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# Changes in the banking sector – the case of Internet banking in the UK

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## Keywords

Internet, Banking, Customers

## Abstract

The Internet is gaining popularity as a delivery channel in the banking sector. At the same time, customer needs are changing. A total of 12 Internet banking operations in the UK are analysed under customer empowerment functions and Internet banking Web attributes. Internet banking renders location and time irrelevant, and empowers customers with greater control of their accounts. Banks achieve cost and efficiency gains in a large number of operational areas.

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## Introduction

The banking sector occupies a pivotal position in the global economy. The sector has been subject to many external and internal forces in many countries, particularly in the UK, since the 1980s (Gentle, 1993; Nellis, 1998). Of the external forces, technological change is likely to have the most far-reaching impact on the sector. Technology, in particular the Internet, is a key driver of internal changes. Within the sector external forces have attracted new entrants and increased customer influence. Internal change has been greatly amplified by the Internet. The Internet is causing major delivery changes. The synergies of these forces will bring about a major transformation of the banking sector.

This paper explores these issues and analyses of Internet banking providers serving personal account holders. It is divided into four parts. The first part looks at the external forces and the internal changes taking place within the sector. The second part investigates the advantages accruing to banks in utilising the Internet as a delivery channel. Customer requirements from on-line banking are then considered. The fourth section looks at current Internet banking Web site attributes. The paper concludes with a review of key issues.

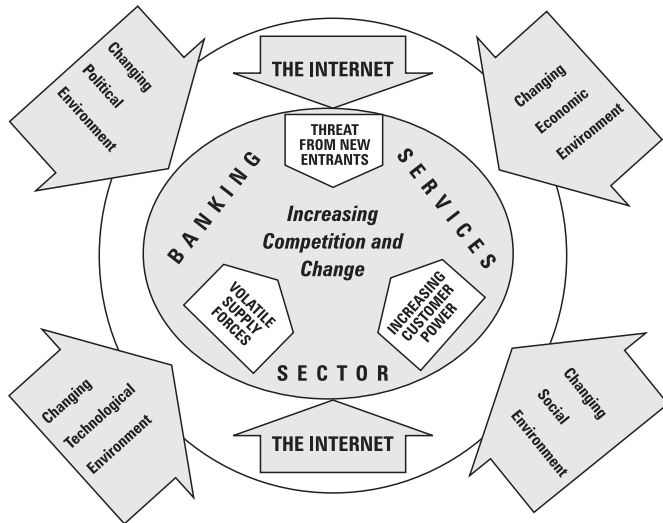
## Change in the banking sector

The banking sector is subject to both internal and external forces (Nellis, 1998; Rajan, 1998). For the purposes of this paper, external factors have been categorised under political, economic, social and technological changes (see Figure 1). In the wider business environment, they are likely to have the greatest impact on the sector. Such developments are, by definition, beyond the control of the businesses themselves. However, success or failure will depend on how well management is able to anticipate and react to these changes.

## External forces

Developments in technology have dominated the revolution in the banking sector during the last decade (Gandy, 1998a). The world-wide expansion in technologies for connection has

**Figure 1** The banking services sector and interaction with forces



supported increased globalisation of capital flows and financial organisations. Technology has also facilitated the proliferation of new products and services supporting new consumer demands. Competitive pressures will intensify as organisations seek ever greater productivity and efficiency improvements to sustain profitability.

There has been a marked trend towards deregulation over recent years in many western countries resulting from political and ideological changes (Nellis, 1998; Llewellyn, 1996). Successive regimes have continued to deregulate industries as a response to past recessions and to support structural change by improving the efficiency and competitiveness of both public and private sectors. The pace of deregulation has not been uniform across all countries. However, the UK has been at the forefront, with the consequence that the banking sector, in particular, is now one of the most deregulated of all sectors of the economy (Nellis, 1998).

Changes in demographic and social trends have, to a large extent, driven the regulatory and economic shifts that have taken place in recent years (Llewellyn, 1996). These factors will increase in importance over the next decade as the number of young people entering the labour force continues to decline, while an ageing population continues to dominate government welfare spending and the financial necessity, therefore, for greater self-reliance.

