Home Banking and Videotex

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INTRODUCTION

Many will agree that the industrial age is rapidly maturing as the information revolution starts to emerge. The vast number of technical innovations have already helped alter several aspects of our lives, especially our business practices. The financial industry continues to incorporate the newest technological developments to expedite its operations and expand its services. The concept of bank customers performing various bank-related functions in their homes is just one new tangent the banking industry is starting to seriously investigate. This new concept, termed home banking, is only a part of an extensive home information system called videotex.
CHAPTER I

VIDEOTEX AND HOME BANKING: WHAT THE CONCEPTS INVOLVE

VIDEOTEX DEFINED

Videoex is the generic label for a system which allows its users to access information from remote locations via terminals with display screens. It is simply a new technology based on the combination of two existing technologies: communications and computers. Presently it requires a telephone, a terminal, and, on some systems, a television set to become linked into a network which has access to one or more databases and/or processing centers. Commercial applications of videoex have been in operation in Britain since 1979; also during that year, videoex services were introduced in France, Japan, and Canada.

VIDEOEX SERVICES

The specific services referred to as videoex involve a broad range of two-way exchanges of information. Many of the services a videoex system can provide are reflected in a recent survey conducted by Trans Data Corporation of Cambridge, Maryland, which divided the services into five categories: information access or retrieval (news, weather, sports, market reports), transactions (home banking, teleshopping), messaging (e-
lectronic mail), computer games, and telemonitoring (home security). These categories provide an example of the wide variety and diversity of services termed videotex.

The business community has shown a high degree of enthusiasm in the possibilities surrounding home information services. Over $100 million has been invested by United States companies in developing and testing videotex systems, and an estimated quarter of a billion dollars has been spent on 83 home-terminal projects conducted around the world.

So what lies ahead for videotex, this new concept which threatens to drastically change our way of life? Videotex's future, more specific uses of the concept, providers of the service, how home banking fits into the videotex picture, current home banking projects, how home banking will affect banking, and some of the problems that need to be overcome in order to make videotex and home banking successful will all be addressed in the pages to follow.

Videotex is information. It is a convenient means for the customer to have access to one or more data bases providing past and current information on a multitude of topics. For example, Times Mirror Videotex Services of Costa Mesa, California, provided the 350 participants in its pilot study access to more than 70,000 pages of information with 200,000 words of news update daily. The Keytran system, to be operated in Chicago, Illinois, will enable its users to access material from the World Book Encyclopedia. In addition, most of the videotex systems will provide electronic mailing, com-
puter games, travel and restaurant reservations, airline flight schedules, current market reports, community activities, and, to some extent, programs which will aid the user in areas such as tax planning, budgeting, and financial management. But the two major services which videotex's immediate future hinges on are retail advertising and consumer shopping, and home banking functions. The advertising and shopping services, which can be offered through videotex systems, are the most difficult services to provide to customers, but those functions have the potential to cause the most dramatic changes in the user's lifestyle.

The advertising service is being provided and is the closest to being offered, on a large-scale basis, of two merchant related functions. Currently, ads available to videotex users are similar to the news information received by the customer. The advertisements are not flashy, but they perform an informing service as to what the merchant would like to disclose to his potential customer. In the future it is hoped that the ads will be able to incorporate color graphics, and a clear "catalog-like" picture will be formed representing the merchant's product or sales pitch. Sears, for example, has expressed an interest in having its catalogs shown on videotex screens. But for now, most of the ads must remain simpler, such as an advertisement for a restaurant which would include the opening and closing times of the establishment and the menu from which to choose.

An area of videotex which is still in a state of speculation and development is what types of and on what scale will
shopping services be provided to the videotex user. Many in the home information industry believe that eventually many people will perform at least their basic shopping needs in their homes. After the customer decides which good he needs and which merchant to purchase it from, he will simply order the product from his terminal and it will be delivered to his home. The possible changes our society may face due to home shopping will be discussed later in this paper with the future of videotex and its potential impact on our lives.

Home Banking Services

One of the primary services, and in some instances the only service, provided by videotex systems are the banking functions a customer can perform at home. The different home banking systems, so called because the major videotex functions are bank related, vary widely in type and complexity of services provided. The systems range from offering an advanced form of telephone bill paying to enabling the customer to use budget and cash management programs.

