are a small number of online shoppers today, it is estimated that more than 60% of them shop with their credit-cards.²⁴ The other method is to place the order online, but confirm credit-information over the telephone, or by mail. Businesses and consumers appear to be spooked by tales of hacker thefts who steal credit card information although *the Economist* says there is still not a single recorded case of a card number being stolen during a transaction on the Internet.²⁵

The Internet is an open system, and was not initially designed to handle secure payment systems. A variety of systems are currently used to make transactions online, and there are almost daily announcements of new encryption technologies, and 'cyberbanks'. Current systems for Internet payment mechanisms fall into three categories: credit mechanisms, such as credit cards or pre-arranged accounts with billings in arrears; debit mechanisms, such as debit cards, cheques, pre-paid accounts and pre-paid tokens; and pre-paid cash mechanisms.²⁶ The stakes are high to control the payment mechanism, since it is estimated that for every percentage shift from physical to electronic payments, between \$50 million and \$300 million is captured by a payment processor.²⁷

Credit mechanisms

When a customer places an online order by credit card, the service provider encrypts the credit details before passing them from the consumer to the retailer. A new standard, called Secure Electronic Transactions (SET) was announced this summer, based on development by Microsoft and Visa, and by Netscape and Mastercard. In the autumn, 'digital certificates' based on the SET, will be issued to card holding consumers, Internet merchants, and institutions that process the transactions.²⁸

Several firms currently offer systems that have been developed to provide secure transactions. For example, CyberCash, a US firm, issues free client software to registered subscribers. When a user submits a credit card payment, the retailer does not see any of the credit details in the encrypted payment. Cybercash sends the details over the private networks of US banks.²⁹ Another alternative is offered by First Virtual, a California firm. Customers shop the Internet and make online purchases using a PIN number. First Virtual then confirms the purchase with buyers using E-mail, before it is posted to their credit-card.

Debit mechanisms

The growth of online banks signals a different mechanism for making electronic transactions. In the UK, a joint venture between MarketNet and Secure Trust Bank, has led to a service called BankNet, which issues its own version of electronic cheques³⁰. A BankNet customer makes payments to another BankNet customer, and digitally signed eCheques have a private key which is registered with the electronic bank.

A number of online banks also use electronic forms of currency. Deutsche Bank in Germany, and the US online bank, Mark Twain³¹, have tested a debit system known as DigiCash. DigiCash offers a currency transactions system that exchanges hard cash from a user's bank account for "electronic coins". Each coin can only be spent once, and the system is said to comprise blinding techniques so that the identity of the consumer is not revealed. Since this method is subject to counterfeiting, electronic banks are needed to verify the 'coins'.

Although most companies are trying to make Internet transactions more secure, DEC, the US computer firm, dispenses with elaborate security measures and receipt trails. Their Millicent system is based on transacting 'scrip', another type of debit system that exchanges cash for new electronic currency.³² Millicent can be used for minuscule charges for as little as one tenth of a cent per 'hit'. This is likely to be of less importance to home-shopping providers than to those offering information services or games.

Pre-paid cash mechanisms

Very similar to debit mechanisms, pre-paid cash mechanisms are based on smart-cards that hold pre-stored money. They are also proposed as a solution for safe Internet/Web transactions. In the UK NatWest has developed a smartcard called Mondex which was trialed in Swindon, in conjunction with Midland Bank and British Telecom. Mondex utilises a phone card-like device, and users load money on it by telephone, from ATM bank machines, and by other means. If used on the Internet/Web the card would require a swipe mechanism or similar device that can 'read' the cash-value stored on the card. An advantage of this method, vis a vis credit cards, is that no central processing is needed to handle each transaction.³³ There are several competitors to Mondex including VisaCash, and a new electronic cash system will be trialed this autumn in New York City.

The use of smart cards and cybercash has not gone unnoticed by policy makers. The United States government has set up a task force to study electronic payment systems and it will consider whether stored-value smart cards are equivalent to deposits or bank notes. If smart cards are determined to be more like bank notes, then, in effect, they might privatise part of the money supply. A concern is that cybercash would not appear on bank balance sheets, or have reserve requirements.³⁴ There is also a similar initiative in Europe, where monetary authorities are looking into the implications of electronic transactions.³⁵ A possible advantage attributed to all of these different card-based systems is that if consumers get used to a new payment form that does not involve cash, it will break down barriers to using electronic forms of payment on the Internet/Web.

5.3 Price

Some product lines are sold extensively by direct marketing and through the Internet, and retailers like Dell Computers and Gateway do not sell to consumers through retail stores. Dell, which is fifth largest in PC sales world-wide, says that the 'direct model' allows it to lower costs and be more responsive to customers.³⁶ For a more general discussion of supply costs in electronic commerce see Benjamin and Wigand (1995).³⁷ The information in Figure 3 is based on their secondary research which suggests that there should be a lower cost of providing goods through electronic channels since store-front operating costs are eliminated. They do not necessarily factor new electronic costs into this analysis, like the cost of building and maintaining a new web site.

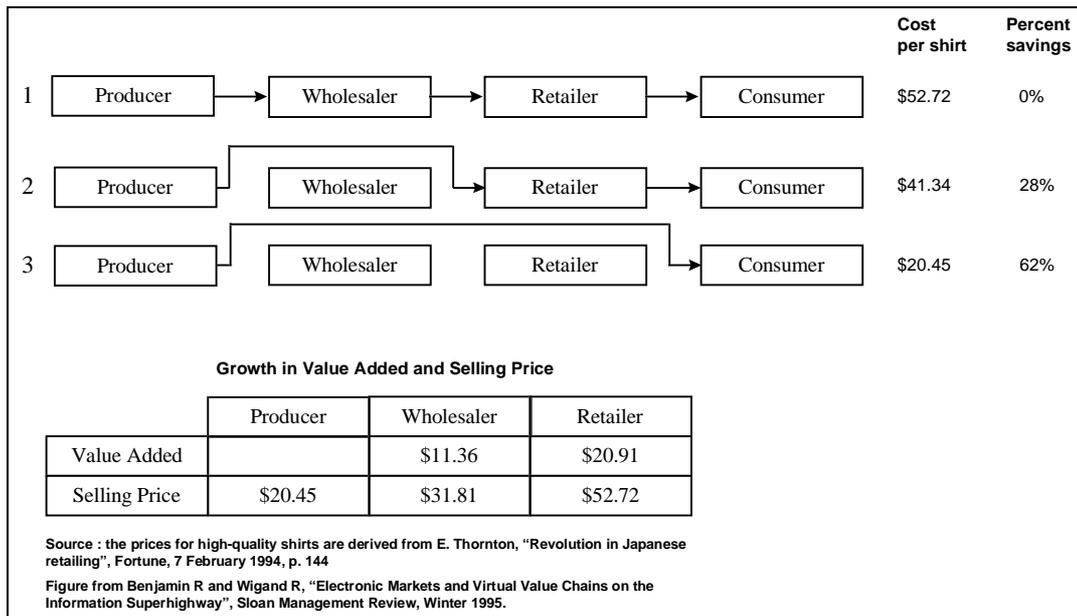


Figure 3 - An example of value added chains

However, conventional firms that have extensive high-street and retail operations often find 'dual marketing' to be very expensive. The cost of filling orders and shipping them to homes adds to the cost. Thus, conventional retail firms that hope to profitably market through two-way television or the Internet/Web may need to revamp their retail operations.

Recently, airlines have used the Internet/Web to 'auction' bargain-priced tickets, and the success in this market may signal more direct buyer-seller exchanges.³⁸ Electronic auctions for used cars are a long established business in Japan, and these cars are said to sell for a premium of 6% to 7% over traditional auto-auctions, because of the quality and reliability of the merchandise. The organiser of the auction makes money by leasing special equipment to car dealers, and charging another fee if a car is sold. Since 1989, the net margin for the online auto auction in Japan have averaged more than 20%.³⁹ Another online auction for used computer equipment began this year in the US, and it reports a net profit of about 10%. The electronic medium is said to be well suited for auctions because customers see and respond to one another's bid as soon as they are placed.⁴⁰ It is likely that an electronic marketplace will expand for consumer-to-consumer sales, and augment today's print classified advertising because consumer's will be able to screen information and have a better sample to choose from, without incurring the time and transportation costs to view each item separately.

Another class of products that will dominate Internet/Web sales are those that can be delivered electronically. Computer software, music, video, and other digital products can/will be sold directly over the Internet/Web. Microsoft Corp. began testing online selling in 1995, and expects that 10% of its products will be delivered online over the next 18 months. By 1999, Forrester Research Inc. predicts that half of all software will be dispensed electronically.⁴¹

5.4 Product range

As we cautioned in the introduction, current trends on the Internet/Web are not very generalisable because current buyers are not representative of the population at large. They tend to be younger, male, have higher incomes, a higher education, and enjoy computers. And, since most of these sales are made to men, and more retail shopping is done by women, it is not clear that this early retailing experience will provide retailers with useful information in most markets. On the other hand, men may become more frequent shoppers in view of both their online experience and their expanding activity in dual-income households.

Within a short period of time, the range of products offered online is expected to expand dramatically. For example, it is estimated that there are 22,000 products sold at present via the Internet Shopping Network. However, a new online service, called Shoppers Advantage, says that its online service will offer 250,000 different brand name items. This buying service currently uses a number of different channels, including CD-ROM, direct mail, and interactive television. They maintain no inventory and charge customers an annual membership.⁴²

One aspect of online retailing is that stores do not have to carry or 'stock' the inventory they sell. Online retailing has been described as an environment being simultaneously *virtual*, where consumers see things that are not really there, and *transparent*, they do not see some things which are there.⁴³ Many items will be custom-manufactured, based on information that the consumer provides online. On the other hand, dynamic web sites can store data on all customer movements, which is not observed by the consumer (Appendix C).