These unavoidable developments have profound implications for the kind of products and services that business will provide and how they are delivered. In this context, the banking sector lies at the forefront of change in terms of society's needs. At the same time, working patterns will change, with more part-time, temporary and home-based workers. This will have further implications for the banking sector.

With the possible exception of regulatory reform, technological change is likely to have the greatest impact on the banking sector over the next decade (Bednar *et al.*, 1995). Technology is frequently touted as a, if not the, key element in the formulae for productivity and profitability in the 1990s and beyond. It is likely to be the key factor driving change within the banking sector for the foreseeable future.

### Internal forces

The slogan “the customer is king” has never been truer for the banking sector than it is today. Legislation has increased customers' rights, technology and competition have increased their choice of products and providers. The Internet will bring about changes in the working environment, living conditions and patterns of banking use (Hagel *et al.*, 1997). These changes will inevitably place users under a different set of conditions resulting in changes in their behaviour. One of the outcomes of these changes will be growth in users with more sophisticated needs. Customers will become more discerning as information becomes more accessible over the Internet. Switching between financial institutions and products will continue to grow as customers' traditional inertia declines. For instance, Internet-enabled consumers will be able to change banks at the press of a button, in the comfort of their homes. They will have access to on-line “intelligent agents” that will give them the ability to compare products and services for the best terms and conditions (Rogerson *et al.*, 1999).

Within the supply chain of the industry, institutions are faced with the challenge of achieving the right balance between staffing levels and skills, investment in technology and branch networks (Gentle, 1993). As organisations seek new sources of revenues and profits outside traditional banking disciplines,

they will demand different skills and aptitudes from their staff. This demand, coupled with cost cutting and the impact of new technology, has already led to a significant reduction in overall staffing levels within the banking industry. Further changes can be expected with the implementation of Internet-enabled delivery mechanisms.

As a result of the developments discussed above, the attractiveness of this sector to a wide range of potential new entrants has increased. The cost of entry to the banking sector is low, returns seem very promising and the risk seems manageable. As a result there has been a flurry of new entrants (Gandy, 1998a; Mols, 1998). Non-bank entrants are exploiting the unique capabilities of electronic networks and leveraging their own resources through Web-based strategies. New technologies, like smart cards and software cryptography, are also lowering entry barriers to the banking business, enabling non-banking competitors to take away more and more of the profitable elements of the banking business (Hagel *et al.*, 1997).

### Delivery strategies

Traditional banking is characterised by physical decentralisation, with branches scattered around populated areas providing an ubiquitous presence. The rationale behind such branch investment is the need to distribute banking services. High street presence encourages usage and maintains contact. A large branch network gives customers easier geographic access and the reassurance that the bank has substantial resources and hence offers security for their savings (Lockett and Littler, 1997). The extensive branch network has enabled banks to capture market share. Therefore the spatial element is central to current delivery strategies. Such a structure allows these institutions to provide homogeneous products and services at the cost of a large number of staff with high fixed and variable costs. In order to cope with fluctuations in demand on each location, more resources are employed, resulting in sub-optimal capacity utilisation and excess staff. The vast cost and effort to develop such a network has often proved to be an entry-barrier to prospective

competitors, and it has helped to maintain the concentration rates and the oligopolistic nature of banking in the UK (Henderson, 1995).

The position of banks is only tenable so long as they are not superseded by more cost-effective or efficient delivery systems, and provided they meet the locational needs of their customers. With the widespread use and adoption of the Internet, there exists the possibility for financial institutions and “new entrants” to provide their products and services over the Internet. Therefore it is pertinent to explore the advantages that would accrue to banks in utilising the Internet for the delivery of products, services and other uses.

### The rationale for banks using the Internet

The properties of the Internet make it an ideal medium for delivery of banking products and services. The advantages accruing to a bank can be outlined as follows:

- *Cost savings.* Internet delivery is cheaper than physical channels. A simple transaction cost for a non-cash payment at a branch is likely to cost the bank as much as 11 times more than over the Internet. As with all forecasts and estimates related to the Internet, different authors provide disparate accounts of the magnitude of savings. This estimate is based on studies by Downes and Mui (1998), Wylie (1999) and *The Economist* (1999). **The cost savings come about through the combined effects of reduction and better utilisation of the workforce, equipment, more economic usage of space and operational savings.**
- *Increased customer base.* One of the primary objectives of developing new products and services is to attract new consumers and to retain existing customers (Read, 1998). Present Internet demographics suggest that it is the relatively well off and the well educated that use the Internet, which suggests that potential users are high net worth customers. Banks unable to respond to requests for new services risk losing existing customers to competitors. The use of multiple distribution channels can increase effective market coverage by enabling different products to be targeted at different demographic segments. Additionally, customers are likely to place

their trust in proven innovators. Therefore it is important to build a reputation for innovation. This may make it easier to sell financial services, attract more customers, and retain existing customers.