The following sentences summarize many of the banking services the major home banking systems provide. Almost all of the systems offer simple account reporting services in which the customer can access current information concerning his checking, savings, Visa, and outstanding short-term and mortgage loan balances, monthly payments due, and recent transactions involving the corresponding accounts. In addition, most of the systems allow the user to conduct inter-
account transfers from his terminal. Many of the systems enable the customer to collect his monthly bills, send these to the bank in one or two batches, and the bank will register the bills and due dates in the customer's videotex "file". The bills can then be viewed by the customer on his terminal from which he can inform the bank when to pay them and which of his accounts the money is to be withdrawn from. If the bank is lucky, the retailer whom the bank's customer just paid will have an account with the bank. If so, the bank will simply credit the retailer's account. If the retailer banks elsewhere, the bank will batch the payments to that retailer for the day and send a check and specific payment list of the firm. Aside from account manipulation and bill payment services, most home banking systems will provide information on current interest rates and bank administrative services, such as bank hours, locations, and other services offered by the institution.

In the not-too-distant future, home banking systems may offer financial management services. Budget and cash flow programs, portfolio analysis, tax data collection and computation, and general investment information services are examples of the features to come. Home banking customers may even be able to participate in advanced teleconferencing via satellite communication.9

Videotex Communication Mediums

But how will a firm which supplies videotex services bring the previously mentioned services into a customer's home?
Currently there are two mediums which allow the necessary ex-
change of information from the consumer to the corresponding
data base and/or processing center—telephone lines and cable
television. A third possible means of transporting the infor-
mation is satellites, but this medium will probably not be u-
tilized with any significance for some time due to cost con-
siderations.

Although telephone lines and cable television each have
their separate advantages and disadvantages, phone lines ap-
pear to be the dominant medium. The major plus for phone lines
is that more than 95 percent of the United States households
have telephones. Only 20 percent of the American households
are wired with cable. Another distinct disadvantage of cable
is that a mere one-half of one percent of the cable lines
are interactive. A videotex system requires the transport-
tation medium to be interactive, able to receive and also
transmit information. The high cost of converting existing
cable to the type which allows for a "two-way" exchange of in-
formation to take place places another damper on the chances
of cable becoming the videotex medium since the exchange of
information is crucial to videotex and especially to home
banking.

Another benefit the telephone provides is that the tele-
phone network is a gigantic switch, making it possible to in-
terconnect any user with any data base and any bank's file of
accounts. But telephone lines presently present a problem
to the more advanced development of videotex services, home
shopping in particular. The "bandwidth" or information-carrying capacity of phone lines is too narrow to transmit enough information to reproduce good quality graphical displays. A possible solution to this dilemma is that if the user's terminal has intelligence, a built-in computer, it can reconstruct the sparse information transmitted over phone lines into more sophisticated graphics.13

The biggest advantage to using cable as the information medium is its ability to carry high-quality motion graphics. Home shopping services using cable could show the user a live model moving gracefully about wearing a new fashion offered in the Sears catalog. Also a cable system can provide a more appealing package of services to the customer, including movies, sports, video games, and other entertainment features.

So which medium will play the dominant role? Even though blue-chip cable companies invested an estimated $1 billion in 1981 alone, trying to develop videotex services, most industry experts feel phone lines will prevail. John A. Russell, vice president of Bank One of Columbus, Ohio, forecasts, "The mass product is going to be delivered by telephone."14 Although telephone lines appear to be the main delivery medium, a combination of cable bringing the information and graphics to the customer and telephone transmitting information back to the data base may evolve as an alternative. Currently the feasibility of this combination is unknown.

The terminal the customer will use will vary depending on the videotex system he participates in and his information
needs. The terminals range from the type used in Chase Manhattan's Bill-Pay service, which is an advanced telephone capable of displaying up to 16 characters of information, to a personal computer, such as the Atari 800 used in Chemical Bank's Pronto system.\textsuperscript{15} John Russel's predictions for the type of terminals videotex customers will use are: 60 percent of the market will use a stand-alone videotex terminal costing approximately $250, 20 percent will use decoders attached to their television sets, and the other 20 percent will use home computers.\textsuperscript{16}

