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The influence of technological change on the banking sector

Rosaline Hirschowitz (editor)

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PREFACE

The Chip, the prime mover behind the new industrial revolution, will eventually have an impact of the same magnitude as the old one. Perhaps at present its effects are most visible in the banking sector where queues have now changed position and where pressing buttons has taken the place of form filling. Inside the banks the changes have been much more profound and banking personnel, from the manager downwards, have had to adapt, and will have to adapt further in future, to new ways of doing things.

Any swift and dramatic change introduced into society is bound to have interwoven effects on such a society. The various authors of this reader, with their intimate knowledge of banking and related fields, have been required to describe what is actually taking place, and to share with us their views on the wider implications of this change. To all of them we would like to offer our sincere thanks and appreciation.

The banks that participated in this project are also thanked for their interest in the project and their full co-operation.

EXECUTIVE DIRECTOR

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SAMEVATTING

Die invloed van tegnologiese verandering op die bankwese is verreikend en gevolglik sluit die publikasie 'n wye verskeidenheid onderwerpe in. Die wesenlike veranderinge wat in die bankwese plaasvind en die wyse waarop dit die werksituasie van bankpersoneel en -bestuurders beïnvloed, word behandel.

Opleidings- en heropleidingsbehoeftes, die bekendstelling van veranderinge vanuit die oogpunt van personeel sowel as bestuur asook die sielkundige en sosiologiese implikasies van verandering is ondersoek.

Aandag is ook gegee aan ekonomiese en regsaspekte en die invloed van die nuwe tegnologie op internasionale bankwese.

ABSTRACT

The influence of technological change on the banking sector covers a very wide field, and as a result, this reader covers a variety of topics. The actual changes that are taking place in banking and how they influence the work situation of bank personnel and of managers is dealt with. Training and retraining needs, the communication of change from both the workers' and management's point of view are examined and the implications of change from a psychological and a sociological perspective are considered. Attention is also given to economic and legal considerations and to the effects of this technology on international banking.

INTRODUCTION

Trying to look into the future has always been highly problematic. Predictions have so often proved to be inaccurate that one hesitates to say anything at all about how technology will influence the future. For example founder nuclear physicist Ernest Rutherford, in his 1933 address to the British Association for the Advancement of Science, said:

> "We cannot control atomic energy to an extent which would be of any value commercially, and I believe we are not likely ever to be able to do so."

And Winston Churchill in 1939 stated:

> "Atomic energy might be as good as our present day explosives but it is unlikely to produce anything much more dangerous."

Both scientist and politician failed to predict the uses and abuses to which nuclear energy could be put; neither predicted the shattering events that occurred within 12 years of Rutherford's speech.

Yet attempts at prediction are essential. If one fails to try to understand the consequences of change, no action can be taken to promote desirable and to prevent undesirable occurrences. Sometimes predictions are right. For example Albert Einstein warned:

> "The release of atomic power has changed everything except our way of thinking and thus we are being driven unarmed towards a catastrophe."

We should heed Albert Einstein's warning so that we can arm ourselves psychologically and emotionally to meet the consequences of change. However wrong we may prove to be, if we attempt to predict consequences and think about the effects of new technology we can

control at least some of them. This also applies to the new information technology currently being introduced into banking.

The mushrooming of automatic teller machines has meant that technological change in the banking sector is highly visible to the general public. The bank client can make use of new ways of depositing money into his account and withdrawing money from it. New methods of payment are also available and plastic cards are being introduced to an increasing extent in all financial transactions. Information-processing activities, namely the recording, capturing, storing, transfer and retrieval of information, are being carried out much more efficiently and with greater speed by the use of micro-electronic technology. The public is directly involved in changes in the banking sector as it is becoming necessary to adopt new methods of banking and to begin to think in terms of money as credit information, rather than money as cash. Change in the banking sector has a significance beyond the banks themselves, as financial transactions are after all an essential aspect of everyday life.

The aims of this reader are to describe the change occurring in banks and to look at some of the implications. Various people involved in banking or in related fields were asked to contribute articles to this publication indicating how these changes have impinged on the type of work done in banks, on the worker, on training needs and on management employee relations. The broader implications will then be examined by various authors in the field.

SECTION ONE

DESCRIPTION OF CHANGE

INTRODUCTION

This section provides background information on technological change occurring in the banking sector at present. Possible technological developments are also discussed. A framework is thus given for technological change from which implications may be drawn and predictions made.

The first article gives a general description of the new technology being used at present in banking. It tells us about the new technology that is directly observable by the general public as well as other less visible technology.

The second article looks towards the future. It discusses future trends in computerization and telecommunications that may influence the way in which the use of technology develops in banks.

The third article discusses how the smaller bank will make use of the new technology. It indicates some problems smaller banks may experience as well as some solutions to these problems.

The fourth article gives a more general description of office technology and how it may be applied in banks. It discusses the new skills required and the way in which technology affects the methods of doing office work, with particular reference to the banking sector.

The effects of change, based on this outline, will then be discussed in the following sections.

AN OUTLINE OF THE CHANGE OCCURRING IN BANKS

Rosaline Hirschowitz*

Automation in banking has been proceeding steadily since the 1960s. The earlier changes were largely concerned with the handling of back-office operations aided by the installation of large mainframe computers. These changes usually did not have a direct impact on the client or the general public (Marti and Zeilinger 1985). Some banks, however, introduced cash dispensers so that clients could withdraw money when the bank was closed.

Micro-electronics falls in a different category. The greater memory capacity, faster transmission of data and lower costs have made micro- electronics attractive to banks. Processing and storing of financial information can be done more compactly, flexibly and cheaply. In combination with laser scanning, fibre-optic technology and new forms of telecommunications, microchip technology has now made it possible for banks to offer a whole series of new financial services and to handle all transactions much more rapidly and efficiently.

Without automation, many of the paper-based systems of the past could not have coped with the growth in the use of bank services that has occurred in the last two decades (Ernst 1985). Indeed, some of the growth has been stimulated by the new technology. For example the payment of wages and salaries by means of credit transfer has meant that more people now have bank accounts and make use of banking facilities. This was not possible before computerization.

Microchip technology has also enabled other organizations to enter into areas that have traditionally been associated with banking. For example large computerized corporations are able to transact

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short-term loans with each other directly, rather than conducting the equivalent transactions with banks. In Britain and the United States, a few large department stores are at present offering loan facilities to customers in direct competition with banks (Ernst 1985).

The banks in turn have also diversified. For example they offer financial advisory services, housing loans and insurance services, which are new areas for them. Computer technology has made it possible to offer these services without necessarily increasing staff to a large extent; staff previously involved in the processing of financial transactions can now be retrained and redeployed to offer these new services. The content of work for many bank officials is therefore changing.

Modern cheque processing began with the introduction of magnetic ink character recognition encoding on all cheques. Machine readable numbers have now been introduced, making it possible to quickly identify the account on which the cheque was drawn and the bank in which the account is held. Machine reading of cheques is one way in which computer-based record keeping has developed. Cheques in turn are now being replaced by plastic cards.

At present there are two types of cards. The first, commonly used in South Africa, is a plastic card bearing a magnetic strip. It is cheap to make, but liable to failure, physical damage and fraud. The second type of card is more secure and more expensive. It contains a micro-electronic circuit that transmits an almost unbreakable code. It is capable of calculation and memory storage and has applications other than financial transactions. For example a health record and other personal details may also be stored in the card's memory (Turney 1984). It is very likely that future cards will be a combination of both these types of card. Plastic cards are now being used in various ways to make payments, to withdraw money from automatic teller machines (ATMs) and in other financial transactions. In many ways they are more convenient than cheques.

Automated banking services are best suited to plastic cards. Cash dispensers have given way to ATMs. These machines not only dispense cash, but also accept deposits, answer balance queries and transfer funds between accounts. These are the most obvious changes in banking as far as the general public is concerned. In effect the new technology means that clients by keying in codes and asking for certain transactions, are doing work that was previously done by bank officials (Ernst 1985).

The ATMs of various banks and building societies were recently linked through the creation of joint networks. This allows the client to use far more ATMs than was previously possible, and to obtain banking services at a wide number of outlets. ATMs are directly linked to bank mainframe computers.

Computer-based record keeping involves the following technologies: Mainframe computer facilities based on microchip technology in a central location, linked to a wide network of other computers and computer terminals. Interactive, rather than batch processing takes place. This means that information inputs at the point of origin, for example the branches, are transmitted directly. An on-line interrogative service to query clients' accounts may also be available. Direct transmission of all transactions is time saving and highly efficient.

Some banks have computer terminals and on-line personal computers available as part of the back-office services of branches, whilst others have introduced counter terminals for the use of tellers, which capture information as and when transactions occur.

Electronic transfer of funds from one account to another, from one bank to another or from the bank directly to the client's account is another way in which banking has changed. Automated clearing house services have made the work of clearing cheques much more efficient and less time consuming. It should no longer be necessary to transport cheques physically to the clearing centres as the com-

puter-based telecommunications systems can now do this. However, as long as clients wish to receive their paid cheques together with their bank statements, it will be necessary to provide this service. Automated clearing has made rapid transfer of funds possible.

Link-ups between the branches of a bank in other countries and between local and foreign banks are now also taking place. International financial information transmission and transactions occur between branches and between banks in all parts of the world at an extremely fast rate, and more efficiently than previously.

The computers, both personal and mainframe, of corporate clients can now be linked with those of a bank. This enables corporate clients to obtain relevant financial information, both local and international, directly and to conduct transactions through a computer. Cash flow and liquid asset management can take place more efficiently with the help of this facility.

The establishment of networks between bank computers and personal computers in people's homes is making home banking possible. For the banks' clients this may mean that many financial transactions can be done directly from the home. In future it may be unnecessary for at least some clients to stand in queues for banking services, as direct on-line banking facilities in one's home may become more convenient and popular.

A further, but possibly less popular development, is the link-up of electronic cash registers in retail shops with bank computers. At present there seems to be no obvious reason why the consumer should want to make use of this facility. Disadvantages include the need to remember and to key in a personal identification number at the till, the occurrence of faults at the cash register, or faults developed at the terminal, the embarrassment of having one's transaction refused and the difficulty of locating errors and rectifying them after the transaction has taken place (Marti & Zeilinger

1985). Advantages to banks are numerous as more transactions can be speedily handled without the need for extra staff. For the consumer the advantages will perhaps become more obvious at a later stage, as smoother more efficient transactions are mutually beneficial.

It has been predicted that:

> "In future we may experience not just a chequeless but a cashless society, where all transactions are registered by movements in electronic memories and no money need ever change hands." (Turney 1984 : 59)

This would mean a large-scale social upheaval and a new way of conducting business for many people. As with many other applications of information technology, new electronic based financial networks could produce "a new class of privileged consumers, separated from those denied access to instant credit and transfer facilities and home banking and shopping". (Turney 1984 : 59)

In summary, the changes in banks may be described as follows:

- The centralizing of clients' accounts on a mainframe computer.
- The introduction of automated money transmission services between accounts and between banks or branches, including clearing services.
- The making of regular payments, for example credit transfers, debit orders and standing orders by automated processes.
- The introduction of terminals in branches, facilitating the input of information at the point of origin and an on-line interrogative service.

- The introduction of counter terminals capturing information as and when transactions actually occur.

- The proliferation of automic teller machines offering banking services at all hours, for example dispensing cash, accepting deposits, verifying bank balances and handling requests for the issue of cheque books or bank statements.

- The creation of joint networks to enable clients to use the automatic teller machines of other banks.

- The creation of worldwide interbank financial telecommunications links where worldwide electronic transmission of messages on all aspects of international banking can occur and where links with overseas branches and foreign banks are possible.

- The development of clearing house automated payments systems which allow for same day settlement of payments via electronic funds transfer.

- The introduction of new methods of payment so that the cheque is declining in use as a means of payment and there is an increase in the use of "plastic" money for al financial transactions.

- The direct on-line access to banking facilities at points of sale is occurring. Cash registers in shops are being linked to bank computers and deductions for purchases can then be made directly from customers' bank accounts.

- The linkage of home or personal computers to bank computers via "Beltel" or other means is occurring.

- The linkage of computers of corporate clients to bank computers is taking place to help improve the cash management of

these organizations and to keep an accurate account of liquid assets.

- Communication with head offices and other branches of banks is increasingly taking place by means of electronic mail.

- Office automation is being introduced.

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FUTURE TRENDS IN COMPUTERIZATION AFFECTING STRATEGIC PLANNING IN BANKING

J.G. Wildman*

INTRODUCTION

There is an adage that if something is changed a thousandfold it is not the same anymore. In the information technology industry, processing speeds and storage capacities are increasing at a rate that will accomplish a thousandfold change within two decades. A hardware generation may last as little as five years: projects run the risk of obsolescence within two or three years of implementation. The science fiction dreams of computers that can think or respond to speech are already being realized by Silicon Valley start-up companies funded by venture capitalists with a record of picking winners.

The high rate of change is what makes what is happening in information technology revolutionary. In the banking industry the core operation of the business is information processing. The changes in information technology will affect our business more than most others. This article focuses on the main issues that are likely to emerge to 1995.

FUTURE TRENDS IN COMPUTER DEVELOPOMENT

The speed of computer processors and the capacity of memories are each rising at about 40 % p.a.; the costs per unit of processing power and memory capacity are falling at 25 % p.a. and 35 % p.a. respectively. The combination of rising power and falling costs is fuelling a dramatic increase in the penetration of computer sys-

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tems: the number is doubling every two years. There is every reason to suppose that this rate of technological change will be sustained for the foreseeable future.

The rate of change

A comparison between Eniac and the IBM AT illustrates the continuing pace of change in the information technology industry.

In 1945 the world's first computer, Eniac (electronic numerical integrator and computer), was invented. Eniac weighed 30 tons, occupied 1 500 square feet of floor space, cost $500 000 and managed to perform about 5 000 additions per second. In 1984 the second generation model of IBM's personal computer, the IBM AT, was launched. It weighs 42 lbs, occupies 2,5 square feet of desk space, costs $4 000 and performs 400 000 additions per second. In the 40 years between Eniac and the IBM AT the price of making one electronic addition per second has fallen by a factor of almost 10 000 and the convenience has improved commensurately.

Productivity of computers

It is the ability to multiply speed and capacity and to reduce costs that underlies the information technology revolution. Such rapidly increasing productivity has ignited a huge demand for computer systems. The development of silicon chip technology has powered the dramatic increase in information technology productivity.

Computer systems in use

The number of computer systems in use is currently rising at the rate of 45 % p.a. If this rate of growth is sustained until 1995 there will be a fortyfold increase in the number of computer systems in use. Provided the rate of technological change can be sustained, and there is every indication that it can, by the turn of

the century ownership of and familiarity with a computer system will be the rule, not the exception.

The banking industry is a major user of information technology. It is likely that the power the industry has to process information will multiply thirtyfold in the next ten years while dropping in unit price by about the same factor. This is a rate of change which has not been previously witnessed in any industry. It will be one of the main challenges over the next decade to manage this rate of change and make productive use of the tools that become available.

Processing power

It is possible to measure the processing power of a computer by the time it takes to process a standard set of instructions. Processing speeds are thus measured in millions of instructions per second (mips).

Historically processor speeds have increased at between 30 % and 40 % p.a. It is likely that the next decade will show rates of increase as high as any previously experienced. Even this forecast may be on the low side. This level of processing speed is of significance: it is estimated to be the level at which many artificial intelligence applications become feasible. The processing capacity available to managers on their desks in the next two years will approximately equal the processing capacity required to handle a bank's transactions of 20 years ago.

There is likely to be a limit to the number of instructions a conventional commercial computer can perform per second. The current focus of much research is to move away from commercial computers as they are presently structured with a single (or perhaps a few) processors executing instructions sequentially, towards a new computer architecture employing a large number (that is several thousand) of processors working in parallel. Each of these processors would

have its own memory and would be capable of communicating with neighbouring processors. This structure begins to show similarity to the human nervous system. A silicon valley start-up company intends to bring such a computer to the market within the next two to three years. Most industry observers do not expect a commercial product until 1990.

Memory and mass storage

The working memory of a computer consists of an array of silicon memory chips. The present (64K) generation of memory chips is each capable of storing about three pages of keyed-in information. Prototype chips have already been produced which will store 50 pages, and by 1992 200-page memory chips are expected to be in production. The storage capacity of memory chips is increasing by roughly 40 % p.a.; the price per unit of storage is decreasing at approximately 35 % p.a. in real terms.

For mass storage, computers use storage discs. The maximum capacity of present-day storage discs is around 75 filing cabinets of keyed-in data. The capacity of storage discs is increasing and the cost per unit of storage decreasing at comparable rates to those for memory chips. The use of optical disc technology (as opposed to the present magnetic disc) will continue to drive costs down.

As the unit cost of storing data decreases there will come a time when it is economically feasible to store all documents electronically. To make such a paperless office environment effective it will be necessary to optically scan and store the images of every paper document required to be kept. A storage disc that can store 75 filing cabinets-worth of keyed-in data will hold about five filing cabinets-worth of optically scanned data. Such a device currently costs $100 000, a price that is falling at about 35 % p.a. By 1990 the price will be down to $7 500 and by 1995 to $1 300. It is in the 1990 to 1995 period that paperless office technology will accordingly become economically attractive.

COMMUNICATIONS

To date the cost of communications has been largely unaffected by the rapid changes in computer technology. Until the last five to ten years there had been virtually no change in fundamental communications technology since the early part of the century. The cost of communications is largely the cost of laying and maintaining wire circuits in the ground, or of erecting microwave transmission towers. Neither of these is affected by the falling costs of computer power. Nor was there much incentive for the postal services (PTT) to increase efficiency and reduce costs in a tightly regulated market.

Four developments are beginning to move communications in the same direction as computer technology:

- satellites are providing a high technology transmission medium whose real cost of data transmission is rapidly decreasing;

- optic fibre is beginning to provide extremely high data transmission capacity at relatively low unit costs;

- the postal service in the US has been deregulated and that in the UK has been privatized, encouraging competition and increasing pressure for innovation and change;

- most importantly digital data transmission technology is beginning to spread.

Satellite facilities

This is not a subject to consider in detail in view of the South African post office's decision not to make use of satellite facilities for domestic traffic.

Optic fibre transmission

Optic fibre is cheap and has high carrying capacity. A fibre the diameter of a human hair can carry 2 000 simultaneous telephone conversations. At present the disadvantage of optic fibre is the complexity of joining cables of such fineness. The South African post office is presently installing an optic fibre trunk network joining the major cities.

Deregulation and privatization

The deregulation of companies in the US is likely to have a significant impact on the speed of the development of telecommunications technology. Competition will accelerate the rate of change in that market.

In the UK the privatization of British Telecom and the partial deregulation of the communications industry has opened the way for private sector competition. While there is no sign that the South African post office will be privatized there are signs of some deregulation. In 1984 the market for computer communications devices (modems) was opened to the private sector. These devices are the link between computers and the telephone network and will be the focus for much innovation over the next decade. The post office's move will ensure that the local market stays abreast of developments.

Digital data transmission

The main engine of change in telecommunications to the end of the century will be in the development of digital networks. The present telephone data communications networks were designed for voice transmission. At 2 km intervals along each telephone line is a series of loading coils. The loading coils adjust the electrical conducting properties of the line to make it ideal for voice transmission. Unfortunately a line suited to voice transmission is not

well adapted to data transmission. Data are held in a computer in the form of zeros and ones. If a stream of zeros and ones is sent down a telephone line in the form of off/on electric impulses, the loading coils severely distort the impulses and effectively prevent transmission. It is the function of a modem to overcome this problem by changing the stream of zeros and ones into something closer to the wave pattern of voice transmission. Postal services (PTTs) throughout the world are installing lines without loading coils which will allow digital impulses to be transmitted directly.

There are two advantages to digital lines. By monitoring the stream of on/off pulses as it travels down the line, and correcting for distortion where necessary it is possible to ensure almost error-free transmission. This greatly improves the quality of transmission. Secondly the rate of data transmission can be dramatically increased. The presence of loading coils on voice transmission lines places a theoretical upper limit of about one page per second on the amount of data that can be sent down on an ordinary pair of telephone wires using modems. In practice, owing to defects in the lines, data are sent at rates well below this - typically at one-tenth of a page per second. The digital circuits that PTTs are installing will transmit at about three pages of data per second over an ordinary pair of wires. This is the data rate needed to send voice transmission as a digitally encoded signal.

This thirtyfold improvement in the practical rate at which data can readily be transmitted will open the way to new types of services. For example transmitting a facsimile image with unsophisticated communications equipment presently takes two to three minutes per page and results in a poor quality received image. The length of transmission time and lack of image quality limits facsimile transmission to specialized business use. With the thirtyfold improvement in data rates brought about by digital facilities, facsimile transmission will take two to three seconds per page, and the received image will be of high quality. Since this will be achieved without highly specialised equipment it will open up facsimile

transmission to the wider business and consumer markets as the domestic telephone network goes digital.

The present generation of videotex is essentially a business or professional product. There is little perceived added value to the consumer in being able to tap into a wide variety of data bases. At present data transmission rates are already limiting what can be achieved: it can take perhaps a minute to receive through videotex a complex graphical image. Using digital transmission, videotex will be readily capable of delivering facsimile images. This will open up the market for home services such as shopping, holiday reservations and house purchases which rely on high quality visual communication.

The South African post office is currently installing digital trunk facilities. By 1988 all major centres will be connected by digital trunk lines. This is the first, and easiest step in installing a full digital network. The second step is to replace local exchanges and local lines with digital facilities. The post office has a programme in place with a target date of the year 2000 for the completed installation of digital local exchanges. This is the time scale for a full domestic digital service.

For business use the time scale is shorter. The post office is currently piloting a service called Diginet which allows business users to access the digital trunk network through leased local lines. This will allow high fidelity, high data rate transmission. However it is geared to professional computer use and will not in its present form open up a new range of services.

SOFTWARE

Over the next decade there will be a thirtyfold increase in the computer-processing and memory capacities available, together with a reduction by a factor of 20 in the unit cost of that processing and memory capacity. The number of computer systems installed may

grow fortyfold. As digital communications facilities come on-stream it will become evermore practicable and cheap to send data rapidly between computer systems. This hardware development has the following implications for software: the ability of hardware to handle new and more complex software applications as well as a huge demand for software.

New and more complex software applications

There are many development projects under way to exploit future computer capabilities. Almost all of these centre around easing the facility for man-computer inter-action, the so-called fifth generation projects. These projects are aimed at producing computer systems capable, inter alia, of understanding written or spoken natural languages, interpreting images and emulating human reasoning.

(a) Expert systems

Prototype commercial products anticipating fifth generation developments are already being announced. Expert systems have recently received much attention. These are software systems that contain a knowledge data base about a certain problem area together with rules for reasoning. They have a limited capability to solve problems requiring qualitative (rather than purely quantitative) reasoning. Typical applications within the financial services industry are: lending risk assessment, portfolio management, exchange rate forecasting, asset and liability management. These systems are in the early stage of development: their use is likely to increase dramatically over the next decade.

(b) Voice recognition

As significant as expert systems, a prototype voice-activated typewriter has been demonstrated. This machine turns dictation directly into text. The prototype has a 5 000 word vocabulary and a

95 % recognition rate. It works by analyzing the speaker's voice pattern against a standard pattern for groups of letters. Since this cannot be done unambiguously it then scans the emerging sentence for grammatical accuracy and uses this to pinpoint the dictated text.

Expert systems and voice-activated computers are the key to freeing computer users from the need to be computer literate. As the power of expert systems increases, their facility for coping with a natural language dialogue will improve. In the words of one industry commentator, computers will be people-literate by 1990.

(c) Image processing and computer-aided design

Less revolutionary than expert systems or voice recognition, image processing and computer-aided design are already having a major impact on office productivity. These will be one of the keys to satisfying the explosive demand for software. The writing of software is at present an art rather than a science. The process of systems specification, design, coding and testing is both arduous and error prone. As systems become more complex the required interaction between users, systems analysts and programmers grows increasingly difficult to manage and open to ambiguity. Computer-aided design, which allows the flexible flow charting of computer systems, partially overcomes this problem. During the next decade such software will be capable of moving from design through to the production of complete programmes, essentially eliminating the need for separate systems analysts and programmers.

The combination of much more powerful hardware, software and communication facilities, which will become increasingly available over the next decade, will have significant implications for the way in which banks organize their business and interact with clients. These are discussed in the following sections.

THE SPREAD OF COMPUTER USAGE

There is one reason against and six reasons in favour of expecting both the home and office penetration of personal computers to follow a curve ending up at around 80 % over a time period which may be 15 years for households and rather less for offices. The reason against is a possible softening in the home personal computer (PC) market as the playing of computer games palls and the game-playing home user finds no stimulating alternative. The six reasons in favour are

- the increasingly wide range of data base services that will become available for accessing through value-added networks;

- the development by PTTs of integrated services digital networks that will allow a wide range of terminal delivered, high data-rate services;

- expert systems software that will replace computer language with natural language interaction;

- voice activation, freeing terminal users from the need to interact with the PC through a keyboard;

- the evolution of the TV set into an intelligent terminal capable of acting as a communicating work station;

- prices per unit of processing performance falling by a factor of ten every eight years allowing the new capabilities to be offered at little increased cost.

In the US there are currently 1 400 data base services available, which range from giving share prices that can be loaded into portfolio analysis models to drug catalogues for professional medical use. Value-added networks (vans) are being developed to enable wide access to these services. The value that a van adds is vir-

tual independence of computer protocols and low transmission costs. The network operators design their vans to link virtually any terminal to any host computer. Using packet switching they cut data transmission costs by sharing the network facilities over a large number of users. In South Africa Saponet is likely to develop into a van as more facilities are added.

Throughout the world PTTs are installing digital facilities. Together they are working to define common standards for integrated services digital networks (ISDNs). These ISDNs will use digital facilities to deliver an integrated package of voice and data, including facsimile and videotex. It is the intention of the PTTs to define a common physical interface for telephones, computers and videotex terminals to be used worldwide, with the aim of creating a global ISDN as accessible as the global telephone network is now. The introduction of ISDNs will dramatically increase the data facilities available to the business and home markets.

Digital TV sets should be available in the US market during 1985. These are designed to receive a TV signal whose information content has been analyzed into a series of zeros and ones and which is transmitted as on/off electrical pulses rather than as an electrical wave. They will offer many features including greater fidelity, split screening (that is two or more channels in different sections of the screen), freeze-frame (halting the picture) and zooming (focusing on an area of the picture). They will also open the way for flat screen TVs.

Digital TVs have sufficient features to attract a wide market. They will be capable of acting as computer terminals with minor additions to their hardware. These additions are likely to be made available as optional extras at a small additional cost. The development of cable TV networks will open the way for using digital TVs as interactive work stations.

Personal computer ownership will increase dramatically over the next decade. The rate at which the business and household penetration of PCs increases, will depend on how rapidly PTTs implement digital services, how quickly the local market for data-base services develops and on when advanced software overcomes the computer literacy barrier. A significant penetration of PCs will allow banks to interface with their clients in novel ways.

BANKS' NEW INTERACTION WITH CLEINTS

At the most elementary level a significant proportion of business users and a somewhat smaller number of home users are likely to want to access account information and make third-party payments through PCs.

Of greater interest are likely to be proprietary software products offered to clients over their PCs, for example: financial planning, portfolio management, foreign exchange exposure management, letter of credit initiation, share trading and so on. As the power of hardware and software increases, functions previously requiring human interface will be capable of being offered remotely over a PC. This has two immediate implications: (a) the load on branches will be eased opening the way for rationalization, and (b) financial institutions will begin to compete on the quality of their software products.

In order to estimate the impact of PC penetration on how banks will interact with their clients it is necessary to quantify the likely growth in PC usage. This is not a task that can be performed scientifically. It is in the US that the speed of change is greatest, and from a number of market research studies the following picture emerges for the retail market:

- the PC appeared in the market in the mid-1970s;

- by 1982 household penetration was around 2 %;

- the present penetration is around 10 % to 20 %;

- the market is expected to saturate at around 80 % of households - consistent with the level of penetration of TVs and telephones;

- the market penetration cycle for high technology products suggests saturation will be reached after about 30 years - that is after the year 2000 for PCs;

- perhaps 50 % of PCs are used mainly for game playing;

- about 50 % of PC owners would consider using their PCs for home banking.

- 30 % of households will require terminal-delivered home information services by 2000.

For businesses the market research evidence is somewhat different:

- PC penetration of small businesses ($0,5 million to $10 million annual sales) is currently around 30 %;

- penetration of large businesses is higher;

- one-third of small businesses with PCs want to use them for banking.

There are no estimates of the likely business market saturation level. Most commentators assume that all businesses will eventually own PCs.

On the basis of one-third of businesses using PCs for home banking, the market for terminal-delivered business banking services will saturate at around 25 %, a similar level to the home market.

Demand will be stimulated by the rapid evolution in quality of the information products that can be delivered as digital networks are built and intelligent and friendly software created. There is a consistency between the timing of these developments, outlined above, and the periods when the market penetration curves for PCs show their greatest rates of growth.