- **Enable mass customisation.** Internet delivery has the capability to customise information to suit the needs and the likes of each user (Dannenberg and Kellner, 1998). Mass Customisation refers to the notion that each individual user perceives that the service they receive is personalised or customised to their needs and uses. Such features are becoming more and more important in a world saturated with mass automation and homogenised products and services.
- **Marketing and communication.** The World Wide Web has the capability to host advertisements and other marketing campaigns without facing incremental charges for prolonged exposure like those found in the traditional media (Quelch and Klein, 1996). Once a Web page is designed and hosted on a server it serves its purpose 24 hours a day as long as it is active on the server. Costs are limited to initial development costs and maintenance costs that are less in comparison to traditional media. Additionally, the interactive nature of the Internet facilitates a system whereby a customer can be guided through a catalogue of products and services that is most suited for them depending on their socio-economic profile. It is cheaper than traditional mailshots and far more effective since it is customised. Further, the Internet can be used very effectively to collect customer data with minimum effort. Achieving more operational usage from customer databases is also made easier.
- **Enable innovation.** Internet technologies have paved the way for a multitude of different banking products to be innovated (Prescott and Van Slyke, 1997; Mandeville, 1998). It also facilitates the delivery of products and services in an innovative manner to customers.
- **Development of non-core business.** Recent changes in the regulatory framework have enabled many banks to expand their services into non-traditional banking areas

(Marshall, 1998). For instance, many banks have already moved into, or are in the process of moving into, insurance and stock brokerage. Many banks have the physical and computing infrastructure in place to develop with these products and services and an Internet site can serve as an ideal shop front for these services.

Perhaps, most importantly, Internet banking allows banks to delegate tasks to the customer. Many of the traditional tasks performed by bank counter clerks can now be transferred to the customer. For instance, if a customer carries out a transfer of funds between their Internet bank accounts, or pays a bill, they are carrying out a task that would have been undertaken by a bank employee on the customer's instructions in a terrestrial bank. This saves time and money and the likelihood of committing errors that are the fault of the bank are minimised. Customers benefit through peace of mind from knowing that transaction details are exactly what they wanted.

## Customer demand and requirements

The primary factor determining the level of demand for Internet banking will be the number of people connected to the Internet. This number is extremely difficult to estimate, because of the dispersed nature of the users. Estimates of Internet connectivity in the UK in 1999 ranged from 4 million to 10.6 million users. Jayawardhena and Foley (1998), Foley and Sutton (1998) and Foley *et al.* (1999) have carried out detailed analysis on Internet connectivity estimates and forecasts and reviewed the reasons why these estimates can be so diverse.

Studies conducted by various organisations such as GfK and Zonta continually show Internet users to be predominantly young, well-educated, professional and affluent males. A popular perception is that the Internet is becoming more representative of the population profile (Foley and Sutton, 1998). Recent studies show that the proportion of females accessing the Internet has increased since 1996, but it is still dominated by males. Education levels, earnings and age are factors that are

above national average. Internet access is still predominantly limited to more affluent categories of the population, this pattern has been maintained for the past four years and is likely to continue into the next five-year period (so long as connection technologies remain similar). In the UK, Internet access for individuals is relatively expensive, requiring a high initial outlay and comparatively high monthly bills for telephone connection charges. Today's low earner Internet users are most likely to be students in tertiary education. On entering the job market these individuals are likely to earn above average salaries and are likely to remain connected to the Internet. These low-income users are very likely to be replaced by a similar or higher number of student users. This cycle will continue.