Depending on the videotex used, the customer may be provided with a terminal at no charge, such is the case in the Bank-at-Home system in Knoxville, Tennessee. In this example, users are supplied with Radio Shack TRS-80 color computers for their videotex needs.\textsuperscript{17} Some systems, on the other hand, require the user to purchase either a personal computer or a specific terminal developed for that particular videotex system. The Viewtron system in southern Florida is a case in point in that its participants are required to buy a Western Electric terminal costing approximately $350.\textsuperscript{18} A third alternative is for the supplier of the videotex service to rent a terminal to its customer. The Keytran operation in Chicago, Illinois, gives its users the option of either purchasing a terminal for approximately $700 or paying $25 rent a month to use one.\textsuperscript{19}

Who will be the main providers of videotex services? Will each and every bank develop and market its own home in-
information services. What will be the role of the smaller community banks, who lack the technology and specialization to develop home information services, in the videotex industry? Although the home banking field is still in its embryonic stage, industry specialists foresee home banking services being offered to most bank customers across the nation by their respective banks. Even though the customer may deal directly with his local financial institution, he will probably be part of a network of customers interconnected through many different banks who have made franchise agreements for the services of one major home banking system provider.

Many of the banks currently experimenting with videotex have indicated they intend to franchise their services to other institutions. United American Service Corporation (UASC) located in Knoxville, Tennessee, has announced its intentions to franchise its Express Information videotex service nationwide. Thomas Sudman, president and chief executive officer of UASC, reports that more than 400 financial institutions have expressed interest in using the UASC service. According to Sudman, any bank that becomes a franchisee of the Express Information system must link its network into those of other banks participating. This interconnecting of institutions will enhance the electronic mailing capabilities of the entire system. As more homes are connected, the service becomes more useful. 20

Similar to United American Services Corporation's plans, VideoFinancial Services, a joint venture of four bank holding companies, plans to offer franchising services to other finan-
cial institutions across the nation. David Ortega, a specialist in the home banking area with Bank One of Columbus, Ohio, explained that VideoFinancial Services, of which Banc One Corporation is a partner, intends to have established twelve regional data centers strategically located throughout the United States by 1987. The data centers would make VideoFinancial's services available to virtually every financial institution in the United States. VideoFinancial assures that no one institution will have exclusive access to its services in a particular market. VideoFinancial claims that its eventual success is contingent upon the broad acceptance of its services by many financial institutions.

In addition to UASC and VideoFinancial, Chemical Bank, Chase Manhattan, and Automatic Data Processing are further examples of other firms planning to franchise their videotex services on a large scale. Even though it is estimated that more than sixty financial institutions may be involved in experimenting with home banking by early 1983, it appears that there may only be a small number of future major suppliers of home banking services. Economies of scale of providing videotex services and the communication advantages of having many users interconnected in each videotex systems are two major reasons this may occur.

Most bankers involved in the home banking projects proclaim home banking as being the way of the future, the ultimate in terms of customer convenience. But should banks be the ones to develop, market, and incur the risks of videotex's profit-
ability? Would it be better for banks to take a passive role in this emerging field and let others assume the risks inherent in developing a new concept? John Fisher of Bank One would say definitely not. Fisher states, "Everybody ought to lead. But banking is not a courageous industry, and this has contributed to its loss of market share to other types of institutions. In fact, banking is looking more and more like a railroad."24

Fisher says transaction applications can be the centerpiece of the videotex industry, and banks could be the leaders.25 In addition to banks meeting the transaction needs of the system, they could also be an important data-base provider, and thus they will have an influence on the pace of acceptance of the home information industry.26 In a Bank One of Columbus' report on its joint venture into VideoFinancial Services, the bank justified its entrance into the home banking field because, "home banking has significant appeal for the future" and "to help ensure that financial institutions stay in the forefront in providing financial services."27

There are a number of benefits financial institutions, which provide home banking services, stand to reap. Home banking could aid banks in cutting their operating costs significantly by reducing the number of labor-intensive transactions and the amount of paper those transactions require. Also the bank could expand its market reach through its videotex network. In addition, financial institutions will be better positioned to stay competitive with other institutions by providing new and more convenient services. And, probably most im-
portantly, banks will be able to generate new revenue from the fees charged to home banking customers and to other institutions which participate in franchise agreements. Donald P. Crivellone, executive vice president of First Interstate Bank of California, summed up First Interstate's reasons for entering the home banking field when he stated, "We're being buried in paper and the brick and mortar cost of building a new branch has doubled in the last five years." Crivellone also cited rising people costs as another major motivation force impelling him to pursue home banking further.