The South African market is likely to lag behind the US market by several years. The development of data communications in South Africa may be half a decade behind the US; the relatively small size of the market together with the degree of regulation will limit the number of information technology companies setting up to deliver PC-based services; the low exchange rate makes hardware relatively more expensive and may act to slow the tempo of change.

HOW BANKING PRACTICE MAY ALTER WITH INCREASED COMPUTER USAGE IN SMALL BANKS

G.D. Nel*

INTRODUCTION

Legally a commercial bank is an organization that carries on a business of which a substantial part consists of the acceptance of deposits and of money withdrawals by cheque.

It is generally accepted that money thus deposited is in effect lent to the bank which in turn may "invest" it by lending to others and so profit from the transaction.

From this simple basis have evolved numerous financial services not only to meet the needs of clients but also to create additional sources of revenue.

As with any commercial business, sales success creates scope for expansion and with it increased volumes which in turn necessitate the further streamlining of procedures and the need for the means to obtain accurate and timeous information.

In order to meet this need, established or so-called large banks by virtue of their share in the market, resorted to computerization and in order to retain their competitiveness the smaller banks have found it necessary to follow suit.

COST OF TECHNOLOGY FOR SMALLER BANKS

In terms of cost, the installation of hardware technology is to all intents and purposes proportional to the size of the organization,

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but as far as application systems are concerned the smaller banks are at a disadvantage since identical systems are necessary. In proportion to its size, the smaller bank's application systems are more costly than those of larger banks.

INFLUENCE OF TECHNOLOGY ON PERSONAL SERVICE OFFERED BY SMALLER BANKS

It is accepted that the smaller banks tend to cater for clients attracted by personal service, but since growth and sophistication are inevitable, these banks also need to be in a position to develop and provide new and sophisticated services through the application of continuously advancing technology.

While computerization minimizes exposure to human error, the technology requires more sophisticated staff which involves specialized training. Although increased sophistication should result in improved productivity and reduced staff complements, increased costs can be expected.

There is of course the danger that the utilization of computer terminals, both by staff in the performance of their duties and by clients on a self-service basis, will tend to minimize the opportunity of providing personal service and it will be necessary to develop a new attitude towards this type of service - training of staff as public relations or marketing officers will be vital.

EFFECTS OF TECHNOLOGY ON BANKING OPERATIONS

It is an undeniable fact that high technology has arrived and that the small financial institution will not be given the opportunity to decide its own path; the services provided by the larger institutions need to be matched in efficiency and quality.

Having reached this conclusion we need to examine the effects of the latest and future technology on banking operations generally.

Processing of cheques

Cheques have been a means of transmitting money for many years. Increased volumes prompted the South African banks to investigate a system to facilitate the clearing of these items.

A central bureau was established during 1973 and through the utilization of micro encoding all cheques delivered to the bureau are automatically sorted into bank/branch order and magnetic tapes containing numeric data on each item are created. These tapes are distributed to the various banks which capture the data on their own computers and so debit the relative accounts. Direct linkage to the banks' computers is envisaged in which case data will be transmitted by this means, making the use of magnetic tapes redundant.

A facility that has been developed by the bureau is the use of tapes by insurance companies and other institutions for the collection of monthly premiums, subscriptions, etc. and for the payment of salaries. As in the case of cheques, it is envisaged that increased use of computers by organizations will result in direct linkage, thus obviating the need for magnetic tapes.

The likelihood exists that clients' deposits will also be micro encoded to avoid the need for the physical capture of data.

The advantages of this technology are of great benefit to the smaller banks in that labour costs are contained. There is however an area of concern: large volumes of vouchers are generated and these have to be filed manually since the installation of sophisticated electronic filing systems cannot be justified.

The answer may lie in the system of cheque retention or truncation which is used extensively overseas. However since a joint venture was found not to be viable at this stage this must be considered a long-term solution although some of the larger banks are developing similar systems individually.

Sharing of automatic teller facilities

The use of cheques as a means of obtainig cash has decreased with the advent of automated teller machines. About 2 000 terminals have been installed by the major banks and building societies for their card holders.

A recent development whereby teller machines are shared, gives clients the option to draw cash from any of the 800 terminals installed by the participating institutions.

This facility is being extended to clients of most financial institutions with the formation of a separate network whose main objective is the development of electronic fund transfer services that will be available at all client-activated equipment of participants irrespective of ownership. In addition to the dispensing of cash, a balance may be obtained, a cheque book requested or funds transferred from one account to another.

Although the advantages of such facilities are significant, transactions with a machine may well result in a deterioration in the banker/client relationship. This would seem to be a disadvantage for the smaller banks in particular, but their participation in the scheme should nevertheless enhance their standing among clients.

Electronic funds transfer at points of sale

Research is being undertaken into electronic fund transfers at points of sale, but in view of the involvement not only of financial institutions but also of retailers and the public it is un-

likely that problems arising from the implemention of the scheme will be resolved in the near future.

The smaller banks will in any case be at a distinct disadvantage when the time comes to supply the electronic equipment required by retailers, and their contribution in this respect can be expected to be minimal.

Management information services

We have so far considered matters relating to the transmission of money which in itself covers a wide range of banking activities. There are however other matters to be considered. One of these is management information services which are needed to support decision making on operational, controlling and strategic functions.

Banking is by its nature a business based on information, and computerization is a means of obtaining the required information accurately and timeously. It also enables different decision-making groups to access information data bases and to obtain information from other decision-making groups that affects their performance without red tape being involved. Smaller banks will require the same skills as larger banks with regard to the use of information by management.

Home banking

Information in data bases also includes extensive data on borrowing clients. With the advent of home banking the updating of and requests for credit facilities could well be concluded without any personal contact between banker and client.

CONCLUSIONS

In conclusion it can be stated that smaller banks, because of various constraints, do not have the resources to do extensive re-

search and development and in most cases are not the market leaders in applying high technology in banking. However, owing to their smaller networks and volumes, they are in a position to have equally sophisticated accounting and financial systems to maintain their share of the market.

They are unlikely to be the pioneers in any new developments and will probably continue to share facilities in order to compete.

OFFICE SYSTEMS IN BANKING

Tonie Botha*

Usually the clients of a bank are aware only of the client reception area of their particular branch and not of other areas in the bank. There are however many other areas. An office systems perspective indicates that all banks share a common structure with regard to the partitioning of the bank into various areas.

The individual bank branch consists of the following well-defined areas:

- The client reception area, including the cashier and information desks.
- The offices of the branch manager and senior managers.
- The bank office where financial transactions, hidden from the public eye, are performed.

The branch of a bank, visible to the public is part of a larger corporate structure.

A commercial bank has a typical hierarchical structure.

The top tier of the structure is the corporate head office. Then spreading from this tier is the second tier of regional offices. The third tier consists of the branch offices, which are not necessarily smaller in size than the regional offices. A regional office differs from a branch office in that it forms the link between the various branch offices, whereas a branch office is linked to

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*IBM (SA): Pretoria Branch.

the fourth tier or agencies of the bank, which are smaller than the branch office.

New technology has been introduced into this hierarchical structure, albeit rather slowly. The reasons for this slow introduction are the following:

- The well-defined requirements of banks in terms of the type of transactions undertaken.

- The relatively efficient mechanized and manual systems already in existence.

However the huge increase in the volume of transactions, and therefore of paper work, made it necessary to modify the system. A more efficient way of handling and managing large sums of money, for both individual and corporate clients, was required.

The daily operation of banking activities and the nature of these activities are greatly influenced by the technology available, and each new phase of technology requires adjustments by the banking structures to accommodate them.

The first steps in the computerization of banks involved the introduction of a network of financial terminals and enquiry systems. Then the tools to assist in handling the huge volume of paper work in the branches themselves were introduced. This led to the present situation where the automation of all office systems in banks has increased.

Computerization of office systems requires an analysis of the work done in bank offices. The main activities of a typical office are the compiling, filing, retrieval and interchange of documents. The term document includes reports, articles, letters, memoranda and telephone reminders. It incorporates written text, typed text and printed matter, as well as dictated notes, scribbled messages,

drawings and all other paper-based means of storing or transmitting information.

The electronic office system is another, more efficient and productive way of compiling, filing, retrieving and interchanging documents. Technological tools in the offices can increase the efficiency of the manner in which the office is run. The aim of the introduction of new technology in the office is to make full use of the potential of the office worker - not to reduce the number of employees. Rather than merely handling or shifting paper around, the office worker can make better use of his knowledge and skills. The bank employee, instead of being involved with paper work, can apply his knowledge to more challenging tasks, for example offering a better service to clients.

The banks have all benefitted by conducting an analysis of the activities of their office workers, and then introducing technology which reduces time-consuming tasks and improves the interchange of needed and valuable information. By utilizing the potential of each office worker, the investment the bank has made in labour becomes more productive.

It is important for banks to be able to locate and transfer information as quickly as possible. Filing systems that are not computer-based are far less efficient than the new computer-based systems.

For bank office systems to function as smoothly and efficiently as possible, individual branches as well as the head office need to be computerized. A network of connections between all the office terminals and the other electronic equipment of all sections of the bank and with the head office is required to enable rapid transfer of information.

Each section of the bank deals with different aspects of banking. The agencies, branches, regional and head offices each have their

own specific activities, apart from those that they share in common. Computer systems therefore need to take these similarities and differences in activities into account.

The head office requires facilities to interchange information rapidly with other organizations and internally. It requires document library services for checking, cross-referencing and filing, as well as personal services, for example electronic mail and diary services. Regional and branch offices and agencies require direct access to clients' accounts and other information related to financial transactions with clients as well as some of the above services. Most of the information required by a branch of a bank is located at the branch.

However the need for document information from other branches or from the head office means that efficient networks must be established.

In order for a complex computerized banking system to succeed, the users have to be taken into account. The communication between user and information system is a challenging area for the computer industry. The concern with "user friendly systems" indicates that most users need help in accessing the system. A clear, easy to understand and use system for a range of users, including clients, is required by banks. The interface between user and system should contain the following features: easily read instructions, clear messages and easy to follow procedures. Banks have already come a long way towards making their machines user friendly.

SECTION TWO

IMPLICATIONS OF CHANGE: SOCIAL AND PSYCHOLOGICAL

INTRODUCTION

In this section the consequences of change are discussed from two points of view. On the one hand the broader sociological implications are discussed and on the other, change is examined from the individuals' point of view. This section is more theoretical, in that it attempts to indicate how some psychological and sociological theories endeavour to explain change and its effect on society and individuals. Technological change in banking needs to be accepted by the broader society as well as by individuals who constitute that society, before it can be fully implemented. This section therefore provides a framework for indicating how change can be handled in the work situation of banking.

The first article is concerned with the sociological implications of technological change. It deals with how an innovation is diffused through society and what factors influence whether or not change is accepted. Cultural lag is then discussed and an indication is given of how the gap could widen between those having access to the new technology and those who do not.

The final article deals with the psychological implications of technological change. It describes the role of motives, beliefs, attitudes and values in regard to the acceptance of new technology and suggests the possibility of changing attitudes through communication.

SOCIOLOGICAL IMPLICATIONS OF TECHNOLOGICAL CHANGE IN BANKING

Rosaline Hirschowitz*

INTRODUCTION

The introduction and use of micro-electronic technology by the banking sector has many implications with regard to social change. Such change is a continuous process that affects all components of a social system. The banks are faced with a problem of defining the desired relationship between themselves and their environment (Thompson and McEwan 1980). The computerization of banking organizations is based on the goal of efficient information processing to serve the needs of the client and of the bank. This aim of greater efficiency, accuracy and speed of data processing to give a better service has had many consequences: the new composition of the labour force in banks, new work processes, new ways of transacting business, etc.

The new composition of the labour force in banks

The application of new technology in banking has influenced the composition of the work force in that there has been a shift in emphasis away from requiring staff to concentrate primarily on the processes of keeping account of financial transactions, towards encouraging staff to market new services to clients. There has been a progressive elimination of some of the less skilled clerical occupations and a growth of professional, technical and marketing occupations within the banking sector. There is also a trend towards requiring more specialized skills, more expertise and higher educational qualifications among bank personnel.

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New work processes

Computer technology affects work processes. As new ways of processing, analyzing and transmitting information are introduced, new skills have to be learned to implement the new methods. Banks are therefore faced with an additional training role.

New ways of transacting business

Computer technology also influences the way in which people transact business and receive services. Clients of banks need to learn how to use the new technology and they also need to know what new services are now being offered by banks and how to make use of them. A new approach to banking may be required of the client.

The acceptance of new technology in banking means that change occurs in many interrelated spheres of society that are not necessarily directly connected with banking.

SOCIAL CHANGE

If society is regarded as a system (consisting of interrelated parts) that is in a state of dynamic equilibrium (Parsons 1960) then the introduction of change in one part of the system will have a reciprocal effect on the other parts. If a state of dynamic equilibrium is not maintained, stresses and strains develop in the system. In turn, the strains lead to attempts to modify the system to restore the balance. Conflict and adaptation are part of ongoing change. Social systems assimilate change and accommodate it (Horton and Hunt 1964). This does not imply that change is necessarily undesirable or that all change will be resisted. Sociologists regard change in society as continuous and inevitable. Change is an ongoing process. The rate at which change occurs, the type of change and the desired direction of change all influence how the social system reacts to change. The acceptance or re-

jection of change takes place through a process of social diffusion. An understanding of the process of diffusion will help to promote the acceptance of new banking technology by the community at large.

INNOVATION AND DIFFUSION

Everett Rogers (1983) defined diffusion as the process by means of which an innovation is communicated through certain channels to members of a social system. Diffusion is concerned with the spread of new ideas. A certain amount of uncertainty is introduced when an innovation is diffused and individuals seek information to overcome this uncertainty. The main elements of a diffusion process according to Rogers (1983) are an innovation, communication channels, time and a social system. Each of these elements will be discussed separately.

The introduction of an innovation

Innovations, including technological innovations, appear in the guise of ideas, practices or objects that are perceived as new. In banking, computer technology in the form of automatic teller machines as objects, electronic funds transfer as a practice, and home banking as an idea are examples of innovations. The characteristics of innovations, as perceived by potential users, help to explain their different rates of adoption. The relative advantage of or degree to which the innovation is regarded as being better than what existed previously will influence the rate of adoption. So will the following: compatibility or the degree to which an innovation is in tune with the existing values and past experiences of potential adopters; complexity or the degree to which an innovation is seen as difficult to understand; experimentability or the extent to which an innovation can be experimented with before it is adopted, and observability or the degree to which the results of an innovation are visible to others. In order for a potential user to

accept automatic teller machines, for example, he needs to decide that this method is better and easier to use than existing methods. It should be easily tried out, and should not conflict with his values. These advantages need to be obvious to others as well as to himself, and they need to be communicated to the user.

Communication channels

The means by which messages are sent from one potential user to another in the diffusion process may affect the rate of diffusion of an innovation. In general the mass media of communication create a knowledge of a product or service. Interpersonal channels rather than mass media are more effective in changing attitudes. The subjective evaluation of an innovation by an individual's acquaintances and friends is an important feature of diffusion. For banks, this means that not only advertising but also the positive experiences of clients will accelerate the rate of diffusion of the new technology.

Time perspective

Since diffusion is a process, it takes place over a period of time. The innovation-decision process is the time interval between the occasion when an individual learns of an innovation and the occasion when he takes the decision to use or reject it. Rogers (1983) outlined five steps in this process, namely knowledge or exposure to the innovation, persuasion or the formation of a favourable or unfavourable attitude towards it, decision or the choice to adopt or reject the innovation, implementation or the actual using of the innovation, and confirmation where reinforcement of the decision to use the innovation occurs or where it may be discontinued. During the implementation stage, reinvention may occur, when new uses are found for the innovation or it is adapted to suit individual requirements. With regard to banking, every client who is a potential user of home banking, passes through this process. Some people will take the decision to adopt the new technology quicker

than others. A second process, that of innovativeness, is therefore pertinent.

Innovativeness is concerned with who adopts an innovation earlier and who is likely to adopt it later. There are five adopter categories: the innovators, who are the first to adopt an innovation, the early adopters, the early majority, the late majority and the laggards. The rate of adoption, the relative speed at which an innovation is adopted, resembles an "S" shaped curve. For banking, the rate of adoption is important; strategic planning is based on predictions of who will adopt new computer innovations with regard to financial transactions and at what stage. For example corporate clients may adopt some aspects of new banking technology more rapidly than individual clients, whereas the adoption of other aspects of banking technology may be hampered by the hierarchical structure of corporate organizations. The social system, of which both corporate and individual clients are a part, also influences the rate of adoption.

The social system

Aspects of the social system that influence the diffusion process include the structure of the system, the ways in which the various aspects are interconnected and the norms or the established ways of interacting between members. Horton and Hunt (1964) stated that a social system in which individualism is valued and encouraged and in which there is a lack of rigid social stratification will promote change. Social systems in which status is achieved rather than acquired and in which research has been institutionalized are also more likely to encourage adoption of innovations more rapidly than more conservative, tradition-bound social systems. Banking innovations increase alternatives in a social system. At the same time they alter interaction patterns. The anticipated consequences of change will influence whether or not change is resisted or accepted.

RESISTANCE TO CHANGE

It is important to realize that change is not always resisted: resistance takes place only under certain conditions. Lauer (1982) outlined the following circumstances in which resistance to change is more likely to occur:

- when change is perceived as a threat to basic security
- when it is not understood by society
- when it is imposed on society by outsiders
- when it interferes with other social change
- when it contradicts fundamental values in society

It seems unlikely that technological innovations in banking will be resisted by most clients if sufficient reassurance can be given by the banks. On the other hand certain members of staff who feel threatened and do not understand the new technology, who regard management as outsiders and who fear they will lose their jobs, are more likely to resist change. Banking technology may destroy certain work skills, while creating others; it may reduce employment in some occupations, while it may create employment opportunities in other areas; it may change the life-style of certain people. Rogers (1983) indicated that the consequences of change may be both desirable and undesirable, both direct and indirect, both anticipated and unpredictable. Consequences are difficult to predict and measure and may become evident only over a long period of time. If change is perceived by members of a society as fulfilling a need, then it is less likely to be resisted.

ACCEPTANCE OF CHANGE

Lack of resistance to change does not necessarily mean that it is positively accepted. The degree of acceptance of change varies among members of a society. Acceptance tends to be selective (Horton and Hunt 1964) in that only certain aspects of change may be accepted. The following considerations influence whether or not

change is accepted as well as the extent to which it is accepted. These considerations also influence which aspects of change are more readily accepted than others.

People's likes, dislikes, attitudes and beliefs about the proposed change influence acceptance. If the introduction of computerization into banking is in accordance with accepted existing beliefs and attitudes of customers and bank employers it will be more readily accepted.

The demonstrability of the usefulness of change will influence its degree of acceptance. In general, change that has utilitarian value is more readily accepted than change that has intrinsic value only. If new banking procedures are seen to be more convenient and useful than older methods, they will be accepted more readily. Imperfections in technology, for example incompatible hard and software, may influence the degree of acceptance of change, as such incompatibilities may make new methods more difficult to use, in the beginning, than older methods.

Innovations that are an extension of the existing culture are more likely to be accepted than those that are alien to the culture. The various cultural groups in South Africa may react differently to computerization of the banking sector. The more educated and computer literate members of society are more likely to accept changes in banking practice than the less educated members.

Change may not be compatible with existing social institutions. For example a hierarchical structure of organization at work may be incompatible with the increased specialization required by computerization in banks. It may be necessary for new patterns of interaction, for example networking, which are not present in the existing culture, to develop. It may also become necessary for people to discard an old pattern of behaviour and substitute a new one in its place in order to adapt to change. This may affect the rate of acceptance and selectivity of acceptance of change.

Change that has a profound influence on many components of the social system is likely to be accepted more gradually than change that influences fewer aspects of the social system. For example industrialization has taken more than 200 years to diffuse to most countries and the developing countries have not yet gone through the full process of industrialization, while other countries have reached a stage of postindustrialization. With regard to banking, computerization may alter many components of the social system. The concept of wealth or money as credit information is a case in point. For example instead of cash being physically exchanged, information regarding the exchange is transmitted via computers. As banks become more computerized, instead of exchanging goods and services for money, the concept of payment may become increasingly abstract. The alteration of the meaning of basic concepts may affect many people's degree of acceptance of change.

The perceived effects of change may be both material and non-material. Both considerations affect the degree of acceptance of change. With regard to material considerations, if the banking sector spends large sums of money on acquiring new technology, then change is more likely to be actively promoted and accepted by those involved in this large capital outlay. On the non-material side, the change of attitudes, beliefs and values made necessary by the introduction of new technology may delay its complete acceptance. Change may be costly both materially and non-materially.

COSTS OF CHANGE

Technological costs

New inventions and improved machines or computer systems may make existing technology obsolete. Investment in new technology therefore implies discarding existing technology. The adopter has to be convinced that the new will be a substantial improvement on the existing technology. In the banking sector, competition is accelerating the acceptance of new technology, while at the same time it

is causing a redefinition of the function of banks. For example department stores, insurance companies and other organizations that have access to computerization and to credit information are now able to offer financial facilities to clients. Banks themselves may therefore be threatened if other organizations offer financial facilities to clients. New services need to be offered, for example tax advice, investment advice and insurance schemes, in addition to previous services, if banks wish to maintain their present position or expand their influence. The adoption of computer technology by other organizations may become very costly to banks.

Skills costs

Problems regarding the market for technical skills are created with the introduction of change. Old skills that the work force spent many years acquiring may become obsolete. On the other hand there may be a dearth of workers who possess the skills required to implement and maintain computer systems in the banking sector. Outside organizations also require these technical skills and competition for this scarce manpower resource may become intense. The benefits of change need to be perceived as greater than the costs in terms of the new skills required before change can be fully implemented. The banks are therefore faced with the task of training and retraining staff as well as with the shortage of high-level manpower in South Africa when new technology is introduced.

Vested interests costs

Industries or services that are made obsolete by the introduction of new technology and workers whose skills are no longer required, are more likely to resist change than those who feel less threatened. To certain people or groups, the status quo is beneficial, whilst to others, change is beneficial. For example change may be resisted by bank employees who were previously involved in the processing of accounts, for example ledger clerks, while change may be welcomed by others whose jobs are made more interesting and chal-

lenging by computerization. Bank tellers who now accept the role of account liaison officers for example may readily accept change. Vested interests may therefore influence the degree of acceptance of change in banks.

Differential rates of acceptance

Vested interests, available skills and technological costs all influence the rate of change. This rate is influenced not only by the general extent of acceptance, but also by the different degree of acceptance by the various groups of people that constitute a society. Cultural differences between subgroups of a society may mean that adaptation to change occurs differently among these groups. Cultural lag is an important consequence of change brought about by different rates of acceptance of new technology.

CULTURAL LAG

The idea of cultural lag was originated by Ogburn in 1922 and has become an important framework for sociological theory (Ogburn 1964) in more recent times. It is very pertinent to the present discussion.

It may be defined as the time interval between the introduction of change and the complete adaptation required by the social system to accept the change. Cultural lag occurs whenever one aspect of a social system is not in line with other aspects. The introduction of combine harvesters into farming, for example, caused cultural lag to develop with regard to farming practice among those who accepted the change and those who adhered to older methods.

With regard to the computerization of the banking sector, the cultural lag that already exists between the various population groups in South Africa may be augmented on at least three levels: the em-

ployment opportunity level, the client level and society in general.

The employment opportunity level

In the banking sector there has been a shift away from offering employment opportunities to certain less skilled clerical personnel, towards the requirement of more expertise. At the same time certain data-processing jobs appear to require relatively low-level skills. As was not the case with the previous clerical jobs, however, there is less scope for vertical mobility in data-processing jobs. The educational gap, which underlines aspects of cultural lag, will become more difficult to breach if the less well-educated members of society need to obtain even higher educational qualifications to enter the banking sector, or to have promotion prospects.

The client level

With regard to bank clients, the sector of society that makes use of banking facilities at present is the more skilled and affluent sector. These people are more likely to adjust easily to automation and innovation, although for some, age may be a limiting factor. Those who lack the resources to make use of present banking facilities are less likely to be able to make use of new banking facilities. The cultural lag that already exists between members of society who have a bank account and those who do not, will be widened.

Society in general

High technology threatens to deprive unskilled and certain semiskilled people of jobs. If the unskilled and semiskilled sectors of society do not have access to training so that the necessary skills required to use the new technology can be instilled, then the gap between the affluent and the less affluent will widen and

cultural lag will increase further. In South Africa, at the present time, this threat of further accentuating the differences between groups, needs to be carefully considered when new technology is introduced. Methods of overcoming the differences, for example by the introduction of appropriate technology in certain areas and gradually introducing more sophisticated technology, are ways of eliminating some aspects of cultural lag. Intensive and extensive educational programmes are needed.

CONCLUSION

Gate's (1984) stress on the need to promote responsibility in technological development is relevant here. The predicted consequences need to be dealt with, and plans to handle these consequences need to be formulated at the time of implementation. Gates does not criticize the development of high technology: indeed he believes it can be successfully used to everyone's benefit. But he is concerned with the failure to explore the implications of high technology more fully before it is brought to bear on society. Failure to take the consequences into account may result in technological progress that outstrips the ability to cope with this progress ethically, emotionally and psychologically. Careful planning, which gives due consideration to the predictable consequences, should be the basis of computerization in banking. Although the unpredictable consequences may cause problems later, thinking about the matter may help to decrease the number of unpredicted consequences.

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PSYCHOLOGICAL IMPLICATIONS OF TECHNOLOGICAL CHANGE IN THE BANKING SECTOR

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The acceptance or rejection of computerization in banking is fundamentally an individual decision. The successful introduction of this technology requires a readiness to accept it by the people who will use it. New procedures need to be learned by both managers and employees of the bank. A willingness to learn how to use the new technology by the bank's clients is also required. The motives, needs, beliefs, values and attitudes of the people who will take part in the change process in banking will influence the future of new banking technology.

MOTIVES AND TECHNOLOGICAL CHANGE

The term motive has many different meanings and it is therefore necessary to explain this term as it is used in this article. Motives, needs and drives are used interchangeably here to describe energetic forces within the individual which drive him to seek certain goals in the environment which will alter the need state. For example the hungry person is driven to seek food which will alter his state of hunger after he has eaten. Hunger is the need, motive or driving force behind this behaviour. Motives, even those that are physiologically based, are modified by learning. For example the hungry person may refuse to eat certain foods, no matter how hungry he is. A motive is therefore the driving force behind a state of disequilibrium that gives rise to goal-directed behaviour. This behaviour in turn modifies the inner state of disequilibrium.

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Maslow's theory provides an important contribution to the understanding of motives. He postulated that needs are arranged hierarchically. At the bottom of the hierarchy are the physiological needs, for example hunger and thirst. Once these basic physiological needs have been satisfied, the individual is able to move on to the next level in the hierarchy, that of safety needs. At this level there is a need to live in a safe physical and emotional environment that is free of threats. The third level focuses on belongingness needs. The person's desire to be accepted by his peers and to develop friendships comes into play. The fourth level is that of esteem needs. These needs focus on the person's desire to have a positive self-image and to receive recognition, attention and appreciation from others. The highest category of needs is that of self-actualization where the individual is concerned with self-fulfilment through the development of his full potential (Steers and Porter 1979).

This hierarchy of needs may influence the individual's reaction to computerization in banking as follows: Physiological needs are unlikely to be affected by people who have a bank account. Security needs, on the other hand, have to be met. The individual who feels that his emotional security is threatened, because he does not understand the complex processes involved in computerization, is likely to react negatively to automation in banking. This also applies to the individual who feels that his privacy is being invaded, thus threatening his basic security. The employee whose need for security is threatened by fears of job loss is also likely to react negatively to automation in banking.

With regard to belongingness needs, the bank employee who is now required to spend time at a terminal may feel isolated. Previously he may have had more contact with people. Loyalty to the organization is one way in which a need for belongingness can be satisfied. The employee who previously had a clear career path in a bank could develop this loyalty. Increased specialization threatens the individual's ability to obtain gratification of the need to belong. A

clear career path is not always so evident, and the sense of belongingness may be threatened by the new technology.

Computerization offers the possibility of satisfaction of esteem needs among those who receive recognition for their mastery of the new technology. Among those who do not receive such recognition, however, esteem needs could remain unfulfilled at work.

With regard to self-actualization, job enrichment could contribute towards making self-fulfilment possible at work. The individual who strives for self-actualization may be eager to learn about the new technology in banking if he perceives it as a tool by means of which he can reach his full intellectual potential. On the other hand, if an individual feels that his job is made simpler and less challenging by the introduction of new technology, his striving for self-actualization may be frustrated.

The introduction of new technology into banking can therefore lead to greater or less gratification of motives at work, depending on how it is introduced and how the individual is treated during the change process. It is not only motives, but also beliefs, values and attitudes that influence the individual's reaction to computerization.

BELIEFS, VALUES AND ATTITUDES

Beliefs and values serve as standards or ideals that we strive after; whilst attitudes are positive or negative evaluations of a situation based on these beliefs and values. For example if an individual believes that life was simpler and better in the "old" days and he values a traditional way of life, then his attitude towards technological change is likely to be more negative. On the other hand, the person who believes that progress improves the quality of life is less likely to value a traditional life-style

and is more likely to have a favourable attitude towards technological innovation.