Over the long run, it is possible that the World Wide Web is best suited for offering goods that are hard to find, produced in limited quantity, or have a small and specialised market. A number of computer manufacturers, like Dell Computer and Gateway, maintain no physical inventory, and build each product according to the specifications from new in-coming orders. Dell Computer says that they have conducted \$15 million of business on the Web, since March of last year. However, they are quoted as saying, "*The return on investment we're building on the Internet is not based on some mathematical equation. We want to make doing business with us easier.*"⁴⁴

5.5 Consumer interest and concerns

The Role of Shopping

Electronic home shopping may replace the mail-catalogue industry because it provides similar advantages. However, paper catalogues are portable and the high-quality colour pictures provide valuable information that is hard to replicate online. If electronic home shopping merely replaced the catalogue industry, it would only represent about 4% of all retail transactions (including food sales). On the other hand, electronic home shopping could attract entirely new consumer segments (e.g. young males, since they currently do more shopping on the Internet/Web today.)

Whether the majority of consumers would prefer to do some level of shopping on the Internet or Web is unknown, and surveys or other research studies have difficulty providing reliable answers.⁴⁵ It is known, however, that shopping serves more than a utilitarian function. It also provides a great deal of psychological benefit, social interaction, and entertainment. One of the most interesting discussions of this can be found in Tauber (1972).⁴⁶ In an classic article, “*Why People Shop*”, he posits that shopping serves a number of different roles, including

- Role playing (e.g. for the housewife)
- Diversion (from the routine of the daily life)
- Learning about new trends
- Physical activity
- Social experiences outside the home
- Pleasure of bargaining

It is not surprising then, that some analysts predict that online shopping will be more likely for routine, non ego-intensive purchases like laundry detergent and light bulbs. There is also concern that consumers prefer tactile and sensory interactions when shopping (e.g. touching the goods, smelling the flowers, seeing things ‘for real’). The expectation that the Web will be used for non ego-intensive purchases may be based on a ‘transactions’ based view of shopping. However, if as Tauber says, shopping is viewed as a multi-stage activity, some customers might use the Web to search for information and product reviews for very highly-ego intensive purchases, like a new car. The fact that about 20% of late booking holidays are sold today using Teletext and other interactive services⁴⁷ is further evidence that ego-intensive activities can be sold electronically.

Change in the social value of shopping

The fundamental issue of 'Why people shop' is beginning to be asked by US retailers, who are questioning whether Americans still see shopping as a favourite national pastime. This has important implications for online retailing, because if shopping is perceived as a chore, and if consumers are pressed for time or money, they may find new advantages in Internet/Web shopping. Men and women in almost every age group spend less on clothing now than they did in the late 1980s.⁴⁸ Discount retailers are drawing customers at the expense of department stores and speciality shops.⁴⁹ A 1993 study for MasterCard identified a large swing in consumer attitudes. Consumers repeatedly mentioned stress and said they were avoiding shopping because they considered stores and malls stressful. They complained that stores were out of the items that they wanted and sales clerks were ignorant about the products. Only 20% of the sample went to the mall for fun.⁵⁰

Office / Home hybrid markets

The recreational and social value of shopping may have a different value for the hybrid home and work market, called SOHOs (small office/home office). People who operate businesses from their homes are an emergent segment for electronic shopping. Research indicates that home based businesses use the Internet to buy products because (a) they are price sensitive, and (b) it eliminates the need for an 'overwhelmed' business owner to spend time browsing in a store.⁵¹ There are an estimated 13 million Americans who operate full time businesses from their homes, and an additional 14 million who have part-time home businesses.⁵² In the UK, Barclays Bank recently launched an business to business Internet service to order and purchase office supplies but it is targeted initially to larger organisations.⁵³

International

Electronic home shopping may find a new market among international shoppers- those who are geographically remote, but prefer to shop at a specific store or locale there because of the unique products, or their familiarity with the items. Currently, customers can do this only if a retailer offers a mail-order catalogue. The online market might grow, for example, among customers who do not have direct access to luxury brands but are willing to order them from the retailer or even from the manufacturer via the Internet.

6- HYBRID FORMS OF ELECTRONIC RETAILING TODAY

- TV home shopping
- Information (non-transaction based) Internet/Web sites
- Text and video hybrids
- CD-ROM hybrids
- Kiosks

In this section we evaluate several types of pilot activities, and new modes of electronic retailing which are currently taking place. We caution that each of these channels may attract different audiences, and will certainly use different technologies, than a future, highly-developed and fully-connected, home-based electronic shopping system. Today, shopping over television is the largest category of these hybrid forms. We also examine briefly the growing use of the World Wide Web to 'supplement' other shopping modes and develop consumer to retailer communications.

6.1 TV Home Shopping

(1) Shopping by television has taken two different forms. One is the 'infomercial', which is a lengthy paid-for advertisement, often found on broadcast TV. It is estimated to be a \$6 billion industry⁵⁴. Many retailers choose infomercials in lieu of catalogues, because they can communicate complex, technical information. Most infomercials provide for direct-response by telephone.

(2) Another televised format is the dedicated shopping channels; these are frequently provided by cable or satellite services.⁵⁵ Shopping channels grew quickly in the US in the late 1980s and early 1990s, with estimated sales of \$2 billion by 1991. Since then growth has been slower and the Home Shopping Network (HSN) had a net loss in 1995. HSN may be diversifying, as they also operate the Internet Shopping Network. *Goldman Sachs* says the total value of the electronic retail market, mostly television home shopping, was less than 0.25% of the total retail market in 1993. However, the industry is still growing and in May 1996, a new firm, called the Global Shopping Network, was launched on US satellite TV and cable, and it also has a web site. (<http://www.GlobalShopping.com>).

In the UK, QVC began a home shopping channel in 1993 on BSkyB, and it is received in about 4.5 million cable and satellite homes. In 1995 they had sales of £27.2 million, an increase from £16.8 million in 1994. There are currently directives operating in the European Union that could impact this home shopping industry. EU television directives limit the amount of advertising to one hour a day. Within the UK, the Independent Television Commission has interpreted a home shopping channel as a retailing activity, and not as advertising.

It is difficult to extrapolate from the experience of home television shopping to interactive and electronic home shopping at large, because it is not directly comparable. Home television shopping today involves a substantial level of entertainment, and this is evidenced by the type of product that is most successfully sold through it. Jewellery is the major category sold and it represents 41% of the 1994 sales for the Home Shopping Network (HSN). Other categories of sales for HSN are: 34% hardgoods, 14% softgoods, 10% cosmetics and 1% other.⁵⁶ They do not provide elaboration of these categories, but it is known that jewellery has one of the highest gross sales margins.

Home shopping by television is also not a very interactive media. The products offered, where, and how they are covered, is determined totally by the channel controller. Consumers can not browse the products, or control the pace of their delivery.

A key reason for the slow growth of television shopping may be the emergence of the Internet-as a preferred shopping medium. In 1995, many US firms backed out of plans to set up television home shopping, including Macys, Fingerhut, Spiegel, and US West. Time Warner and Spiegel abandoned a conventional television shopping channel to concentrate on developing an interactive service.⁵⁷

The commercial advent of two-way interactive television (ITV) may change opinions towards using television as a shopping channel. Unlike conventional TV shopping, interactive television gives flexibility to viewers : Like the Internet/Web, the consumer can choose when to shop and what items to browse (provided that these items are among those offered). A number of interactive television trials are currently taking place, and these are described in Appendix A. In a recent interactive television trial, participants were given a description of future ITV and more than half of the sample indicated a moderate interest in purchasing it. However, the most valued applications of interactive television were not for shopping: they were for viewing favourite television programs at a more convenient time and for video-on-demand.⁵⁸ Bell Atlantic recently dropped home shopping as a service offering during its ongoing trial.⁵⁹

Not all commentators believe that interactive television will provide a sought-after service. Nicholas Negroponte is quoted as saying: *“In comparing the potential of interactive TV versus the Internet, it remains far from clear whether most consumers want any more interactivity from watching television than going to the kitchen during a commercial and getting a beer”!*⁶⁰

Today, many consumers are more familiar with making selections via a television remote control, than reading text and browsing for information on a computer. In the near future, the technologies of the computer and the television are likely to converge, and it will be difficult to draw distinctions between these two delivery mechanisms.

6.2 Information (Non transaction-based) sites

Since shopping involves a number of information gathering activities, many expect this capability to expand rapidly. Already, most companies include their web site address in their other advertising and information campaigns. One of the advantages of the Internet is that consumers are free to explore as little or as much information as they want.

