New technologies and their employment effects in the Australian banking sector

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Abstract
The introduction of new technologies into the Australian Banking Sector in the 1990s initiated numerous changes to employment arrangements in the Australian Banking industry. This conference paper examined a number of case studies of examples of new banking technologies and their employment effects. The paper identified two functional types of new banking technologies: those that assisted the centralisation of banking operations and; those that assisted the decentralisation of banking operations. Based on this analysis, the paper discussed the potential effects on employment structures in the Australian banking sector.

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New Technologies and their Employment Effects in the Australian Banking Sector

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Paper presented at the Australian Bank Employee Job Redesign Conference,
Good afternoon ladies and gentlemen,

I have been asked to speak today on "what effect technology is having on banking". Let me say at the outset that there is no singular answer to this question. Technology is effecting banking in many and varied ways. Not only is it enabling banks to offer new services, it is also enabling banks to modify the manner in which services are produced and delivered. This job design course itself reflects one of the effects of technology on banking. Technology has changed, and is changing, the way people do their jobs.

The Australian banking industry has undergone a metamorphosis in the 1980s. This transformation can be attributed to a number of factors, two of these being deregulation and the entry of foreign banks. The resultant competitive climate was one of the factors responsible for the rapid introduction of new information technologies into Australian banking.

The extent of this technological change has been far-reaching indeed. It has affected virtually all areas of retail banking from delivery of customers' cash to inter-bank funds transfer, from accounting in the branch to the form by which payments are made in the society as a whole.

In the 90s, increased provisions for bad and doubtful debts and continuing competitive pressures means that there will be renewed efforts to increase productivity and profitability. Staff costs are 50 to 55 per cent of operating expenditure for the major Australian trading banks, so increased productivity translates immediately to greater profits. Technology will be playing a major role in this process.

It has been estimated that the Australian banking and finance industry will spend more than $17 billion on technology over the next five years. This enormous capital outlay provides a clear indication of the perceived importance of technology to the finance sector. It also foreshadows large-scale technological and organisational changes during this period.

Over the last two years I have conducted a number of studies for the ABEU which examined new banking technologies and their implications for employment in the banking and finance sector. Each of these studies focussed on particular technologies, their capabilities, their current deployment in Australia and internationally, and also their potential for initiating change to the way banking is conducted.
These technologies can be divided into two functional groups. Those that decentralise the delivery of banking services away from the traditional branch delivery structure and contribute towards the shift to customer self service and those that centralise bank product processing tasks away from the branch back office to a centralised location. Many of them replace paper-based information infrastructures with electronic information infrastructures.

This afternoon I will introduce these technologies and their capabilities to you so you may gain an insight into the types of changes that can be expected within the banking industry in the next five years. The technologies we will be examining are:

Centralising technologies

- Electronic Data Interchange;

- Expert Systems;

- Optical Disc Information Systems;

Decentralising technologies

- Smartcards;

- Interactive Video Terminals;

- Point-of-Sale Cash Machines and;

- Telephone banking

Electronic Data Interchange (EDI)

is the electronic exchange of business data, in a standard format, between the computers of companies trading with one another.

Electronic Data Interchange:

- Replaces paper-based business transactions such as invoices and receipts with their electronic equivalent, thereby making manual reconciliation redundant;
• Lowers costs by reducing the personnel involved in paper processing and data entry;

• Combined with Electronic Funds Transfer (EFT), EDI can also remove the reconciliation process normally necessary with cheques, remittance advice and bank statements, thus reducing personnel costs.

A number of Australian banks are providing EDI services.

• ANZ has applied EDI-EFT to the payments process through its Netpay service. Netpay electronically links trading partners to one another and to the bank, providing remittance information and funds transfer.

ANZ also plans to introduce EDI internally for external purchasing and internal distribution of supplies from central stores.

According to the ANZ, EDI-EFT services will be introduced over a 3-year period and there will be no major staff displacements.

• The Commonwealth Bank has introduced EDI technology into its Bank Settlement Plan service which supports airline ticket settlement transactions between travel agents, airlines and the bank.

According to the Commonwealth Bank, staff affected by the introduction of EDI will be redeployed into other areas of the bank.