Attitudes serve as a link between beliefs and values on the one hand and intentions and behaviour on the other (Reich and Adcock 1976).

People form beliefs, not only about situations, but also about what they think other people would do in particular situations. The way in which we think other people would act in a similar situation influences our behaviour. For example if a man believes that other people in his socio-economic category have a bank account at bank X, he is likely to develop a positive attitude towards opening a bank account at bank X.

Beliefs may be divided into at least two components (Ajzen and Fishbein 1980). Firstly, a person has certain beliefs about the outcome of his behaviour. He believes that his actions lead to certain consequences. For example the act of depositing money in a bank is based on a belief, related to experience, that the money will be credited to one's account and interest will be paid on that money. These beliefs about outcomes of certain behaviour give rise to attitudes towards such behaviour.

Secondly, a person has beliefs about how specific individuals or groups of people think he should or should not behave in a particular situation. For example a man may believe that his wife and family would react positively to his depositing money in a savings account, rather than his spending the money. Subjective norms, or ways in which we think we should behave, are based on our beliefs of how we think other people would view our behaviour.

Both attitudes and subjective norms influence our intentions, which in turn influence our behaviour. The relative strength of attitudes and norms in a situation in which there is divergence between these two components will determine the intention and the action

taken. For example on the one hand an individual wants to buy a luxury car because he has a favourable attitude towards luxury car ownership, but on the other hand he thinks that his family would not approve: the relative strength of the favourable attitude towards car ownership will be set against the negative perception of his family's reaction. Beliefs in relation to situations and other people and attitudes need to be taken into account when considering the individual's acceptance of new banking technology. If a person has a positive attitude towards using automatic teller machines, for example, because he believes that he saves time by doing so, and he further believes that all people in his position use automatic tellers, he is very likely to acquire an autobank card.

THE DETERMINANTS OF ATTITUDES AND VALUES

Although values and attitudes are relatively stable and enduring characteristics of personality, they are subject to change. Values and attitudes are learned, and any learned aspect of personality is capable of being altered, although it is not necessarily easy for this to happen. The initial learning of attitudes takes place during the socialization process. Initially the young child learns to internalize the values of his parents or other close caretakers. He later takes the attitudes and values of other people, for example school teachers and fellow pupils, into account. The socialization process is an ongoing process throughout life, by means of which beliefs, values and attitudes may be modified. The relationship between contact with other people and one's own interpretation of the environment is again illustrated here. For example a belief among employees that the new technology is too complicated for them to master, may lead to a negative attitude with regard to trying it out. If a large group of workers in a branch office of a bank share this belief, the norms of the group will support the negative attitude. In such a case the group's beliefs and those of the individual co-incide. Such beliefs and attitudes may prove difficult to change, because both group norms and individual attitudes re-

quire alteration. On the other hand if a particular employee believes that the new technology is too complicated, but this belief is not shared by other bank officials, who are eager to participate in change, it should be easier to change the deviant employee's attitudes through social pressure and the socialization process.

If it is important to banks that employees accept new methods, then an understanding of how to change attitudes is necessary. But before attitude change is discussed, the structure of attitudes needs to be explained.

THE STRUCTURE OF ATTITUDES

Every person interprets, defines and understands the world differently. Before an individual acts in a situatioin, he tries to give meaning to the situation. The process by means of which the interpretation of the outside world takes place is known as cognition. Beliefs, attitudes and values are cognitive structures. They give meaning to incoming stimuli. A set of generalizations, based on past experience, guides our information processing (Smith 1982).

Various aspects of a cognitive system tend to be in a state of balance or equilibrium. The individual strives to maintain this balance. Festinger's (Sampson 1976) theory is given as an example of a balance theory. Festinger stated that the individual strives for cognitive consonance. If new information does not co-incide with existing beliefs, values and attitudes, a state of dissonance is created. The individual strives to restore the state of cognitive consonance. He can do so in two ways: he can either alter his interpretation of the information to fit in with his existing beliefs, attitudes and values or he can alter his attitudes. Information that contradicts the existing cognitive structure can be used selectively: those aspects causing dissonance can be ignored or else attitudes can change. For example a teller may have a negative attitude towards the introduction of computerization be-

cause he believes that it will result in job loss and he fears that he will lose his job. He sees, however, that the number of jobs is actually increasing because more people are required to use computer technology effectively. A state of cognitive dissonance is thus created. The new information does not coincide with his existing beliefs. A state of consonance can be restored by his denying the truth of the new information or by his changing his beliefs so that they are in line with the new information.

One method of changing beliefs is therefore to create a state of cognitive dissonance. Other ways of changing beliefs, values and attitudes are discussed below. Essentially attitudes are changed through the process of communication.

COMMUNICATION AND ATTITUDE CHANGE

Persuasion is a method of communication by means of which attitudes may be changed. In any persuasive communication the flow of information is explained by answers to the following question: Who says what to whom with what effect?". (Reich and Adcock 1976).

The "who" in this question is the source of the information. This source may be other people or the mass media, and has varying degrees of credibility. For example television advertising as a source of information may lack credibility among some people. The "what" in the above question refers to the actual message and the style in which it is delivered. The "whom" in the question is the person or group of people who are to be persuaded by the communication. In the case of banking, communications to accept change may be addressed to both bank employees and clients. The message and the source may differ for these two groups. Employees, for example, may be persuaded to use new technology by their supervisors. The message may be one of fear arousal ... unless you learn to use computers you will become redundant. In the case of clients, the mass media are a likely source. The message may, for example,

convey a high status image of people who use automatic teller machines.

The effects mentioned in the original question refer to the extent that the persuasion was successful. In general, maximum attitude change occurs when an individual does not hold an extreme attitude and the issue does not involve his ego.

Smith (1982) stated that the strength of any attitude is a function of its relationship to our underlying self-concept. For example, if it is important to a person's picture of himself that he should always be up to date with the latest financial information, it would be relatively easy to persuade him to make use of a bank's computer-based data bank for sound investment information. On the other hand, if an individual sees himself as a non-materialist person and therefore tends to be uninterested in and negative towards financial investments, it will be more difficult to persuade him to use a data bank to gain financial information. Attitudes that are centrally held, and which are therefore important aspects of personality, are difficult to change. Different messages from different sources will be needed to persuade the investor and the altruist.

CONCLUSIONS

Before computerization is implemented, planners in the banking sector should familiarize themselves with the way in which needs can be satisfied and beliefs, values and attitudes changed if necessary. Communication with regard to how change will be effected is important. The way in which the type of change that is envisaged and the possible effects it will have, are conveyed to employees and workers could have a major influence on whether the change is accepted or not.

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SECTION THREE

THE INFLUENCE OF CHANGE OF WORK

INTRODUCTION

The introduction of new technology into the banking sector has meant that the human requirements and ways of doing the work both at staff and management levels at banks have changed. This change is important because it affects entrance requirements into banking and the career paths of bank officials. For example increased specialization will be required. This will mean that entry into a bank as a teller or bank clerk after matriculation, and then working one's way up to managerial posts will no longer be as feasible as it was previously. Specialists rather than generalists are becoming increasingly needed.

The work content will change. Machines will take over many of the routine recording of transactions and data-processing tasks that were previously done manually. New jobs will develop in banks. Many people will be freed from the routine tasks of working with the processing of financial transactions. Instead, marketing and promoting the various services the bank has to offer and giving financial advice to clients will now be a new role for bank officials.

The first article in this section deals with these new requirements in the work situation. It discusses new job descriptions and the evaluation of jobs by examining four key posts: bank teller, bank branch manager, ledger clerk and the new post of accounts liaison or business development officer. It considers the changes in knowlege, skills, special aptitudes, training, working conditions and responsibility inherent in these jobs with regard to the introduction of new technology.

The second article discusses how management has changed with reference to new technology. New ways of storing and retrieving information have made extensive data readily available to managers to influence their decision making and to help them in planning. New

office technology also impacts on the day-to-day issues in management. The introduction of teleconferencing, automated appointment keeping and the direct transmission of messages from one terminal to another will enable more rapid decision making and easier access to other people.

DIE EFFEK VAN TEGNOLOGIESE VERANDERINGE OP SPESIFIEKE POSTE IN DIE BANKWESE

R. Visser en navorsingspan*

VERANDERINGE WAT IN DIE BANKWESE PLAASGEVIND HET

Veranderinge in die bankwese is hoofsaaklik teweeggebring deur veranderinge in kliëntebehoeftes, die afskaffing van die ooreenkoms tussen Suid-Afrikaanse banke en snelle tegnologiese ontwikkeling.

Verandering in kliëntebehoefte

Kliënte se behoeftes is veral gesentreer om die behoefte aan gerief en die behoefte aan akkurate inligting. Kliënte is beter ingelig hoofsaaklik omdat die inligtingrewolusie op alle vlakke inligting vrylik beskikbaar stel. Kortom, van moderne banke word dus meer verwag.

Die behoefte aan gerief het aanleiding gegee tot die ontstaan van telleroutomate, verkooppunt terminale, onderlinge skakeling van outomate, plastiekkaarte vir verskillende gebruike en verskillende marksegmente.

Tegnologie het dus regdeur die banke 'n klemverskuiwing in sowel die interne rolle van personeel as in die kliënt se behoeftebevrediging teweeggebring.

Kliënte skakel baie minder met bankwerknemers aangesien die masjiene en ander geriewe die roetinesakies hanteer. Kliënte besoek dus die bank hoofsaaklik om probleme op te los wat nie deur outomate verrig kan word nie. In hierdie geval verlang die kliënt 'n werknemer van die bank om hom persoonlik by te staan en met 'n

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diensleweringoriëntering van die nodige inligting en advies te voorsien.

Kliënte het ook minder tyd tot hul beskikking, wat veroorsaak dat hulle van een persoon in die bank verwag om vir hulle 'n breë spektrum van dienste en advies te verskaf, en indien nodig na 'n persoon te verwys wat die nodige kundigheid besit.

Die afskaffing van die kartel tussen Suid-Afrikaanse banke

Tot en met die afskaffing van die kartel het banke se produkte min of meer dieselfde gelyk en het kliënte by 'n bank sake gedoen op grond van historiese of tradisionele redes.

Ná die afskaffing het banke egter 'n mededingende omgewing betree waarin meer marksegmentering kon plaasvind en produkte ontwerp kon word om kliënte se behoeftes te pas. Bankwese kan dus in groter mate die vryemarkstelsel betree en keuses aan kliënte begin bied.

Die groter prysbewustheid wat by klënte ontstaan het, dwing banke al meer om kompeterende produkte en dienste aan kliënte te bied.

Tegnologiese ontwikkeling

Banke beweeg in 'n hoogs tegnologiese sfeer as gevolg van inligtingbehoeftes van sowel verbruikers as interne stelsels, markmededinging en geografiese verspreiding van banksale.

Sóos wat verbruikers se vrees vir tegnologie afgeneem het, het gebruikervriendelike tegnologie op die voorgrond getree. Rekenaars het dus vanuit lugverkoelde, toegangbeheerde hoofraamkamers beweeg tot op die werknemers en dikwels ook die kliënt se tafel.

Tegnologiese ontwikkeling het ook versnelde verandering tot gevolg. Die prosesse soos bespreek in die verslag het dus 'n kumulatiewe

effek op verandering en veroorsaak dat verandering nog vinniger sal plaasvind.

VERANDERINGS IN SPESIFIEKE POSTE

Al hierdie veranderings in die bankomgewing het noodwendig veranderings in werknemers se take en rolle teweeggebring. Vervolgens kyk ons na die veranderings in spesifieke poste.

Die takbestuurder

Die rol van die takbestuurder het verander van die "onbereikbare uitlener van geld" tot die bestuurder van 'n professionele span bemarkers, ondersteunings- en ander gespesialiseerde personeel.

Met die verandering in kliëntbehoeftes en die toename in welvaart van kliënte het die bestuurder stadig maar seker aan die ander kant van die tafel beland. Mense kom hom nie meer smeek om 'n aanvulling van hul fondse nie, maar steun op hom vir professionele advies rakende hul banksake.

Die klem in die bestuurder se bestuurstaak het verder verskuif van hoofsaaklik administratiewe bestuur na 'n volle spektrum van bestuursverantwoordelikhede wat bemarkingsgeoriënteerd is.

Hy baseer sy besluite op die jongste inligting wat verkry word van gesofistikeerde bestuursinligtingstelsels, bearbei sy mark deur inligting van kliënte te verkry deur die rekenaar en is dikwels toegerus met 'n persoonlike rekenaar op sy tafel.

Aangesien die rekenaar die rompslomp van administrasie oorgeneem het, sit die bankbestuurder met 'n personeel wat meer professioneel is en 'n wyer spektrum van kennis besit. Hierdie personeel het ander ontwikkelingsbehoeftes en verg dikwels 'n ander bestuurstyl van die bestuurder. Personeel stel hoër verwagtinge aan hulle werksom-

gewing, onder andere dat daar loopbaangeleenthede en uitdagings vir hulle gebied word.

Die kassier

Die tradisionele kassier het agter kopertralies en glas sy of haar geldlaai beskerm en fisies geld uitbetaal aan die kliënte van die omgewing.

Soos reeds genoem, het die klem in betaalmiddele verskuif weg van geld en is daar tans 'n wye reeks betaalmiddele wat nie noodwendig geld is nie. Die kassier se kennis moet dus aansienlik meer wees as net om geld te tel.

Aangesien die uitbetaling van geld hoofsaaklik deur die telleroutomaat verrig word, kom die kliënt dus met probleemgevalle na die kassier. Die kassier word deur die meeste mense as die skakelpersoon in die bank gesien. Hy is dus die eerste persoon wat 'n beeld van professionaliteit deur persoonlike aandag moet skep. Hy vorm ook 'n platform waarvandaan ander produkte van die bank aan kliënte bekendgestel kan word.

Ten einde die kassier in staat te stel om in hierdie behoefte te voorsien is daar 'n wye reeks opleidings- en persoonlikheidsvereistes waaraan so 'n persoon moet voldoen. Hierdie werknemer moet dus nie net meer geld uitbetaal nie, maar verrig 'n totale diensleweringsfunksie en bemarkingsfunksie.

Voorskotklerk

Die rol van die voorskotklerk was tradisioneel om oorskrydings op tjekrekeninge met die hand uit te haal en kliënte op te volg. Hierdie pos is verander deur die gebruikmaking van die tegnologie. Waar die werknemer voorheen ure bestee het aan die administratiewe nagaan van rekeninge, ontvang hy nou daagliks verslae wat oorskry-

dings uitwys. Sy rol het dus verander na dié van 'n onderhandelaar met kliënte eerder as die opspoorder van afwykings.

Bo en behalwe afwykings moet hierdie persoon ook breër kennis hê van kredietontledings. Die klem op sy werksverrigting verskuif dus van kwantiteit na kwaliteit en daar word van hom verwag om deegliker kennis te hê.

Wat sy vaardighede betref, word die spoed wat van hom verwag is en die korrektheid vervang deur die rekenaar. Sy vaardighede berus dus hoofsaaklik op analise.

Grootboekklerk

Die grootboekklerk moes tradisioneel rekeningkaarte op datum hou. Inskrywings moes met die hand gedoen word en rekeninge aangesuiwer word. Met die koms van die rekenaar het hierdie pos verval en die funksies daarvan kan verrig word deur terminaalbedieners wat op 'n landswye basis massatoevoere kan doen.

Posvereistes

Benewens die unieke veranderinge aan vereistes vir elk van bogenoemde poste is daar ook vereistes wat as gevolg van die tegnologie en verandering regdeur die bank aan poste gestel word.

Snelle omgewingsveranderinge bring snelle kennisveroudering teweeg. Dit vereis unieke opleidings- en ontwikkelingsgeleenthede van beide die werkgewer en die werknemer. Werkgewers moet dus voortdurend opleidingsfasiliteite daarstel en werknemers moet voortdurend self-ontwikkeling toepas om kennisveroudering teen te werk.

As gevolg van die beskikbaarheid van korrekte inligting word meer analitiese vereistes aan werknemers gestel. Roetinetake word al hoe minder en daar word al meer van werknemers verwag om grondige

kennis op te bou oor 'n spesifieke aangeleentheid en wyer kennis vir die gebruik in interpretasies.

Soos reeds bespreek, het die kliënt se verwagting van sy bank verander. Dit vereis buiten tegniese kennis en vaardighede ook interpersoonlike vaardighede. Hierdie verwikkeling sny deur na alle poste. Die takbestuurder bestuur nie alleen 'n ander profiel werknemer nie, maar is ook intensief betrokke by die bemarking van die bank se dienste aan die publiek. Kontak word hoog aangeslaan deur die publiek in 'n wêreld waar elke mens die vrees vir vervanging deur 'n rekenaar kan koester. Professionele verhoudings met kliënte moet dus doelbewus aangekweek en opgebou word. Dit is veral hier waar interpersoonlike vaardighede van die uiterste belang kan word. Indien 'n vertrouensverhouding met 'n kliënt in stand gehou word, word daar veral op hierdie punt groot verwagtings gekoester van samewerking tussen die bemarkings- en alle ondersteunende funksies binne sowel as buite die tak. Daar moet dus doelbewus gewerk word aan die opbou van goeie interpersoonlike verhoudings binne werkverband.

Werknemerblootstelling en verwagtinge wat daar van hulle gekoester word, word reeds hoër op meer junior vlakke. Hoofsaaklik as gevolg van betroubare inligting en tydige afwykingsverslae wat met behulp van tegnologie moontlik gemaak word, kan werknemers op 'n laer vlak alreeds meer besluite neem waarvan die impak hoër is.

Al hierdie faktore werk mee om vir elke werknemer in die tak 'n stimulerender en uitdagender omgewing daar te stel. Poste se grootte en impak verander dus ook, wat 'n noodwendige uitwerking het op poswaarderingstelsels.

Poswaarderingstelsels

Minder mense is betrokke by die verwerking en stoor van inligting wat noodwendig meebring dat meer mense betrokke is by die eindpro-

duk. Die eindprodukte van poste is dus meer direk meetbaar in terme van resultate behaal.

Verslaglewering van die rekenaar het die takbestuurder se kontrolefunksie aansienlik vergemaklik, maar maak poste en hul resultate sigbaarder.

Omdat die klem in die meeste poste beslis geskuif het van doen-aksies na dink-aksies, behoort poste nie meer geëvalueer te word aan dit wat die persoon insit in terme van tyd en energie nie, maar aan die resultate wat verkry word deur die aksies. Die aksies self kan egter deur elke mens persoonlik geïnterpreteer word. As een bemarker dus X aantal besigheid verkry uit 'n strategie beteken dit dus nie dat 'n ander bemarker dieselfde resultate sal behaal deur dieselfde stappe te volg nie. Ten einde hierdie resultate te verkry het hy/sy egter 'n sekere hoeveelheid kennis, vaardighede, vryheid, ens. nodig wat wel die belangrikheid van die pos vir die organisasie kan beïnvloed.

Baie belangrik is dus dat poswaardering nie as 'n gegewe daargestel word nie, maar eerder as 'n raamwerk waarbinne persone kan ontwikkel en groei en hul persoonlike stempels op afdruk.

Loopbaanaangeleenthede

'n Poswaarderingstelsel is ook 'n aanduider van die loopbaangeleenthede in die beskrewe poste. Alhoewel die presiese metode waarvolgens take aangepak word dinamies is en hoogs onwaarskynlik sal stagneer, sal die doel van die aksie nog steeds behoue bly. Daar sal dus van mense verwag word om uiteindelik dieselfde resultate te behaal. Dit vereis dus van personeel om kreatief en innoverend te wees en juis aan beter en effektiewer maniere te dink waarop die taak uitgevoer kan word. Al beteken dit dat daar 'n masjien sal wees wat die werk verrig, is daar altyd nog 'n pos vir dié wat die dinkwerk vir die masjien sal doen en aan die kliënte advies en bystand kan gee.

THE IMPACT OF NEW TECHNOLOGY ON MANAGEMENT IN BANKING

W.R. van der Merwe*

The banking sector is probably in the forefront as far as the development and implementation of new technology are concerned. (In this article, new technology refers to computer technology.) This implementation has affected all levels of staff, including management. This article examines how the change brought about by the new technology has influenced certain areas of management in banking. It also discusses how managers can use the technology to their advantage.

An important change that has occurred is the increase in specialization that has been introduced into banking. Until fairly recently (15 - 20 years ago) the banking sector was regarded as one that offered a clear-cut career path to the school leaver. It was possible for the individual to enter banking as a teller and to work his way up the hierarchy to a top management position. The branch manager had accumulated a great deal of experience in banking. He had worked in all the departments that handle financial transactions.

With the increasing advancement in technology, the question of experience is becoming less important and knowledge of technology is becoming more important.

Managers need to know how to use the new technology. Indeed the full impact of computer technology has not yet been realized. The more the manager learns to obtain useful data from the computer the more it will help him to make better and more creative decisions. The only way in which a manager can familiarize himself with what the computer can and cannot do is to use it. "User friendliness" is not only the result of improved software and the development of

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programmes that are easy to use, but it also depends on exposure to and familiarity with the new technology. Understanding computer technology leads to its effective use. The first step in learning to use the computer as a management tool is the acceptance of its usefulness.

Managers who are unfamiliar with the new technology may develop a resistance to using it, because their previous methods may not be compatible with the new technology. This resistance needs to be overcome by encouraging the managers to realise that their management skills can be greatly enhanced by using the new technology as a tool to aid in decision making. The manager needs to be encouraged to learn computer skills and he needs to accept the new technology as an essential aspect of his work.

Using the new technology leads to a change in management style. Routine tasks of management can be handled by the computer. If matters are running according to plan, the computer can handle these circumstances. It can also automatically indicate when conditions deviate from plans or predictions. The manager is then made aware of these deviations, as the system indicates to him when and if there are any deviations from the desired standard. The manager will then be required to deal with these deviations, rather than the more routine aspects, which he was required to do previously. The computer has therefore brought about a change in the way in which tasks are managed. The manager deals with the exceptions rather than the normal routine functioning. This type of management is known as management by exception.

In order to manage in this way, not only do managers need knowledge of the new technology but they also need specialist management training. Knowledge, rather than experience therefore forms the basis of efficient use of computer technology.

Human relationship skills are also becoming increasingly important for managers as the new technology is introduced. Although staff

are likely to achieve better work performance because of the computer technology, recognition for their achievement is vitally important. The computer may have made many aspects of the work more stereotyped for some employees. Work may have become more impersonal. The staff may therefore require more sensitive handling on the part of management. An autocratic style of management, which has probably characterised many aspects of management in banks previously, is now becoming less suitable. The manager may now have more control over his staff with the introduction of the new technology, but it is essential that he uses this control wisely.

The way in which managers make decisions has altered with the introduction of computer technology. A computer by itself cannot make a decision. It can only indicate the direction of a decision and provide information to enable the human being to take a much more accurate decision. The great advantage of a computer is that it has a vast storage capacity and processing power. Information can easily be recalled to aid and support decision making. In this process computer graphics not only improves the presentation of facts, but also makes interpretation easier.

There are those who argue that the ability of the computer to make masses of information instantly available does not help the top-level manager who already suffers from a glut of information. They question the assumption that computer based systems will help managers make better decisions. While some argue that the manager's executive grasp of the organization will be enhanced, others feel that such information will at best be useless and at worst be a source of anxiety for the manager who is not attuned to computers and quantitative methods (Salerno 1954). It must be kept in mind though that the software has become so user friendly that the quality of the information made available to manager has improved beyond recognition and the manager is not innundated with masses of computer printouts, but he is now able to be in the possession of digested information.

It has become imperative for the manager to accept the computer as a powerful ally that enables him to base his decisions on current information.

Managers must also accept that the computer has a very useful role to play in strategic planning and in marketing. The computer is unable to make decisions but by means of "models" and simulation of the effects it can answer many "what if" questions for which actual or real data can be used in simulating hypothetical situations. This makes the rational selection of preferred approaches possible and facilitates contingency planning.

In marketing, the new technology enables a branch manager to take his portable personal computer with him when visiting a client. He can dial into his mainframe computer with all its facilities via the telephone. The user friendly programmes make it possible for him to answer queries and advise his client using current information that is at his disposal. This again emphasises one of the main effects of computer technology on the branch manager. He has become a marketing man and to be a successful one he must know his product.

Another area undergoing change as a result of the new technology is the way in which management carries out communication functions. Through office automation (electronic "in" and "out" trays and diary facilities) the exchange of messages can take place via the on-line terminals. The manager can communicate with colleagues and other staff in this electronic fashion. It is faster and more cost effective because an existing network is used. This does not mean that the face-to-face communication with staff and co-workers will be dispensed with. The main concern for any company is that technology should not be introduced merely for the sake of technology. This approach would seriously disrupt human contact and communication.

Advancement in technology and the retention of a balanced culture in the organization can only be achieved through effective communication upwards and downwards. By "culture" I mean specific interaction and behaviour patterns between staff members which typify an organization and which is unique to that organization.

With the rapid development of technology, the impact on management is already being felt, but this is only the beginning of a "new age". Managers have to become "new age thinkers". It is necessary not only to think of doing things differently, but also to start thinking differently.

This new approach is also highlighted by Craig Hickman and Michael Silva in their book Creating excellence: Managing corporate culture, strategy and change in the new age (1984). They are convinced that new age executives and managers should have six skills which will help in creating excellence:

1 Creative insight: asking the right questions
2 Sensitivity: being aware of the needs of others
3 Vison: creating the future
4 Versatility: anticipating change
5 Focus: implementing change
6 Patience: living in the long term

These skills are applicable to all categories of managers. They apply particularly to managers in banking because they are directly responsible for the financial transactions of their clients. In banking there is no doubt that new technology will create changes but I would rather look at them as opportunities and challenges.

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SECTION FOUR

NEW TRAINING NEEDS

INTRODUCTION

The introduction of computer technology in the banking sector means that training needs have changed. Traditionally banking includes a knowledge of the following fields: general banking practice, foreign exchange transactions, the granting and repayment of credit, stocks and shares transactions, financial accounting, economics and business economics, banking management, legal aspects of banking and the accounting and legal aspects of trusteeship. In addition to these skills, computer literacy is becoming increasingly essential and marketing skills, in order to promote the services offered by banks, are now needed. Supervisory skills have to be taught to computer operators and other staff members, and client relationship building skills to others. Giving financial advice to both corporate and individual clients is another field which banks are entering and for which training is required.

The wide variety of skills now required may mean that specialists rather than generalists may need to be used, and outside agencies may be increasingly involved in training.

As the computer takes over many of the routine tasks of banking such as verification of clients' accounts, money transmission and clearing services, retraining and redeployment of the people previously involved in the carrying out of these tasks becomes necessary.

Training therefore occurs in two ways:

- New entrants are trained in the skills, both traditional and computer-related, required for banking. It must be considered whether specialists or generalists or both are required.

- The retraining and redeployment of members of staff who are already in banking and whose jobs are now being done by modern information technology.

The first article in this section deals with the retraining and redeployment of staff members. General principles on how to approach the problem are indicated.

The second article describes how the computer may be used as a training tool. It indicates the advantages of making use of computer-based training and interactive multimedia learning. This type of individualized learning programme available at computer terminals, does not require a classroom situation in order to be effective.

The third article in this section describes the need for training in marketing skills in order that banks be able to offer a personalized service to clients and to promote banking services.

The final article describes some new requirements for prospective bankers who are taking the examinations of the Institute of Bankers in South Africa. This organization decides on the curriculum and sets the examination papers each year with the support of all the banking institutions in the country. It does not provide any training but endeavours to arrange the necessary facilities, for example library facilities, for education.

OPLEIDINGSBEGINSELS: ALGEMEEN EN SPESIFIEK

Prof. J. Sunette van der Walt*

INLEIDING

Die noodsaaklikheid van opleiding in enige organisasie word meestal om verskeie redes sonder veel teenstand as 'n gegewene aanvaar. Toenemende eise word aan die beskikbare menslike hulpbronne gestel as gevolg van die tekort aan opgeleide hoëvlakwerkkrag, tegnologiese vordering en verandering, die stygende inflasiekoers, die laer produktiwiteits- en ekonomiese groeikoers.

Die toenemende invloed van die tegnologie gedurende die afgelope dekade het opnuut die aandag gevestig op die interafhanklikheid van menslike hulpbronne en tegnologiese faktore. Hierdie interaksie-verhouding tussen die tegnologie en die menslike hulpbron, die sogenaamde sosiotegniese sisteem, is die sleutel tot effektiwiteit in enige organisasie (Davis 1981 : 263).

Aanpassings by die tegnologiese veranderinge hou verskeie aanpassings in vir die menslike hulpbronne. So byvoorbeeld is die veranderinge in die indiensnemingsproses nie slegs ten opsigte van die verlies aan sekere poste en die skep van nuwe poste nie, maar veral in terme van die aard en verskeidenheid van nuwe vaardighede wat vereis word (Williams 1984 : 210). Die tegnologie het dus 'n invloed op die struktuur van die arbeidsmag in terme van die beroeps- en vaardigheidsamestelling.