New software programs (e.g. intelligent agents) are expected to provide online customers with comparative price information. An interesting perspective is provided by an executive from an Internet advertising firm. He says: “...*If the remote control was the great equaliser in the battle between advertiser and television, The Web and the mouse may shift power completely to the hands of the consumer*”.⁶¹

As well as new services which provide consumers with shopping information, suppliers are also developing new tracking software. For example, stand-alone sites selling CDs on the World Wide Web deny access to electronic agents such as Bargain Finder (<http://www.bargainfinder.com>), that are designed to compare prices charged by different vendors for the same CD. Another nascent information business is online yellow pages; this has new features like the ability to search store locations within a specified geographical radius.⁶²

A 1994 study indicated that consumers reported a need for better shopping information.⁶³ It suggested that more consumers would become interested in online shopping if they had ‘personal valet’ software. 53% reported interest in receiving electronic product reviews. There is very little empirical data to judge how consumers will use the Internet/Web to search for product and price information, and the extent to which the availability of information will improve consumer choice and market efficiency. Some experimental evidence on this can be found in the marketing literature.⁶⁴

Although most companies find that is costly to maintain a Web site, and not have transactions, some of them have turned it to their advantage. Computer firms, in particular, use the Web as a platform to provide customer service, technical help and discussion groups. Silicon Graphics estimates that the tips users exchange via its newsgroup save the company \$4 million to \$5 million a year in customer service calls; Sun’s round-the-clock technical documents service decreased customer phone calls by at least 20%.⁶⁵ Other firms, particularly those selling consumer durables, have found that maintaining an information-only Web site is expensive, since it adds to marketing expense without producing identifiable sales.

6.3 Text and video hybrids

Teletext is a UK company that provides interactive services through broadcast television using spare channel capacity. They provide a number of services, including direct response advertising. The company now sells package holidays online- and is said to facilitate/sell around 20% of the late availability deals in the UK travel market.⁶⁶ A new Teletext service, started in June 1995 allows viewers to use classified advertising. Customers can place a 20 word ad for about £5.00 using a phone. Teletext expects classified ads and lonely hearts ads to be a growing market. They currently have 15 million 'viewers' in England, but it is not clear that they all have access to these particular ads.⁶⁷ Other companies that currently provide text services over the broadcast television channel include Intertext (BSkyB) and Ceefax (BBC). BSkyB offers electronic classified ads on its Intertext service. The introduction of a new generation of text services may depend resolution of the 1996 (UK) Broadcasting Bill.

ViewCall is a hybrid Internet/ TV service based on using a normal TV set and coupling it with a set-top box. Their device, which the company calls a network computer, integrates a keyboard and remote control pad with a television receiver. ViewCall then uses the existing telephone infrastructure to both send and receive data to the receiver, and this provides a low-cost alternative to the purchase of a personal computer and software. Unlike the Internet, it cannot download large files or graphics. Market trials have taken place in the US and Canada and the company plans to offer a UK-wide launch in September 1996.⁶⁸

As mentioned in Section 4.3, Minitel has been used for the past 13 years in France, and it relies on a videotex (word) based delivery system. More information on Minitel can be found in Appendix B.

6.4 CD-ROM hybrids

The use of CD-ROMs to provide full colour graphics and moving pictures is usually thought of as an interim stage in home shopping. Phillips Media collaborated with Barclays Banks, Freemans, and Page & Moy to test CD-ROMs for banking, fashion and travel products. CompuServe distributed a CD-ROM catalogue to its subscribers, and it matched the CD merchandise with online information about prices and ordering. There's been great deal of interest in CD-ROMs by mail order firms, since it could provide a new delivery channel with lower distribution costs. In 1995, *Quelle*, a large German mail-order company, launched a CD-ROM catalogue with about 600 products targeted to their more affluent customers; about 100,000 compact discs have been distributed.⁶⁹ Currently, the UK has the highest penetration rate in Europe of computers equipped with CD-Rom drives, but it's still just over 4 percent of all homes, including those without computers.⁷⁰ In the US, an estimated 6.9% of households with computers have CD-ROM drives.⁷¹

However, the use of CD-ROM as a shopping tool is uncertain. A CD offers full-colour graphics and rapid search capabilities, but it is slow, it does not provide up to date information on prices and inventory, nor interactive ordering, so it is often combined with an online Web/Internet service. In addition, CD-ROMs are expensive to create and produce and consumers have difficulties with using them. This has forced developers to reorganise the content and distribution of their CD ROMs products, and to drastically limit their ambition.⁷²

6.5 Kiosks

Kiosks are sometimes used for electronic shopping, and they are based on CD-Rom technology. Shopping kiosks are frequently located in airports, tourist offices, office buildings, and other non- conventional retailing sites. They are also used, on occasion, within stores. Their proponents say that they provide the consumer with more information than a typical sales assistant and often offer more choice. They are currently being trialed in the travel industry, as a means of interactive electronic ticket sales/delivery. It is said that travel agents and tour operators are somewhat wary of the technology, since kiosks could give the customer detailed price information, and they could select their own best bargains.⁷³ There are more than 50 separate multimedia kiosk projects running in the UK today, according to a recent Interactive Media in Retail Group Report.⁷⁴

7- SUPERMARKET/GROCERY INDUSTRY

- US Supermarkets
- UK Supermarkets

7.1 US Supermarkets

The grocery home shopping market has huge potential, but it also has unique characteristics that make home delivery more difficult (perishable goods, irregular package shapes and sizes). There is a great deal of interest by supermarkets in grocery home shopping since food expenditures are a recurring purchase, and they represent (in the US) about 15% of all consumer expenditures.⁷⁵ (By comparison, the market for clothing and related services is just 6%- see Figure 4).

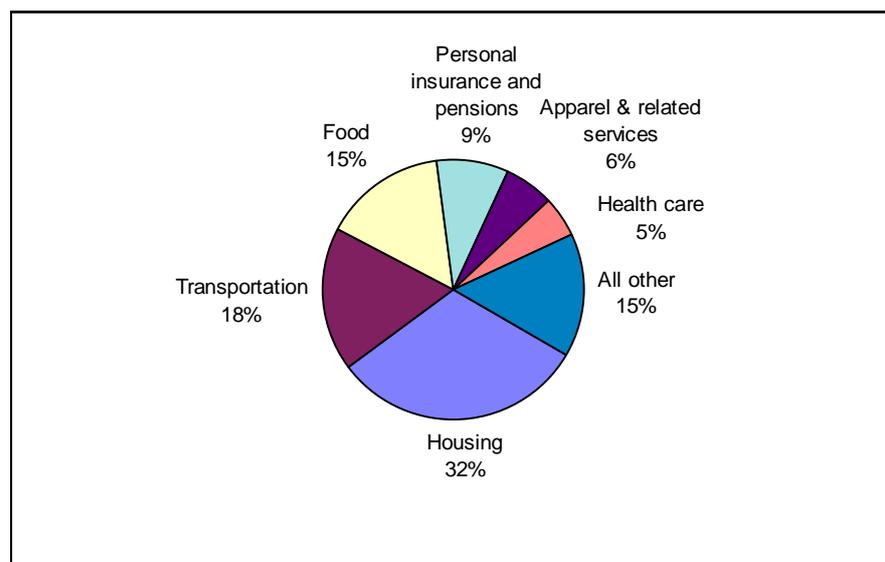


Figure 4 - How US consumers spend their money - Breakdown of total spending⁷⁶

However, the grocery industry highlights a number of difficult issues for home shopping: for example, when the product leaves the stores, who is liable for losses or damage? If the customer is not at home when the delivery arrives, who is responsible for the added cost of a second delivery attempt? How does a retailer use their brand-name to an advantage when consumers do not visit their stores, and how do they protect/utilise the shopper data accumulated through its shopping program, if they sub-contract the home shopping service?

Many analysts believe that food retailing is a particularly likely market for home shopping because customers find food shopping to be a boring chore, and a high proportion of consumer's weekly grocery purchases can be bundled into a standing order, since the items are repetitive from week to week. According to a recent US survey by The Food Institute a vast majority, 85% of all shoppers want supermarkets to offer special services that make shopping easier. Among these, 65% would like to pay for groceries and receive a detailed bill without waiting at a checkout line, 57% would like a list of products, detailing prices and specials, 47% want groceries delivered to their homes at convenient times, and 42% would like to place orders via telephone, fax, or modem.⁷⁷

One US study forecasts that home shopping for groceries could capture about 5.5% of the market and grow to \$16.5 billion by year 2000. This estimate is based upon supermarket operators' estimates. This report estimates that a drop in 5.5% of the market for traditional retailers would cause operating profits to drop by 58%.⁷⁸

Since home delivery and courier services are not a core strength of traditional grocery firms, some firms might outsource this function, while others might have new customer pick-up points for pre-packaged groceries. Home grocery shopping services today charge customers a premium because there are considerable labour expenses associated with picking items from the shelf, packaging them, and delivering them to the home. Most analysts expect that these costs would diminish with the design of purpose-built warehouses and distribution centres, but the current method of grocery retailing is seen as the most profitable for today's grocery retailers.

The US food retailing is a \$400 billion industry. In the US there are a number of services that provide home shopping, e.g. Peapod, and there are also a number of interactive trials involving the major supermarket chains. An overview of some key trials and programs can be found in an online report by Jupiter Communications (<http://www.jup.com>).