When reflecting on the cost savings to financial institutions, Bid Taylor, a national sales manager with Engineered Systems stated, "Weigh the potential of the number of calls and man-hours that would be tied up by those transactions versus having a reliable electronic banking system twenty-four hours a day. It's certainly cost effective."

Accepting the fact that banks stand to profit from additional revenue generated by and cost savings incurred because of home banking, two obvious questions arise: how much will home banking services cost, and what will be the benefits to the customer who receives these services?

Costs and Benefits of Videotex to the Consumer

Since the videotex industry is still in its early stages of development, many home banking projects have not indicated what exactly their initial fee structure will be. Bank-at-Home in Knoxville, Tennessee, which has been operational since
October 10, 1980, has instituted the following fee schedule: user terminals, $650 or a monthly fee from $15 to $25; banking services, $5 per month; and a $5 per hour nightly access rate to use its CompuServe services.\(^1\) The Keytran system in Chicago, Illinois, will be one of the least expensive systems for its users. Participants of this system will be given the option of purchasing a terminal costing approximately $700 or renting it for $25 per month. In addition users will be charged fees for access time and pages.\(^2\) Most of the other major videotex suppliers have indicated they intend to either require the customer to buy or rent a terminal, pay a monthly fee for access to the system, and pay additional fees depending on what complex services the customer uses.

But what will entice the customer to use a videotex system and pay approximately $30 per month to do so? The main attraction videotex and home banking has to offer its customers is the convenience it provides. One of the main goals of retail banking today is to make it as convenient as possible for the customer to do his banking. To accomplish this, banks have erected branches as close to as many potential customers as possible and in many high traffic areas, such as shopping districts and even airports. The automated teller machines are perfect examples of the banking industry's commitment to offering maximum customer convenience. The involvement of financial institutions in videotex is just a step further toward providing optimal customer convenience. But not only is home banking convenient, videotex itself is an attempt to en-
able users to have access to maximum amounts of information while exerting minimum effort.

Not only is videotex convenient to use for its participants, but it does offer a cost savings for those who will be able to utilize many of its services. David Ortega, from Bank One of Columbus, estimated that it costs a person $1 every time he pays a bill when checking fees, postage, and other miscellaneous costs are considered. Aside from saving on the cost of bill payment, videotex users who have needs for large amounts of information, which their particular videotex system is capable of providing, stand to benefit from the cost savings of receiving their information via their home terminal. And, of course, the novelty of participating in a videotex system will draw some users into the videotex market.

In the forefront of the videotex industry's target market are people marketing specialists refer to as the "early adopters". This is the group for whom information will be at the core of their lifestyles and workstyles. The early adopters are the ones who are better educated, more sophisticated, more affluent, and the ones who take the lead in using new technologies and concepts.
CHAPTER II
CURRENT HOME BANKING PROJECTS

Bank One's Channel 2000

To provide a more clear picture of who the major developers of videotex systems are and what their projects involve, several current home banking projects will be discussed. Bank One Corporation in Columbus, Ohio, with assets of $7 billion, is one of the nation's leading pioneers in home banking and videotex. Bank One is involved with two videotex projects: its own channel 2000 system and a joint venture called Video-Financial Services.

The Channel 2000 project is a videotex experiment conducted by Bank One of Columbus, Bank One Corporation's lead bank, and OCLC (Ohio College Library Center). OCLC is a library services company based in Columbus which operates an on-line computer network used by over 2,000 libraries in the United States and Canada. The objectives of OCLC in the project are to increase the availability of library resources to patrons and reduce the rate at which library costs are rising. When the Channel 2000 project started in the fall of 1980, it incorporated several early developments in the videotex industry: the first major interactive home banking service to be tested in the United States, the first multi-
volume general encyclopedia to be made available electronically, and the first electronic library catalog which allows electronic check-out and home delivery of books.

The Channel 2000 concept originated in 1975 when Bank One and a few other interested businesses began to evaluate the equipment and communication requirements needed to deliver banking services directly to the home. This research came to the conclusion that the technological requirements would be fulfilled by the end of the decade. In addition, the general consensus was that customers were not ready to accept the idea of home banking at the time.\textsuperscript{38}

The Channel 2000 system will operate on a free-standing computer permitting customers' financial and billing information to be updated on a daily basis. The service will be supplied to the customer via a decoder, designed by OCLC, that connects to any standard television set. Telephone lines will provide the communication medium to exchange information from the participant to the Channel 2000 computer. The hand-held decoder produces text and graphics in eight different colors with the television set turned to channel 2.\textsuperscript{39}

When the user dials the Channel 2000 computer telephone number and becomes logged into the system, he is confronted with the following menu of services to choose from:\textsuperscript{40}
Throughout the entire time the customer is using the Channel 2000 system, he is virtually "walked through" the procedures in each category of services making the system very "user-friendly".