Effektiewe implementering van die voordele van die tegnologie vereis aanpassing deur die mens by hierdie veranderinge. Veranderinge gaan meestal gepaard met 'n mate van weerstand en negatiewe houdinge. Onderliggend aan hierdie gedraguitinge is die gevoel van

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onsekerheid oor die onbekende. In die geval van tegnologiese verandering vorm die nuwe werkinhoud tesame met nuwe vaardigheidsvereistes die kern van hierdie onsekerheidsgevoel. Verder skyn die verwagtinge van die werknemer, soos vervat in die sielkundige kontrak wat gesluit word met die organisasie by indiensname, as gevolg van die onbekende onvervuld te bly (Bass en Ryterband 1979). Aanpassing by tegnologiese verandering is dus in 'n groot mate sielkundig van aard.

Hierdie persepsie van 'n verbreekte kontrak, asook nuwe beroeps- en vaardigheidseise het verreikende gevolge vir opleiding. Jinks (1979 : 2) definieer opleiding soos volg: "Training is an organized procedure, which brings about a semi-permanent change in behavior for a definite purpose." Om hierdie gedragsverandering teweeg te bring, konsentreer opleiding gewoonlik op die volgende hoofterreine, naamlik vaardigheid, kennis en houding.

Die behoefte aan opleiding in nuwe vaardighede, uitgebreide kennis en aanpasbare houdinge noodsaak die toepassing van sekere algemene en spesifieke opleidingsbeginsels om tegnologiese veranderinge vaartbelyn in te faseer in enige organisasie.

TERMINOLOGIE

Die beginsels ter sprake by opleiding vereis dat terme soos opleidingsbehoefte, opleidingsdoelwitte, opleiding, opvoeding, heropleiding en leer duidelik gedefinieer word.

Jinks (1979 : 7) omskryf 'n opleidingsbehoefte as "... the gap between the knowledge, skills and attitudes that the job demands, and the knowledge, skills and attitudes already possessed by the trainee".

Volgens Beach (1970 : 375) is die doel met opleiding om 'n gedragsverandering teweeg te bring by die opgeleide. Kaye (1983 : 132) is

van mening dat opleidingsdoelwitte slegs bereik kan word indien dit doelgerig is. Opleiding vir die aanleer van nuwe vaardighede behoort dus werkinhoudgerig te wees terwyl opleiding vir 'n bepaalde beroep ontwikkelingsgerig behoort te wees.

Die verskil tussen opleiding en opvoeding blyk uit die volgende definisies: "Training is the organized procedure by which people learn knowledge and/or skills for a definite purpose" (Beach 1970 : 375); "... (training) stands in contrast to education where the skills acquired are more general in nature and the knowledge more wideranging" (Hanson en Bellis 1983 : 221). Opleiding is dus 'n georganiseerde doelgerigte poging teenoor opvoeding wat meer algemeen van aard is.

Die proses van heropleiding behels twee aspekte, naamlik die opgradering van vaardighede en die aanleer van nuwe vaardighede. "The term retraining ... refers to training given to cover the needs of those workers who must not only upgrade their skills, but learn new skills as technology advances" (Hanson en Bellis 1983 : 221).

Beach (1970 : 380) definieer die begrip leer soos volg: "... that human process by which skills, habits, and attitudes are acquired and utilized in such a way that behavior is modified".

Uit die verskillende definisies blyk die klem op verandering baie duidelik. Om hierdie veranderinge gedurende opleiding te bewerkstellig, geld daar sekere opleidingsbeginsels wat toepassing vereis.

OPLEIDINGSBEGINSELS

Inleiding

Die funksie van opleiding is om te verseker dat elke werknemer in staat gestel word om die vereiste bydrae te lewer sodat die doelwitte van die organisasie bereik kan word.

Die leerproses, vlakke van leer, die leerklimaatkeuse van die individue wat opgelei moet word, oordraagbaarheid van opleiding na die werksituasie en sekere eksterne faktore tot leer word vervolgens as belangrike algemene opleidingsbeginsels bespreek. Dit word gevolg deur 'n bespreking van spesifieke opleidingsbeginsels wat geld by die opleiding van volwassenes of gedurende die proses van heropleiding.

Die leerproses

Aangesien opleiding toegespits word op die aanleer van nuwe houdinge, vaardighede en kennis, kan die toepassing van bepaalde beginsels bevorderlik wees vir leer (Jinks 1979 : 16-18; Beach 1970 : 381; Watson 1978 : 25; Coffey, Athos en Raynolds 1975 : 305; Buitendach 1982 : 8, 9 en Craig 1976 : 12-18).

- Vooraf, duidelik gedefinieerde opleidingsdoelwitte oriënteer persone-in-opleiding vir die leerproses.

- Opleiding gerig op die vervulling van persone se behoeftes, motiveer hulle en maak hulle meer ontvanklik.

- Logiese, duidelik gestruktureerde insette vergemaklik leer.

- Assosiasie van nuwe idees met bestaande kennis is meer verstaanbaar.

- Betrek soveel as moontlik sintuie van 'n persoon in opleiding.

- Geleenthede vir herhaling en oefening van die korrekte response lei tot verbeterde werkverrigting.

- Die verband tussen die opleidingsinhoud en die werksituasie vergemaklik oordrag van opleiding.

- Aktiewe deelname verseker begrip.

- 'n Demokratiese bestuurstyl van die opleier is 'n vereiste vir opleiding om verandering in houdinge, self-insig, en interpersoonlike verhoudinge teweeg te bring.

- Die begrip van onderliggende teoretiese beginsels bevorder leer en vergemaklik toepassing in nuwe situasies.

- Geheel of gedeeltelike leerinhoude word bepaal deur die vlak van die leerstof.

- Gereelde terugvoering oor resultate gee persone-in-opleiding 'n gevoel van vordering.

Die toepassing van genoemde leerbeginsels is daarop toegespits om die verskillende vlakke van leer te bereik.

Vlakke van leer

Om gedragsverandering mee te bring, moet die volgende vier stappe van leer, naamlik kennis van, begrip, aanvaarding (internalisering) en die vermoë om toe te pas, bereik word (Watson 1978 : 26-35).

Oor die algemeen moet 'n persoon eers kennis dra (weet) van 'n idee voordat begin kan word om dit te verstaan. Begrip is nodig voor aanvaarding van die idee kan plaasvind en eers hierna kan toepassing daarvan verwag word.

Die kennis van-vlak kan eers bereik word na bewuswording van bepaalde konsepte, vaardighede of houdinge. Aangesien begrip ontbreek, is die toepassingswaarde op hierdie vlak baie laag.

Gedurende die begripsvlak vind bemeestering plaas van die oorsaakgevolg-effekte.

Voldoende begrip lei tot die aanvaardingsvlak wanneer die student die logika onderliggend aan die beginsels aanvaar en sy/haar

oortuigings daaromtrent konsekwent bly. Hierdie vlak van leer word moeilik bereik as gevolg van diepgewortelde waardes, oortuiginge en houdinge.

In die toepassingsvlak van leer beskik die individu oor die vermoë om situasies te diagnoseer, toepaslike optredes te identifiseer vir 'n spesifieke situasie en om dit suksesvol toe te pas.

Die verskillende vlakke van leer kan bereik word deur die handhawing van sekere beginsels vir die skep van 'n gunstige leerklimaat.

'n Gunstige leerklimaat

Effektiewe leer kan plaasvind onder die volgende toestande:

- Interaksie in groepverband het spesifieke voordele. In isolasie het die individu nie die geleentheid om 'n eie mening of gedrag te evalueer teenoor dié van 'n groep nie. Die informele klimaat binne 'n klein groep is ondersteunend van aard om die bruikbaarheid en geldigheid van idees te toets gedurende besprekings.

- 'n Atmosfeer van openlikheid en wedersydse aanvaarding beskerm groeplede teen vernedering en verwerping.

- Die persone-in-opleiding moet die opleier as ondersteunend ervaar. Die groep se persepsie dat die opleier opreg belangstel in die persoonlike groei van elke persoon, dra by tot die groep se welsyn.

- Aangesien opleiding toegespits is op die verandering van houdinge en die aanleer van nuwe vaardighede behoort die opleidingsprogram se inhoud, volgorde en tydindeling sodanig te wees dat die groep in staat sal kan wees om hul houdinge te

verander en nuwe vaardighede aan te leer teen 'n aanvaarbare tempo.

- Die leerinhoud moet so aangebied word dat die persone-in-opleiding 'n behoefte ontwikkel om meer te wete te kom oor die onderwerp.

- Leer is 'n aktiewe proses en is meer diepgaande van aard wanneer persone-in-opleiding aktief betrokke is in denke, besprekings, ontleding, oplos van probleme, besluitneming, formulering van gevolgtrekkings en veralgemenings.

Die keuse van persone vir opleiding

'n Natuurlike neiging in 'n opleidingsprogram is om dit te beoordeel in terme van die voordele wat dit vir die organisasie mag inhou sonder om die persone wat direk betrokke is, se verwagtinge en behoeftes in ag te neem. Dit is dus belangrik om 'n mate van versoening te bewerkstellig tussen die eienskappe van potensiële persone-in-opleiding en die inhoud van die opleidingsprogram (Watson 1978 : 118; Kaman 1985 : 44).

Die volgende verdien aandag:

- Die persoon se opvoedkundige peil.
- Die besit van of gebrek aan werkervaring.
- Beroepsvlak binne die organisasie.
- Ontvanklikheid vir nuwe konsepte.
- Leesvermoë in terme van spoed en begrip.
- Waargenome behoefte aan self-ontwikkeling.
- Persoonlikhede van studente.
- Houding van toesighouers, van potensiële persone-in-opleiding, teenoor opleiding.
- Persepsie van potensiële persone-in-opleiding oor hul eie vermoëns, die verband tussen die opleidingsinhoud en hul huidige werk asook die opleidingsdoelwitte.

Indien al die voorafgaande beginsels in aanmerking geneem word, behoort die oordraagbaarheid van opleiding na die werksituasie vergemaklik te word.

Oordraagbaarheid van opleiding

Die sukses van opleiding word nie slegs bepaal deur die kwaliteit en kwantiteit van wat in die opleidingslokaal geleer is nie, maar deur die vermoë van die opgeleides om die nuwe kennis en vaardighede konsekwent toe te pas buite die opleidingsituasie. Met ander woorde die sukses van opleiding is geleë in die oordraagbaarheid van nuut aangeleerde vaardighede (Berry 1982 : 18).

Die oordrag van leer na die werksituasie kan bevorder word deur:

- voldoening aan die persoon se opleidingsbehoeftes;
- direkte toepassing van aangeleerde vaardighede in die werksituasie
- positiewe versterking deur aktiewe deelname aan besprekings en praktiese oefening;
- 'n relatief kort periode tussen die opleiding en die toepassing in die werksituasie;
- die versterking van die opleiding in die werksituasie deur die toesighouer.

Eksterne faktore

Die genoemde opleidingsbeginsels in die voofafgaande paragrawe is inherent verweef in die totale opleidingsprogram. Daar is egter enkele eksterne of omgewingsfaktore wat 'n bydrae kan lewer tot die effektiwiteit van opleiding (IPM 1983; Craig 1976).

Die spesifieke aard van elk van die volgende faktore hang in 'n groot mate af van die spesifieke opleidingsdoelwitte, organisasie, leerinhoud en persone betrokke:

- grootte van opleidingslokaal
- beligting
- akoestiek
- plasing van stoele
- voldoende ruimte vir elke persoon
- sigbaarheid van opleier deur alle persone
- duidelikheid van visuele materiaal
- skryfruimte
- werkende hulpmiddels en apparate

Die genoemde opleidingsbeginsels geld oor die algemeen. Daar is egter spesifieke beginsels wat aandag verdien in die opleiding van volwassenes.

Spesifieke beginsels by die opleiding van volwassenes

(a) Inleiding

Die gevoel van angstigheid is een van die belangrikste faktore waarmee rekening gehou moet word by die opleiding van volwassenes. Redes vir hierdie gevoel van angstigheid is onder andere volwassenes se onsekerheid oor hul eie prestasievermoëns en die vrees dat hulle 'n gek van hulself sal maak. Aangesien die bywoning van 'n opleidingsprogram meestal verpligtend is, word die gevoel van angstigheid verhoog. Volwassenes plaas hulself onder onnodige druk as gevolg van te hoë verwagtinge en die belangrikheid om goed te presteer. Verder is die rol van student onversoenbaar met die volwassene se huidige status en rol binne die organisasie.

(b) Leerbeginsels uniek tot volwasseneleer

Die gevoel van angstigheid wat volwassenes gedurende opleiding ervaar, kan in 'n groot mate deur die volgende beginsels (Birkenbach 1985 : 8, 9 en Litwin 1985 : 16) verlaag word:

- Beheer die tempo van leer. Die ideaal is dat volwassenes hul eie pas bepaal, want dit sluit die idee van kompetisie uit, met ander woorde 'n wen-verloor-situasie. Evaluering (werkverrigting) behoort gemeet te word aan gestelde doelwitte.

- Volwassene-opleiding impliseer 'n baie groot mate van aktiewe betrokkenheid. Doen weg met die aanvaarde "if the student hasn't learned, the teacher hasn't taught". Laasgenoemde impliseer passiewe betrokkenheid.

- Verminder geheuewerk en vermeerder praktiese oefening. Navorsing toon dat die memoriseer van betekenislose feite leer bemoeilik. Om volwassenes te help gedurende die opleidingsproses, behoort die leermateriaal sistematies en in duidelik onderskeibare eenhede aangebied te word. Die opleidingsinhoud moet toepaslik wees tot die werksinhoud. Dit vergemaklik oordraagbaarheid en is bevorderlik vir die geheueproses.

- Oormatige angstigheid by volwassenes kan verminder word, reeds by die nominering vir opleiding deur hul persepsies te verander. Volwassenes moet daarop gewys word dat opleiding nie sekere tekorte in hul mondering gaan aanvul nie. Veel eerder moet hulle besef dat hul vorige opleiding, opvoeding en ervaring nuttig is en dat dit verder uitgebou gaan word deur verdere blootstelling. Die klemverskuiwing is dus van die remediërende na die funksionele aspek van opleiding.

- Die opleier behoort 'n ondersteunende rol te speel in sy terugvoering. Dit lei tot positiewe versterking en moedig volwassenes aan om hul menings vrylik te lug.

- Die afname in menslike sensoriese vermoëns oor tyd vereis dat die omgewing waarin leer plaasvind, bevorderlik moet wees vir leer. Voorbeelde hiervan is stoelplasing, goeie beligting,

geen weerkaatsing, visuele materiaal se inhoud en agtergrond moet kontrasteer en leerstukke wat uitgedeel word moet goed gespasieer wees.

Birkenbach (1985 : 9) som die kernbeginsels betrokke by volwasseneopleiding soos volg op: "Self-directed learning and self-evaluation are likely to be much less threatening than teacher-directed learning and evaluation."

Slotopmerking

Opleiding is 'n uiters belangrike instrument in bestuur se hande om 'n werknemer toe te rus vir 'n spesifieke taak. Tegnologiese vooruitgang bring veranderinge mee wat met behulp van die nodige opleidingsbeginsels tot voordeel van die hele ekonomie benut kan word. Vaardigheidsbekwame persone met die nodige kennis en positiewe houdinge sal die voordele van die tegnologie maksimeer.

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THE INFLUENCE OF TECHNOLOGY ON TRAINING AND DEVELOPMENT IN THE BANKING SECTOR

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INTRODUCTION

The observable trends in education closely mirror developments in society. This is a natural reflection as the very act of education and training often means preparing people to meet their community's needs and society's demands.

The industrial revolution for example influenced the development of the factory system, the urbanization process, the break-up of the extended family and the development of new methods of production. Education responded by offering institutionalized learning, where large schools were modelled after the factories. Today we are in the information age: in the midst of a computer revolution. We are moving from a mechanical, paper society to an electronic disc society.

Change is readily observable, and has far-reaching implications. Technology and information have become the prime moving forces or sources of change. The fundamental question raised is: What effect wil micro-electronic technology have on the work and life patterns of individuals and on society?

In the face of any change, an organization has three options.

The change can be resisted; while the old, the safe, the familiar are held fixed. Change will however occur around the organization and inevitably, it will be forced to adapt.

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Alternatively the organization can simply drift along with the flow of change; it neither resists nor actively encourages change, rather it passively accepts whatever change is taking place. Both negative and positive implications of change are accepted, as there is no questioning or challenging of the change.

Finally, the organization can meet change head-on; it can even anticipate change, becoming an innovator and leader in society. This type of organization has the capacity to influence the change process and has the opportunity to question whether this change is appropriate. It can also adapt to change in a positive manner.

THE NEW LITERACY

During the past decade there has been a fundamental change in society's literacy requirements. An additional literacy, computer literacy, has been added to the traditional three Rs. Computer literacy, or the ability to use computers, is of paramount importance, much more so than the general ability to programme a computer, if we are to cope with change and grow within society.

Within the banking industry this fundamental change and the challenge of accepting and adopting the new technology has, and will continue to have a most powerful impact and influence on training. Managers and staff are now finding it necessary to keep abreast of developments in data processing and its allied fields, simply to be able to do their jobs effectively.

The speed of technological advance is going to require the re-orientation of our workforce to cope with new skills necessary for an organization to survive. Traditional training methods will not keep pace with the demand, and training based purely on these methods will not resolve the situation. To emphasize this, one needs simply to consider the millions of people in South Africa and the world, who will require some form of computer-related training

during the next five years. The only effective way to reach these people is by utilizing the technology available to us.

As computers become more powerful, this training will become less technical and subjects of a more general nature will be offered to wider audiences.

The answer to the computer literacy problem lies in the technology itself: the utilization of the technology will allow bankers to learn/acquire the skills, knowledge, adaptability and flexibility to cope with, and develop and grow within the continually changing computer-oriented society.

THE USE OF TECHNOLOGY IN TRAINING AND DEVELOPMENTT

Fortunately the technological advances of the last two decades have not by-passed the training function. There are a number of exciting new developments in training technology that can assist the banks in their immense task. During the next decade we shall see a number of ideas become reality as various elements of technology are brought into the learning process. Already computers linked to video tape or video disc are providing some excellent interactive learning programmes and the integration of this technology into the education and training environment may be the first mass market breakthrough in the next five years.

The development of cheap microprocessors programmed for a specific instructional procedure, interactive video/computer systems and computer software packages for do-it-yourself training on both mainframe and micro, makes possible a truly individualized, multidirectional and multipath approach to training and education in the banking sector.

This development enables trainers to represent ideas in concrete form, and to change them instantly on the screen, video, or audio

tape. Computer-based learning, for example, can bring organization and real-world situations into the learning experience. Learning can be designed, in turn, to alter the organization in a positive way. In this way, training will change the way people learn to think.

The computer, in the hands of the learner, can make a significant contribution towards promoting adaptability. By encouraging the learner to recognize that there is often more than one course of action and that each course holds particular advantages and disadvantages, creative thought, critical thought and flexibility are stimulated.

Computer-based training (CBT) provides an excellent opportunity for maximizing the use of people's time as they acquire new knowledge and skills. If applied to large numbers, it can minimize the cost of speedily conveying training materials to the end user.

CBT is an attempt to individualize learning. With CBT many of the functions of a trainer are performed by a computer. For example presentation of the learning material, the use of examples, testing students' acquisition of knowledge, providing feedback on results and maintaining student records.

The computer serves three important functions in educational technology:

(a) Interaction

It is the interactive nature of CBT which underlies virtually all its benefits and outcomes. CBT is an inherently active mode of learning requiring the learner to be continually doing something - answering a question, selecting a topic, requesting a review, etc. This contrasts with the inherently passive approach involved in much of our conventional classroom training.

(b) Management

The computer is able to route students to different sections of the instructional programme. If for example a student responds incorrectly to a number of questions, the computer can route the learner to a review section for remedial study. The computer also has the ability to control and co-ordinate a variety of media to which the student can be routed at various stages of the programme.

(c) Memory

The computer has the capacity to store, retrieve and manipulate large amounts of information and this can be a great time saver.

The computer can be usefully employed to carry out a number of activities normally done by a teacher or trainer. For example in tutorial mode students can master material from a terminal without having to have a trainer present. By making use of the computer's capacity for handling a drill and practice approach, students can practise material that has already been taught to them, allowing them to do repetitive drill exercises over and over. This again enables expensive trainer time to be used more productively. In addition, the computer never becomes bored and does not make value judgements on the learner's capability.

The computer's ability to simulate situations is probably one of its major strengths. Often very costly resources are required to train people for certain tasks, or the real life situation may be too difficult or time-consuming. The computer can be programmed to simulate a variety of decision-making situations resulting in greater safety, speed and most important, improved productivity.

CBT can also contribute to training productivity in a unique sort of way. Most CBT applications are initiated by the need to improve the efficiency or effectiveness of a training system. Increased efficiency means achieving the same training outcomes with fewer

resources (people, equipment, facilities etc.). In other words, increased efficiency means reducing costs. Increased effectiveness involves obtaining better training results (improved learning or job performance) usually from the same level of resources, although additional short- term costs are sometimes acceptable. Increasing both efficiency and effectiveness at the same time corresponds with the goal of improved training productivity.

Perhaps the emphasis on CBT is a little misleading in the sense that by focusing on the term "computer" we are presupposing a single learning medium.

At the Standard Bank for example the term CBT has been taken to represent a concept that involves the computer "as the hub of a multi-media learning/teaching architecture."

By using sound educational/training concepts such as mastery learning, resource-based learning and criterion-referenced instruction, and by interfacing these concepts with a multimedia delivery system the Standard Bank has created an approach which can best be described as: "Interactive Multimedia Learning" (IMML).

This approach uses all available technologies and media in combination to create a highly individualized and effective training system.

It is our contention at the Standard Bank that this approach will not only address the productivity problem facing all banks, but will probably change the face of education and training for all time.

If education sets limits to the productivity of our workforce we can change the educational system through technology. If conventional training methods are struggling to improve the present low level of productivity, then through technology we can in the future deliver timely training for improved productivity.

Most banks can already identify a number of factors that are impacting their training at present or will do so in future.

* The difficulty of releasing staff to attend classroom-based training courses.

* Individual differences between trainees sent on courses including cultural differences, levels of experience, educational differences and differences in ability and learning speed.

* The increasing cost of classroom training owing to the rising cost of facilities, travel, accommodation and salaries.

* Loss of productivity while trainees attend a training course.

* The numbers of people requiring effective ongoing training and re-training and their location in any far flung branch system.

These factors lead us to believe that computer technology linked to other media systems can assist in providing a more cost-effective training input.

In the wider South African context our present education and training infrastructure and approach cannot hope to reduce the past backlog and cope with future demands. To continue as at present will not solve our productivity problems. What is needed is a major shift in attitude towards the use of technology in the education and training field and an investment in resources to obtain proven benefits. This is what is happening in our major banks today and can serve as a model for the rest of the country.

To substantiate these claims a more detailed look must be taken at some of the benefits accruing from the use of technology in training while bearing in mind that many of these are potential solutions to present training problems facing the banks.

BENEFITS OF THE USE OF TECHNOLOGY IN TRAINING

There are a number of benefits which can be gained from the use of technology in training.

Timeliness and availability in training

Training is facing a problem in South Africa today because of a lack of qualified instructors although the banking industry is perhaps better off than many other sectors of our economy. In addition, when new recruits join an organization the specific training programmes may not be available on account of scheduling constraints. This can be extremely unproductive as employees have to wait for training. This waiting for training represents an indirect cost to the organization and can have a major effect on productivity. In addition "cold storage training" is often given too far in advance resulting in a loss of retention when the trainee actually comes to do the job for which he or she has been trained.

Through the use of technology training can be made available on demand so that the trainee can become productive immediately and be able to reinforce his or her newly acquired skills by immediate on-the-job practice. There will no longer be a need for trainees to wait until an instructor is available or until a class has been assembled.

In addition trainees will be able to study at convenient times within their own work schedule using work "downtime" where necessary. This can, in many cases, reduce productivity lost while trainees are attending training programmes. Training can therefore be made available wherever and whenever the trainee requires it provided the technology and the course materials are available.

Interactive multimedia learning (IMML) presents individualized learning

IMML is self-paced allowing individuals to work at their own speed. This serves to reduce group pressure and allows students to work through material according to their ability and preferred learning style. In this respect the approach is particularly useful for remedial tuition. Based on the responses of trainees to tests and questions this system guides the students through the material. At the same time the brighter student is not held back and can move rapidly through the programme. This enables him to return to his workplace before the other students.

Research has indicated that adult learners tend to learn best when they perceive they have control over the content and sequence of instruction. This is available in a technological approach. Individualized instruction is also particularly important where one has individual differences between trainees such as cultural differences and levels of experience.

Reduced training time

This benefit is closely aligned to the concept of individualized instruction. In classroom based training, training time is allocated on the basis of how much time the instructor needs to present the material. With an interactive multimedia learning approach, training time represents the time taken by the individual trainee to master the material. This approach can on average reduce training time by roughly a third or more. This saving in training time is probably one of the most dramatic benefits of a technological approach which, when applied across the organization, can result in tangible productivity benefits.

Interactive multimedia learning is mastery-based

Interactive multimedia learning controlled by a computer will not permit a student to proceed to the next step until mastery of the previous step has been demonstrated. This ensures that students have acquired the desired level of knowledge or skill before they are permitted to continue. This gives the trainer a greater degree of control than the traditional classroom method allows.

Interactive multimedia learning ensures standardized training

IMML allows training courses to be run nationwide in a standardized, consistent manner and format. Courses are developed according to an instructional systems approach which ensures that the highest quality material is developed. Courses are therefore uniform in content and approach and training can become independent of the emotions, state of mind, and experience of any single instructor.

Trainees' progress can be precisely monitored

IMML allows for accurate monitoring of students' responses to exercises and tests, and can pinpoint student problems and difficulties in certain areas. The ability of the computer to store information also reduces many of the costs and the time involved in training administration.

Centralized courseware development and update

IMML will allow scarce human resources skilled in course design and development to be centralized. Although initial course development costs may be higher as opposed to classroom based training, the long-term cost could be reduced through revisions and updates being done centrally and down-loaded to take effect immediately. Furthermore, instructor preparation, test design and marking of work should always be included as an ongoing cost applicable to

conventional training. IMML, however, reduced this ongoing cost considerably by, for example, the computer automatically marking all exercises and selecting tests items at random from a question bank.

Increased learning satisfaction

Research conducted at the Standard Bank has indicated that trainees using this approach show an increase in concentration and a motivation to learn. In many cases this approach prompts students to use their own creative power by producing a creative tension. Students are required to interact with the teaching material in a dynamic way.

In addition, because the computer provides instant feedback on the material, trainees become highly motivated and committed to succeeding on the course.

TRAINING COSTS

No discussion on the benefits of technology in the training process can ignore the question of costs. When looking at the costs of this form of training, any bank must apply the same economic variables as it would in buying any other service product. The three variables we need to consider are:

* The "owning" variable;
* The "operating" variable;
* The "value" which we can get out of it.

The "owning" variable

In a training context, the "owning" variable refers to the up-front money which must be spent on preparing for this form of training.

For example, the costs of course design, the resources required, the research and development needed etc. must all be allowed for. Hardware and software costs must be included as well.

The "operating" variable

The "operating" costs of training refer to costs incurred in carrying out the training. It is here that a number of hidden costs emerge, for example a cost attached to any delay in training which will result in an untrained employee not performing at full productive capacity.

Technology can certainly serve to overcome many of these hidden costs by providing timely training on demand resulting in greater productivity.

The "value" variable

The value of training should be determined by its effectiveness. If training is effective it should automatically raise the productivity of the employee.

COST JUSTIFICATION OF COMPUTER-BASED TRAINING

When judging this technological approach against our three variables it appears evident that there is a cost justification for using this technology, particularly when looking at the following:

* Student costs
* Instructor costs
* Training department costs
* Course development costs

Because of the reduction in time spent training people, overall costs can be substantially reduced. Training can be given whenever there is a need; therefore employees no longer have to wait unproductively for training. Substantial savings can be obtained in travelling time and accommodation costs for the trainer and the trainees, while the training department has the assurance that the quality of training is above reproach. Finally, instructor time can be more productively used in the training process.

ACHIEVING THE BENEFITS OF COMPUTER-BASED TRAINING

So how do we combine all of this technology in practice to achieve these benefits?

To do this effectively we need to focus on the strengths and weaknesses of each technology or learning medium, bearing in mind that if we combine them effectively we can reduce their weaknesses and increase their strengths.

Take the computer for example. One of its major strengths lies in its capacity to manage the learning process (i.e. routing students, evaluating, supplying feedback and keeping student records). It is much less effective in its ability to present information. Indeed, other media or technologies such as video, text books and the instructor are more effective in carrying out this task. If, however, we combine these media we can arrive at an extremely cost-effective training system.

To illustrate this point we can use a simple example.

Teaching banking skills

Our objective is to train a bank clerk in the task of opening a current account for a new client.

The computer will be used to route the student to various resources such as a workbook, video, etc., pose questions to check mastery of the subject matter, and supply feedback. The workbook may contain the learning objectives, a description of the features amd benefits of a current account and completed forms illustrating the information required from the client. The video would present "real life" situations illustrating the procedures carried out and would highlight the need for good client relations.

This example also illustrates the use of the concepts of mastery learning, resource based learning, criterion referenced instruction and individualized learning all combined into a multimedia approach.