7.2 UK Supermarkets on the Internet

A recent in-depth analysis of the electronic food retailing industry in Europe has been conducted by Coopers and Lybrand for the Coca-Cola Retailing Research Group. They anticipate that less than 5% of the European grocery market will be channelled through new shopping modes by 2005, but this still represents a \$33 billion market in 1994 prices. There are a number of different forces, beyond the Internet and World Wide Web, that are driving change in this industry. New modes for shopping will take on disproportionate competitive importance because they will raise fundamental issues like the cost of infrastructure and store location, the role of the foodstore as a place to visit, new industry competition, and customer loyalty.⁷⁹ This study provides a particularly interesting analysis of the cost of providing different types of home shopping/distribution systems. They suggest that providing home shopping is currently not feasible for supermarket operators, given the configuration of their retail network.⁸⁰

Of the home-delivery pilots taking place in the UK today, two London firms, Flanagan (Supermarket Direct) and Food Ferry charge about £5 for home delivery. It is expected that early adopters of food home delivery will be dual-income professional couples with children. Grocery retailers believe that even a small level of home shopping might be a competitive threat, since high revenue producing customers would be lost. A superstore with 20,000 retail customers would lose 10% of its total profits if 200 of its most valuable customer were to convert to home shopping.⁸¹

Most major supermarkets in the UK currently sell a limited number of items through the Internet/World Wide Web. For example, Sainsbury offers about 40 different brands of wine on the Internet, which can be bought by credit-card and delivered to the home (<http://protector.j-sainsbury.co.uk/wine-direct/shop>). They have entered into an agreement with Flanagan and Co. in S.W. London, to deliver groceries to homes, but Flanagan reportedly faced financial difficulties in the beginning of the year.⁸²

Tesco is online at CompuServe's UK Shopping Centre, and they are also in a pilot program with social services in the London borough of Ealing. For a £6 fee, customers selected by Ealing Council can order from a catalogue of 2500 products by phone or post, and have them delivered.⁸³ This trial, unlike many others, targets home-bound populations that have less travel accessibility. Other firms, like Marks and Spencer, are rumoured to be expanding their mail order business- M&S currently sells hampers, flowers, and wine through mail order.⁸⁴

There is currently a grocery delivery trial in London staged by Hoskyns and Food Ferry. Current customers of the Food Ferry service place orders via fax or telephone order, but with the Hoskyns system, the food catalogue is placed online, and can be accessed from PCs. Hoskyns staff will trial this service from their offices.⁸⁵ This trial may test the feasibility of grocery ordering using high speed networks, and also provide information on alternative modes for delivery. Trials of grocery shopping from home have not provided very realistic conditions to assess customer demand, because, among other factors, participating households have slow modems.

8- FORECASTS OF GROWTH IN HOME SHOPPING

Forecasts of the market for interactive home shopping should be interpreted carefully, since the data collection methodology, and underlying assumptions are not always given. Many of the projections appear to be derived from trends and sales in the mail-order industry, and others are based on extrapolation from current Internet/Web sales, which are unrepresentative of the general population. Some of the most optimistic forecasts predicts a \$50 billion market by 2005. *McKinsey* forecasts that one-third of all mail and telephone retail sales might move to electronic home shopping by 2003, and they use this benchmark to estimate a \$4 to \$5 billion market in the US by 2003- the first year in which they see interactive home shopping as truly accessible to the mass market.⁸⁶ The *McKinsey* forecast is conservative in terms of the technology- it does not foresee either cheaper distribution or higher sales. They do not believe that electronic services will increase overall consumer spending, and suggest that some current areas of consumer spending will be cannibalised.

Inteco Corp. predicts the biggest opportunities for electronic retailing in services which are digital and do not require delivery of products- home banking, music, video on demand, and travel services.⁸⁷

Another *Inteco* survey states that European consumers are less interested in interactive services than their US counterparts. For example, just 19% of consumers in France and Britain say they are 'very interested' in video on demand compared with 43% in the US.⁸⁸ Europeans are less likely than Americans to use their phone today (regarded by some as a precursor of interactive shopping) to order tickets by phone, order from mail order catalogues, or pizza delivery. Relatedly, an European survey by *Research International Retail* and *the Henley Centre* found that only 7% of households would be prompted to connect their households to a cable TV phone system by the promise of a home shopping channel.⁸⁹

A *DataMonitor* study of the European market forecasts that Internet shopping will grow to £1.25 billion by 2000, from sales of less than £3 million today. In 1995, 23,000 UK households spent 1 million pounds on Internet shopping, but this is predicted to expand to 800,000 UK households by 2000. The German market is forecast to remain the largest European market for electronic home shopping, until the year 2000. This study predicts a European market of 2.9 million Internet shopping households by the year 2000.⁹⁰

Two recent studies in the UK are based on analysis of market trends. *Verdict Research* completed a report on change in the home shopping market, and in particular on change in catalogue sales. They observe a recent decline in the UK home shopping and predict that electronic home shopping will have a minimal impact over the next ten years.⁹¹ Their forecast indicates that electronic home shopping will increase its share, but still remain under 8% of the total market by the year 2010. *Gemini Consulting* studied overall industry trends and forecast larger growth; they forecast that the number of UK Internet users may grow to 5 million users by 2005. They indicate that by 2005, Internet and interactive television might take between 8% and possibly 30% of the retail market in the UK.⁹²

There are a number of different forecasts of future electronic commerce and home shopping. However, we believe that they often cite each other and there is a snowball effect from one forecast to another, so that the projections increase. Not surprisingly, industry players, like Netscape and Microsoft tend to make larger forecasts for the future online market than those developed by the consultants or market research firms.

9- FUTURE FORMS AND EVOLUTION OF ELECTRONIC RETAILING

- Retailer ↔ Consumer relationships
- Retailer ↔ Wholesaler ↔ Manufacturer relationships
- Content-Context infrastructure

There are two types of relationship that may undergo considerable change with the advance in electronic home shopping. The first is the relationship between the customer and the retailer. The second is the relationship between the retailer, the wholesaler, and the manufacturer. We briefly examine both of these.

9.1 Retailer ↔ Consumer relationships

One view of electronic commerce is that it will allow retailers to develop a learning relationship with their customers, and that each transaction will enable the retailer to record information about the preferences and needs of the individual consumer. It is frequently claimed that electronic systems will be able to synthesise a relationship that existed before mass retailing, where shop-keepers knew their customers by name, and were more familiar with individuals' tastes and preferences. Today, customers have become more anonymous but with interactive shopping, this can be remedied through capturing data on individual transactions. Dynamic Web sites store detailed information on shoppers: how many times an individual visit a site, how long they spend browsing it, along with other relevant marketing information, e.g. the shopper's age, interest, and hobbies, etc. The value of this approach is fairly evident when the product that is provided is information, like news-clippings, an insurance policy, or a customised newspaper. Its value in the marketing of durable products and consumer items like groceries or clothing is just beginning to emerge with electronic online systems, like home shopping on the Internet/Web.⁹³ Firms in the mail-order and catalogue business have more experience compiling consumer data-bases but they have not applied these, very widely, to new marketing opportunities, e.g. the customisation of mass produced products. There are already a number of loyalty schemes that retailers have set in place to develop customer relationships and feedback (e.g. loyalty cards). Transactions on the Internet/Web might accelerate these schemes, or collect entirely new types of information.

9.2 Retailer ↔ Wholesaler ↔ Manufacturer relationships

According to *McKinsey*⁹⁴, there are three main roles in an interactive service architecture. They are :

- **Merchandise Provider (MP)** - Typical merchandise providers are retailers, catalogue firms, or manufacturers. These type of companies have to choose a service platform (distribution channel) for their products. They can do so either by establishing their own service (usually a Web site on Internet) or by signing an agreement with a Shopping Service Provider. Examples of Merchandise Providers are *LandsEnd* and *WH Smith*.
- **Shopping Service Provider (SSP)** - aggregates the various merchandise providers into a shopping service. They offer a shopping environment and various services e.g. promotion, payment mechanisms. In the future, Shopping Service Providers could serve other functions, like comparing products, from many retailers, by features and price. In traditional (physical) retailing, the mall is an integration tool, grouping different merchants in one place and offering shared facilities (parking, playing ground for the children, restaurants,...). In electronic commerce, the integration is realised by the Web itself, and it is not clear that online malls will flourish as an intermediary between the customer and the merchant. Current examples of Shopping Service Providers are *CompuServe* and *BarclaySquare*.
- **Shopping Service Distributor (SSD)** - provides consumers with access to service providers, via an open or a proprietary network. The most common SSD today is the Internet. It provides a communication network for transacting services, but the Internet, itself, does not provide fulfilment and customer service. These are handled by merchandise or service providers. Companies positioning themselves to operate their own distribution network include regional telephone companies such as *US West* and *Bell Atlantic*.

9.3 Content-Context infrastructure

A different sketch of the future marketplace by Ernst and Young's *Business Monitor* makes the same general point, but views it differently⁹⁵. In the traditional marketplace, value is provided in terms of three categories:

- **content** - which is the substance of the transaction,
- **context** - which is the environment in which the transaction occurs,
- **infrastructure** - which is the collection of services and facilities that enable the transaction to occur successfully.

In the grocery industry, for example, the grocer provides the *content* of the transaction (the groceries) because they own the channel to the consumer, and also the purchasing *context*. The food packager and wholesaler have the same or nearly the same content as the grocer, but they lack a distribution channel. With electronic retailing, the packager and wholesaler could easily interact directly with customers. This could lead to two entirely different types of market developments. One view is that, for groceries, private-label will be able to compete on an equal footing with branded-goods because software will allow consumers to directly compare prices as they order from home. The other view is that consumers will be overwhelmed by the dizzying array of goods, and reach for the familiar, well-marketed, branded product.