What does this mean for the banking sector? A highly educated, young and relatively wealthy market appears to be ready for Internet banking. Such a segment represents a highly profitable and less risky customer base for several reasons. First, their relative wealth means that they are more likely to deal with larger sums of money, both in borrowing and savings. The aggregate cash flow from such a group should lead to economies of scale with a large turnover and a lower administrative workload for the banks, since the number of high net worth accounts is low. Second, because the group is relatively young, they represent banking relationships that could be sustained for a long time. Third, this group is likely to be highly mobile, both within the geographical limits of the country and outside it. The Internet particularly provides the most reliable method for maintaining these banking relationships irrespective of geographical boundaries.

Banking technological developments make it much easier and cheaper for customers to compare and contrast products and to establish multiple banking connections (Buhl and Will, 1998). Fojt (1996) contends that better communications technology will alter dynamics of purchase decisions. Several authors (e.g. Birch and Young, 1997; Mathe and Dagi, 1996; Gandy and Brierley, 1997) have carried out research on customer requirements. Time, privacy, control and economy are among the important aspects that customers are concerned

with. People are becoming busier and hence are seeking to carry out transactions at a time of their convenience. This is confirmed by the increase in telephone assisted banking and also the widespread use of the now ubiquitous automated teller machines (ATMs). Today's customers are often conscious of the expenses associated with banking and are generally better informed about alternative options. Any service provided must be at minimal cost or competitive cost, and preferably at no cost. This is especially so in carrying out information-rich transactions. Educated customers are seeking methods or sources that can carry out complex transactions at minimal cost and without expensive paid advice, e.g. share dealing.

Up to now the potential advantages of Internet banking have been discussed. The next section of this paper compares and contrasts present Internet banking offerings in the UK banking sector, to analyse how well they exploit the potential of Internet banking.

### Current UK Internet banking offerings

After an extensive search on the World Wide Web, 12 Internet banking systems were selected for this review. The 12 represented all UK banks that were transaction enabled and able to offer current and savings account facilities over the Web. One service, Egg, does not have current account facilities. Inclusion of Egg was justified on the grounds of its popularity – it has 150,000 users. These Web sites were monitored from October 1998 to July 1999 on a monthly basis as part of a more extensive longitudinal study, to observe the changes in visual appearance, development and addition of new features. The results reported in this paper present a snapshot of Internet banking providers and the services they offer as of July 1999. All data in this table have been collected from the Internet. No verification with the individual banks has been carried out. There was a very important reason for adopting this methodology. A formal meeting took place between the head of Internet banking at one of the bank's reviewed and the authors. Owing to the competition prevalent in the banking sector, they declined to indicate how their services might develop in the future. Several more



informal approaches with other banks also revealed a reluctance to discuss future developments. This necessitated the current research methodology. Additionally, it was deemed essential that the Web sites should be able to convey all the information for both current customers and potential new customers via the Internet. If the content of the site fails to pass sufficient information on account capabilities, then the site is not fulfilling its objectives.

A report by BlueSky International in June 1999 (BlueSky International Marketing, 1999) found the UK, along with eight other western European countries, to be at the forefront in Internet banking in Europe. The report also found that Germany had the most Internet banks. However, the UK, although home to a much smaller number of Internet banking sites, had some of the highest quality sites and functionality of offerings in Europe. Therefore, a study of the UK market is both manageable and provides a basis for other studies in Europe and elsewhere. Further, both authors live and work in the UK, and therefore were able to keep up to date with the developments using other media forms as well.

For the purposes of this paper, customer expectations from Internet banking can be conveniently categorised under four different categories, namely, view-only functions, account control functions, new services and reconciliation functions. The categories of customer expectations were derived from research carried out by Gandy (1998b), Gandy and Brierly (1997) and Gandy and Chapman (1996). Each of these categories has been further divided into subsets of functions, which are by no means exhaustive. These divisions were based on the cumulative aggregation of the functions enabled by the reviewed banks. Apart from these expectations, the cost of banking is of prime importance to customers. With the exception of two banks, all others offer their facilities free of charge. Natwest has a one-off charge of £30 and NPBS charges £2.99 per month after a free introductory period of six months (Table I).