What is important to remember, however, is that once developed this material can be disseminated to a vast number of trainees scattered throughtout the country, and the training would be available wherever and whenever it is required.

Teaching data processing

In the banking world this impressive array of technology need not only be used to train bankers in the procedures associated with branch banking. It can also be used to deliver training to a wider group of users. For example, at the Standard staff use their electronic learning stations to train their Data Processing staff in Computer Fundamentals, Operations, Network Control, Programming, Systems Analysis and Design and Project Management. The technology, in the form of the most appropriate equipment and materials, presents "hands-on", self-study courses. Tutors are available to answer any student queries.

Another group exposed to this form of training consists of the users of terminals and personal computers. The best way to learn to use a terminal is on the terminal and the mastery of the personal computer is a major goal. The terminal provides a programme

which teaches by displaying text on the screen. It allows the student to try out what he/she has learned by setting and marking a practical problem. The appearance of the screen and the sequence of events closely simulate the actual system that the student will eventually use. The student progresses at his/her own pace, mistakes are private and a tutor is available for assistance.

Teaching skills related to office automation

In the field of office automation technology has revolutionized the face of the office. Office technology has, for the past 100 years, remained static. The main tools were pen and paper, books, filing cabinets and the typewriter. The revolution began with the word processor and progressed rapidly to office automation.

What is office automation? It is the use of technology to improve the effectiveness of people doing office work. It is the technique for managing the organization's information by utilizing computers and communication.

A number of South African banks are moving into this field by creating multifunctional work stations linked to each other through a computer. This Comprehensive Electronic Office System (CEO) as it is called offers facilities such as electronic mailing, an electronic filing system, and decision support facilities making it a comprehensive and widespread network of rapid and modern communication.

Training is required for both managers and secretaries utilizing the system. This training can be computer-based and makes use of the help facility to learn from the system itself.

Other technologies and training

So far we have only looked at technologies that are available in South Africa and are currently being used by a number of major

banking organizations. There are other technologies such as teleconferencing that will have a major impact on what trainers do in the future.

It is estimated that by 1990 some 15 million American employees will be telecommuting - that is doing work at home by means of computers. As Miriam K. Mills, writing in the Summer 1984 edition of the Sloan Management Review, puts it so succinctly:

"A silent revolution has taken place; voices raised at annual meetings are stilled; discussion between project participants conferring at a central location has all but disappeared. Interactive computer technology has begun to move the customary work setting; individuals can participate in conferences, prepare reports, hold meetings, engage in professional development programmes, exchange information, deliberate on policy issues, and never leave their homes."

Major gains in efficiency can be made by adopting teleconferencing to allow employees to work from their homes. However, trainers need to be alert to some of the consequences to this new technology. These include a re-allocation of skills and roles, diminished visibility for promotion, and problems of isolation. On the other hand, the potential of this new technology for providing timely training is immense.

CONCLUSION

If we are to effectively address the critical need for improved productivity in the banking industry, time and cost will become increasingly important factors in the training and development process. We must, as a matter of necessity, creatively use current technologies to keep down the costs and push up the effectiveness of training and development programmes. In this way we can maximize the use of people's time to improve productivity.

For us, as trainers, the ability to use technology will be of paramount importance. The computer itself is a tool which will help us to evaluate and establish, deliver and control professional training programmes in a way never before conceived.

NEED FOR TRAINING IN MARKETING SKILLS

Mike Hepworth*

The introduction of new technology into commercial organizations has meant that scarcely any organization does business in the way it did only five years ago. Perhaps more than any other industry, banks and building societies have been affected by change during the 1980s.

These changes may mean that there is a need for a new approach to the training of bank employees. The author conducted informal discussions with four banks and four building societies to find out what these needs are, and to see what types of training programmes would be useful to the banks. These discussions indicated that financial institutions face new challenges in training.

The implications of change from the point of view of training needs are discussed below.

IMPLICATIONS OF CHANGE

One of the challenges facing bank employees involved in training is that all banks and building societies have competitors that offer the same amount of money, the same loans, and the same services for substantially the same rates. Why then do clients choose one institution and not another? Primarily they do so for personal relationships. The biggest advantage a bank or a building society has in competitive markets is to be found in the person representing it and his particular skills.

The following interpersonal skills and relationships are important:

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*General Manager: SVP Sales Management (Pty) Ltd

* selling skills and persuasive skills
* client relations skills for client service staff
* interpersonal skills for managers.

These skills can be learned. The following are examples of fields in banking for which training is necessary.

Personalized service

The banks are committed to the new technology, but at the same time electronic efficiency needs to be coupled with personalized service.

Though the new technology speeds routine transactions, some clients may be intimidated by it. This emphasizes the need for personalized service when the client is face to face with banking or building society staff.

Client relations

Today the teller's role is more critical than ever before; verbal skills to manage client interactions effectively are now required. With changing client attitudes and more institutions to choose from, the way in which client interactions are handled influences the client's attitude towards the bank as well as the image the client projects of the bank when discussing his experiences with others.

The way a person is handled also has an impact on the client's confidence in the organization and thus directly affects client loyalty.

Facing stronger competition

Financial institutions were previously less concerned with promoting their services. However, in recent years, marketing has

become more important because banks and building societies are in more direct competition with each other regarding clients and particular services offered, for example the provision of home mortgages.

There is a growing acceptance of the new role employees will be required to play in marketing and promoting company services.

In South Africa bank employees receive monthly salaries. They receive no commissions (although some banks are moving towards payment of commissions), few have quota's and even fewer are managed in the manner of conventional sales forces.

Financial institutions may want to become more active in their marketing yet still maintain that personal touch to give them a competitive edge.

Cost control

As the cost of processing and clearing cheques and other transactions rises, cost control plays a bigger role in improving profits and offering competitive rates. Financial institutions are looking for ways to motivate their employees to find new cost control solutions and to take the initiative in solving productivity problems.

Pressures with regard to change

New pressures, new strategies and new procedures can disrupt productivity and increase employees' stress. Since tellers and other employees are asked to liaise with clients, anxieties can increase. Branch managers are challenged by the dual role of increasing staff productivity and marketing services to valued customers.

Managing sales and marketing functions

Managing marketing is something new to most banks and building societies. Additional skills are required and managers need to understand how to monitor and control the sales and marketing of banking services.

TRAINING

Training can help introduce programmes that reduce control costs, tackle the competition, improve client service, boost the bank's image and raise employee morale.

Up until recently most banks and building society tellers and managers received little or no formal training in sales and marketing techniques and client relations. This however is now changing; training programmes are beginning to include the development of better interpersonal skills. The following are important considerations for a training programme which seeks to develop these skills.

Improvement of teller communication skills

Many leading banks are turning to training companies to provide their tellers with the skills they need to handle a wide range of client problems and marketing of additional services.

Tellers need to know how to handle the increase in client questions, problems, and concerns and turn these into opportunities for added business for the bank.

Tellers who know what questions to ask, the best way to communicate information, and the most personal way of showing concern, are the ones who can provide clients with rapid, problem-free banking and full use of the services on offer.

Improvement of customer service

An important way to enhance the bank's reputation is to provide good telephone client services. What is needed are programmes to give bank personnel the communication skills necessary to provide a quality service over the telephone which can satisfy clients.

Improvement of over-the-counter service

Since automatic teller machines (ATMs) are being increasingly used for routine transactions, bank tellers will therefore need to deal more with problems, dissatisfaction and queries of clients rather than with routine transactions. Therefore banking staff need training in effective interpersonal skills.

It is also important to provide training in face-to-face interpersonal skills to other bank officers, who deal with client problems that tellers cannot resolve.

Promoting other bank services

As banks of all sizes add new services, for example tax advice, insurance facilities and home loans to meet the competition, tellers and other employees must be adept at promoting these services. Training can help to develop the skills required to inform clients of new services when these people come into the bank for advice on other matters. For better utilization of a broader spectrum of services it is necessary to take into account those other services in which a client might be interested.

Change of attitudes of employees towards accepting a marketing role

There may be fears, anxieties and biases on the part of bank employees that result in resistance toward accepting a marketing role. Training programmes that make use of principles of attitude change may allay some of these fears and anxieties.

Client needs

An emphasis on understanding client needs should help to overcome fears and anxieties. Training which focuses on how the bank can help the client, allows the employee to see his new marketing role from the client's point of view. The bank employee is offering the client a service or services that will benefit the client. For example a sales manager may have trouble in convincing branch managers and counter personnel to talk about their new, long-term investment services to clients. Employees may feel uncomfortable when introducing new services to clients who do not specifically ask about them. As a result the new service launch may suffer if attitudes have not been adapted to accept selling as part of the role of banking, and if the bank employee is not aware of the needs of the client.

Training could help the sales or marketing manager to increase employees' product knowledge. He could instil confidence in employees so that they take account of client needs, and then help them to overcome their reluctance to promote new banking services.

Reduce costs

Computerization requires the introduction of new control processes to ensure that efficient use is made of new technology and to cut costs. Bank supervisors directly oversee day-to-day operations; therefore they can help to cut costs if they are trained to recognize and correct many time-consuming, labour-intensive, unnecessary procedures that can be followed more efficiently by using computers.

Supervisory skills

New technology requires further change in the training of supervisors because their functions are different now. Training can help by showing supervisors how to involve others in problem

solving, how to provide performance feedback, how to communicate assignments, expectations, and rationale, and how to listen to personnel and to understand their points of view. These skills may lead to a behaviour change that may have a positive impact on the organization. In this way the supervisor can help to bridge the gap between fears that the computer is taking over some of the functions of bank employees, and the reactions of personnel who may feel threatened.

CONCLUSION

Banks and building societies face tremendous change in the coming years. This will create extreme pressures on existing staff and much work will need to be done to develop new skills and change attitudes to that they can cope with their new roles. Training which focuses on building interpersonal, marketing, communication and client relations skills and also aims at increasing efficiency and cutting costs is a very important part of the solution to easing tensions caused by the introduction of high technology in banking.

HOW EDUCATIONAL REQUIREMENTS AND EXAMINATION SYLLABI ARE CHANGING AS A RESULT OF THE INTRODUCTION OF MICRO-ELECTRIC TECHNOLOGY IN THE BANKING SECTOR

Jean Appleton*

INTRODUCTION

Since 1904 when the Institute of Bankers in South Africa was first established its prime objective has been to stimulate interest in higher education among bankers and to promote banking as a profession. With the increasing use of technology in banking, the fulfilment of this objective has become more challenging and more complex than ever before. Not only do the direct needs for computer-oriented education have to be met, but also, the indirect demands for a more educated, motivated labour force. Bank employees from all ranks, are now performing fewer routine but more varied tasks than previously. Scope for self-development and promotional growth in the banking profession is the greatest it has ever been. The educational level of bank employees must be upgraded and expanded before they can realize their full potential.

"CAREER 'VERSUS' SERVICE STAFF"

At present, out of a banking staff of approximately 80 000, only half are considered to be "career staff". These employees generally have a matriculation certificate and sometimes a degree. Graduates tend to write the examinations for the advanced Associate Diploma, soon after joining the bank and progress to managerial positions after only a short period of time. For matriculants the path to the ranks of management is slightly longer, but for those who are motivated and obtain their banking qualifications starting with the Licentiate Diploma and then progressing to Associate level, a managerial position is fully attainable.

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*The Institute of Bankers in South Africa

The remaining 40 000 bank employees tend to comprise tellers, clerks and machine operators. Although these positions are sometimes regarded as the starting point in a career in banking, all too often staff tend to occupy more or less the same positions. A motivated staff member at this level could progress by starting with the Certificate Course before attempting the more advanced diplomas.

TWO-PRONGED APPROACH TO COMPUTER EDUCATION

As a result of rapidly increasing computerization in banks the institute has had to review its educational framework as it applies to the two different markets, namely career and service staff.

Will an academic background in bank-related subjects be sufficient for today's or tomorrow's banker? Whilst Economics, Financial Accounting, Money and Banking, etc. are good background subjects, how applicable will they still be on a day-to-day basis, in respect of which bankers' decision-making is becoming steadily more computer-oriented?

"Career staff" are already "consulting" the computer for certain information such as the identification of target markets, for the expansion of services, cross-selling, advertising, decision support systems for personnel planning, automative productivity control, etc. "Service" staff also work closely with computers, but not on the decision-making level. It is therefore evident that there is a need for two levels of computer education, one aimed at computer literacy and providing operational skills and another providing interpretive, analytical and even programming skills for those employees and managers whose decisions are often based on computer information.

WHERE TO START EDUCATING?

Unlike training which generally follows the "from the bottom up" principle, educating bankers in computerization should start at the level where it is most needed for decision-making and analytical purposes, namely higher up on the hierarchical ladder. At this level, staff need far more insight into the workings of the computer, its capabilities and shortcomings than lower level staff. At present the banks are actively involved in computer literacy skills training for staff at the operational level but tend to be more experimental where more advanced training it required. The institute certainly has a role to play in providing more advanced and specialist knowledge in certain subject fields.

THE BEST WAY TO EDUCATE?

The introduction of a new course Information Systems to the syllabus in 1986, is a step in the direction of providing some essential knowledge of computers. However, with the speed at which technology is growing in the banks, this course is already possibly outdated. How effective will a single course be in imparting information on the computer's role in virtually every aspect of banking? A more practical and useful way of educating bankers in the role of the computer would be to introduce a computer module bar every subject of the course where applicable, for example to teach the role of the computer in Foreign Exchange, Credit Card Marketing, Management of Human Resources, Monetary Policy, Financial Method, etc.

This would obviously call for highly specialized teaching and examining staff, extensive facilities offering access to computer terminals, far more co-operation from banks in the pooling of information and resources and a certain amount of standardization in the techniques used by banks. At present, the issue of computerization in banking is highly competitive and is therefore regarded as being confidential mainly by the various banks. Any

pooling of information, resources or facilities by the banks will almost certainly be rejected until computerization is no longer a competitive issue. By then it may be too late for real progress to have been made in the field of educating bankers in computerization.

THE INDIRECT INFLUENCE OF COMPUTERIZATION

Micro-electronic technology has certainly made its presence known in the banking sector. The fields of computer education and training have grown dramatically in order to make full use of this technology. However, it has exerted a less direct, but just as far-reaching influence in the field of general education. With the introduction of computerization to the banking sector, many manual systems, previously executed by clerks have been eliminated. These same clerks are now performing fewer routine and more varied tasks than previously, and the need for upgrading their level of education has become clearly apparent to the banks, to the institute and most importantly, to the clerks themselves. The institute has experienced proof of this in increased enrolment figures for examinations and in a growing number of queries from first-time candidates who have been employed in the banks for anything up to twenty years.

Concurrent with this increasing concern for obtaining qualifications the actual subject content and the degree of penetration into subjects has also been extended and become more complex, requiring much greater comprehension. As a result, subjects that previously had no entrance requirements, now have a minimum entrance qualification to act as a filter, allowing only those students who have the ability to handle more difficult subjects. Consequently the creation of technology, far from bringing about redundancy or mechanization, has acted as an impetus to improve the educational level of bank employees and to upgrade the actual subject content required to achieve each educational level.

ALTERNATIVE METHODS OF STUDY

The education department of the institute is currently researching the feasibility of introducing alternative study methods, particularly computer-based education. At present, bankers' studies are undertaken according to a variety of methods, namely correspondence schools, technical colleges, bank classes, private study, etc. Each method has certain advantages and disadvantages, but the underlying problem is lack of uniformity in the standard of material covered and, in the majority of cases, the lack of personal interaction or tuition available to students.

In computer-based education the student learns about a certain topic by interacting directly with the computer or rather with the computer programme. Information is not merely presented, but is accompanied by an explicit or implicit task which the student is required to carry out. This task can be solving a problem, recalling a fact, applying a principle, memorizing a rule, etc. The programme can then accept the response and analyse it for adequacy. On the basis of the response analysis the programme will present new information and/or a new task, which has been designed specifically to reinforce or expand the understanding of the student.

Computer-based education is particularly suitable for institute members when one considers the students' different abilities to cope with study material. Different students need differently structured material and different support measures. It has therefore become a question of individualization of teaching. This need cannot be met by correspondence course, videos or recorded tapes, however good they may be. The support system must be organized so it can be varied depending on the subject, the course level, the specific target group and the local circumstances. Feedback cannot be pre-planned, but must be immediately available to the student. Computer-based education with its capability for interaction would therefore be the ideal study medium for the

institute's large variety of students who come from different cultural, social and educational backgrounds. (In certain subjects, for example Business Communication or Marketing, the computer medium will probably be more beneficial if linked to videos or tapes. However, if such a project is to get off the ground, it is essential that banks pool their resources and offer their full support.)

The introduction of micro-electronic technology into the banking sector has, therefore, had far-reaching consequences, both directly and indirectly. Increasing computerization had made its demands in terms of requiring adequately trained computer staff to use computer systems to their full potential. Indirectly, the most cost-effective methods brought about by computerization have created demands for more educated, motivated staff that in turn have created possibilities for improved methods of study, research and development. Symptoms of change are occurring in the actual structure of the banking industry itself, and many articles today refer to this "revolution" in banking as having been caused by information systems technology. With this "revolution", opportunities for the South African banker have grown dramatically over the past few years and will, hopefully, continue to grow with improved education, specialization and more convenient, effective methods of study.

SECTION FIVE

HUMAN RELATIONS

INTRODUCTION

In view of the changed job requirements many pertinent questions need to be asked with regard to future jobs and career paths in the banks. Issues regarding the future of the workforce are of vital concern to bank employee and management alike. Points in question include the following:

- The job-generating capacity of banks in the future
- Redundancy and redeployment
- The motivation, attitude and morale of employees
- Job enrichment or depletion
- Communication of change
- Adjustment to change

The first article in this section looks at these issues from an employees' point of view as put forward by a representative of the South African Society of Banks Officials. This society is concerned with obtaining the best working conditions possible and protecting the jobs of its members. It is therefore aware of the particular threats to its members as new technology is introduced.

The second article presents the perspective of management with regard to these issues. It describes ways in which management may approach these points in question. It also indicates some solutions to the problems which may be necessary in future.

In the final article of this section a comparison is made between the way in which the various issues are perceived by employee and employer. Ways in which to tackle the issues are presented and some solutions suggested. The importance of training in negotiation skills is also discussed. In other words, this article attempts to bring together employees' and managements' viewpoints and to bridge the gap between them.

THE INFLUENCE OF NEW TECHNOLOGY ON THE WORK SITUATION IN BANKS: AN EMPLOYEE'S PERSPECTIVE

T. Chalmers*

HISTORICAL OUTLINE OF BANKING AS A CAREER

Before we consider what has changed in banking we must first establish how banking originated.

The branches

If we look at banking prior to computerization we note that every branch of each bank was a completely self-contained unit. As you walked into a branch you would be met by the bank's frontline staff: tellers, enquiry clerks, foreign exchange clerks etc. Once you carried out your transactions, the frontline staff would pass the paper work back to the waste and ledger departments which would enter these transactions on your individual record card that was of course held at your home branch. The manager's department would be there to advise you on investments, look after your securities, purchase stock for you if required and of course, arrange overdraft facilities if necessary. The manager could conceivably have started his career in that very branch and worked in every department. The old style bank manager was an expert in every facet of branch banking.

Head office

The head offices were there to look after either regional or national issues to determine regional and national budgets and targets, decide on policy, organise, train staff and arrange transfers. In general they helped look after the staff's wellbeing. Head office staff were mainly people who had been transferred

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from the branch structure and who could conceivably expect to be transferred back to a branch if the bank wanted to do this.

Career paths

We were looking at a completely integrated workforce where people saw themselves progressing along a specific path; this workforce understood the workings of the system, could communicate between the different departments and talk to people who could identify with their specific problems in the branch structure. Banks had been established by offering a service to businesses and the general public, by looking after their financial affairs on a personal basis and doing this with professional staff who could be relied on to act with integrity. Computerization has changed this situation from the staff's point of view. The change that seems to have affected most areas is that computerization has taken a lot of the old skills and expertise away from the bank official and in many ways fragmented what used to be called a profession into a number of rather routine jobs.

THE INTRODUCTION OF COMPUTERS

Centralization

The first to feel the effect of computerization were the waste and ledger departments. These were the processing areas which were very labour intensive. These were exclusively behind-the-scences operations with very little or no client contact. Computerization has resulted in waste and ledger work being taken out of many branches and centralized in urban areas.

Today these centralized urban areas may contain as many as 80 to 100 people performing very much of a factory type operation. The data is fed into centralized systems from the branches and it is the responsibility of staff in these central areas to capture this data on the computer mainframe.

Most of the staff in these areas are data input clerks. They could be sitting behind a "high tech" machine most of their working day. The banks have in some cases reduced the educational qualifications for people who enter these occupations. They have also in certain instances told these people that they have been employed to work specifically in that field. The highest rank they can obtain would be that of supervisor of the processing area. There would be very little hope, if any, of transferring to another department or branch of the bank. These people regard their problems very much as being similar to those of factory workers. Job security becomes a prime consideration. You see small manifestations of the factory mentality that is being inflicted on them by the concern now being expressed for tea breaks to break the monotony and routine of their work.

The introduction of automatic teller machines

The staff in the branch structure are being affected differently. Computerization is deskilling many of their jobs by removing the decision-making aspects. With the introduction of Automatic Teller Machines (ATMs), the bank client now is able to withdraw money, deposit money, move money between accounts, pay accounts and get mini bank statements, without ever coming into the branch, and this service is available 24 hours a day for seven days a week.

South Africa has the highest number of ATMs per head of population of any country in the world and we are finding that out clients are also the highest users of these machines. One of the major banks claims an average of 9 000 transactions per month per ATM, with that bank having in excess of 300 ATM throughout the country. This means that a monthly average of 3 000 000 transactions are being done via ATMs in one bank. This has obviously reduced the number of tellers and enquiry clerks required in the branch structure. The computer can also check and balance input so the number of checking positions within the bank's structure has also been reduced. If we now look at the present situation we see that the

processing departments have in many instances been removed from the branch structure. The number of tellers and enquiry clerks have also been reduced, as well as the number of checking posts.

This reduction in staff has had an immediate effect on the number of supervisory posts required and it has cut down the number of senior posts for officers in charge of departments. This decrease has reduced the status of the administrative manager or accountant and therefore also the promotional prospects for the staff remaining in the branch system.

In a video made in the early 80's called "New Technology, Whose Progress" it was stated:

> "A French government report also predicts that 30 % of banking and insurance jobs will go, while in Germany and Britain it's estimated that roughly a third of all office jobs will be cut within the next ten years".

Unless management finds new areas in to which to expand - an unlikely prospect at present - these predictions for Europe could equally apply to South African banking.

Computerization of head offices

The staff working in the head office were the last to feel the effects of computerization. The computerization of the processing areas and the branch structure, although cutting down on staff, increased the amount of information which had to be processed as well as management's control over the staff that also had to be monitored. This meant that the head office area became a major growth area within the bank's system. This of course has increased the cost of running the head office and this is now seriously being tackled by management. They are introducing the new sophisticated word processors that will effectively cut down the number of typists and secretaries required. This will be accelerated by the in-

troduction of keyboards and terminals on the desks of the managerial staff within head office environments who will be able to communicate with one another, leave messages on one another's screens, and arrange appointments with one another by having access to each other's electronic diaries. All of this of course also cuts down the need for staff. The jobs within head offices are also changing dramatically with the emphasis being on the gathering of information and tighter contol. This has meant introducing specialists into the area who need no branch experience, so again our communication links, although mechanically more efficient, are breaking down at the human understanding level. A recent press report quoted from a book written by John Naisbitt called Megatrends stated:

> "By 1985, the volume of information will be somewhere between four and seven times what it was only a few years earlier. We are drowning in information, but starved of knowledge."

He was talking about computer sciences in general terms but his statement is relevant to our discussion. Our head office areas are being bombarded with information from all sides as virtually everything is being centralized. Let us hope we never lose sight of our objectives underneath all this information and become starved of knowledge.

Specialization

The jobs that have been generated in banking in the last few years are in the data processing areas. Workers in this field are a new breed of employees as far as banks are concerned. They are computer people who happen to work for banks. These people are very marketable and do not have the same loyalty to their employer that the banks are used to; their loyalty is to the computer industries. They are very aware of market rates and will not adapt easily to the rigid salary and grading structures that large companies make use of to control their hierarchical structure. They have no re-

spect for age or position and they tend to judge people by their abilities within the computer field.

We now have a totally sectionalized staff who have different needs, experience different problems, and who cannot always communicate effectively with one another. This is further complicated by the banks expansion in other areas such as the trustee division, credit card, hire purchase and leasing, marketing, real estate, travel etc. A new approach is needed to solve some of these problems. Banking has become a multi-faceted industry and we need to examine each of these facets to find the solution to each particular problem. The blanket solutions of yesteryear just do not work today.

MOTIVATION, ATTITUDE AND MORALE

Confusion with regard to computerization

With regard to computerization the banks have done very little to motivate their staff or to take cognisance of their attitude or morale. To motivate people you have to have them working towards a goal. That goal has to be apparent, achievable and with some kind of reward in sight. None of these components seem to be present in the contect of new technology. Computerization has developed so fast that management do not always know if they are getting nearer or further away from achieving their goal, if they have one. A piece of equipment that was "state of the art" five years ago can be inadequate or antiquated today. The bank's history of purchasing computers does not always inspire confidence. There were some very bad blunders in the early days because no one was completely sure exactly what a computer could do and once they had bought the hardware, they were suddenly confronted with the nightmare of designing the software. In those days programmers were a breed apart and had no practical banking experience. This invariably caused breakdowns in communication between the computer staff and their banking colleagues. It took some time for the banks' managements to establish their own expertise so they were starting out in the

computer field with very shaky foundations as far as the staff were concerned. This was not helped by the banks having to computerize different areas at different times, necessitating the development of new programmes for each area, which invariably had "bugs" in the initial programmes. It appeared to staff that management were stumbling about in the dark. Management did not help by keeping their strategy, if they had one, secret from their staff and taking up a defensive attitude regarding technology.

Problems with computerization

In the early days of computerization the computer companies persuaded people to accept the idea of a Utopian society in which every one would be working shorter hours doing less mundane jobs. Their main concern would be finding something to do in their leisure time. Companies would have increased their productivity and therefore their profits and we would all live happily ever after. This has not materialized, far from it. The capital cost of the new equipment is phenomenal and far from being a one-time purchase, it is out of date almost as soon as it has been installed. It has to be replaced or dramatically updated every 5 to 7 years. The sales pitch about shorter working hours has also not materialized. The banks are having to adapt to being employers in a more capital-intensive industry. When one spends literally hundreds of millions of rand on capital equipment knowing that it has a limited life one has to ensure the maximum benefit from that equipment. This means increasing the hours that the equipment is in use. To do that your staff are required to work shifts. Shift work is becoming more and more a part of banking life and increasing year by year.

More demands made on staff

Staff are being asked to pop in after hours and at weekends to check if the ATMs etc are still operating, or to fill them up when

they run out of money. This is after reading in the press statements by management that ATMs work 24 hours a day, seven days a week without asking for overtime or time off and can do away with human tellers. This is not good for morale or for the quality of life of the bank employees. At the moment because of the small numbers involved the banks' management have been able to limit the costs to 10 % of salary being paid to the staff for working these unfavourable hours. This will change dramatically in the near future. The recession has helped the banks in this regard in that staff have been, in the main, approached individually and have been very hard pushed to refuse to work these unfavourable hours. They see staff numbers being reduced, they hear management motivating staff by telling them that they should think themselves lucky to have a job during these difficult times, but when the economy picks up, which eventually has to occur, they will find themselves having to pay realistic premiums for staff to work shift hours. In Europe and America at the moment the average premium is 30 % of the salary but in Britain banking staff are talking about going on strike to have this increased to 50 %.

Longer working hours

We also note that banks require their staff to work longer hours. In South Africa we saw this in Wednesday afternoon banking which was an attempt to get longer working hours out of bank staff. In the UK where the banks have been closed on Saturdays since the late seventies we have seen a major move towards Saturday opening from Barclays, Lloyds, Natwest and T.S.B. with Midlands Bank scheduled to open at the end of '85. They are not doing this by employing more staff which would cut down the unemployment in the UK, but by getting the existing staff to work longer hours.

Overall effects

So all the idealistic predictions about workers finding new things to do with their leisure time and management seeing increased pro-

fits have not come to pass. The increased productivity may have been achieved, but it has not produced increased profits and this results in management being seen by the workers as using more stick than carrot to motivate them. This is starting to cause a backlash. The banking industry which had been so stable during the sixties and seventies is becoming very volatile. Staff no longer feel secure in their jobs. They are not completely competent using the new technology. Management are feeding this insecurity with statements like "we don't owe our staff a living". "This was never required to be said before, why now?" ask the staff. The staff can no longer resign from the banks' service because of the recession and go elsehwere, so frustration is building up which will cause a new militancy amongst bank staff. We saw this in part by the staff's of Barclays and Standard Banks over the Wednesday afternoon issue.