10- CONCLUSION AND FUTURE ISSUES

We should bear in mind that the infrastructure for electronic home shopping is evolving, and the characteristics of today's users are likely to be very different than those of future shoppers. Yet, one of the lessons learned by companies operating in the arena of interactive media is that change never comes as fast as it is expected, but when it does occur, it is so overwhelming that few are well positioned to take advantage of it immediately. The fact that so many retailers have set up Web sites in the past year, is evidence that they are concerned about the future. The role of many Web sites is likely to be called into question soon, since they are expensive to maintain, but they do not directly generate sales. Companies that wish to generate sales from them will have to set up full scale electronic home shopping, with services for placing orders, fulfilling them, providing home delivery, and customer follow-up. Not all businesses will wish to enter this new market, and others will want to more carefully assess the implications. Accordingly, we close this discussion with several questions which, if answered, may help to exploit the future potential:

1. Are there disincentives to provide home shopping because existing businesses rely on property assets? In the future, will retailers be in the business of managing customer relationships, or managing unwanted real-estate? Most retailers have a large investment in store-front locations, and these may not be efficient if there are multiple selling channels.
2. Should retailers themselves invest in reliable, efficient, and cost-effective transportation, or is home delivery outside of the core-strength of today's high-street retailers? The delivery person who arrives at the doorstep with a package will be an extension of the retail environment.
3. Is the successful retailer likely to be a marketing company whose skills are matching consumers with products? How do retailers respond if intelligent agents and other software assist consumers in making more optimal selections (e.g. of price or quality)? What role will branding have?
4. Is data collection and information management about customers a vital part of retailing? If so, will it continue to provide useful information about customers' needs and preferences, over time, and in new purchasing situations? If a firm sub-contracts a portion of its home shopping service (e.g. billing), who owns the information in the customer database?
5. Are non-traditional firms, or new niche-players, entering the electronic market? Are the core-strengths of the business adapted to electronic retailing?

6. Is 'mass customisation' of a product/service a viable application? What qualities or features distinguish the online product from the one bought in conventional stores?
7. How is the in-person retail store adapting as online stores evolve? Do in-store environments continue to meet utilitarian purposes, as well as fulfil more psychological ones, like the need for entertainment and social interaction?

APPENDIX A : RECENT TRIALS OF INTERACTIVE TELEVISION

The main objectives of interactive services trials are (1) to refine the technology and (2) to determine precisely what the customer will use and (3) will pay for. Many trials have been delayed because of their technical and regulatory problems or because the companies were uncertain what they wanted to measure. Many of the trials that have gone ahead on schedule have been confined to friendly users - usually employees of the companies running the trials.

The following points should be kept in mind when considering evidence from trials⁹⁶:

- Studies are carried out by different kind of organisations for different reasons and this may affect the results or our ability to interpret them - often trials may be carried out to help secure financial or organisational support for a new type of product or service.
- Trials are very expensive, hence may involve small samples, research methods are frequently not revealed and could be unscientific. Information may be proprietary
- Trials must run for a significant amount of time in order to overcome novelty effects.
- Trials frequently provide services free or at artificially low prices, trials participators (even when not employees) tend to already be interested in new technologies.
- The acceptance of some new technologies may be linked to the purchase of other media and replacement cycles which may not be obvious in trials, e.g. upgrade purchases in the PC market.

Below, we list a number of well-publicised trials. This list is certainly not complete but offers examples of the types of products/services being tested as well as the range of companies conducting trials. We limit the list to interactive TV trials, which use the TV screen as the terminal technology and a proprietary network as their platform. Projects are organised by country. Hybrid systems, as well as some Web-based services are reported in Appendix C.

Electronic home shopping - September 1996

<i>Project name</i>	<i>Communication technology</i>	<i>Operator</i>	<i>Time / location</i>	<i>Description</i>
USA / CANADA				
Stargazer	Copper wire + ADSL	Bell Atlantic, Pacific Telesis, Nynex (the Tele-TV Venture)	Fairfax, Northern Virginia, USA Begin : August 1995	“Stargazer” service available to 1,000 home owners through ADSL technology. ⁹⁷ Consumers are able to choose from a list of 655 programs monthly via a hand-held remote control that allows them to rewind, pause and fast forward the programs. A first generation of interactive shopping called “Stargazer Marketplace” was tested during the first six months of the trial but was phased out at the end of 1995. Three merchants participated in the trial : Nordstrom, JC Penney and Lands End. A new and more functional version was due to return in 1996 or 1997 ⁹⁸ , but Bell Atlantic recently dropped this service from the trial. ⁹⁹
Chamblee / Atlanta	Analogue cable	BellSouth	Chamblee, Atlanta (GA), USA 18 month trial	BellSouth plans to have 8,000 test homes for its service, including 800 in Chamblee. The system is primarily an analogue video-on-demand service, but home shopping should be added in mid-1996. ¹⁰⁰
Thousand Oaks		GTE, Ameritech, BellSouth, SBC, Walt Disney Inc.	Thousand Oaks (CA), USA Begin : Late 1996	Interactive services including home shopping, home banking, games, digital music.

Electronic home shopping - September 1996

Orlando	Cable	Time Warner	Orlando, USA Begin : Dec 1994 End : 1998	<p>Full Service Network, a partnership between Time Warner and the US Postal Service available to 4,000 users. The system is primarily a video-on-demand service, but a home shopping service is available.</p> <p>The system uses the TV set and remote control with credit cards linked to the cable television system.</p> <p>Merchants include : the Post Office, Pizza Hut, Barnett Bank, GoTV (interactive local news).</p> <p>Time Warner's DreamShop, a shopping site on the Internet, is also available via Full Service Network.</p> <p>According to Time Warner, the Full Service Network should be available on different interactive platforms including TV, cable and the Internet.¹⁰¹ Digital technology is viewed as the only way to accomplish the interactivity subscribers want. However, the decision to make FSN a full-scale commercial service seems several years away.</p>
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Electronic home shopping - September 1996

Omaha US Avenue		US West	Omaha (Neb), USA Begin : End : April 1996	<p>Delivery of digital services to 125 people, planned to be extended to 10,000 homes by the end of 1995.</p> <p>One of the services was US Avenue, an interactive, on-demand marketing and entertainment service, combining TV-quality entertainment and shopping services announced in 1994 by Interactive Video Enterprises (IVE), a dedicated US West subsidiary. Merchants included Ford Motor Co, JC Penney Co and Hallmark. However, the business plan was based around projections of 100,000 interactive TV homes by the end of 1994 and 750,000 by 1995 but buildout never materialised. The service was scrapped in the summer of 1995. IVE staffers say the problem was the distribution: the service should have been platform independent, i.e. being capable of running on networks other than the one planned for Omaha. They suggest the system should have been based on a Internet+ADSL solution, allowing IVE to get to market on other channels.¹⁰²</p> <p>US West discontinued the Omaha experiment in April 1996 on account of cost and technical problems. This constitutes the third interactive broadband failure for US West, which dropped two other trials last year.¹⁰³</p> <p>US West will now focus on aggregating, packaging and distributing content, as opposed to developing it internally.¹⁰⁴</p>
Vancouver		Vancouver City Savings	Vancouver, Canada Current	<p>Customers conduct banking transactions through their TV, with a CD-ROM player and a modem. They can use their TV remote control to check balances and transaction histories, pay bills, make fund transfers and exchange currencies. They pay \$6.95 a month for renting the material. Robert Quart, Chief Executive, claims this is the only revenue-producing interactive TV system up and running, and believes there is a very strong business case for interactive TV¹⁰⁵.</p>
UBI (Universal Bi-directional Interactive) project		Videotron	Chicoutimi, Jonquiere (Canada). Phase in from October to December 1996	<p>30,000 homes, with access to interactive services from 170 companies including home shopping, home banking and financial services, e-mail, information and government services.</p> <p>Consortium comprises : National Bank of Canada, HydroQuebec, Loto-Quebec, Hearst Corp, Canada Post. Terminals were designed by Videoway Communications and GTE MainStreet.¹⁰⁶</p>

Electronic home shopping - September 1996

UK				
Thomas Cook		Thomas Cook, BT		Thomas Cook is conducting a trial of its innovative online retail travel system, "Travel Box". It is one of the most complex and sophisticated applications in BT's ICE project in East Anglia. Using interactive TV, home viewers can "visit" a wide variety of possible holidays destinations, shop for flights, buy travel currency, maps, guide books and videos. The ultimate success is said to depend on how well its design reflects an understanding of what audiences need and enjoy. ¹⁰⁷ See also BT trial.
BT	Copper wire + ADSL	BT	Ipswich, Colchester (UK) Begin : July 1995 End : July 1996	<p>The trial involved 5,500 users in more than 2,000 homes. It brought together the telephone and the television to enable customers to choose and order entertainment and information services from a menu on an ordinary TV set linked to a set-top box. It comprised nine main services: movies on demand, television programming on demand, children's TV, education, music videos, a community service, a home shopping and home banking service, computer games and an interactive advertising service.</p> <p>More than 150 content providers were involved, which gave customers access to about 200 movies at any one time, 800 education titles, 15,000 different product options available to home shoppers banking services, local information and a computer games service. Content providers include : Thomas Cook, WH Smith, Selfridges, Adams, Freemans and Olympus in retail; BBC, Carlton, Central, Granada, Kingfisher, LWT and Thames in broadcasting; major Hollywood studios; Audi, Bass, Grand Metropolitan, Halifax, Honda, Levi's, NSPCC, Norwich Union, NatWest, Nescafe, Pepsi-Cola, Prudential, Sun Alliance, Tango, Toyota, Vauxhall and Walker.</p>