As already highlighted, one of the primary objectives of using an on-line medium is to take advantage of banking 24 hours irrespective of location. However, Bank of Scotland customers

can only operate their accounts between 06.00 and 01.00 on weekdays, and between 06.00 and 00.00 on weekends. The bank shuts down Web operations, citing the need for maintenance and back office operations. This restriction compromises the flexibility and objectives of Internet banking, and the timing highlights the fact that it is very much geared towards the domestic market.

### **View-only functions**

Increasingly customers feel the need to have bank balances in check. This has been confirmed by several studies that have monitored bank support call centres, concluding that more than 60 per cent of the customer inquiries concern details about balances and the last few transactions made by the customer (Gandy, 1998b). The primary reasons seem to be that customer accounts are more active and users feel the need to reconcile more frequently. Without exception, all banks offer view-only functions. The primary advantage for the banks is that it reduces the workload for bank staff at both branch and call centres, and it relieves congestion at ATMs. The benefit for customers is that they can be assured of a private, quick and efficient service at any time.

### **Action/account control functions**

Action/account functions are required to provide customers with the broadest range of access and control over their accounts. To provide maximum customer satisfaction it is beneficial if as many of these functions as possible are provided by an Internet bank. All banks reviewed offer the facility of transferring funds between accounts. With the exception of three, all provided the opportunity of paying bills to third parties. This is an important function for many reasons. Almost all households incur bills for services like utilities. Additionally, bills represent a significant proportion of household expenditure, and the timing of these payments can be vital, hence the need for an active management of the household cash flow. A standing order or a direct debit might not provide the best payment timing. Ten banks allow the creation or amendment of standing orders. Eleven allow statements to be ordered, but only three allow ordering of cheque books.

**Table I** Current Internet banking providers

NAME OF BANK	View Only			Account Control							New Services						Re.	INTERNET SITE ADDRESS	
	Check balances	View Statements/Account	Historical records	Accounts amendment	Order cheque books	Transfer funds	Pay bills to third parties	Standing orders/Direct Debit	Order/Print statements	Send Messages	Pay Credit card bills	Apply for loans	Open Current Accounts	Open Savings accounts	Apply for Credit Cards	Apply for Mortgages	Apply for Insurance		Reconciliation/Integration
Bank of Scotland – HOBS (Home and Office Banking Service)	x	x	x			x	x	x	x	x									<a href="http://www.bankofscotland.co.uk/electronic/">http://www.bankofscotland.co.uk/electronic/</a>
BankNet Electronic Banking Service	x	x	x			x							x						<a href="http://mkn.co.uk/bank">http://mkn.co.uk/bank</a>
Barclays	x	x	x			x	x	x	x	x		x	x						<a href="http://www.personal.barclays.co.uk/online/">http://www.personal.barclays.co.uk/online/</a>
Citibank	x	x	x			x	x	x	x	x	x	x	x				x	x	<a href="http://www.citibank.com/uk/intbank/index.htm">http://www.citibank.com/uk/intbank/index.htm</a>
Co-operative bank	x	x	x		x	x	x	x	x		x			x	x				<a href="http://www.co-operativebank.co.uk/internet_banking.html">http://www.co-operativebank.co.uk/internet_banking.html</a>
Egg	x	x	x			x			x	x		x		x	x	x	x		<a href="http://www.egg.com/">http://www.egg.com/</a>
First Direct	x	x	x			x	x	x	x	x		x		x			x	x	<a href="http://www.firstdirect.co.uk/PCBanking/home.html">http://www.firstdirect.co.uk/PCBanking/home.html</a>
Lloyds On-line	x	x	x			x	x	x	x	x	x								<a href="http://www.lloydsbank.co.uk/">http://www.lloydsbank.co.uk/</a>
Nationwide Online Banking	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x			<a href="http://olb.nationet.com/onlinebanking/olbHomePageSetup.htm">http://olb.nationet.com/onlinebanking/olbHomePageSetup.htm</a>
Natwest Bank	x	x	x		x	x	x	x	x	x	x					x		x	<a href="http://www.natwest.co.uk/">http://www.natwest.co.uk/</a>
Norwich and Peterborough BS (Netmaster)	x	x	x			x	x	x	x	x	x								<a href="http://www.npbs.co.uk/intro.htm">http://www.npbs.co.uk/intro.htm</a>
Royal Bank of Scotland	x	x	x		x	x	x	x	x		x								<a href="http://www.rbs.co.uk/dbpc/product_demonstrator.htm#Productinformation">http://www.rbs.co.uk/dbpc/product_demonstrator.htm#Productinformation</a>