Need for communication

Is there a way out of this apparent vicious circle? Some people think not. The American multinational XEROX has made a training film called the LUDDITE FACTOR. In this film they state:

> "In England, organised bands, known as Luddites, smashed the hated machines, and rioted. To no avail. Their only legacy is their name. Luddites. The resistance to change, overt or otherwise. The Luddite factor is indeed tenacious. Like the earlier Luddites, there is an impulse to turn against the new technology. To strike back. And yet for most business organisations it is not a matter of whether but when".

Very depressing, but it is felt that some of the sting can be taken out of this if management and workers can communicate with each other. If we can give some advice to management: When you talk to the press about your new technology, remember it is not just your clients and your opposition who read the papers. So do your staff. Keep references to reducing staff costs and robot efficiency down

to a minimum. Do not insult your staff in articles in the press. Secondly and perhaps most importantly, all the major banks today have very sophisticated marketing facilities. They spend comparatively large amounts of money marketing themselves and their products to their clients but spend very little if any time or money marketing themselves to their staff. At the end of the day new technology does not generate profits; it cuts down running costs. Profit is still made by the banks' employees. The employer who does a good job selling himself to his staff is going to be in a far better position to weather the storm.

JOB-GENERATING CAPACITY

The ability of the banks to create new jobs is at this time very suspect.

Since the late forties the SA economy has continually expanded. This meant that more bank clerks were needed to deal with the higher volumes. In the sixties as computerization was being introduced, the banks were expanding their operations into other areas, such as the trustee division, credit cards, hire purchase, leasing and insurance. This created new jobs at a time when the first effects of computerization were being felt. The situation now is very different. After having increased their staff to take over these new operations the banks have found that some of these new areas are not as profitable as they had imagined; trustee and credit cards are examples. The banks have also recently forged closer links with insurance companies and have handed most of their business over to them. All of this is happening at a time when the effects of computerization are really starting to be seen as far as staff reductions are concerned. The compounding effect of these policies does not augur well for the job-generating capacity of the banking industry at this time.

LACK OF COMMUNICATION OF CHANGE

This is one of the major problems of the introduction of new technology. As the major banks see the type of equipment that they are buying as having a strategic importance in their fight with their competitors, this information is kept top secret. Once the equipment is bought and installed the capital costs are so astronomical that the banks do not want to hear any adverse comments and consequently they do not ask their staff for their views.

This is a very sad state of affairs and shows that management who are experienced in running labour-intensive service industries do not appreciate the problem of running capital-intensive industries. Unless the workforce support you in the use of new technology, you will not get the productivity out of it that you expected. If you are not prepared to communicate with your workforce in order to allow them to express their fears, how are you ever going to allay these fears?

REDEPLOYMENT AND RETRAINING

Advantages of existing training facilities

One of the big advantages that the banking industry has had is that it has been at the forefront of technology for a long time from the advent of the adding machine and the Burroughs accounting machine up till now. This has meant that the bank and the staff have been constantly adapting and updating their procedures almost from the inception of banking. This also meant that the major banks had the training infrastructure available to train staff to adapt to the new technology.

Problems

Criticism does come from the staff that this training is not adequate, but when one considers that each bank is constantly trying

to get some advantage over its competitors by bringing in state of the art technology, how can an employee ever get a chance to consolidate his training? What is becoming of great concern to certain sections of the workforce, especially people over 45, is that management tend to label staff as having "resistance to change". This may or may not have relevance in other industries, but it certainly does not apply to banking. Bankers constantly have had to keep up to date in their industry to survive. Above a certain age, it might take longer to learn new skills than younger staff, but all staff should be given the opportunity to adapt to the new technology.

Redeployment

Redeployment has specific problems in banking in that we are not talking about 20 000 employees in one plant or area moving from one department to another. Banking is a national institution in South Arica and the employees are scattered throughout the country, thinly in the country areas and more thickly in urban areas. Although rationalization has occurred this was only in the large towns and does not appear to have been very successful where it has been tried.

JOB ENRICHMENT OR DEPLETION

It is difficult to judge at this stage of computerization in banking whether jobs have been enriched or impoverished. The only field that has been computerized for some time is that of data input. Nobody could say that this field has been enriched by computerization. It appears that one routine procedure has merely been replaced by another that is just as monotonous. The data processing fields in the city branches have almost entirely been removed from branch banking. The machinists concerned have little chance of enriching their jobs by moving into other departments as bank officials working in other areas can. The banks are dropping educational qualifications for the data processing field and staff are

now being told that they are being employed specifically to work as data capture machinists.

Computerization of the other areas in the branch has been too recent for one to be able to judge whether these jobs will be enriched or not. There is still a novelty value attached to working with a keyboard and a terminal rather than with pen and paper; one will have to wait and see whether that novelty value wears off.

Knowledge, judgement and accountability were some of the facets of jobs in the branch which have now been taken away by computerization. What has become apparent is that staff do not need to have as many human checkers as before as the machine can do a certain amount of the balancing for them. These checking positions were part of the job grading and promotion process for staff at junior levels. With the advent of computerization one wonders where these staff will move to now?

HOW BEST CAN EMPLOYEES ADAPT TO CHANGE?

This is like asking a person in deep water how best can he stay alive. The answer is the same in both cases. Employees must learn to swim or else they will sink. The employee is at this moment not in control of events. The employer is the one who is buying the new technology and insisting that his staff use it. The employee has to make up his mind that from now on his career will be determined by how fast he can learn and continue learning. In future we will not find a situation where a person will learn a trade or a skill and that skill learnt at the beginning of their career will see them through to their retirement. In future the ability to adapt and learn will determine whether you will be employed or are one of those discarded by the new technological age.

REDUNDANCY

The banking industry does not have a redundancy policy at this time. Over the last 30 years the SA economy has experienced continuous growth, and so staff shortages tended to be the major problem in banks. Banking has always been aware of the need to train staff efficiently, so bank clerks were never short of job offers from outside their industry. This changed very dramatically in the early eighties; the effect of the recession combined with cutting back on certain services by banks and the full effect of computerization have occurred at the same time. The effect of the recession is that staff turnover has dropped dramatically. Staff turnover was traditionally a temporary relief valve for the industry in times when consolidation was necessary. Taking this relief valve away has caused the industry major problems, but to introduce a redundancy policy could be viewed by the general public as a lack of confidence on the part of the banks's managements of their ability to recover, so it is doubted if any management would want to do that at this time. The unions for their part no longer see redundancy payments as a solution to the staff problem. With high unemployment worldwide, unions are now looking to retain staff within their industries rather than have them discarded through redundancy agreements.

Computerization has been responsible for a form of "redundancy" however, in that many traditional skills have become redundant and bankers' acquired expertise and the attendant prospects for advancement have become eroded with computers taking over many jobs.

CONCLUSIONS: BANKING "QUO VADIS"?

The future of banking internationally has never been more vulnerable. With the advent of the computer the banks took the lead in the use of this equipment. Banks realized that there was a vast amount of information about their clients and their accounts that could be stored and used. This helped them move from the narrow

field in which they had traditionally operated into any field that involved monetary transactions. Unfortunately the banks did not have a monopoly on computers and as more organizations moved over to the new technology they also realised that they had access to the same information that the banks had and they found that they could start offering the same services. The prime example of this is the giant Sears Roebuck empire. This was America's largest retailer; 128 million Americans shopped in the Sears stores in 1984 and 40 million of them held Sears credit cards. They have moved into insurance and real estate. They own the fourth largest banking firm in the States. In Britain we are now seeing Marks & Spencers issuing its own credit cards and it is hoped there will be 1 million in circulation by the end of 1985. British Home Stores have launched a pilot scheme in one of its stores: a "money centre". The House of Fraser has opened a department called Fraser's Financial Services and some of these retailers are also offering cheque-cashing facilities. Some of these innovations are already taking place in South Africa. We have seen Dions opening up a department to organize financing of large purchases and you can already cash a Nedbank cheque at a Dions till. With the advent of the Point of Sales Electronic Funds Transfer (POSEFT) more and more conflict will arise between the banks and the retailer as to who is going to pay for the service. Already in South Africa certain retail chains have stated that they will perform these tasks alone in this field. Other industries with large mainframes are also looking to see how they can be fully utilized.

General Motors (GM) has recently hired a computer software expert in America, to assist them in the fight against Japanese car manufactures. He has put forward a plan which could reduce the GM workforce from 750 000 employees to 120 000 employees. The project has been nicknamed Star Trek. From our point of view the computer mainframe required to oversee such an operation would still have lots of capacity and GM are considering entering the field of finance, insurance etc. Recently the GM financial section has been expanding into mortgage rights services and now GM is the nation's

second largest mortgage company in America. This has prompted speculation that Star Trek might be heading in the direction of one-stop financial shopping, complete with credit and debit cards. Anyone with a large computer mainframe and an outlet source can now be seen by the banks as a threat. The banks are retreating from the new fields that they expanded into in the sixties and seventies. They are desperately trying new ventures but they do not always have the necessary expertise. In Britain they are buying into real estate companies, stockbrokers, insurance companies and building companies. Some of our local banks are following their lead and not always with pleasant results.

Computerization has become a Pandora's Box for the banking industry. Having introduced computers into banking, banks have deskilled the labour force and put all the banking systems on software packages. This has made them completely vulnerable to outside attack.

The banking industry overseas is at a stage where it is going back to its roots, branch banking. Improving the customer service in that area, in effect shoring up its foundations to make sure it has the strength to take the pounding that it knows is on its way. Will South Africa follow suit? Only time will tell.

THE EFFECTS OF TECHNOLOGICAL CHANGE ON BANK EMPLOYEES: AN EMPLOYER'S PERSPECTIVE

A. Sutton-Pryce*

INTRODUCTION

The impact of technological change on the personnel resources function and staffing in general is one of the most talked about subjects in banking circles today. It has therefore become imperative that personnel strategy is at the centre of the strategy of the company as a whole. The technological changes have accentuated the strategic role of the personnel resources division and senior management within this division will have to fight within the company to get this point of view accepted.

New technology has been introduced into banks to improve efficiency and customer service. However, this technological upheaval must not only be looked at from the technical implication point of view but in fact the personnel aspect should be considered prior to the computer aspect. Unfortunately this has not always been the case and senior management within human resources divisions have been left to make certain assumptions. In particular this is being done by drawing on the experiences of overseas banks.

JOB-GENERATING CAPACITY OF BANKS IN THE FUTURE

Specific forecasts of the job-generating capacity of South African banks in the future are difficult to make. However we can draw on the experience of a study by the UK's Institute of Manpower Studies (IMS) which examines employment prospects to 1987 in insurance, banking and building societies. In this study, the IMS examined

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the experience of 51 banks which collectively account for 90 % of the UK banking industry's employment.

The technological changes in UK banks have taken place in phases with the second phase starting in 1971 and still continuing. ATMs and terminals performing "back office" as well as "front office" functions are being installed and on the clearing side, Society for Worldwide Interbank Financial Telecommunications (SWIFT) was introduced in 1977 and the electronic clearing system known as the Clearing House Automated Payments System (CHAPS) came in in 1984. Both output and employment have continued to grow during these initial technological phases, although there has been a change in the type of employment.

The report of the IMS states that:

> "An assessment of the collective impact of all technologies shows no outright job losses but a major compositional shift away from clerical staff towards other occupational groups, such as managerial and skilled computer-related occupations. Directly or indirectly, continuing growth in business has moderated the impact of new technology on employment."

The forecast in the study is dependent on likely developments in three fields:

1. Future business prospects/market environment.
2. Branch rationalization.
3. New technologies in the future.

The study concludes the following:

- To date new technology has complemented staff growth. Staff numbers have consistently increased due to business growth, assisted by rising market penetration and the availability of new services.

- However, over time, as business growth has accelerated, there has been a deceleration in the rate of increase in staff numbers.

- This deceleration will continue because of the slowdown in the rate at which the demand for banking services is growing, branch reorganization, more innovations and competitive pressures from non-banking institutions, such as building societies and department stores.

- By 1987 staff growth in the UK banks might well have reached a peak and will start to level off.

In South Africa we have followed a similar pattern. From an employer's point of view the introduction of new technology into banks has been inevitable. More and more the success of a bank will depend on its ability to devise new services and sell them aggressively. New technology assists in this process and without it there could be a drop in market share and a corresponding loss of jobs.

To predict the future numbers of jobs in banks is difficult as this question is inextricably linked to the state of the economy. In the present political situation there are too many imponderables and estimates are difficult to make. However, similar to the UK banks, there have been no outright job losses in the major South African banks but there has also been a shift away from clerical and administrative jobs to more marketing, technological-related and managerial jobs.

We can therefore expect a reduction in the demand for unskilled and semiskilled labour but an increased demand for skilled employees for whom, even in the current recession, there is a demand.

With this switch in skill requirements banks are going to need new recruitment strategies for the future. More graduates and special-

ists will have to be recruited and due to the shortage of this category of new recruit, the introduction of new technology is not expected to be as rapid as some banks would like.

Another important factor will be growing competition amongst the banks and competitive pressures from non-banks. Although technology is eliminating the potential for new clerical and administrative jobs, the diversification of banks into other financial services will create new jobs in other fields. There should also be an increased demand for banking services. At present the majority of black South Africans do not possess a bank account. If they are brought more into the economy in the years to come, the potential for banks to expand their services into the Black market should increase. To do this, more marketing staff will be required and technology will have an important role to play if the required financial services are to be provided.

With regard to unskilled workers we have already seen the introduction of coffee machines into certain bank office environments and an increasing tendency to utilize outside cleaning/servicing companies rather than hiring one's own.

In conclusion, the job-generating capacity of banks in the future will depend to a large extent on the state of the economy.

REDUNDANCY

Historically banks in South Africa have seen growth in staff numbers both in economic upswings and recessionary times. Banks have provided life time employment and have been seen as stable, secure employers.

However, with the advent of new technology it is imperative for both the protection of the employer and the employee that redundancy procedures are negotiated with representative trade unions. It is management's responsibility to balance the manpower levels

with the demands of the market and changing technology. There is no prescribed legislation regarding redundancy in South Africa. Any form of redundancy must not be classified as an unfair labour practice or a substantive unfair dismissal in terms of the Labour Relations Act. In the latter regard the Industrial court defines, through its decisions, what it regards as unfair and would question whether the alternatives to dismissal have been pursued.

In the immediate future banks should not have to consider redundancy as there should be sufficient natural attrition and redundancy can be avoided by putting a stop to the recruitment of all new employees except those who are essential. Other methods of avoiding redundancy that could be considered are:

- Voluntary early retirement
- Eliminating overtime
- Redeployment
- Retraining
- Reduced working hours

In Europe fear of loss of job security, changes in working conditions, health and safety, job content, and training have led to trade unions developing strategies for securing adequate protection for their members. Banking Insurance Finance Union (BIFU) in the UK has been attempting to sign agreements on the introduction of new technology with the banks but has received little co-operation from the employers as the introduction of technology is still seen to be management's prerogative.

Should redundancy become necessary in the future, then the banks will have to ensure that they consult with the recognised representatives of their employees. It will also be important to ensure that fair criteria are utilised for selecting those employees to be made redundant once all alternatives to redundancy have been explored. To avoid misinformation and misinterpretation of information, the aspect of counselling will have to be addressed. It

will also be important to pay considerable attention to the morale of those employees not made redundant.

In South Africa average salary increases have increased at a much faster rate than productivity, and trade unions should be made aware that if salary costs and fringe benefit costs continue to escalate, then banks are likely to invest in furter technology to replace jobs. However for the foreseeable future natural attrition should restrict the need for banks to implement a policy of redundancy but it is still advisable for them and trade unions to negotiate a formal redundancy procedure.

TRAINING, REDEPLOYMENT AND RETRAINING

If banks want to retain those employees displaced by technology, then the personnel resources function will need early warning to address the issues of redeployment and retraining. It will be necessary to upgrade the skills of those personnel who show an aptitude for more responsibility either in their existing department or in a different department altogether. As Epstein (2) states, this is a two-way process and requires efforts on both the part of the banks and its employees.:

> "While the employer is required to explore all reasonable possibilities of redeployment of displaced employees in his organisation or elsewhere, the employees are required to show flexibility and mobility in adapting to changes, and to accept retraining or relocation where necessary."

To achieve this banks will have to develop new training strategies to cope with the change in training and retraining needs:

- Computer-based training will assist in the retraining process and will also expose employees to the new technology. Computer-based training also lends itself to use by those employees with lesser skills and education. This type of training is

carried out at one's own pace and time and therefore has distinct advantages over the classroom environment.

- Computer-based training is satisfactory for systems training but banks will need to increase the interpersonal and selling skills of its staff. Bank staff will become more and more sales-oriented and therefore more emphasis will have to be placed on marketing-related and client-relations courses.

- Training in new foreign exchange technology.

- Technical training to increase computer literacy. One of the greatest impacts of technology on staff attitudes is fear of change. An increase in computer literacy among employees will assist in allaying their fears.

- Strategic training will also have to be provided to senior management to provide them with the ability to consider the future.

Training/mobility/new skills will be important for future careers in banks as there will be very few simple tasks to offer.

With the number of Black employees in banks increasing substantially in the years to come, one of the challenges of management will be to bridge the educational gap which may worsen with the new technological demands. As has been mentioned previously, computer-based systems training in banks should assist in this regard.

JOB ENRICHMENT OR DEPLETION

The implications of technological change are far reaching and likely to cause significant changes to the working content and environment of bank staff. Employees will have to adapt themselves to changes in the nature of their work, work organization and procedures.

For example one of the objectives of branch rationalization programmes is to remove the routine work from branches to a centralized environment where suitable equipment can be introduced to improve efficiency and customer service. Branches of the future may also be equipped with machinery to handle the work currently carried out by low-grade staff. Staff productivity should increase as the staff previously carrying out the routine work can be trained in more productive areas and this should require less supervision.

With the removal of a number of routine tasks the majority of remaining jobs should require more responsibility and there will be a greater need for judgement/decision making. This should enhance the effectiveness of jobs and job satisfaction. Technology is also enabling officials to do a better job as they now have more information available and can therefore make better decisions.

Technology has also improved the quality of life of the majority of employees. Previously, month-end/year-end work required lengthy hours of manual work to try and balance accounts and complete returns. This type of work is now carried out in the normal course of business by the computer.

Some jobs for example teller, enquiries clerk, secretary etcetera are changing due to the introduction of more advanced technology. Word processors are enabling secretaries to improve their efficiency/ accuracy and therefore to spend more time on secretarial duties and acting as personal assistants.

The introduction of Automatic Teller Machines (ATMs) and Computer-Assisted Teller Services (CATS) have also changed the roles of tellers and enquiries clerks. They are now not only expected to process transactions but to recognize the sales possibilities and become more marketing-oriented.

NEW CAREER OPPORTUNIES

Technological changes are also providing different career opportunities. Traditionally, within the banks, there has been a split between those employees categorized as "job staff" and "career staff". The future accent will be on career staff and therefore the opportunities for advancement should be greater.

There will now have to be different career planning for different categories of jobs and career paths will have to take new technology into account.

A company environment with repetitive tasks, centralized decision making and limited opportunities for advancement tends to have a higher potential for conflict. New technology should therefore reduce the potential for conflict and accordingly have a positive impact on staff turnover within the banks.

HEALTH AND SAFETY IMPLICATIONS

One of the aspects not yet considered are the health and safety implications of new technology. Trade unions in Europe, as part of their procedural agreements with banks include provisions to maintain adequate work environments and to protect their members' health and safety. One matter that has not been given much attention so far is technology stress which in the future could become a major problem for banks.

According to Thomas F. McDonald, President of Transition Associates in La Jolla, California, technology stress is defined as "problems that individuals experience in work or personal relations due to computers". McDonald believes that employers can assist employees to cope with this stress by:

1. having counselling programmes in place;

2. having an internal communications programme to show the stress in a positive light; the new technology should be seen as an opportunity to learn new skills rather than in a threatening light which leads to insecurity and is the most common form of stress.

Banks are generally concerned employers and are well equipped to handle the health and safety problems of the future.

MOTIVATION, ATTITUDE AND MORALE OF EMPLOYEES

Technological change has made it even more important for banks to be able to motivate their employees. Greater consideration will have to be given to personnel management at all levels and therefore management development programmes in banks will have to include modules on how to manage people. Previously a good technical banker was promoted to the position of bank manager whereas now it will be more important to:

- have the ability to motivate employees;
- manage the process of change;
- communicate goals and strategies to employees; and
- have leadership qualities.

Improved technology will be one of the tools at his/her disposal.

The attitude of employees to technological change is vital as productivity depends in part on employee acceptance of the change. The personnel divisions in banks have an important role to play in motivating the work force.

Liz Pollard, a consultant employed by Hewlett-Packard, believes that an important method of raising employees' morale is to prepare for the introduction of technology through an internal public relations plan. "This plan should aim to inform, educate and persuade" employees about the new technology. It is important for

staff members to understand the basic motives for the change, i.e. improved service to clients, productivity and profitability. However, for the employee attitude to be favourable it is important for them to see some benefits of the new technology:

- For example improved profits should lead to better conditions of employment.

- Employees should be able to take advantage of the technology to improve job satisfaction.

- With the restructuring of jobs and an upgrading of skills, job evaluation systems should take account of these changes to ensure the correct salary scales, as financial recognition can assist in the motivation process.

- Non-financial recognition of employees is also important in encouraging a positive attitude to change.

Technology can assist in raising morale of employees by using various personnel systems to improve working conditions. For example

- computer-based performance appraisal,
- succession planning,
- portfolio analysis,
- manpower planning,
- skills inventory,
- personnel services such as payroll, loans services etc.

may assist the banks to identify, develop and motivate the right people.

The technological change will make it increasingly important for banks to measure the attitude of their employees. Regular staff attitude surveys and industrial relations audits will assist in this regard.

COMMUNICATION OF CHANGE AND HOW TO HELP EMPLOYEES ADJUST TO CHANGE

How technological change is communicated to employees is crucial in influencing its acceptance or rejection. Research carried out in the UK has revealed that bank staff who adapt easily to change have been exposed to these changes. Communication will help to reduce the fears of employees, but bank staff need regular and effective knowledge of existing products, new products, systems and technological developments.

Various methods can be utilized to communicate these changes and help employees to adjust:

- Videos.

- In-house publications.

- Team Briefing (briefing groups). Team Briefing is a structured approach to internal communication and helps to keep staff members fully informed of developments within the company and to prepare them for changes.

- Training and retraining (both "on the job" and "off the job").

- It is also a good idea to use employees to try out new financial services prior to their being offered to clients. This not only exposes employees to the changes but means that client contact staff are better equipped to sell the services to the public. Examples would be:

(a) Ensuring that all employees are issed with ATM cards.

(b) Ensuring staff members' ATM cards are encoded for use at other financial institutions.

(c) Cheque truncation on staff accounts.

- Technological change also lends itself to quality circles and resources management type programmes. Employees who participate in the change-making process are more likely to co-operate and employees are often able to contribute to saving costs by suggesting improved work methods/procedures.

Bank employees need to be involved in the process of change and communication; they can assist in helping others to see how technology can make their job easier rather than seeing it as a threat.

Education in schools today caters for computer-related education and the challenge to management is to assist those older staff members to adjust to the change. Banks will also have to develop a new generation of top managers less resistant to change, as part of the necessary process of gradual adaptation. As Heckler of Continental Illinois National Bank and Trust Compnay of Chicago puts it:

> "People do adapt and respond to change, but it takes a lot of patience and some understanding to do things differently."

CONCLUSION

Successful banks of the future will be those that can provide low-cost attractive financial services. In order to achieve this technological change is essential and we can therefore expect an acceleration of these changes.

The changes will affect all bank employees and personnel divisions within the banks will have to plan accordingly in order to make the transition as smooth as possible. To achieve this human resources strategy will have to be at the centre of the strategy for the company as a whole.

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TECHNOLOGICAL CHANGE AND LABOUR-MANAGEMENT RELATIONS IN SOUTH AFRICAN BANKS

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INTRODUCTION

The impact of technological change on industrial relations in the banks has become an important issue in South Africa, particularly as the economy has slumped and unemployment has increased. A cross-section of occupations have been affected and as with all change the impact will be felt more by some than others as a result of the changes in skills required. Management, trade union representatives and employees will have to deal with the structural, social, economic, psychological and industrial relations changes.

From the employer's viewpoint the introduction of new technology into banks is inevitable to enable it to devise new services in order to retain or improve its market share and thereby avoid a possible loss of jobs (Sutton-Pryce 1986).

Employees will naturally be concerned with job security and the effect on old skills. There is also concern over the deskilling effects on the labour force through the introduction of computers (Chalmers 1986).

This paper will not concern itself with the debate on the desirability or otherwise of technological change, but accepts technological change as a continuous process that is unlikely to be abandoned. Technological change has to be dealt with by both management and trade unions whose perceptions, attitudes and responses to the related issues will have a major impact on the industrial relations climate in the banks at branch, regional and national

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level. In the absence of a generally accepted analytical framework for industrial relations and technological change, collective bargaining strategy and the perceptions, attitudes and response of management and the trade unions are significant. This paper juxtaposes management's point of view (Sutton-Pryce 1986) with that of the trade union (Chalmers 1986) and then makes suggestions for a negotiation strategy.

FIELDS IN WHICH PROBLEMS MAY OCCUR

Job-generating capacity

The introduction of computerization coincided with an expanding economy and banking operations in other areas, thus creating new jobs in the banks and an increase in staff numbers. Although there have been no job losses in the banks it appears that management's strategy will be a shift in emphasis from clerical and administrative jobs to marketing, technological and managerial related jobs. From the unions perspective it appears that some of the banks' operations will be taken over by other institutions. The changes in skill requirement are a concern for union representatives as this affects their members, particularly older ones who have difficulty in acquiring new skills. Furthermore unions are aware that if it had not been for the introduction of computers, the growth in banking operations would have resulted in an even greater number of new recruits in banks. Although computerization creates new jobs in that new skills are required, it does not increase staff numbers. The trade union is sceptical about the banks' ability to create new jobs.

Motivation attitude and morale

The workers felt that very little has been done to motivate staff or to take cognisance of their attitude or morale. There appears to be no apparent, achievable rewarding goal. Expectations of shorter working hours and increased productivity that would benefit

employees are perceived as not having materialized. Instead working hours and shift work have increased because of the increase in time that new equipment is in use. As a result of the recession, job security has become a major concern for employees. Management has not yet dealt with these issues.

Job enrichment or depletion

Management's and the trade union's perceptions appear to differ on the job enrichment potential of computerization. For the employees in the data input area it appears that one routine procedure has been replaced by another one that is equally monotonous. Other fields that have been computerized recently according to the union still have a novelty value making it difficult to assess its enrichment potential.

Management on the other hand predicts far-reaching changes such as less routine tasks and more responsibility which should enhance effectiveness of jobs and job satisfaction.

Redeployment and retraining

The rapid change brought about by the new technology is perceived to cause problems in keeping up to date particularly for older employees. Redeployment is a specific problem because of the branch structure of banks. This does not involve moving from one department to another but possibly from one branch to another. Although the banks have the infrastructure to train and retrain staff to adapt, new training strategies have to be developed to cope with the changing needs.

Redundancy

Management does not perceive redundancy to be a problem at this stage as this is avoided by natural attrition. Redundancy procedures, to be negotiated with trade unions, are becoming necessary

for the protection of the employer and the employee according to management.

From the employee's perspective a form of "redundancy" has taken place in that traditional skills have become redundant. The union sees retraining rather than redundancy payments as a solution. The union, however, does not anticipate management's perceived need for a redundancy policy that it feels will be viewed by the public as a lack of confidence in the bank's management.

Communication

Management and union alike see the need for communication on technological change to reduce employees' fears and influence its acceptance or rejection. It is felt by the union that management should, in addition to marketing their products and themselves to clients, market themselves to the staff as well.

STRATEGIES FOR CHANGE

Challenges

Technological change in banks has confronted management and employees and their representatives with new challenges and relevant strategies have become necessary to cope with the potential conflict situation.

As is the case with all change, in order to be successful and to reduce the conflict potential, all the parties affected have to be involved. Careful planning, consultation and agreement between the parties, in this case management and employees' representatives, are essential for the successful implementation of new technology.

Both management and the trade union recognize the need for communication to ensure the acceptance of technological change by employees. Not only are employees more likely to support change if they

participate in the process, but they can contribute to saving costs and ensure maximum production.

South African trade unions have only recently shown concern over the effects of new technology. According to Dlamini (President of FOSATU at the time), on the question of accepting automation, they "were caught napping by it." Now that they are aware of what it may do to workers' jobs they are demanding that companies notify the unions when they intend introducing new machines. If companies claim that it is a management prerogative, according to Dlamini, they are risking unrest (Leadership SA 1984-1985 : 9).

The following are three examples indicating the trade unions' response to technological change. In 1983 the South African Boilermakers' Society, after issuing a warning from the International Metalworkers Federation on the problems of new technology for trade unionists, formulated a number of demands including improved working conditions and union participation (Suchard 1985 : 10).

In the same year the South African Society of Bank Officials' concern over the introduction of automatic tellers led to the formation of a subcommittee on automation to serve as a watchdog for their members' interests and to persuade the banks to take the union into their confidence on forward planning (Cline 1984 : 4). The union has also commissioned a study on the effects of new technology on employment in the banking and building society (Suchard 1985 : 10).