If the user selects the Bank One Home Banking Services option, he is again presented with several different services he can use. The three major financial services are account status, general financial, and two methods of bill payment.41

Each Channel 2000 customer will have access to one checking account, two savings accounts, an installment loan, a commercial loan or mortgage, and one Visa card account. Month-to-date balance information is provided for each account, and detailed transaction information is available for the checking and savings accounts.42

Customers electing the bill payment option, can either have bills sent directly to the bank from retailers, or customers can enter billing information directly from their home using the hand-held decoder and edit their input via the television screen. If a user has his bills sent to the bank he can access the bill payment screen for review or payment. The information provided includes the company's name, amount of the bill, and its due date. All customers of the Channel 2000 system will receive a monthly statement listing in detail all transactions conducted through the system plus any other transactions through the customer's account.43

Participants in the Channel 2000 project also have access to screen displays of general financial information. Included
in this information are interest rates on certificates of deposit, savings accounts, installment loan rates, and the prime rate, in addition to other financial data.\[11\]

The user can choose five other services aside from Bank One's financial services, with the Channel 2000 system. The Channel 2000 description explains how to use the system. The American Academic Encyclopedia permits full access to the encyclopedia's information. The electronic version of the Columbus Library Catalog will enable users to look for a publication, and if available, have it mailed to their homes. The customer can also access information concerning community events through the Public Information Services option. The final service, termed Bookmark, permits the user to return to the page and function he was using during his previous access to the system.\[45\]

**VideoFinancial Services**

VideoFinancial, a joint venture of Southeast Banking Corporation of Miami, Florida, Bank One Corporation, Wachovia Corporation of Winston-Salem, North Carolina, and Security Pacific Corporation of Los Angeles, California, will provide financial transaction processing and hence banking services to local financial institutions. VideoFinancial plans to provide two types of processing services, one for consumers and the other for small businesses. The home banking service will provide electronic bill payment, full account and bank statement information, and funds transfers between banks. Video-
Financial will also process the financial portion of video-shopping transactions conducted through the home terminals. Small businesses will be offered a specialized banking package which will allow them to access their financial accounts and will assist them in record-keeping and financial management tasks.45

VideoFinancial's major commitment at the present time is to provide the bank switch, including home banking for the Florida banks involved in the Viewtron videotex system to be implemented in southern Florida in September of 1983. The Viewtron system is sponsored by Viewdata Corporation of America, a wholly owned subsidiary of Knight Ridder Newspapers. AT & T/Southern Bell will design and sell the terminals to be used in the Viewtron system.47

Viewtron

Viewtron is more of a videotex system that includes home banking rather than the Channel 2000 system which was a home banking system that included a few other videotex services. The Viewtron customer has access to an array of news, advertising, in-home shopping, quizzes, games, recipes, Spanish lessons, magazine articles, and other features, all appearing in textual or graphical form.48 Included in the other features are the traditional home banking services, such as account status, bill payment, and transfers.49

Viewdata Corporation of America(VCA) estimates that 5,000 southern Florida residents of Dade, Broward, and Palm Beach
counties will become paying customers of Viewtron during its first year of operation. The participants will be required to purchase the AT & T television adapter terminal for approximately $350 and pay the monthly fee, presently targeted to be $25 to $30. Eleven Florida financial institutions have signed letters of intent with VCA to help provide the banking and transaction functions to Viewtron's customers.

Knight Ridder plans to offer Viewtron in several cities across the nation where Knight Ridder provides newspaper services and possibly in one or two cities in which it is not located. Potential future Viewtron sites include Boston, Fort Worth, Kansas City, Philadelphia, San Jose, Detroit, and Charlotte.

Bank-at-Home

Another major videotex system called Bank-at-Home is provided through a joint venture with United American Service Corporation (UASC), Radio Shack, and CompuServe. United American Bank of Knoxville, which has recently been acquired by First National Tennessee Corporation, offers the banking and transaction services for the Bank-at-Home system. The services provided to the customers include: bill payment, account status, banking information, information services through CompuServe, personal computing, electronic mail, and games. In addition, loan application and personal bookkeeping were to be added to the system in 1982.