Surprisingly, only nine banks have the facility for the customer to communicate with the bank through the Internet. The mechanics for setting up this facility would seem to be the least technically challenging of all account control functions. One might conclude that the features that most banks do offer (e.g. the view-only functions and account transfers) can be handled automatically, without human intervention, hence there is no need for sending messages to the bank. While it is true that most account functions can be handled automatically, all these Internet banking operations are in their infancy, they are all fraught with technical and other problems. Additionally, the users too are getting used to the whole concept of Internet banking. Therefore, it is essential that banks

provide a facility to communicate and overcome any difficulties as easily as possible.

### Applying for new banking services

To exploit the convenience of Internet banking fully customers must be able to make applications for core banking services and open new accounts (savings accounts, loans, etc). Relatively few banks offer the facility of making application and enabling new services. It is important that both existing and potential customers be encouraged to make applications and acquire new services. If the entire process cannot be completed over the Internet due to regulatory barriers (e.g. money laundering regulations), at least the customer should be allowed to feed in personal details so that the process is expedited. The absence of these



features is a lost opportunity to recruit new customers and increases the danger of losing existing ones, since a customer is only a few key strokes away from moving to a competitor with more on-line functions.

Increasingly customers are looking for opportunities for transacting a number of diverse products and services under one roof. Banks are increasingly offering non-core banking products and services. Therefore it is logical these products and services are made available through the Internet. Such facilities include insurance, credit cards, mortgages, etc.

### Integration and reconciliation

An increasing proportion of customers use software packages to manage their finances. Therefore it is important that they are given the opportunity to reconcile their accounts by freely downloading and sharing information from their bank accounts to their individual financial management software. Only three banks offer the facility of integration with software packages for account reconciliation.

### An evaluation of banking Web sites

A Web site is unique in its hypermedia attributes. Hypermedia integrates multimedia content with hypertext connection. Multimedia content refers to information, while hypertext connection pertains to navigation (Bornman and Solms, 1993). User satisfaction depends on Web site features (Doll and Torkzadeh, 1988), and hence it is important to analyse Web features of banking services delivered over the Internet. Web site features have been analysed in terms of speed of download, content, design, interactivity, navigation and security features (Table II).

#### Speed

Studies have revealed that there is a significant correlation between Web site download speed and Web user satisfaction (Muylle *et al.*, 1998; Hoffman and Novak, 1996). While speed is often a factor beyond the control of a site owner, the use of extensive high-resolution graphics and an inefficient host server has a significant negative impact. On the positive side, many commentators have observed that in

general, speed of downloading has increased in recent times. Equally, it is important to recognise that speed is also dependent on the user's computing hardware and method of connection.

During testing, initial download times varied from 50 seconds to ten seconds with an average download time of about 28 seconds. The tests were carried out on weekends and late at night to mimic customer usage. The computer used for the tests was a Pentium II 266 MHz, with 64MB of RAM, 4 MB graphics card, equipped with a 56kbps modem connected by an ordinary British Telecom land line with no modifications. Internet access was gained through an independent Internet service provider (ISP). Web browsing undertaken using the latest popular browser versions, Netscape Navigator (4.6) and Internet Explorer (5).

The sites were repeatedly accessed on consecutive days. At most sites a reduction in download times over time was observed. Most of the newer browser software can save most of the graphical components of a site in the computer memory and thereby reduce download times of a recently downloaded site. Download times, particularly when using a site for the first time, are high. Consumers using older hardware with older versions of browser will find that download times take even longer. Only two Web sites gave an indication of approximate download and account operation times for average usage. Additionally, most of the sites utilise Java applets, in order to provide optimal transactional facilities. An applet is a program written in Java (a programming language) to run within a Java compatible Web browser. This approach is functionally a wise choice, but leaves a small number of potential consumers with older machines that lack a Java compatible browser (i.e. older releases of browsers running on lower specification computers) unable to interact. Popular browser upgrades are easily and freely available, but upgrading is not a simple option for users of older computers. Additionally, Java applets do not run smoothly in versions of Windows operating systems prior to Windows 95. However, it is acknowledged that this is becoming less of a problem as more and more