Ben Nicholson of the South African Electrical Workers' Union has proposed a model technological agreement in line with the international experiences of workers' participation in new technology to ensure participation of workers in the change and thereby minimize the negative effects of new technology on workers (Cline 1984 : 4).

Solutions

It appears to be generally accepted, particularly by trade unionists, that participation by workers is essential to ensure the efficiency of new technology as was emphasized by a commission on new technology in its report to the European Economic Community (EEC; Cline 1984 : 4).

In its study "Collective bargaining and the challenge of new technology" the International Labour Organization (ILO) identified three broad approaches to meeting the effects of new technology (1) government action; (2) initiatives by employers, employers' organizations or workers' unions and (3) labour-management agreements (International Labour Office 1972). The study focuses on achievements in labour-management agreements as an "indication of the adaptibility of industrial relations to modern requirements" while recognizing the importance of the other approaches and the interrelationship between the three approaches.

The study of the ILO designed to provide a descriptive survey of selected agreements in several industrially advanced countries examines clauses to meet various problems arising from new technology and agreements dealing with the impact of new technology. Agreement provisions clauses designed to provide greater job security, income security, development of a displaced worker's skills and labour-management co-operation are analysed. The study has evidenced the need for new approaches to technological change, joint effort and and the flexibility available through the negotiating process.

In other studies of technological change and industrial relations joint efforts by management and labour as well as government efforts and the development of joint labour-management committees to deal with problems of technological change have been shown to be a possible strategy. In the banking industry in Australia, for example, a joint consultative council to oversee the introduction of

technological change between the Commonwealth Bank and the Commonwealth Bank Officers Association is seen to provide a possible model for the future (Blanpain 1983).

Although reluctant to enter into new technological agreements with unions over substantive issues such as job content and skill utilization, on the grounds that the unions had little to contribute, bank managers in Britain were prepared to negotiate employment terms and conditions and health and safety (Child and Tarbuck 1985; Sutton-Pryce 1986).

Taking a lesson from other countries the banks in South Africa in their negotiation strategy should consider the unions' desire for greater participation and possibly think in terms of technological agreements with the trade unions to the benefit of both parties.

In South Africa there is no evidence of technological agreements. Trade union attempts at participation and control over the introduction of new technology may be resisted by management. They may be viewed as an encroachment on management's prerogative, that is management's right to manage.

In the banks, management have gained the upper hand in terms of bargaining power, with the unions unable to match management expertise. Furthermore in times of recession unions are placed on the defensive. The short-term objective of unions is the job security of its members currently in employment.

The reduction in the number of working hours in an attempt to counteract job losses is seen as a possibility. In the United States, France and the United Kingdom, through collective bargaining, the number of working hours have been reduced either in the form of a shorter working week, longer vacations or curtailment of overtime work (International Labour Office 1972 : 25).

In South Africa unions' attempts at a reduction in the number of working hours have been resisted by employers on the grounds that the workers productivity is not high enough (Leadership SA 1984-85).

Banks have increased rather than reduced the number of working hours such as the extended hours on Wednesdays. Furthermore, trade unions in South African banks are likely to find that a reduction in the number of working hours could result in job losses rather than being a means of creating more jobs or protecting existing jobs. Management already argue that average salary increases have increased at a much faster rate than productivity and management would resort to further investment to replace jobs in case of further escalation (Sutton-Pryce 1986). Already certain unskilled jobs have been lost for example through the introduction of coffee machines and outside cleaning services (Sutton-Pryce 1986).

Any agreement to be meaningful to the union on reducing the number of working hours should include a curtailment of overtime and protection of existing jobs. An agreement should also be reached on retrenchment and redundancies. Furthermore the union should continually strive for job generation and an increase in the number of members in strategic jobs. Their strength and power base in collective bargaining is largely dependent on its membership. In this regard because of the change in the skills of bank-workers, the power of the union will depend on its ability to recruit members in these new job categories.

Since trade union members depend on training and retraining to adapt to the changes, trade unions should become involved in training programmes by agreement with management for their direct involvement in policy decisions on training.

Trade unions should not rely on management alone to inform workers of the consequences of technological change; they should be in-

volved in training and informing their members of the requirements and consequences through workshops, seminars and literature.

INDUSTRIAL RELATIONS TRAINING

Apart from the skills required to cope with the work itself there is an ongoing need for training on the use and function of agreements, to minimize latent hostility and misunderstanding between management and the union.

Training should be designed to prepare the parties for changes in policy, structure, attitudes and skills in banks.

The objective of industrial relations training should be aimed at improving communication between management and the trade union, management and employees, and the union and members. Management at all levels, union representatives and employees should have clarity on the policies and responsibilities of workers.

Individuals, particularly recent entrants, may need training on sound industrial relations principles. They also need to know the various steps in disciplinary and grievance procedures. Where these procedures do not exist it is necessary for training to introduce, draw up and implement formal procedures.

Employees need to be aware of the role of the trade union and that a healthy industrial relations climate is in the interests of the organization and also their own interest since this will minimize conflict.

Above all negotiation skills of management and union representatives need constant attention to ensure a favourable agreement.

CONCLUSION

According to Chalmers (1985) "computerization has become a Pandora's Box for the banking industry."

If this is indeed true a determined effort is required through government action, employers, their organizations and workers and their organizations initiatives, and labour-management co-operation or agreements to transform the box of misfortunes into one that will benefit the organizations, employees and society.

Improved communication firstly is vital to minimize conflict. The possibility of setting up joint committees to investigate the effects of technological change on the employees, the work situation and industrial relations should be considered.

Case studies and in-depth investigations into the nature of technological change and its influence on the work situation in banks in South Africa is essential.

Of significance is that management and the union are aware that a new strategy is imperative to ensure smooth adjustments.

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SECTION SIX

BROADER CONSIDERATIONS

INTRODUCTION

The introduction of new technology in the banking sector has wider implications for individuals and organizations other than banks. The new technology offers a wider choice of methods but also changes interaction patterns and this leads to new social problems. Change affects various levels of social interaction. For example, on a global level, new banking and telecommunications technology and the link-up between them may alter international banking practice. Banking clients worldwide will be affected and foreign exchange transactions will be changed. Differences between the developed and developing countries will be further enhanced. On an economic level, many adjustments are required to the existing ways of estimating costs and benefits. On a legal level, new legislation may become necessary to adjust to changing circumstancres.

In the first article in this section the effect of technology on international banking is discussed. The impact that this technology has made on the speed and efficiency of international financial transactions is indicated as well as the advantages and disadvantages of the new methods.

The following article discusses the economic implications of technological change. It indicates both the demand and cost implications for banks and their clients.

The third article deals with some legal implications of technological change. Both bank and client are involved in new definitions of liability and new laws with regard to computer fraud, unathorized withdrawals, the moment when payment is effected and computer error, for example, may need to be formulated.

THE IMPACT OF NEW TECHNOLOGY ON INTERNATIONAL BANKING

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Banks cater for two groups of clients: the individual and the corporate client. The individual client does not often require international banking facilities. The services he requires are concerned mainly with finances relevant to foreign travel. The banks issue traveller's cheques and foreign banknotes and offer credit facilities and the use of credit cards for international payments. In addition there are other foreign transactions, for example, payment of subscriptions, gifts, maintenance and education, which are handled by the banks for individual clients. Most transactions handled by international banking however are those that concern the corporate client.

Both domestic and multinational corporations are the primary clients of international banks. The larger corporate clients generally have their own treasury functions, but it is necessary for them to make use of the banks who are authorised dealers for foreign exchange transactions. The banks are the only organizations which have full foreign exchange dealers' licences in this country. They therefore receive the buying and selling orders for all foreign transactions. The money-broking expertise with regard to the foreign markets is in the hands of the banks. International banking officials are able to respond to the daily fluctuations in buying and selling prices in the foreign markets. They can give corporate clients advice on exposure, management and other various aspects of international financial transactions.

Specialist product and marketing officers in the banks act in this capacity. They offer an advisory service to corporate clients on relevant aspects of international banking. The international banks

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deal directly with the foreign exchange, money and security markets on behalf of their clients.

The volume of international trade has greatly increased in recent years. In response to this growth, computer technology has been adapted to suit the needs of international banking. For example the Society for Worldwide Interbank Financial Telecommunications (SWIFT) has established a worldwide international computer linked telecommunications network by means of which a bank in one country can exchange information with its branches or with another bank in another country very quickly. International banking has automated many of its functions. Automation has solved some of the problems created by the increased volume of trade. The labour-intensive methods of handling transactions were under strain in coping with increased demand.

The major change which new technology has brought about in international banking is the speed at which transactions occur. Information to aid the control of funds and cash management for both the bank and the corporate client is now made rapidly available. The speedy transfer of funds is maximising cash flow. An around-the-clock service for financial transactions is now available and contacts with overseas brokers, exchange and money market traders are extremely rapid.

The speed of transactions brought about by computer technology has meant that the methods of handling these international financial transactions have changed. Transactions involving foreign exchange are being completely automated. It is therefore becoming less necessary to keep account of these processes manually. The computers contain the information stored in their memories. Fewer errors are being made and processing costs are being reduced.

This automation has allowed the banks to offer corporate clients new services. The ability to link the banks' and the clients' computers into networks has led to certain innovations. For example,

corporate clients may now have on-line access to information on their own accounts in foreign countries. These clients are also able to have access to other general financial information which is rapidly updated and which helps in planning. Data banks now collect and disseminate information that is relevant to financial organizations and international banking.

For corporate clients the timing of the transfer of funds is often crucial. If movements of exchange rates are expected, the corporation may wish to speed up payments. However this can be covered through the use of forward exchange contracts. At other times, speed of payment is less important. Information made available by the bank's computer networks can aid the corporate manager in obtaining an up-to-the-minute summary of the cash position of the organization. The timing of payments can then be carefully orchestrated.

With this information readily available on computer terminals, the function of foreign exchange brokers who had been previously concerned with collecting data and assembling quotations for dealers in the banks has changed. Now they can use the computer to enhance their expertise.

Using computer-based information, banks are now in a stronger position to give their corporate clients advice on cash management schemes. The new technology can consolidate and present integrated information on financial accounts. The banks can make use of computer models as an aid to assessing risk exposure and optimal investment for excess cash, and advise their clients on these assessments.

A more highly skilled staff to handle international transactions is becoming increasingly necessary. A broader knowledge base than was previously required is becoming important. Not only is it necessary to know about the world's foreign exchange, money and security markets, but it is also necessary to have this knowledge readily

available. Decision making takes place at a much faster rate. Whereas previously the international banking officer had time to consult other people or to do research on relevant aspects of a financial transaction, the computer-based transmission of data does not allow as much time as previously for these ways of checking up. Up-to-date knowledge of the economic situation in various countries and the most recent movements of exchange rates is now essential.

The marketing officer handling a client's international transactions requires a knowledge of the specific needs of each corporate client. He has to be able to offer the services, including computer-accessible information, which is relevant to that organization. Previously the marketing officer would have had time to refer to overseas specialists or other experts, to meet the client's needs. Now decisions are made more quickly and there is less time for consultation. The computer itself, rather than other people, is being used to help to assess the needs of corporate clients. Ultimately the marketing officer is more isolated with regard to the decisions he takes.

Certain basic skills are necessary to be able to make use of the new technology. These skills are often routine in nature and were previously part of the job of less specialized staff. Now the banking official is required to acquire them. For example typing skills are becoming increasingly necessary to use the computer terminal efficiently. In some instances this has meant that high-level manpower is carrying out tasks previously done by secretaries. Receiving and transmitting messages via the computer network and computerized diary keeping are examples of tasks now done by executives that were previously carried out by typists. These tasks are time-consuming and detract from the time available for international banking functions.

In order for the banks to offer their corporate clients computer facilities that provide access to their foreign bank accounts and to other financial information, the banks require the services of

technical experts in the computer field. The hard and software of the bank has to be compatible with that of the corporate client. The banks now need to supply the technical instalment and maintenance staff to make the service possible.

The training of technical staff has in some instances become the responsibility of the bank. There is a greater need for computer literacy for staff working in all fields of banking, including the international one. This training is not readily available outside the banks, and if the banks want efficient staff, they undertake this training function themselves, in addition to other training relevant to banking.

With regard to clerical skills the manual processes which were previously necessary to record all international financial transactions are now less important. The electronic transfer of funds worldwide is eliminating many clerical functions. Although there are still some manual processes, these are rapidly shrinking.

New clerical tasks are now less skilled. For example capturing data relevant to transactions on the computer is replacing the tasks of the debtors' clerk. The capturing of data is done in a standardized and routine way, from which no deviation is permissible. This type of job is generally more isolated and less skilled than previous clerical jobs in banks.

With regard to management in international banking, the need for a wider knowledge in banking fields and a more specialized knowledge in technological fields has led to a flattening of the hierarchical pyramid structure of the organization. A more broadly based structure of management has now been introduced. In order to function efficiently new patterns of interaction between managers has to be worked out as the formal contacts required by a pyramid structure are no longer applicable.

Client contacts are also undergoing change. Increased efforts have to be made to maintain contact with clients. Because the corporate client can gain some of the information he requires directly from the computer terminal there is a danger that banking officials will have less contact with clients. Personal contacts are necessary for business relationships, because this is the only way that the banking official can learn what the needs of the client are in order to adapt the new technology to cater for these needs.

In summary, in some ways the net technology has made the work easier for the international banker. It is offering a faster, more efficient service to clients. It also offers a variety of new services not previously available. An example of these services is direct access to the client's accounts in foreign countries. The new technology enables the banks to cope with the increased volume of transactions more speedily and efficiently. On the other hand the type of work of bank officials has changed. In some areas a broader, more general financial knowledge is required to aid rapid decision making. In other, technical areas, more specialized knowledge is now needed. Some clerical work has become deskilled, in the form of data-capturing tasks. Increased efforts are required to maintain client liaison. There has been a flattening of the traditional pyramid structure of the organization. Two distinct groups of employees are now required: The highly skilled worker, either with financial or technical expertise forms the first group. The second group is formed by the data capturing and related workers whose jobs have become more rigid and standardized.

In order to meet the demands of high level skills, both financial and technical, now required by international banking, as well as other business enterprises, education in schools should be made more relevant. Computer literacy and financial management are essential subjects in future school curricula.

THE ECONOMIC IMPLICATIONS OF TECHNOLOGICAL CHANGE IN THE BANKING SECTOR

Dr. D. Tromp*

In general little has so far been said or written about the financial implications that result from computerization of banking activities. Formal education, seminars and publications are mostly concerned with the technical aspects, the physical benefits and the communication problems between programmers, system analysts and user groups.

It is common knowledge that success in the field of information and service systems is of critical importance to the future well-being of companies in the banking sector, and this can only be obtained by means of increased computerization of activities. The question is how far should a bank go before crossing the border between essential needs and nice-to-have's. The solution lies in the financial benefits that can be derived directly (for example saving in personnel costs) or indirectly (for example increased market share) from the expenditure on computer activities. In other words, the computerization process should at least be cost-effective and ideally result in increased profits.

The following all have an influence on the financial evaluation and economic decisions concerning computerization in the banking sector:

1. The demand for technological change.
2. The cost of technological change.
3. The allocation of the cost of technology.

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THE DEMAND FOR TECHNOLOGICAL CHANGE

There are two sides to every coin handled by a bank. On the one side there are the internal needs in the form of the maximization of short-term profits and the insurance of long term growth for the bank itself. On the other side there are the external needs in the form of the maintenance of trust by the general public and the satisfaction of a particular client's needs. Computerization is therefore a shared economic responsibility of both the bank and its clients.

Internal demands (the bank)

Banks are currently experiencing a continuous rise in wages and personnel-related costs. Interest margins are under constant pressure and customers are continuously increasing their demands for sophisticated services and comprehensive product lines and services (Tyrrel 1985).

Deregulation of the banking environment since the abolishment of the ROCO (register of co-operation) agreement on the 28th of February 1983 (Falkena, Fourie & Kok 1984), and the expected entrance of the building society sector to the traditional banking environment have added a certain urgency to the latent need for comprehensive management information and cost-effective administration procedures (Wessels 1983).

Within a particular bank the following areas can obtain substantial economic benefits from computerization (Banyard 1982):

a. Administration
- Procurement of documentation, for example application for overdrafts, registration of loans and updating of balances.
- Measuring of productivity, for example the number of clients serviced per moment of time.

- Increment of efficiency, for example the turnover and profit per employee.
- Insurance of accuracy, for example timeous and reliable statements and returns.

b. Marketing

- Statistical data, for example transactions per type, per product, per time moment, per balance catogory and per interest catogory.
- Market share analysis, for example relative share per product and per client sector in relation to other banks as well as the rest of the financial sector.
- Consumer behaviour, for example the change from counter transactions to automatic teller machines.
- Client information, for example name, address, account numbers and profession.

c. Treasury

- Funding mix, for example composition of and relation between short, medium and long term deposits and advances.
- Interest margin management, for example the cost of funding, the return on applications and the difference between these two.
- Risk management, for example the relation between rate-sensitive and non-rate-sensitive deposits and advances, as well as the matching of these categories.

d. Financial management

- Fixed assets, for example the recording of the investment in fixed assets and the physical control thereof.

- Creditors' accounts, for example the control over the timeous payment of liabilities
- Financial accounts, for example balance sheets, income statements and returns to the S.A. Reserve Bank.
- Management accounts, for example branch, product and customer profitability accounting as well as budgeting.

e. Management information

- Timeous information, for example the shortest response time between occurrence and observation.
- Information quality, for example complete and reliable information the first time it is reported.
- Availability of information, for example a more comprehensive data base.
- Strategic management becomes possible in its true sense.

External demands (the clients)

The banking sector is currently dealing with a better educated, but generally less loyal, client in a more complicated economic environment than before. In many cases it is a matter of financial survival for the client by means of better funds management (Kirkman 1982) in terms of funds availability, interest costs and interest returns. At the same time clients are looking around for banks that will provide them with security, personal attention and the maximum service benefits at the least cost in terms of fees and commissions.

The clients are particularly interested in the following beneficial aspects:

a. Availability, for example cash in its many forms should ideally be available at any place, 24 hours a day.

b. Speed, for example long queues and slow and cumbersome transaction procedures should be avoided.

c. Reliability, for example account balances and interest calculations should be accurate and up to date.

d. Transferability, for example a customer should be in the position to transfer funds between various accounts and geographical locations without much effort.

e. Ease of inquiry, for example on status of accounts, but at the same time maintaining data security and privacy.

f. Participation, i.e. the customer wants the bank to be involved in his personal finances and be responsive to his particular needs.

THE COST OF TECHNOLOGICAL CHANGE

The demands for technological change will inevitably result in increased expenditure on computers and related equipment (White 1985). As banks are generally expected to provide everything to anybody as far as financial needs are concerned, computer equipment in the banking sector is found to be more sophisticated than the average industrial norm (Doyle & Miller 1984). At the same time it is difficult to compare the disadvantage of capital investment in technology with the savings in manpower-related expenditure in the banking sector. The reason lies in the absence of direct relation between these two, which exist in a physical production environment.

It should therefore not be expected that the current staff levels in the banking sector will decrease drastically, but rather that

the rise in future staff levels will be curbed by increased efficiency and higher productivity per staff unit.

From a strategic point of view it is usually difficult to obtain equipment on short term due to relative long supply and installation periods. Furthermore it takes time to change existing manual administration procedures and to build new infrastructures for a computerized system. Therefore technological changes should be planned well in advance of clients' needs and the facilities of competitors.

On the other hand most expenses relating to technology are of a capital nature and once a premature investment has been made, it becomes relatively expensive to upgrade or replace with new technological developments.

The final decisions should be postponed to the point where a proper balance between financial risks and technological benefits will result in the minimum economic disadvantage due to a loss in market share and the maximum economic advantages from the investment in technology.

In order to reduce the financial risks of the decision-making process this process should be based upon the co-ordinated inputs from various departments within a bank, such as marketing, computer services, administration and accounting.

All these interested parties should be integrated into a technology committee, which in turn should be responsible to the management board. The main economic features that should receive attention from the technology committee are the following:

a. The expenditure on technology, for example capital investment and operating costs.

b. The production potential of equipment, for example economic life expectancy and normal capacity during that time.

c. The economic evaluation of alternative proposals, for example return on investment.

Cost of technology

A clear distinction should be made between fixed costs (investment) and variable costs (operating expenses) when evaluating the expected benefits from the expenditure on technology.

When computer equipment (hardware) and programmes (software) are obtained, the invoice price plus all related costs to bring the equipment to its full functional status, should be capitalized. This also applies to the programmes that are developed internally and have a long-term application purpose.

The capital investment should be written off during the economic life in the form of depreciation which in turn should be allocated to the users of the computer services in direct relation to the benefits they receive. It follows that depreciation should only commence once services are provided and not in advance or afterwards, otherwise this will result in inaccurate calculations regarding charges and final unit costs.

This in turn will result in wrong profit results concerning clients, branch offices and product lines, that will ultimately culminate in wrong strategical decisions.

Apart from the fixed cost element, a certain generally small amount of the total costs can be classified as variable. These costs are in direct relation to productivity and are therefore based on activity and not on time. A distinction should be made between expenditure and costs. Expenditure represents the cash flow on a particular date, for example electricity paid on the 7th of Febru-

ary. If this account relates to electricity consumed during the period of the 20th December to the 20th January, the expenditure should be pro-rated as a cost between the months of December and January. This principle is important when calculating the true cost of the activities during a particular period.

A more detailed description of fixed and variable cost elements, the determination and their treatment, falls beyond the scope of this article. Much importance should however be placed on this aspect (Stone 1985).

Only the expenses (fixed cost per period plus variable cost per activity) which are technically unavoidable and economically justified, should be included in the cost of services provided. All other expenses should be considered as waste, treated as losses in the income statement and be deducted from the trading profit. This principle ensures that the true cost of technological services is reflected in the cost prices, which in turn make it possible for direct comparisons with the corresponding activities of competitors. Another important benefit is that any inefficient investment in technology, as well as the magnitude thereof, can easily be determined and either be accepted or eliminated.

Production potential

The production potential is determined by two elements, i.e. expected economic life and the utilization of capacity during this life.

Computers and related equipment are notorious for their relative short economic life expactancy. Even if a particular piece of equipment is technically still able to provide the same level of service than during its original application, technological developments in terms of transaction speed and capacity per unit of equipment might be such that the item should be replaced by superior equipment, or at least be upgraded to new standards. Either

alternative terminates the economic life over which the original item must be written off to its scrap value.

This problem generally results in different depreciation policies between the receiver (financial accounts) and the operations manager (management accounts) which should be overcome by reconciliation accounts.

Another aspect which is of great importance is the service level during the expected economic life. A distinction must be made between theoretical capacity (24 hours per day times 365 days per year) ideal capacity (allowing for unavoidable down time) and normal capacity (based on expected utilization during the budget period). This last level represents the one on which the recovery of costs should be based and which should continually be expanded in order to reduce the costs per service unit and obtain competitive advantages.

Evaluation of alternative possibilities

As automation usually requires specialized buildings, computer equipment, programmes and staff it is important that the correct course be taken from the start. Once a decision has been made it is virtually impossible to change without substantial financial losses.

It is important that a thorough study of alternatives be undertaken and the financial decision at least be based on:

a. The shortest payback period, without ignoring the remaining life after payback.

b. The highest return on average investment after taking scrap value into account.

c. The highest net present value after discounting the future income and expense items with the cost of capital (Woods 1985; Zmud 1983).

The above evaluation techniques are well known in accounting practice and are therefore not discussed in detail.

Apart from the financial (quantitative) analysis, it is also important to make a thorough study of the qualitative factors such as the possible loss of market share. A bank in the final instance has to supply a full range of products and services to cater for the total needs of the financial market. It must be accepted that certain technological banking activities will not create enough returns to recover the cost thereof. The resulting costs of such service must then be set off against the total profits received on other services to the customer in order to determine whether the service should be supplied/continued, or the clients' accounts be forfeited.

ALLOCATION OF THE COST OF TECHNOLOGY

In order to determine the true financial yield on the investment in technology, the cost thereof should be matched to the ultimate receivers of the benefits it creates (Ward 1985). This should be done by means of cost allocation procedures which, in short, may be as follows:

a. Determine the various cost elements, for example salaries, stationery, depreciation and maintenance.

b. Determine the cost behaviour, for example distinguish between fixed and variable cost elements.

c. Assign cost to categories, for example central processing units, peripheral equipment (centralized v.s. remote) and interfaces between these two.

d. Assign cost to the various automated systems, for example current, savings and instalment accounts, salary system and client database.

e. Divide the system's costs into meaningful categories, for example savings accounts into various interest, balance and investment period categories.

f. Distinguish between company-related costs and client related costs.

Company-related costs

For this purpose the various cost centres that make use of technological assistance should be identified. All cost directly allocatable (for example specific equipment and tailor-made programmes) should be debited against the particular centre by means of a service charge per service unit. In this way the cost/benefit ratio for each user department can be determined.

This cost will then have to be re-allocated to the various profit centres, of which branches will be the main component, together with the corporate overhead relating to technological services that are of an indirect nature and cannot be traced to a particular cost centre.

Finally the company-related costs due to internal demands must be recovered from the gross profit (interest margin) and are thus to the expense of the bank itself.

Client-related costs

Those systems that are the prime result of clients' needs should be recovered from them in the form of fees and commissions. This should be treated as miscellaneous income in addition to the gross profit in order to determine the net profit margin for the bank.

It follows that this concept has an important bearing on decisions regarding the payment or not of transaction costs by the clients and the resulting presentation of the income statement.

Both the cost carried by the bank and revenues received from the client must be taken into account when executing profitability studies. This means that all the cost of technology should ultimately be allocated to a specific product within a certain branch for a particular client.

CONCLUSION

Since staff cannot be fully replaced by technological equipment in the banking environment and the services provided by computers are in many ways not comparable with the labour activities they replace, a direct cost/benefit comparison between manual and computerized activities is virtually impossible.

Both the banking environment and client market are, however, in desperate need of more sophisticated administration procedures and services. Therefore they must take a shared responsibility in the expenditure that results from these needs.

Fortunately technological change, to a large extent, supplies the solutions to its own problems in the sense that statistical processing, financial calculations and cost allocations that were virtually impossible in the past are now economically feasible. By following academic principles and utilizing the technological aids currently available, it becomes possible to undertake profitability accounting regarding internal departments, branches, products and clients. The way in which this unavoidable burden is turned to the advantage of the bank is by means of better managerial control and increased client satisfaction. This will ultimately determine a bank's profit and market position in the financial sector.

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SOME LEGAL IMPLICATIONS OF THE INTRODUCTION OF NEW BANKING TECHNOLOGY

Coenraad Visser*

INTRODUCTION

With the advent of the computer age it is hardly surprising that financial institutions have to an increasing extent turned to the new technology. Although electronics initialy were introduced in banking to provide more sophisticated routines to capture data, this has given rise to the electronic funds transfer revolution. Automated clearing-houses and automated teller machines are essentially intended to streamline the payment system based upon the handling of hard currency or paper instruments of payment such as cheques. An electronic funds transfer (EFT) refers to a situation in which payment is effected by means of a message generated electronically, in other words, through a method that does not involve the handling of hard currency or paper. Examples discussed here are the transfer of funds through an automated teller machine from one account to another, or an electronic funds transfer at the point of sale (EFTPOS). The latest chapter in the history of EFT is the development of "le smart card" in France: this is a credit card with a microcircuit chip memory embedded in it (France 1983). The memory is "charged" with credit, working through the available sum every time as a purchase is made. An instant transfer of funds takes place at the point of sale from the "amount" charged on the card to the account of the retailer.

This article will deal with some of the legal implications of the application of computer technology in the payment process. The selection of issues to be discussed does not deny that there are

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other aspects worthy of attention. It has not been said entirely in jest that the laundry list of EFT issues is endless (Farley 1976).

AUTOMATED CLEARING HOUSES

Introduction of automated clearing

The development of magnetic ink character recognition (MICR) and the introduction of automated clearing houses have served to lighten the considerable burden placed on financial institutions by the flow of paper involved in the collection of cheques. A clearing-house is an organization to serve as a medium for the payment and encashment of, inter alia, cheques drawn on or made payable with the member banks (Willis 1984).

The Automated Clearing Bureau (Pty) Ltd (ACB) was established by the South African clearing banks in 1973 to provide for the computerized collection and payment of cheques (Report of the Committee of Inquiry 1977). There are at present three automated clearing houses: one for the Pretoria-Witwatersrand area, one for the Durban-Pietermaritzburg area, and one for the Cape Peninsula (Oelofse 1985).

All items for clearing are delivered each day to the ACB where they are processed. Each participating bank receives a computer printout with the amounts of the cheques drawn on and collected by it. The ACB communicates the interbank settlement figures to the central remittance depot of each participant. Up to this stage the system functions upon the assumption that each cheque has been paid provisionally. When the bank on which the cheque is drawn (the drawee bank) receives the cheque, it has to decide within an agreed period whether the cheque is to be honoured or not. If dishonoured, all the entries that are automatically effected through the

ACB are reversed, and the dishonoured cheque is returned to the collecting bank (Malan 1983 : S 311).*

Moment when payment is effected

The question when payment of a cheque takes place might seem a simple one, but the answer is becoming more and more complex in the electronic age. The difficulties are compounded by the fact that one might ascribe different meanings to the term "payment", depending on the context in which the term is used.