The in-home terminal for the Bank-at-Home system is the
The user is charged a monthly rental fee of $15 to $25. The user is charged a $5 monthly fee for the banking services, and a $5 per hour nightly access rate is assessed if the customer uses CompuServe.57

In October of 1981, four hundred customers were receiving the Bank-at-Home service in the Knoxville area. UASC plans to franchise its Bank-at-Home system to financial institutions across the nation. In 1981, Thomas E. Sudman, president and chief executive officer of UASC, reported that some 400 banks of all sizes in almost every state and in four foreign countries had expressed an interest in using Bank-at-Home. UASC plans to control the selection of new franchises to get a balance of large and small banks in communities of varying sizes.58

Chemical Bank's Pronto

Chemical Bank, in New York City, is another bank currently developing a videotex system to be franchised to other financial institutions. Chemical Bank has invested over $10 million in developing software packages that would allow its videotex participants to use basic banking, electronic mail, account maintenance, and other customer services. Pronto, the name for Chemical Bank's videotex system, will use a dial up telephone hookup and will be compatible with the Atari 400 and 300 personal computers.59
Chemical Bank is also planning to develop a videotex product specifically for small business. The system, called Pronto II, will provide cash management, funds transfer, forecasting, and access to common computer programs, such as accounts receivable. The user computer for Pronto II has not been selected.60

First Bank System's First Hand

First Bank System of Minneapolis, Minnesota, became the first American bank to use the French videotex system, Teletel, when it started its First Hand videotex service in 1982. Teletel is a French made "smart card". It is a credit-card size instrument with its own memory in the form of a silicon microcomputer chip stored between layers of plastic. The microchip provides an electronic key to confidential coded data files in the memory. When the card and a personal code are entered into a reader, the memory identifies the bearer, indicates the banking power of the card, and automatically dates and records the information within the circuit.61

Another aspect of the First Hand system that sets it apart from other videotex systems is that it is set up more to cater to the needs of farmers and ranchers. First Hand is being operated in North Dakota and has over 250 participants. The system offers information services such as weather, news, agriculture, markets, and classified advertising. In addition to the traditional banking services, First Hand offers accounting, record keeping, tax, loan amortization, lease/purchase, and financial planning services.62
CHAPTER III

PROBLEMS FACING VIDEOTEX

Even though there are many videotex systems being developed across the nation offering a broad array of information services, several problem areas need to be considered and overcome before videotex services can be widely marketed in the United States.

Automated Clearing House

Before the home shopping services of videotex systems can fully emerge on a wide-spread basis, an automated clearing house network will need to be developed. John Fisher, senior vice president in charge of research at Banc One Corporation, stated, "Eventually, we must have an automated way to send and receive data to and from billers. I'm hopeful the automated clearing house network will provide the missing link."53

Customer Acceptance

One potential problem videotex and especially home banking suppliers must consider is that of customer acceptance. Are individuals willing to pay the necessary fees to receive the videotex services in their home? And, are bank customers ready to trust a videotex system with their bank account transactions?
Customers may be reluctant to accept home banking and other videotex services because they do not understand the new systems and are confused by the many new complex electronic innovations. Michael P. Sullivan, vice president of First Union National Bank in Charlotte, North Carolina, points out, "The consuming public, exposed to many financial offerings delivered in all shapes and sizes and price levels, by a host of banks, near-banks, and non-banks, is confused by it all."64 Studies conducted in the early 1970s, the days of early technical innovation, revealed slow, even disappointing acceptance of technology-based products.65 But, surprisingly, the same studies show a high level of customer loyalty to technological services. Mr. Sullivan stated, "Once they tried it they liked it. They didn't want to go back to the old way."66 Now, Mr. Sullivan feels, we have moved into an era of more rapid customer acceptance, and the normal adaptation curve marketers are used to is expected to prevail.67

John Fishaw of Bane One states, "There is no doubt a home banking service will start out as an upscale offering, but it will work its way down quickly." He adds, "That's been true of every delivery service—including checks. I see it eventually on a mass delivery system."68

There are many factors which will favorably influence customer acceptance of home banking services. The higher cost of transportation and postage, coupled with ten years of customer exposure to automated teller machines and an increasingly high technology-oriented environment, will aid in tearing
down the barriers of caution and fear customers may have of videotex services.