Table II Internet banking sites compared

Name of bank	Speed	Content	Design	Navigation	Interactivity	Security
Bank of Scotland	***	****	***	***	***	****
BankNet Electronic Banking Service	***	**	**	**	*	****
Barclays	****	**	***	***	***	****
Citibank	**	***	***	***	****	****
Co-operative Bank	**	*****	****	*****	****	*****
Egg Savings	*****	*****	****	*****	****	****
First Direct	****	***	***	***	***	****
Lloyds On-line	***	****	****	*****	***	****
Nationwide Online Banking	**	***	***	****	***	****
Natwest Bank	***	***	***	***	****	****
Norwich and Peterborough BS (Netmaster)	***	**	***	***	***	****
Royal Bank of Scotland	***	**	***	**	***	****

Notes: \* Poor; \*\* Fair; \*\*\* Good; \*\*\*\* Very good; \*\*\*\*\* Excellent

Internet users begin to use newer and faster machines.

### Content and design

Content and design have been found to influence user satisfaction. Muylle *et al.* (1998), in their research of Web user satisfaction, found that these attributes encompass:

- (1) product information content;
- (2) amount of product information;
- (3) product information format;
- (4) language(s); and
- (5) layout features.

These characteristics were found to influence the perception of information relevance, accuracy, comprehensibility, and comprehensiveness, as well as perceived language customisation (Doll *et al.*, 1995).

The quality of content at sites was mixed. Most had a demonstration of the service. These site demonstrations were limited to small snapshots of account screens. At some sites users had to download the program in order to view a demonstration. This has several disadvantages. First, most people are apprehensive about downloading anything from the Internet that could import unwanted components, like viruses. Second, most people are not willing to sacrifice hard disk space unless they observe a definite benefit. Downloading a demonstration may not be sufficiently attractive to cause all potential users to continue their connection to the site.

Some of the sites had very plain designs, devoid of any graphics or colours. Some incorporated low quality graphics and altogether portrayed a rather poor image of the bank. In order to enhance the design it is common to utilise frames in Web pages. This has advantages and disadvantages. On the negative side, the disadvantages are similar to those using Java applets described above. On the positive side, efficient use of frames is very useful for navigation. An almost ubiquitous use of frames is using the left-hand side of the monitor frame for the site index. When one scrolls down a page, the frame stays stationary, providing all the necessary links at all times, irrespective of the location on site.

### Navigation

Navigation refers to the hypertext connection of the multimedia content. Connection includes elements such as homepage hyperlinks, amount of Web pages, amount of hyperlinks, hyperlink encoding and personal contact possibilities, these in turn have been found to influence user satisfaction (Gatian, 1994; Doll *et al.*, 1995). A search facility along with a site map is useful. It was earlier emphasised that the content and the design of bank Web pages must reflect the nature of the Internet, for instance a page that scrolls down for about six to seven pages long is inappropriate. Site navigation plays a large part in this context. The hallmark of a good site is that the site index should always be in display, thereby making it very easy and fast for someone to arrive at the desired location.

### Interactivity

The interactivity of the site relates to the optimisation of hypermedia attributes (Muyllé *et al.*, 1999) by providing custom-made solutions, allowing users to customise preferences, and enabling the bank to provide bespoke solutions on-line for users who have provided personal information. It is technically feasible to provide interactive loan calculators, exchange rate converters, mortgage calculators, etc. on World Wide Web sites. The provision of these facilities should work to the benefit of the banks in several ways. First, the customers could judge for themselves their commitments for something like a loan, which might otherwise require the assistance of bank staff. Second, these facilities can draw non-customers into the bank. Third, as noted earlier, an Internet banking site has the opportunity to position itself as the focal point of electronic commerce. Interactive functions could be a focal point to attract shoppers.

### Security

Perhaps the most important issue of all is how safe it is to use a Web site and to conduct financial transactions over the Internet. Sites employ a multitude of security features. Encryption technology is the most common feature at all bank sites. This is supplemented by a combination of different unique identifiers, e.g. for a password, mother's maiden name, a memorable date, a favourite destination, etc. Some sites require information to be input in a random order, the order changing with each log in. Additionally, most sites employ a method whereby five minutes of inactivity automatically logs users off the account.