Electronic home shopping - September 1996

Kingston	Copper wire + ADSL	Kingston Communications (Hull)	UK Begin : May 1996 Commercial trial Begin : September 1996	25 Kingston staff are connected through advanced ADSL cable technology. The system is based on the TV set coupled with a set-top box (decoder). Users have access to a limited number of feature films and music videos free of charge. Kingston wants to assess service delivery logistics, support considerations and customers' acceptance of the proposed service. Home shopping and home banking services will be added once the commercial trial has started. It will involve 250 people.
Westminster	Cable Fibre optic	Westminster Cable, BT	Westminster (London), UK Since November 1995	The trial is currently restricted to VOD. Home shopping is only a remote possibility.
Cambridge	Cable Fibre optic ATM Coaxial cable to the home	Online Media, ICL, SJ Research, ATM	Cambridge, UK Phase 1: technical trial Phase 2 : Begin : November 1994. Services trial, all services are free Phase 3 : pricing and billing trial	The service is deployed around 100 locations connected through fibre optic cable, including 9 schools. It is based on a TV set and a set-top box. Current services providers include the NatWest bank, offering information for account holders, but no transactional facilities; Tesco, developing its own offering for the service; the Post Office, devising Royal Mail or ParcelForce delivery services to complement future home shopping orders. The trial hopes to incorporate full-length feature films and home shopping in a near future but no date is given. Consortium also comprises : Acorn Online Media, BMP DDB, BBC, ITN, Anglia TV, IPC magazines and the ITC. The objective of the trial is to progressively adapt, modify and enhance the service offered, and to not divert from existing revenue but create new revenue for the service providers involved. In particular, copyrights issues are huge problem. ¹⁰⁸

Electronic home shopping - September 1996

ViewCall	Various ¹⁰⁹	ViewCall	Glasgow, UK Begin : April 1996 End : Summer 1996	The trial involves 1,000 homes. The system is an Internet TV service based on a TV set and an advanced set-top box that ViewCall calls a consumer-oriented network computer, with a keyboard and remote control. The company has signed up about 100 suppliers in the UK to provide specially authored Web pages. Businesses include a bank, a catalogue-shopping enterprise, a real-estate company, a travel agency, a music company and a supermarket chain. The ViewCall system purchases goods and services from the contracted companies. The system differs from multimedia or interactive TV systems, such as the Cambridge trial, in that it uses the existing telephone infrastructure and doesn't focus on video-on-demand. ViewCall intend to roll out UK-wide commercial service in September. ¹¹⁰
GERMANY				
Deutsche Telekom		Deutsche Telekom	Initial test in Berlin Extended to six other major German cities before the end of the year.	Trial based on a Network Computer, using the TV screen to surf the Internet. Deutsche Telekom has signed up more than 100 content providers for the initial phase involving several hundred customers. ¹¹¹ Currently, the system is tested in 50 homes only in Berlin. Deutsche Telekom has completed deals with Otto Versand and Teleshop for its planned home shopping service.
Info-city		VEBA	Ruhr region, Germany	Around 10,000 households are due to be connected to a multimedia cable network. Called Info-City, it will involve trials of various interactive services, including home shopping.
AUSTRIA				
Billa		Billa (retailer group)	Austria Begin : Summer 1996	Billa is conducting a trial in 50 Austrian homes using ADSL technologies and telephone network. Billa TV will offer home shopping, video-on-demand and home banking. Billa is currently talking with potential content providers. ¹¹²
SWITZERLAND				

Electronic home shopping - September 1996

Swiss Telecom	Copper wire + ADSL	Swiss Telecom	Grenchen, Switzerland Begin : September 1995	The trial involves more than 200 households. Customers are being offered a wide variety of interactive services including on-demand films, games, interactive documentation. The system also offers a number of tele-shopping services such as Telecom shop. 70% of the users think interactive services are useful and 50% say they will subscribe to interactive services in the next 2-3 years. ¹¹³
EUROPEAN UNION				
AMUSE (Advanced Multimedia Services for Residential Users)	Copper wire + ADSL		Begin : September 1995 End : September 1998	The aim is to encourage and increase the technological base in Europe. Applications include home banking, video-on-demand, networked games, audio-on-demand and interactive travel services.
JAPAN				
	Hybrid optical fibre/coaxial cable	Tokyo Multimedia System Council, Japanese Ministry of Post and Telecom, Fujitsu	Tokyo, Japan Begin : April 1996	Japan's largest trial for video on demand, with 500 households. The council will invest \$26.2 million in the trial which will run for one year. The trial will also assess interactive services such as home shopping. ¹¹⁴
		Jusco Supermarket, Japanese Ministry of Post and Telecom	Kyoto, Japan Begin : June 1996 End : June 1997	300 households can call up information on about 300 different products a month and place credit card-based orders via remote control. ¹¹⁵ Based on optical fibre television network.
		Japanese Ministry of International Trade and Industry	Osaka, Japan Begin : June 1996 End : March 1998	100,000 users Consortium comprises : Osaka Gas, Kansai Electric Power. ¹¹⁶

Electronic home shopping - September 1996

Intertext Study Group	Broadcast and telephone line	Toshiba, Hitachi, Matsushita, NTT, Dentsu, NHK	Japan Begin : October 1996	The interactive TV system will use terrestrial broadcasting frequencies and telephone lines. The trial will involve 1,000 homes or business, equipped will dedicated TV receivers. In making them, makers have attached memory units and modems to conventional sets. A remote control is used to input and send data. Possible uses for the system include home shopping, opinion polls, quiz shows and education programmes. ¹¹⁷
SINGAPORE				
		Singapore Telecom, Time Warner Cable	Singapore and Asia Pacific region Begin : February 1996 End : September 1997	The trial will be extended to 280 households in the coming months. News, home shopping and learning programmes will be added in the next phase of the trial. ¹¹⁸
		Singapore CableVision	Singapore Begin : 1997	Singapore CableVision will conduct the experiment using cable modems to deliver interactive services to PCs and eventually TV sets. The trial will include home shopping services and eventually offer high-speed Internet access. ¹¹⁹

APPENDIX B : LESSONS FROM THE FRENCH MINITEL EXPERIENCE

Executive summary

Minitel is a low cost terminal linked to a *France Telecom* private network (Teletel) offering interactive services, based on the videotex standard.

- It is difficult to know in advance how people will use a new medium and why it will or will not succeed. In this regard, “anchor” services, such as games or the electronic telephone directory, are essential to ensure initial success and learning, in particular with non-technical populations.
- Mass media interactive services can be profitable for service providers as well as for service designers.
- As the medium matures, usage moves from games and chat to business and information.
- Simplicity and convenience are essential to gain access to the large segment of people who are not computer-literate but are traditional home shopping customers.
- Minitel demonstrates that a device similar to the Network Computer concept is viable.

Introduction

Minitel is a simple terminal linked to a France Telecom private network (Teletel) offering interactive services, based on the videotex standard. It is the only very large scale implementation of interactive electronic services to date. As such, it can serve as a model to understand how people use interactive services, and in particular electronic home shopping, and what might be the evolution of various type of services. In addition, Minitel can be viewed as a precursor of the Network Computer (NC) and can therefore provide clues to evaluate its interest. The Network Computer is a simplified version of a PC, based on Internet. It is designed to be cheap, upgradable and easy to use and it is the ideal device for interactive mass media services.

History of Minitel

Prestel, precursor of Minitel

The original idea for videotex as a cheap and convenient screen description language for interactive services was British, with the Viewdata project from the then Post Office.¹²⁰ This was later marketed in the UK as Prestel and was supported by the Labour government in the late 70s and later by the new Conservative government. However, Prestel lacked a dedicated terminal: Prestel was supposed to be used on TV through a videotex adapter, which customers had to buy. The lack of government subsidy and lack of convenience explains why Prestel didn't take off as a nation-wide service. In 1994, BT sold Prestel to private investors and the service found a niche in business-to-business information provision, such as company or personal credit-checking, audited financial data, marketing information and real-time stock exchange price and deals. It is now planning to move the service from its proprietary system to the World Wide Web.¹²¹

Minitel

The Teletel videotex service was established by the French government in 1982 and based on a subsidised distribution of free terminals. The rationale was to provide, as a core service, a cheap electronic telephone directory, as printing and updating the paper directory had become too expensive.

Minitel is a dumb terminal comprising a low graphic resolution screen, a keyboard with a few function keys and a slow modem. To install the device, one only has to plug the Minitel into the telephone socket. Minitel are also available in public places such as Post Office, government agencies, usually with a limited number of services.

Accessing a Minitel service is very simple. You dial 3615 on the telephone. This magic number gives access to a France Telecom home page. You type the name of the service and gain access to the service's home page. A typical address is *3615 Coca-Cola*. Once on the service, navigation is done either by using function keys (Previous/Next, Home, ...) or numbers to choose from a list.

Pricing system

The customer is billed by France Telecom, not by the service provider (the bill is included in the telephone bill): this proved more convenient for the user and cheaper for the provider (very low entry cost as no billing infrastructure is needed).

The billing is not based on distance, even though it is a nation-wide network. It is based on the type of service (as chosen by the service provider) and the length of the communication. The type of service is indicated by the number you dial on the telephone, from 3601 to 3617: the higher, the more expensive. Governmental or promotional services usually provide access through 3614 (you pay only for the communication), whereas games, corporate data or dating systems use 3615 (about 30p per minute or FF2.40). Professional services use 3616 or 3617 (for instance, *3617 Euridile* offers annual reports of numerous companies).