In addition, Bank One of Columbus claims, in its Channel 2000 report, that customers are demanding more convenient access to their bank accounts. Another positive note for our increasingly better educated society comes from studies conducted by AT & T which show that as consumers become more educated, their needs for specialized and personalized information tends to expand as does their acceptance of automated delivery systems.

Security

Another potential problem area involving home banking that suppliers of videotex services must be concerned with is security. Capitalizing on Technology points out that the ease with which BASIC programs can be altered makes current documentation standards difficult to enforce. The publication adds that a person with advanced microcomputer training would have little trouble in breaking the access-code security on sensitive data files.

Most videotex systems protect the customer's bank accounts from fraud and unauthorized transfer of funds through two security measures. Each participant in the videotex system will have a personal identification number which must match the number stored in his own terminal. Most systems will allow a user to manipulate his bank accounts only from his own terminal. The second security feature is that all the data traveling
over the phone lines from the customer's home to the system's main computer will be encrypted, or specially coded.

Other Problems

An issue which does not appear to hamper the implementation of videotex services, but does pose as a problem to the widespread usage of the services, is the cost element. Capitalizing On Technology reported that studies indicate the terminal will have to cost approximately half as much as what most systems are charging to have mass appeal.72

One of the crucial problem areas videotex suppliers must conquer is getting other merchants involved in the videotex systems. The high costs to the customer for receiving videotex could be greatly lowered as advertising dollars could be brought in to defray costs. David Ortega of Bank One of Columbus stated that advertising will make or break the success of videotex systems.73 If videotex suppliers can entice merchants to become involved in the systems by participating in electronic bill payment from their customers and utilizing the advertising and home shopping potential videotex offers, the way we shop could be drastically altered.

A possible constraint to the rapid development of videotex services is that software for practical day-to-day applications remains in short supply.74 Software programs, such as home budgeting and cash management, are useful only if user support is offered. In most cases user support has been minimal, requiring the user to return to the place of purchase for
assistance or to telephone a special number for help. Thus the programs must be readily usable, without requiring the customer to expend considerable effort to learn how to use the program.

One question which is almost always raised when banks attempt to do anything new is what are the regulatory implications for the new area. The only regulation governing banking which appears to apply is Regulation E. This regulation outlines the rules on the physical receipts and information customers must receive concerning their accounts. But Banc One is leaving nothing to chance with its Channel 2000 system. Banc One and CILC representatives presented a hands-on demonstration of Channel 2000 to the members and staff of both the House and Senate banking committees. Also officers at the United American Bank of Knoxville contacted regulatory authorities concerning the bank's involvement in the Bank-at-Home system. The authorities expressed no criticism of the inter-state nature of the operation.
CHAPTER IV

THE FUTURE OF VIDEOTEX AND ITS POSSIBLE EFFECTS ON PEOPLE'S LIVES

The future participation by banks in Videotex systems is as difficult to predict as the future deregulation of banking and the new financial instruments that may evolve. But most industry participants believe that home banking will be offered on a widespread basis within a decade. A New York City marketing firm estimated that 4,000 financial institutions may be offering home banking services by 1990.80

Effects of Videotex on the Financial Services Industry, People's Lives, and Merchants

The effects of home banking on the financial services industry may be drastic. Home banking can greatly expand the services offered by the banks and the locality of the customers they can reach. Home banking may also ease the transition of banks into other fields and services which are traditionally provided by non-bank firms. Security trading and information, travel services, insurance services, and investment counseling can all be economically provided through a videotex system by a bank or non-bank.

The potential effects videotex systems could have on our lifestyles could be significant. Once videotex systems become
more advanced and established we may no longer have a newspaper or magazine delivered to our homes. We could simply have the evening paper displayed page by page, in color, on our videotex screen. We would not even have to subscribe to a specific newspaper or magazine. The videotex systems may very well incorporate thousands of local newspapers, which already use computers to develop their typeset and page layouts, into their data files. A user could read a paper from almost any major city in the country. Several videotex systems mentioned in this paper have already incorporated encyclopedias into their data files for customers to access thus eliminating a trip to the library to perform research on an issue.