All Internet banking facilities are still at an early stage of development and hence the appearance, features and functions are continually evolving.

### Observations

Research has shown that the uptake of Internet banking has been slow, with about 540,000 active accounts – of these 150,000 are users of Egg savings (Fletcher Research, 1999). It was stated earlier that optimistic forecasts put the number of Internet users in the UK at 10.6

million. Why then have few users opened Internet accounts? The reasons are probably many and varied. First, our research has only found 12 banks offering Internet banking; this is less than 10 per cent of banks in the UK. However, this group includes three of the four biggest banks in the country, accounting for a majority of the country's 40 million bank customers. Therefore there must be a surprising degree of lack of awareness among these customers. Second, although there is a strong customer desire to gain better control of financial services, the present account control features for Internet banking are limited. Third, there may be technical reasons. Most offerings only support Windows 95 or later operating systems and are heavily biased towards IBM compatibles with Apple Macintosh users not supported by all offerings. Fourth, customer inertia is stronger than predicted (Gandy, 1998b). Most people associate a bank transaction with human interaction. For many people the prospect of typing on a keyboard to carry out a bank transaction seems a very detached method of banking. Perhaps this is one of the reasons why telephone banking remains so popular.

Of the 12 providers reviewed, all except two provide services free of charge. It is quite extraordinary for the banks to charge customers for using the new facilities, particularly if one of the purposes of introducing the Internet delivery channel is to reduce costs. One argument for charges could be that initial set up costs are high, and hence the need to charge to recover costs. But, on the other hand, such a policy runs to mitigate the popularity of this medium among customers. Additionally, there is no guarantee that banks that do not levy a charge at present will continue to offer the service free in future. All banks may levy a charge in the future based on the assertion is that there will be growth in on-line customer numbers, since a large proportion of the existing bank branches are destined to close. Research suggests that more than 7,000 bank branches will have closed by 2003 (Read, 1998). There are around 12,000 branches in the country, closures would therefore represent a reduction of more than half. If branches close, customers will find it more difficult to find and get to a branch, making the position of the

banks stronger than it is at present. Such developments might empower the banks to charge a fee from customers for Internet banking, a view which is shared by many authors (Wolff, 1998).

## Conclusions and summary

The challenge that lies ahead for banks is fourfold. First, they need to satisfy customer needs that are complex and difficult to manage. Second, they need to face up to increased competition from within the sector and from new entrants coming into the financial services market. Third, they need to address the demands placed upon the supply chain. Finally, they must continually invent new products and services in light of the changes described above. Central to these challenges are delivery strategies of banking services.

On-line banking is presented as an answer to many of the inherent disadvantages of a traditional branch. It is more than just another delivery channel for existing products and existing customers. The Internet provides many opportunities for banks. An Internet bank can act as a facilitator in Internet payment systems or act as a provider of other services and shopping opportunity and thus assist the growth of electronic commerce. Other advantages of using the Internet are cost savings, enhancement of the bank's reputation and the attraction of new customers. A Web site is a powerful marketing tool with comparatively low outlays and can be used to promote other products and services to generate advertising revenue. It provides an ideal opportunity to strengthen further the terrestrial bank brand name as well as developing an online brand name.

In spite of these advantages the provision and the uptake of Internet banking has been slow, with only 12 providers and little over half a million customers. This analysis showed that current on-line providers only offer a limited selection of tools to improve personal financial management. Internet banking could well develop in future to function as a shopping centre for various financial products such as insurance policies, pension funds, stock

brokering, equity plans and unit trusts. But currently services are limited.

Finally, it is possible that banks are only offering and publicising their services in a limited way because of uncertainty. They are uncertain that a fully robust service can be provided and technological problems can be overcome. It is possible that in the future when the shortcomings highlighted in this paper have been addressed a fully robust and customer friendly service is available that Internet banks will advertise the benefits of their services more actively.

Banks are operating in a competitive market, and some commentators have predicted that newcomers with very low operating costs could take a large market share. In practise, only one newcomer, Egg, has made an significant entry. It has been extremely successful in its operations, accounting for over 25 per cent of active Internet banking accounts. Many more are undergoing trials.

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