Key success factors

With 6.5 million terminals, 24,000 services, 1.13 billion hours of connection and a revenue of FF3 billion for the service providers in 1995, Minitel can be considered a success. The following factors were critical for this success :

- **Nation-wide launch and support** - Minitel was immediately available as a nation-wide network. Innovative services rapidly became available.
- **Free terminal and government support** - Due to the support of state-owned France Telecom, terminals were distributed for free during the first three years (5 million terminals). Later, as the design improved, terminals had to be rented, but the basic model remained free. In addition, billing was not based on distance but only on the type of service and length of call.
- **Anchor services** - The availability, early in the programme, of one or two anchor services was the third success factor. The *electronic telephone directory (accessed by dialling 11)* and the *railway timetable (3615 SNCF)* have proven extremely popular and are still the most used services. In addition, *games and chat services* served as an easy way to get used to the system. This approach contrasts with Prestel, which was primarily viewed as an information tool and lacked these type of free information services.
- **Simplicity and convenience** - Having been designed in the late seventies, Minitel is not at the forefront of interactive technology: it has a text-based interface, a low graphic resolution and is very slow. However, Minitel is extremely simple to install : contrary to Prestel, where a telephone engineer had to come along and connect the user. Minitel is also easy to use: there is no set-up time, no instruction manual, no training dispensed and the terminal is very interactive. In addition, the customer is directly billed by France Telecom on his/her telephone bill (s/he doesn't have to deal with all the providers whose sites he has visited). There is no set-up cost, pre-payment or use of credit card, and payment is based on time, not on page. This overall simplicity and convenience are critical success factors in the massive development of Minitel above and beyond its initial audience of technophiles and computer-literate users and has transformed it into a mass medium.

Development

The development of Minitel can be measured in terms of terminals, services or number of connect hours. As opposed to the Internet, Teletel is a centralised and proprietary network. Information is usually more reliable.

- **Number of terminals** - The number of terminals rose from 120,000 in 1983 to 3 million in 1987 and 6 million in 1991. Since 1991, it hasn't changed much and seems stable at 6.5 million. In 1994, there were also 600,000 computers with Minitel emulation, up 54% from 1993,¹²² which gives about 14.4 million users.¹²³
- **Number of services** - The number of services rose from 7,400 in 1987 to 23,300 in 1993. Again, it is stable since with 24,600 services in 1995.¹²⁴
- **Connect hours** - There were 13 million connect hours in 1985, 62 million in 1987 and 105 million in 1991.¹²⁵ It is stable since 1991 around 110 million. This represents 1.9 billion calls a year.¹²⁶
- **Turnover** - Minitel's turnover reached \$1.2 billion for France Telecom in 1995, compared to \$582 million for CompuServe.¹²⁷ The settlement to service providers amounted \$564 million.¹²⁸

Conclusion

The years 1982-1986 can be considered as the years of development. 1991 is the year of maturity : the number of terminals, connect hours or services are now stable or growing slowly. The slowdown in growth could be attributed to the advent of the Internet and other on-line services. According to *La cour des comptes*, the French national auditors, in 1987, Minitel saved about FF3 billion (on printed directory, on enquiries,...) but cost about FF8 billion (essentially terminals).¹²⁹

Services

The usage of different services is shown in Figure 5:

- **Electronic Telephone Directory** - The ETD is by far the most popular service. It allows users to find the address and phone number of anybody living in France. It is also used for marketing as it can be accessed with a computer which can download addresses with an emulation program. In 1994, ETD accounted for 784 million calls (41% of the total).
- **Banking, financial services** - Banking was the second most popular service in 1994 : it was used by 34% of consumers and 18% of businesses.¹³⁰

- **Chat services, games, tests, astrology** - Even though Minitel does not carry sound or high quality images, games and sex were the mainstays in the early days with 22% of the traffic. However, they have fallen to 14% now.¹³¹ Such services served as a way for people to adopt and to learn how to use the system. As France Telecom polices the network and is entitled to remove any service offering, Minitel does not give rise to much controversial content (e.g. child pornography or prostitution).
- **Recruitment, training** - This includes classified advertising, distance learning, etc.
- **Mail order** - Mail order has also proved popular: La Redoute, France's biggest mail-order company, was among the first to go on to Minitel in the 1980s. It gets 20% of its sales from orders placed via Minitel,¹³² which represented 3.2 million orders in 1993. According to an Inteco study, in 1994, 1.2 million French households purchased products via on-line services (almost exclusively by Minitel), compared with only 0.8 million in the USA.¹³³ Minitel is also used as a direct marketing tool: according to a study by the French Direct Marketing Association, "Cut-out" tools combined with Minitel numbers represented FF262 million expenditure in 1993, ranking second, up from FF201 million in 1992.¹³⁴
- **Transport** - The French railway service is one of the most popular applications: it gets 24 million calls a year, most of them inquiries about timetable and routes, and offers a convenient reservation system.¹³⁵
- **Business applications** - Every large company in France has a Minitel address today, which serves very similar purposes to a Web site. It is an important promotional and communication tool, providing close contact with customers.
- **Miscellaneous services** - Weather service and forecast, nation-wide exam result, interactive polling system used by TV shows, etc.

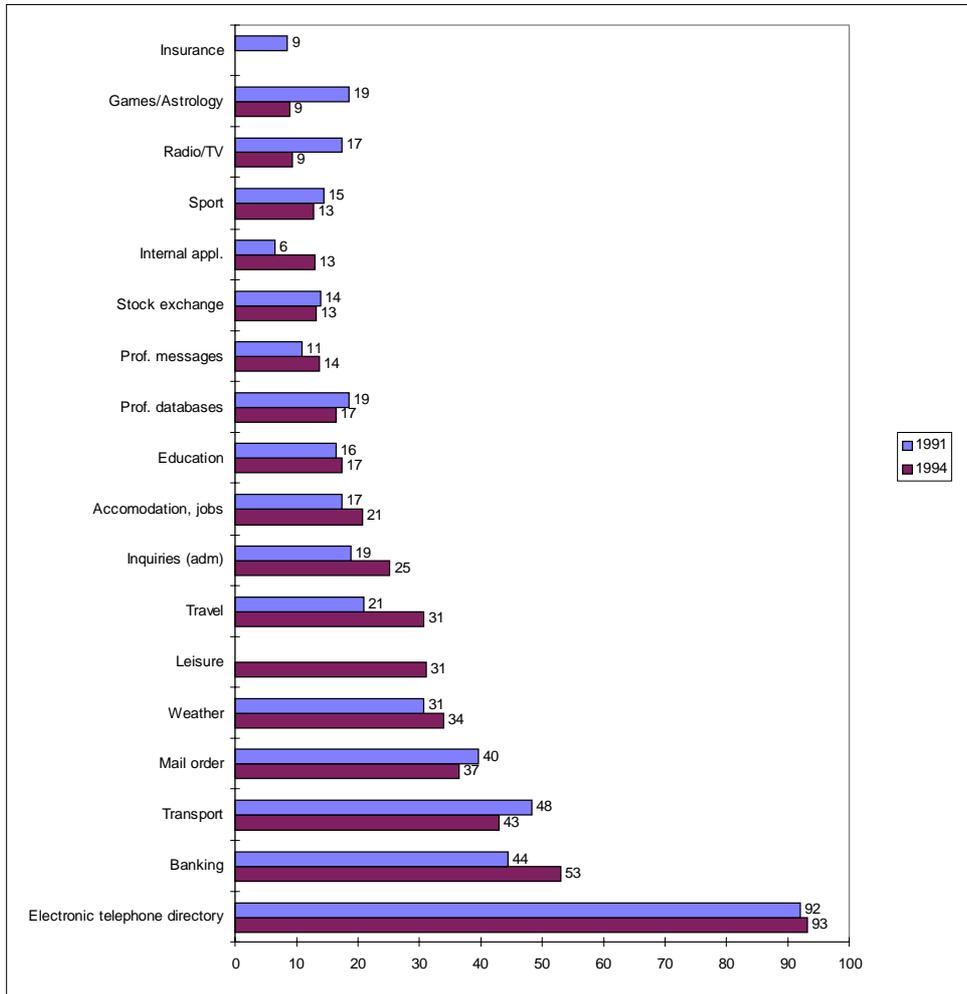


Figure 5 - Minitel services used by respondents ¹³⁶

Relative importance of services

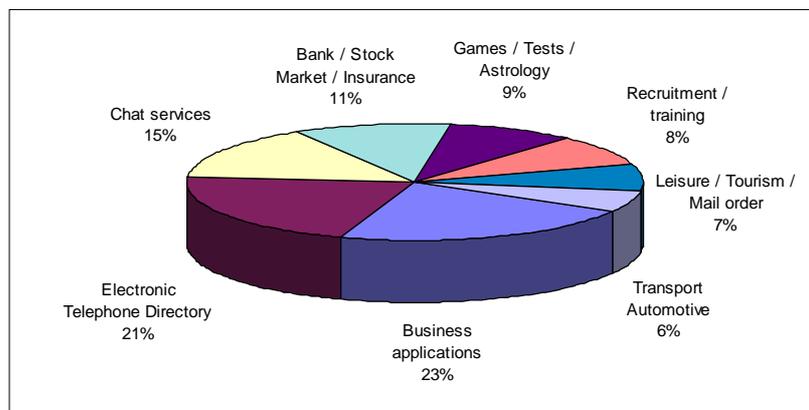


Figure 6 - Connect time per type of application (1991)¹³⁷

Evolution since 1991

The breakdown hasn't changed much since 1991 except that chat services and games/tests/astrology are declining (14% in 1994 versus 24% in 1991). More practical services such as banking, tourism and local official information have grown.