One of the problem areas is illustrated by the case Rosen v. Barclays National Bank Ltd.** The facts were as follows: A bank-guaranteed cheque, drawn on the E branch of Barclays, was deposited by Rosen on 28 June 1978 at the C branch of that bank. It was processed by the clearing-house and returned to the E branch, where it was received on 29 June. In terms of the clearing-house agreement the E branch had until closing time on 30 June to inform the C branch of the dishonour of the cheque. Meanwhile, on 29 June, the E branch was interdicted from paying the cheque. On the same day that branch informed the C branch of the interdict. This resulted in the cancellation of the credit to Rosen's account and the debit to the drawer's account. Rosen now argued against the cancellation of the transactions on the basis that the cheque had already been paid when the interdict had been granted, so that the provisional credit to his account had become final. The crucial question was whether the cheque had been paid by Barclays, and, if so, whether it had been paid prior to knowledge by the bank of the interdict.

Goldstone, A.J. (as he then was) rejected the submission that payment had been made only on the expiry of the period during which

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*The parties concerned guard the terms of the clearing agreement with jealous secrecy, an attitude that creates serious problems for researchers.

**1984 (3) SA 974 (W).

the drawee bank had been entitled to dishonour the cheque in question, viz the close of business on 30 June, and ruled that the decisive moment was when the drawee bank took the decision to honour the cheque. Where the relevant entries in the books of the banks involved had been made prior to that decision, they remained provisional until the decision to honour the cheque had been taken, at which time they became as final as if they had been made after this decision.

In the present case it meant that if the decision to pay the cheque had been made prior to the granting of the interdict, any subsequent reversal of the relevant entries would have been unjustified. However, on the affidavits before the court it was impossible to determine when the decision to effect payment had been made, and the matter was referred for the hearing of oral evidence on this point.

It would thus seem to follow from Rosen that the provisional payment through the ACB can become final before the expiry of the period within which the drawee bank may reverse the provisional entries (Oelofse 1985 : 10-11; Sinclair & Visser 1984 : 382-383). The decision also has important consequences that create insurmountable problems of proof. (It is telling that in the event the court was unable to decide the matter on the evidence before it.) On the principle enunciated, it would, for example, be impossible for a drawer to stop payment of a cheque after the decision to honour it has been taken, even where the time allowed for the reversal of the entries has not yet expired and the drawee bank has not given any indication of its decision to third parties, and one can but pity the party saddled with the burden of proving the exact moment at which the decision was taken.

It would have been preferable had the principle in Rosen been in line with the letter of the clearing-house agreement, namely that the provisional payment of a cheque through the clearing facility becomes final on the expiry of the period allowed for the reversal

of the entries. This is not to deny that the drawee bank may be liable to third parties on the basis of a representation that it intends to pay, made to the collecting bank or the holder of the cheque prior to the expiry of the said period, but the latter situation is clearly distinguishable (Oelofse 1985 : 11; Sinclair & Visser 1984 : 383).

AUTOMATED TELLER MACHINES

Introduction of automated teller machines

The increase in the number of clients and transactions involving the withdrawal of cash has forced financial institutions to introduce cash dispensers to enable depositors and borrowers to withdraw cash after the normal banking hours. The original cash dispenser has become more sophisticated and is now known as an automated teller machine (ATM). It has, for example, been adapted to accept deposits of cheques and banknotes, answer queries relating to the balance on an account, and transfer funds from one account to another. Given that these machines are fairly expensive, it was only natural for four financial institutions to introduce a system of sharig ATM's in a drive to reduce operational costs.*

An ATM is activated by the insertion of a plastic card and the keying in of the personal identification number (PIN) of the cardholder, followed by simple instructions.

Risk of unauthorized withdrawals

The client is required to authenticate his transaction order at the terminal by the presentation of his card and the use of the PIN associated with that account. This process was designed to prevent unauthorized withdrawals, but practice has shown that access can

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*The Post Office Telebank, Volkskas, Standard Bank and United Building Society established Multinet in 1985.

stil be gained to the system and experiments to find a method of authentication based on the personal characteristics* are under way (Glendall 1983; Greguras & Sykes 1980 : 75-86).

Where an unauthorized withdrawal has taken place, the question is whether the financial institution or the client should shoulder the risk.

In practice one finds that most financial institutions conclude an express agreement with client** (Oelofse 1985 : 12-13). The agreement usually stipulates that any transaction completed by means of the use of the card and appropriate PIN before notice has been given to the financial institution of the loss or theft of the card, will be debited to the account of the client. The effect of this provision is to burden the client with the risk of unauthorized withdrawals.

What of the situation where there is no specific agreement between the client and the financial institution on the incidence of the risk? In terms of the contractual relation between the financial institution and the client the institution is entitled to debit the account of the client only where it has been paid on a valid mandate given by the client. This means, for example, that in principle a bank is not entitled to debit the account of a client with the amount of a cheque on which the signature of the client as drawer has been forged. Where a financial institution has paid through an ATM a person other than the one entitled to withdraw money from the account, one would thus expect that the institution would not be allowed to debit the account of its client as it has not paid on a valid mandate of the client. On the general principles of law the risk of unauthorized withdrawals would thus at first blush seem to rest on the financial institution.

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*Techniques such as fingerprints, voiceprints and signature analysis are being investigated for EFT use.

**The exception being the Telebank.

However that is not the end of the matter. It might be possible to construe a tacit term to the same effect as the one often expressly stipulated (Oelofse 1985 : 13), although it should be remembered that the courts are extremely reluctant to do this. When a client accepts an ATM card from a financial institution he realizes that access to the system can be gained by the use of the card coupled with the appropriate ATM number. He also knows that the ATM has no means of identifying the person who feeds the card and keys the PIN into the machine. Thus one can infer that the client has agreed to accept a debit on his account where it is the result of the combined use of his card and PIN. The effect of reading such a term into the agreement would be that the client would again bear the risk of unauthorized withdrawals. It goes without saying that this will only be so until the client has notified the financial institution of the loss or theft of his card.

Criminal liability for unauthorised withdrawals

Does any criminal liability attach to a person who makes an unauthorized withdrawal? It is trite law that he does not steal the particular coins and cash dispensed by the ATM, since the financial institution, who is the owner of the cash, intends to transfer ownership of it to the person who uses the account card coupled with the approproiate PIN (Oelofse 1985 : 13). However, it has been argued that "{t}heft of money in a bank account can be regarded as theft by unlawful exercise of the account holder's rights against the bank" (Loubser 1978 : 55). This view has been accepted by the courts,* so that it appears safe to say that an unauthorized withdrawal at an ATM amounts to the theft of an abstract sum of money or credit (Oelofse 1985 : 14; Van der Merwe 1985 : 138-139).

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*S. v. Harper 1981 (2) SA 638 (D) at 666.

Risk of computer error

There are two types of error that may occur in the use of an ATM, namely the machine may dispense less cash to the client than it debits to his account, or the client may make a deposit at an ATM that is not credited to his account.

In the event of an error of the first type the client will receive a transaction record that will indicate the amount debited to the account of the client, but this amount will not reflect the cash dispensed to the client. The transaction record constitutes evidence of a transaction entered into between the client and the financial institution. Although it is obvious in principle that the client has a claim against the institution for the balance due, he has to shoulder such a cumbersome burden to proof that he would probably find himself helpless in the situation.

The second type of error creates even more problems. The financial institution usually provides a special envelope for the purpose of making a deposit at an ATM. The client keys in the fact that he is making a deposit and the amount involved. The cash or cheque is placed in the envelope that is inserted into a special slot in the machine. The machine then produces a transaction record, which is not proof of the deposit, since the ATM is merely recording what has been keyed in by the client. The ATM is later opened by an employee of the insitution and the money counted. It is customary for the envelope to contain a stipulation to the effect that the transaction record issued is subject to verification by the financial institution concerned, and in the event of any discrepancy between the transaction record and the record of the insitution, the latter is final and binding on the depositor.

There are three possible explanations for the occurrence of an error of the second type (Budnitz 1980): (a) the client may be trying to defraud the financial institution into crediting his account for a deposit never made; (b) the ATM may have malfunctioned,

failing to secure the envelope and thus permitting a later client to remove the envelope; or (c) the employee of the institution who services the ATM may have stolen the envelope.

The financial institution is merely a depositary with whom the envelope has been deposited until it has verified the contents of the envelope (Oelofse 1985 : 14; Price 1984). Thus the situation is analogous to the one in which a financial institution provides a night safe in which money may be placed after normal banking hours. The institution would be liable as depositary for damage as a result of the loss of the contents of the envelope, unless it can show that the loss did not result from any fault on its part. The verification clause on the deposit envelope may be construed to exclude the liability of the institution as depositary.

It is thus clear that the client is again in an unenviable position as regards the possible discharge of the burden of proof in any action against the financial institution. Apart from the verification clause on the transaction record, he would still have to prove that the envelope with the alleged contents had been fed into the machine, something which in most instances would be impossible.

ELECTRONIC FUNDS TRANSFER AT THE POINT OF SALE (EFTPOS)

General

In an EFTPOS transaction the account of the retailer at a financial institution is credited and the account of the client debited simultaneously. A microprocessor-based terminal is incorporated in the cashier's till. This will be connected via a computer in the store to the banking system that will eventually itself be interconnected in some way. The client feeds his card into a card-reading terminal and keys in his PIN. The cashier then enters the detail of the transaction and the terminal, which is on-line to the financial institution holding the account of the client, checks that the transaction is in order. When it is executed it will in-

struct the institution to transfer the amount involved to the account of the retailer (EFTPOS 1984).

A pilot EFTPOS scheme was launched by a branch of Checkers and Barclays in Johannesburg earlier this year (Beeld 1985), and a nationwide network, Saswitch, has been established to facilitate national EFTPOS. It has also recently been announced that OK Bazaars is piloting an EFTPOS installation at its Randburg store (Finance Star 1985).

Privacy

It is the general duty of a financial institution to keep information on a client confidential, and it is arguable that this secrecy even extends to the fact that the particular person is or was a client of the institution (Malan 1983 : S 327). The institution is thus obliged to respect the financial and personal privacy of a client, and not to injure his creditworthiness or personal integrity by disclosing confidential information. It has been ruled that one of the situations in which a bank would be justified in disclosing such information is where the disclosure is made with the specific or implied consent of the client.*

It should be clear that EFTPOS creates grave risks of infringement of the client's right to privacy. When the client initiates payment through the medium of EFTPOS, he authorizes a limited disclosure of information to the retailer. At least the fact that he is a client of the financial institution involved is disclosed in this way to the retailer. It is difficult to determine what other information the institution may divulge to the retailer, and it is submitted that the test to be applied should be a strict one in favour of the protection of the financial privacy of the client. Thus, for example, it would be an infringement of the right to pri-

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*Tournier v. National Provincial and Union Bank of England {1924} 1 KB 461 at 473.

vacy if the balance on the account of the client is disclosed to the retailer. It is submitted that justification should exist only for the disclosure of whether a transfer of funds has been effected from the account of the client to that of the retailer.

An additional risk is that EFTPOS might enable retailers to compile computer databases of personal information. The data will comprise, at the very least, the names and addresses of clients, and might even include information about bank or credit-card accounts of clients. It is of the utmost importance to the client that the personal data is correct and that it is not disclosed to third parties without his consent. Steps should be taken to protect the consumer in this situation.

Liability for wrongful failure to complete a transaction

When a bank dishonours a cheque drawn against sufficient funds or credit on the account of its client, it commits a breach of contract and, in certain circumstances, a delict, which will render it liable to the client for any loss suffered (Malan 1983 : S 326).

The claim for breach of contract is based on the fact that the bank refused to honour its contractual obligation to its client to honour cheques drawn against sufficient funds or credit. Here the client is entitled to claim general damages and, if he is a trader or businessman, special damages for injury to his creditworthiness or goodwill.

A claim in delict will be allowed where the client can prove a wrongful and culpable infringement of his right to the goodwill of his business. It should be noted that, unlike in the event of breach of contract, the client has to prove the fault to be that of the bank if he is to succeed in delict.

The same principles would apply to the EFTPOS situation. Where, for example as a result of computer error, the financial institu-

tion refuses to sanction the transfer of funds against sufficient funds or credit in the account of the client, it will at least be liable in contract to its client for breach of its contractual obligation, and there is again the possibility that special damages for injury to creditworthiness or goodwill may be recovered in appropriate circumstances.

CONCLUSION

It has been said that "{t}echnological revolutions tend to be highly disruptive of the established legal order. New technology often imperils old private legal rights while creating new public risks and concerns" (Penney & Baker 1980 : iii).

There is no doubt that the introduction of new technology has streamlined the existing paper-based payment system to a considerable extent, and has opened up new possibilities for the creation of a payment system freed from the handling of hard currency and paper. That the client reaps certain advantages from this revolution goes without saying. However, against these must be balanced the fact that it is the client who is in general exposed to grave risks, most of which he does not even realize exist. The financial institutions, on the other hand, have not been shy to contract out of most of the costs of liability that may attach to them. As a result there is a manifest need for consumer legislation along the lines of numerous examples abroad where the consumer lobby is at least as vocal and active as their opponents in the financial sector. This is the only way to ensure a more balanced allocation of the legal risks that flow from the introduction of the new technology in the banking sector.

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SECTION SEVEN

CONCLUSIONS

CONCLUSIONS

ROSALINE HIRSCHOWITZ

The articles in this reader indicate very clearly that the new technology is causing the banks to change from conservative bodies into something completely new. We, the clients, are now communicating with machines which sometimes wish us a happy day, ask us what we want, tell us what to do and then express the wish that we should return to make use of them again. When vocal, these machines have a very pronounced American accent. However the innovations behind the scenes are even more far-reaching. The new technology has not only changed the face of the bank but also its inner structures.

The Institute for Manpower Research of the HSRC is concerned with a number of issues that are covered to a greater or lesser extent in the various articles of this reader. These interests are:

(a) The influence of change on the content of work and the effect such change could have on the worker.

(b) The effect of the new technology on job creation in an important employment sector. This effect should be seen against the background of the two main manpower problems in South Africa, namely massive unemployment of the unskilled and a lack of skilled manpower.

The various articles in this reader deal with different facets of the effect of introducing micro-electronic technology into banking. Nevertheless there are certain recurring themes, namely the need for increased efficiency in banking processes and changes in the type of work being done in banks.

The new technology makes it possible for other commercial organizations to offer certain services traditionally regarded as the sole

domain of the banks. Coupled with the deregulation in banks, the competition between banks to gain more clients has intensified. Cost-effectiveness is becoming increasingly important for the survival of the banks. It can therefore be expected that capital investment in the new technology will increase in the short and medium term. The banks believe that this investment will lead to an increase in productivity and efficiency.

New ways of carrying out banking tasks have emerged. The result is a change in job content and in future job entry requirements. New jobs will be created and old ones lost. New skills will be needed. The main trend is a movement away from clerical staff towards technical and marketing personnel. The bank manager's main work functions are undergoing a complete metamorphosis. He is moving away from being the keeper of the vault to being a marketing man.

The way the office is run and routine office procedures have also undergone remarkable changes.

These changes have implications not only for all levels of bank employees and for the client, but also for society in general because new technology is altering the way in which financial transactions take place.

With regard to employment opportunities, a survey in Britain (Rajan 1984) has indicated the following trends. During the time of introduction of new technology, which has taken place at a gradual pace between 1960 and 1983 when the survey was done, country-wide staff numbers in banking continued to increase, but this took place at a progressively slower rate. There was also a compositional shift in favour of non-clerical and professionally based occupational groups. Clerical recruitment focused on part-time employment, as many aspects of the work had become deskilled. An occupation, rather than a career is offered to these part-time workers, because

> "there is no longer the need to balance the ledger or perform manual accounting operations at the close of business. New technology has been one of the contributory factors underlying the growth of non-career clericals" (Rajan 1984 : 64).

The new jobs created in banks have largely been for specialists in computer technology providing services such as operation and maintenance of new systems, software design and systems analysis. New technology has also promoted the employment of other professional staff such as statisticians, economists and mathematicians, engaged in long range planning. It has also created new jobs in management, information systems management and marketing.

The country-wide staff increase in banking in Britain during the sixties and seventies was attributed to continuing business growth by Rajan (1984). A number of new banking services owe their existence exclusively to the new technology. For example the payment of salaries and wages by means of bank credit transfers has increased the volume of business handled by banks. Payment by means of credit transfers has also meant that more people now have bank accounts, and therefore make use of banking facilities and services.

Product diversification, by providing a wider range of financial services, for example management of estates and private trusts, life assurance, brokering, factoring, leasing and advisory services, also has contributed to growth in employment. In spite of this growth however, there has been a slowing down in the growth rate of staff numbers. Many of the new financial services rely more on new computer technology and less on staff increases.

In South Africa no occupational data are available solely for the banking sector. The trend in the whole of the financial sector can, however, give some indication of what is happening in the banking sector.

According to the biennial manpower surveys of the Department of Manpower, total employment in the economy (agricultural workers and domestic servants excluded) has inceased at a rate of 2,7 % per annum over the period 1965 to 1983. The employment in the financial sector has increased at a much faster rate, namely 5,5 % per annum. Changes in the occupational structure of the sector are also taking place and the effects of the new technology are becoming obvious. The growth rates for clerical as well as for accounting personnel are below the average for the financial sector (5 % and 4 % per annum respectively); while the employment of computer personnel, including programmers, systems analysts and statisticians, as well as managerial personnel has increased by 8 % and 7 % per annum respectively.

These growth rates cannot be sustained and the rate of increase in job creation will slow down. The locality of queues has already shifted from the teller's counter to the ATMs where one need not complete forms to carry out transactions.

Rajan (1984) predicted that in Britain during 1983 to 1987 there would be a further slowing down of new job creation in banks, coupled with a slowdown in business growth, and increasing competitive pressures from outside organizations which can now offer certain banking facilities. He further states that there will be a rationalization of branch networks in banks, and fewer staff members will be required in branches for a given business volume. The occupational composition of banks will continue to change as banks increase their number of professional and computer staff.

In South Africa, in the short term, these trends are also likely. In the long term however, the banks will need to cater for the financial needs of the growing population of the country. The business in banks has tremendous growth potential. If the skilled manpower is not available to cope with this potential growth, problems may arise. It is therefore becoming increasingly necessary to research how to develop the technical skills that will become es-

sential in work situations in future. For example, research could indicate how to introduce computer-literacy programmes at schools which are cost-effective and purposeful and meet the future work-skills requirements.

The HSRC's research input should perhaps be made into the broader and more general issues raised in this reader. For example the effects of computerization on future manpower needs and the educational infrastructure necessary to meet these needs are areas which could be fruitfully studied by a national research organization.

Research is also needed into bank-workers' attitudes towards the possible deskilling which may occur in certain clerical jobs and the increased need for specialization required by banks in other jobs. How best to implement training and retraining programmes by individual banks also requires research. Clients attitudes also need to be examined. Perhaps these areas of research are best handled by the banks themselves, as each bank's policy will influence research requirements.

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GEVOLGTREKKINGS

Die artikels in hierdie publikasie toon baie duidelik dat die nuwe tegnologie besig is om banke wat voorheen stemmige, konserwatiewe instellings was 'n gedaanteverwisseling te laat ondergaan. Ons, die kliënte, kommunikeer nou met masjiene wat ons somtyds 'n goeie dag toewens, vra wat ons wil hê, aansê wat om te doen en dan die wens uitspreek dat ons sal terugkom om by 'n latere geleentheid weer van hul dienste gebruik te maak. In gevalle waar hierdie masjiene kan praat, word hul stemme deur 'n baie besliste Amerikaanse aksent gekenmerk. Die vernuwings wat agter die skerms aan die gang is, is egter nog baie verreikender. Die nuwe tegnologie het nie net die bank se aansig nie, maar ook sy inwendige strukture verander.

Die Instituut vir Mannekragnavorsing van die RGN het belang by 'n aantal sake wat in meerdere of mindere mate deur die verskillende artikels in die publikasie aangeraak word. Hierdie sake is die volgende:

(a) Die uitwerking van verandering op die werkinhoud en moontlik op die werker.

(b) Die uitwerking van die nuwe tegnologie op werkskepping in 'n belangrike indiensnemingsektor. Hierdie saak moet teen die agtergrond van die twee vernaamste mannekragprobleme in Suid-Afrika beskou word, naamlik grootskaalse werkloosheid van ongeskooldes en 'n tekort aan geskoolde arbeid.

Die artikels in hierdie publikasie behandel verskillende fasette van die uitwerking wat die instelling van mikro-elektronika op die bankwese het. Daar is egter sekere temas wat herhaaldelik voorkom, byvoorbeeld die behoefte aan doeltreffender geldhandelprosesse en veranderings in die tipe werk wat in banke gedoen word.

Die nuwe tegnololgie maak dit vir ander kommersiële organisasies moontlik om sekere dienste te lewer wat tradisioneel uitsluitlik deur banke gehanteer is. Die proses van deregulering in die bankwese gaan hand aan hand met verskerpte kompetisie tussen die verskillende banke in 'n poging om meer kliënte te trek en koste-effektiwiteit word steeds noodsaakliker vir banke indien hulle wil oorleef. Daar kan dus verwag word dat die belegging van kapitaal in die nuwe tegnologie oor die kort en medium termyn sal toeneem. Die banke glo dat hierdie belegging tot 'n toename in produktiwiteit en doeltreffendheid sal lei.

Nuwe maniere waarop banktake uitgevoer kan word, het intussen aan die lig gekom wat 'n berandering in die inhoud van bankwerk beteken en moontlik ander werktoelatingsvereistes in die toekoms sal meebring. Nuwe poste sal geskep word en oues sal verdwyn. Nuwe vaardighede sal vereis word. Die belangrikste neiging is 'n beweging weg van klerklike personeel na tegniese en bemarkingspersoneel. Die vernaamste funksies van die bankbestuurder ondergaan ook 'n gedaanteverwisseling. Hy is nie langer die bewaarder van die brandkluis nie, maar word nou 'n bemarker.

Die manier waarop die kantoor bestuur word, asook sommige roetine-kantoorprosedures het opvallend verander.

Hierdie veranderings raak nie net die bankwerknemers op alle vlakke en bankkliënte nie, maar ook die samelewing in die algemeen, omdat die nuwe tegnologie besig is om die manier waarop finansiële transaksies plaasvind te verander.

Met verwysing na werkgeleenthede het 'n opname wat in Brittanje onderneem is, op die volgende tendense gedui. Die nuwe tegnologie is geleidelik tussen 1960 en 1983 (toe die opname gemaak is) ingevoer. Gedurende hierdie tydperk het bankpersoneelgetalle oral in die land steeds toegeneem, maar teen 'n progressief stadiger tempo. Wat die personeelsamestelling betref, was daar ook 'n verskuiwing ten gunste van nie-klerklike en professiegebaseerde beroepsgroepe.

Klerklike personeel is hoofsaaklik gewerf met die oog op aanstelling in tydelike poste omdat baie aspekte van die werk nou nie meer enige besondere vaardigheid vereis nie. Aan hierdie deeltydse werkers word daar eerder 'n werk as 'n loopbaan gebied, want

> "dit is nou nie meer nodig om die grootboek te balanseer of om rekeningkundige bewerkings met die hand na sluitingstyd uit te voer nie. Die nuwe tegnologie is een van die faktore wat bygedra het tot die ontstaan van nie-beroepsklerke (vertaling)." (Rajan 1984 : 64).

Nuwe poste wat in die banksektor geskep is, was hoofsaaklik vir spesialiste in rekenaartegnologie wat vir dienste soos die bedryf en instandhouding van nuwe stelsels, programmatuurontwerp en stelselontleding verantwoordelik is. As gevolg van die nuwe tegnologie is ander professionele personeel wat in langtermynbeplanning betrokke is, byvoorbeeld statistici, ekonome en wiskundiges, in diens geneem. Nog nuwe poste is geskep op die vlak van algemene bestuur, inligtingstelselsbestuur en bemarking.

Rajan (1984) het die landwye toename in bankwese in Brittanje gedurende die sestiger- en sewentigerjare aan voortgesette sakegroei toegeskryf. 'n Aantal nuwe bankdienste het hul bestaan uitsluitlik aan die nuwe tegnologie te danke; onder andere het die betaling van salarisse en lone deur middel van bankkredietoorboekings die hoeveelheid saketransaksies wat deur banke gehanteer word, aanmerklik laat toeneem. Betaling deur middel van kredietoorboekings het ook daartoe gelei dat 'n groter getal persone deesdae bankrekenings open en dus van bankfasiliteite en -dienste gebruik maak.

Produkdiversifikasie, waardeur 'n wyer verskeidenheid finansiële dienste soos die hantering van boedels en private trustfondse, lewensversekering, makelary, faktorering, bruikhuur- en adviesdienste beskikbaar gestel word, het ook tot 'n toename in indiensneming gelei. Ten spyte van hierdie toename was daar egter 'n afname in die groeikoers van personeelgetalle. Baie van die nuwe finansiële

dienste steun al hoe meer op moderne rekenaartegnologie en al hoe minder op die uitbreiding van personeel.

In Suid-Afrika is daar geen beroepsdata beskikbaar wat uitsluitlik op die banksektor betrekking het nie. Die neiging in die finansiële sektor as geheel verskaf egter 'n goeie aanduiding van wat in die banksektor verwag kan word.

Volgens die tweejaarlikse mannekragopnames van die Departement van Mannekrag het totale indiensneming in die ekonomie (landbouwerkers en huisbediendes uitgesluit) toegeneem teen 'n koers van 2,7 % per jaar vanaf 1965 tot 1983. Indiensneming in die finansiële sektor het teen 'n veel hoër koers van 5,5 % per jaar toegeneem. Veranderings in die beroepstruktuur van dié sektor is ook aan die gang en die gevolge van die nuwe tegnologie is duidelik sigbaar. Die groeikoerse vir klerklike en rekeningkundige personeel was albei laer as die gemiddelde groeikoers vir die finansiële sektor (onderskeidelik 5 % en 4 % per jaar), terwyl die indiensneming van rekenaarpersoneel - programmeerders, stelselontleders en statistici - en bestuurspersoneel onderskeidelik met 8 % en 7 % per jaar toegeneem het.

Hierdie groeikoerse kan nie gehandhaaf word nie en die tempo waarteen nuwe poste geskep word, sal onvermydelik afneem. Kliënte staan deesdae nie meer by kassiertoonbanke tou nie, maar wel voor die OTM's waar dit nie vir hulle nodig is om vorms in te vul ten einde transaksies uit te voer nie.

Rajan (1984) het voorspel dat daar benewens 'n verdere afname in die skepping van nuwe poste in banke, ook 'n afname in sakegroei tussen 1983 en 1987 in Brittanje sou intree, terwyl al hoe sterker kompetisie verwag kan word van buite-organisasies wat nou ook in staat is om sekere bankfasiliteite aan te bied. Hy verwag ook dat banktaknetwerke gerasionaliseer sal word en dat 'n kleiner getal personeellede nodig sal wees om 'n bepaalde hoeveelheid banksake te hanteer. Die beroepsamestelling in banke sal ook voortdurend ver-

ander namate banke hulle getal professionele en rekenaarpersoneel vergroot.

Dieselfde korttermynneigings kan waarskynlik in Suid-Afrika verwag word. Wat die lang termyn betref, sal banke egter voorsiening vir die finansiële behoeftes van die groeiende bevolking van die land moet maak. Die bankwese toon geweldige groeipotensiaal en daarom sal probleme opduik indien die nodige geskoolde mannekrag wat hiermee tred moet hou, nie beskikbaar is nie. Dit word dus al hoe noodsaakliker om navorsing te onderneem na die ontwikkeling van daardie tegniese vaardighede wat in toekomstige werksituasies vereis gaan word. Navorsing kan byvoorbeeld 'n aanduiding gee van die manier waarop koste-effektiewe en doeltreffende rekenaargeletterdheidsprogramme op skoolvlak ingestel kan word ten einde aan die toekomstige werkvaardigheidsvereistes te voldoen.

Die RGN se navorsingspoging behoort moontlik gerig te word op die breër en algemener sake waarna in hierdie publikasie verwys word. Die gevolge van rekenarisering vir toekomstige mannekragbehoeftes en vir die opvoedkundige infrastruktuur wat nodig is om aan hierdie behoeftes te voldoen, is terreine wat met groot vrug deur 'n nasionale navorsingsorganisasie bestudeer kan word.

Navorsing oor die houding van bankwerkers jeens die moontlikheid dat sekere klerklike beroepe geen spesifieke vaardighede meer vereis nie en die groeiende behoefte aan spesialisasie in ander bankposte daarenteen, is noodsaaklik. Die beste manier waarop opleidings- en heropleidingsprogramme deur indiwiduele banke geïmplementeer kan word, asook kliëntehoudings behoort nagevors te word. Hierdie navorsingsterreine sal miskien nog die heel beste deur die banke self ondersoek kan word, aangesien elke bank se besonderse beleid navorsingsvereistes sal beïnvloed.

VERWYSING

RAJAN, A. New technology and employment in insurance, banking and building societies. Aldershot, Hants: Gower, 1984.

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