The way we do our shopping and buying appears to be the part of our lifestyles videotex threatens to change most. The potential changes that could result because of a videotex user being able to access the Sears catalog, view a live model wearing a new fashion, perform the necessary transaction to purchase the article, and receive the product without leaving his home are many. One effect the above sequence may have on businesses is that an efficient delivery system will need to be developed. Whether each retailer will deliver its goods itself or independent delivery firms will come into existence is unknown. Also the retail store itself may experience change because of home shopping. If a significant number of people purchase at least a fair amount of their needs at home, the number of sales clerks, cashiers, cash registers, and floor space in the store can be reduced. Eliminating the many labor intensive jobs as-
associated with assisting customers in purchasing some products may more than off-set the increased cost of delivering the items to the customers, thereby reducing a firm's costs and possibly reducing the prices to the consumers.

But how long will it be before a significant number of homes are participating in videotex services? Payment Systems, an electronic funds transfer research and information service company, estimates that up to 10 percent of American households will have a home computer terminal by 1985, and up to 40 percent of the households will have a terminal by 1990. This does not mean each of the households that has a terminal will also be a videotex customer. But if people do not have to purchase a terminal specifically for videotex purposes and people are already oriented to using computer terminals, videotex services will be more appealing to them. David Ortega, at Bank One of Columbus, stated that by the year 2000, more than 50 percent of American households may be using videotex services. If this number is realized, that would represent well over 100 million households, a significant number. Considering the more near future, industry watchers forecast that as low as 7 percent and as high as 20 percent of the households in the United States could be videotex users by the late 1980's.

What home banking and videotex will be like in the future is up to pure speculation. John Fisher, of Banc One, says that it will take most of the 1980's for home banking to develop. He stated, "We're at the same point with this new
service right now as we were with credit cards in 1965-66, or with ATM's in 1970-71."\textsuperscript{83}

Although it is still uncertain what exact services will be provided by videotex systems and how many people will use videotex, Muriel Reark characterized the prevailing thought in the industry. In reference to videotex, he stated, "It will have a tremendous impact on our lives over the next ten years."\textsuperscript{84}
FOOTNOTES

1"Trend Analysis," A report provided by the Indiana National Bank, Indianapolis, 13 April 1983, p.4. (Typewritten.)

2Bank One of Columbus, "VideoFinancial Services," Columbus, 1982, p.4. (Typewritten.)

3Tbid.

"Capitalizing on Technology," A report provided by the Indiana National Bank, Indianapolis, 13 April 1983, p.4. (Typewritten.)


8Interview with David Ortega, Bank One of Columbus, Columbus, Ohio, 20 April 1983.


10Tbid., p.5.

11Orr, p.2.

12Tbid.

13Tbid.

14Tbid., p.3.


16Orr, p.7.


18Tbid., p.25.

19Tbid., p.12.

21 Ortega.
22 Bank One of Columbus, p.4.

25 Ibid., p.3.
27 Bank One of Columbus, p.4.
28 Orr, p.4.
29 Ibid.
30 Cromer, p.2.
32 Ibid., p.17.
33 Ortega.
34 Orr, p.2.
36 Streeter, p.3.
38 Ibid.
39 Ibid., p.2.
40 Ibid., p.3.
41 Ibid.
42 Ibid., p.2.
43 Ibid., p.3.
44 Ibid.
45 Ibid.
46 Bank One of Columbus, p.1.
52 Orr, p.3.
54 Orr, p.3.
55 Ibid.
57 Ibid.
58 Orr, p.3.
59 Cromer, p.4.
60 "Trend Analysis," p.23.
61 Cromer, p.5.
63 Streeter, p.3.
65 Ibid.
66 Ibid.
67 Ibid.
68 Streeter, p.4.
71 Ibid.
72 Ibid.
73 Ortega.
75 Ibid., p. 7.
76 Ortega.
77 Ibid.
78 Streeter, p. 4.
80 "Capitalizing on Technology," p. 11.
81 Sullivan, p. 1.
82 Ortega.
83 "Capitalizing on Technology," p. 5.
84 Streeter, p. 2.
85 Orr, p. 3.

"Capitalizing on Technology." A report provided by Indu.
National Bank, Indianapolis, April 13, 1985. (unwritten.)


Ortega, David. Bank One of Columbus, Columbus, Ohio. Interview, 20 April 1984.


"Trend Analysis." A report provided by Indiana National Bank, Indianapolis, 13 April 1982. (Typewritten.)