Future prospects

Minitel is said to have slowed down the development of the Internet in France. Why buy a PC and painfully configure a network connection to access a slow, English-speaking network, when useful services can be obtained so easily with a Minitel ? However, the Internet is now starting to take off in France.

Faced with the powerful competition of the Internet and the World Wide Web, which provide advanced services and graphic displays, France Telecom's response has been twofold:

- To launch a new generation of Minitel terminals with faster modems, colour screens, higher resolution, improved design, built-in and secure credit-card readers. France Telecom sold 100,000 units of its new model equipped with a smart card.
- To launch its own Internet service, Wanadoo¹³⁸. France Telecom's strategy is actually to offer the best of both worlds, and to make sure both are interconnected : it is possible to access Minitel via Wanadoo, and Minitel users can send e-mail to Internet users and vice-versa.

Minitel is still the only current option for a number of services, including electronic commerce and secure transactions, as it uses a proprietary network.¹³⁹

France Telecom's real challenge lies in the management of the transition from a proprietary network to the Internet, and from a dumb terminal to a network computer. However, new applications and new services, in particular high-end applications, will now be developed for the Web, and not for Minitel. The main strength of Minitel, its number and variety of services, will disappear, and the Web will take over.

Conclusion

Minitel clearly demonstrates that the Network Computer is viable, and particularly suited to a computer-novice audience, which is the one most catalogue firms target. The NC may be a key to the success of large-scale interactive services, and in particular large-scale electronic home shopping. Without the NC, electronic home shopping may remain limited to high-income, PC-owning segments of the population. In this regard, it is perhaps surprising that no catalogue firm currently endorses the NC consortium led by Oracle.

APPENDIX C : SHOPPING SITES ON THE WEB

There are at least 500 shopping malls on the Internet, and a good listing of different commercial sites can be found online at <http://www.gtn.net/shopping.htm>. In the following table we list a few sites where additional information was published about the site, via a visit its usage, number of visitors, or marketing strategy. Although most of these Web sites are not presented as 'trials' they are often a way for the service provider to test the market.

There are several noteworthy trends emerging from the establishment of these and other online shopping sites. They include:

- **Dynamic Web Sites** - The particular object of dynamic Web sites apart from regularly attracting customers is to store information on visitors, and to tailor Web pages according to this information. For instance, a user accessing a site with Netscape might be offered a free copy of Microsoft Explorer, a competitive product. This can be pushed further by asking questions of the visitor and then building a sophisticated database, where online activity is tracked: which pages did the user visit? How long did they stay at the page? Over dynamic Web sites ask customers to fill out surveys on-line, and use this to gradually tailor the site to the user. A good example of a dynamic Web site is Newcastle United Football Club's Web site (<http://www.communicata.co.uk/nufc>), where online users must first register to purchase football products.
- **Intelligent Agents** - Intelligent agents provide consumers with the opportunity to search for information like product specifications or price, across a number of different vendors. Consumers could transfer this information to a spreadsheet, or save it electronically for future reference. Sources that provide product ratings like Which Magazine and Consumer Reports, are becoming available on-line, and will charge an access fee. There is also an on-line service called BargainFinder (<http://www.bargainfinder.com>) which currently lists real-estate services, and the firm is planning to expand the search capability for other types of markets.
- **Grouped Sites** - In traditional retailing, merchants group together under a physical setting, like a mall or high street. With electronic commerce, groupings are beginning to take place on product characteristics instead of geographical proximity. A recent article in the Guardian¹⁴⁰ suggests how on-line activities could be grouped together in the music industry (1) to listen to gigs, etc. (<http://www.realaudio.com>) (2) to buy a CD and track down best prices (<http://www.cdnw.com>) (3) to get a music recommendation and fill out a form telling you what music you like (<http://www.ffly.com>) (4) to participate in an on-line discussion with a band (as scheduled) and (5) search information about a label or artist (<http://www.american.recordings.com>).

- **Manufacturer to Consumer** - With electronic commerce, manufacturers can sell directly to consumers, instead of going through the intermediary step of retail distribution. Manufacturers can receive orders from customers on-line, and ship merchandise directly to the customer. For instance, Dell Computer maintains almost no warehouse inventory, and builds a computer to specification, once a customer places an order. Dell still processes most of its orders today over the telephone, rather than via the Internet (<http://www.dell.com>)
- **Customisation** - In the past, it has been costly for companies to provide made to measure products. This is a product class that is likely to emerge on-line. Another form of customisation, like the above mentioned music site (<http://www.ffly.com>) will provide personal recommendations of bands and albums once you indicate what music you like. They use a database developed from other users' preferences who have indicated similar tastes in music.
- **Globalisation** - Although the mail order catalogue has enabled companies to reach a world-wide market, most retailers have confined sales to particular countries where they have retail operations. With electronic commerce global barriers to commerce are being knocked down. Products from particular countries are sold to customers world-wide. Expatriates, for example, may be a growing market for these goods. NatWest recently set up a site selling "The Best of Britain", and among UK businesses represented are Austin Reed and Church Shoes, as well as the V&A, Science, and Natural History Museum Stores (<http://www.buckinghamgate.com>).
- **Product Information** - A number of Web sites do not currently provide the opportunity to order products online, but they provide detailed information and descriptions for interested consumers. This information goes beyond the quantity and depth of most print or TV advertisements. Some sites provide the opportunity to 'test' the product online, or view it with different colour or feature specifications. The automobile companies have been developing large information-based sites. See, for example, BMW (<http://www.bmwusa.com>).

Electronic home shopping - September 1996

Project name	Product / System	Operator	Time/location	Description
MarketplaceMCI	Electronic mall	MCI	Begin : Sept 1995 End : June 1996	MarketplaceMCI was a Web-based electronic mall set up with News Corp. Merchants included : OfficeMax, Hammacher Schlemmer, Radisson Hotels, Sara Lee, CyberWarehouse (computer and home electronics products), Foot Locker, Champ Sports, Omaha Steaks, Nordstrom, Qualcomm. MarketplaceMCI was dropped recently. MCI is not convinced the market is ready for mass consumer on the Internet and its Internet revenue comes from providing access, not from content or value-added services. MCI balked at the investment required to build online content, and now looks to Microsoft to fund content for customers ¹⁴¹ .
BarclaySquare	Electronic mall	Barclays Bank	May 1995	BarclaySquare, Web-based electronic mall. Merchants include : Sainsbury's, Victoria Wine, Airline Network, Argos, Toys R Us, United Distillers, Innovations and Debenhams. In one year, Barclays claims to have received 300,000 visitors, who declared they were interested in travel, banking, books, computers and videos. Barclays considers this first year of operation to be a real success with a tremendous response from customers, but does not provide revenue figures. ¹⁴² Barclays is also involved in business-to-business Internet commerce with its PurchaseOnline service.
UK Shopping Centre	Electronic mall	CompuServe		CompuServe claims that sales of nearly £1.5 million have been achieved after one year of trade on UK Shopping Centre, and that over 680,000 people have visited the Centre. Merchants include : Virgin, Selfridges, Tesco, Interflora, WH Smith, PC World, Dixons, PC Sports, Jaguar, Past Times, Office World, Science Museum, Technomatic and Mercury One-2-One. ¹⁴³ Initially, the UK Shopping Centre mall was only available on CompuServe's proprietary network. Interestingly, CompuServe now plans to move the mall on the Web, giving merchants a much larger access than the five million CompuServe subscribers, but transactions will still have to take place behind CompuServe's firewall, meaning that only CompuServe subscribers can shop. ¹⁴⁴

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World Avenue	Electronic mall	IBM	Begin : Fall 1996 European version : Begin : end of 1996	World Avenue, Web-based electronic mall.
Shoppers Advantage	Electronic mall	CUC International		http://www.cuc.com
Shopping2000	Electronic mall			Shopping2000, Web-based electronic mall.
DreamShop	Electronic mall	Time Warner		http://www.DreamShop.com DreamShop, Web-based electronic mall, also available via the Full Service Network. Merchants include : Williams-Sonoma, US Postal Service, Spiegel
ShoppingUniverse	Electronic mall	Great Universal Stores	May 1996 on the Web	Initially located on CompuServe and Microsoft Network, the mall recently moved to its own Web. ¹⁴⁵
Freemans	Home shopping service	Freemans		The mail order company Freemans plans to introduce its online shopping service on a proprietary network, as opposed to Internet. The service targets business users. Freemans recently took part in the BT interactive TV trial. ¹⁴⁶
DeskShop	Office shopping service	Hoskyns	July 1996	Food Ferry has teamed up with Hoskyns to offer its catalogue on-line. Food Ferry is a home-delivery supermarket direct operation providing a range of groceries. Payment is made by credit card, cheque or cash direct to the Food Ferry van driver when the goods are delivered. Hoskyn's idea is to offer customers to shop from their desk, as it is there that most people have access to a computer. Hoskyns hope to extend its geographical coverage and to offer it to other companies interested in providing similar benefits. ¹⁴⁷
Buckingham Gate	Internet shopping mall	NatWest	June 1996	http://www.buckinghamgate.com Unlike BarclaySquare, this service is aimed at the global 'cyber-tourist' markets of the US, Japan and the UK and accepts payment in most of the world's currencies. NatWest wants to provide the 'Best of British' and positioned the service to the high-end segment : Merchants include Austin Reed, Church's shoes, and museums. There is also a sports and entertainment section. ¹⁴⁸

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