• National Australia Bank is examining EDI's potential for external purchasing and central stores distribution. EDI services to be introduced over the next two years.

• Westpac is currently evaluating EDI.

• The State Bank of NSW purchased the EDI service provider National Engineering Information Services in 1989.

• Funds Transfer Services (Australia) which provides electronic banking services building societies and building societies which have converted to banks is to introduce a new service called EDIPAY. EDIPAY eliminates the use of cash and cheques for direct transfer of wages, salaries, pensions and benefits from employers to financial institutions.
The demand for EDI services is increasing as potential users become aware of the significant savings they could make. For example, a study undertaken for K Mart revealed a potential saving of $6 per invoice. K Mart processes 14,000 invoices a day, therefore there is a potential saving of $20 million a year.

2000 Australian organisations are already linked to EDI. These include:

- New South Wales government
- Australian Customs service
- The Reserve Bank
- Australian Tax Office
- TNT
- K Mart

EDI is not confined to Australia. EDI services have also been introduced by banks in the United Kingdom, Europe, USA and Japan. The Society for Worldwide Interbank Funds Transfer (SWIFT) sees EDI as being an integral part of its long-term strategy.

EDI: tentative findings

- EDI-EFT services will be introduced on a large scale in the Australian banking industry in the next two to three years.

- As full implementation of EDI will involve a gradual transition, there will be no sudden, large displacements of bank employees. However, this does leave scope for job displacement over the longer term.

- During the transition phase there will be a certain amount of job restructuring in areas affected by the introduction of EDI. As no large displacements are foreseen, staff affected by this restructuring will be redeployed into other areas.

Staff most likely to be affected by the introduction of EDI-EFT services

- back-office staff (especially those involved in the reconciliation process);

- data-preparation operators and;

- stores personnel involved in internal and external purchasing.
Expert systems

are forms of computer-based Artificial Intelligence which capture an expert's knowledge and recreate it as a computer-based program. This is achieved by creating both a database of information relevant to a particular knowledge field, and a set of decision-making rules to apply that knowledge.

An expert system is used by following the procedure laid out on the screen and providing information in response to prompts provided by the system. Expert systems enable decisions on matters such as loans to be made by junior staff who would otherwise be lacking in expertise.

Expert systems applications have already been introduced by some Australian banks. For example:

- The ANZ Bank has introduced an internal management system, and is also developing expert systems to assist in complex banking analyses support, customer service, banking staff support and treasury operations.

- The Commonwealth Bank is operating an expert system which provides customer service advice for clerks. It is also developing other expert systems to assist in credit card applications, investment profiles and loan evaluations.

- National Australia Bank has developed a risk assessment system for consumer and commercial loans, a bank employment advisory system, a computer operations fault diagnostic system, and an electronic data processing audit system. National is also said to be developing expert systems for assessing job applications, detecting fraud in Automatic Teller Machines, and for treasury applications.

- The State Bank of NSW is piloting a loan assessment system and has also been developing an investment advice system.

- Westpac is piloting a commercial lending advice system and information systems.
An indication of the extent and timing of the introduction of expert systems is provided by a survey conducted by Compass Research. It found that of the 109 trading and merchant banks in Australia, only 17 planned to introduce expert systems in 1988-89, with 12 others planning introduction post-1990.

The introduction of expert systems will have a number of major employment effects.

A report by the US Office of Technology Assessment has claimed that one of the results of introducing expert systems into the banking industry could be a new wave of deskilling in banking. Another report claims that the introduction of expert systems into banking will "dramatically change the nature of many long-established job descriptions".

Staff most likely to be affected by the introduction of EDI-EFT services:

- loans officers;

- personnel managers;

- auditors and;

- systems programmers.

**Optical Disc information storage and retrieval systems**

electronically scan documents, digitise the scanned images and store them on optical disc. Stored images are accessed via a Visual Display Unit. An Optical Disc is similar in looks to a Compact Disc, however with a diameter of 12 inches they are much larger than a CD.

From the banks' perspective, optical disc storage technology offers many advantages over alternative storage mediums such as microfilm, microfiche, magnetic tape, and of course, paper. For instance, one 12-inch optical disc can store up to 50,000 A4 pages of information. Measured in terms of document processing and retrieval times, optical disc systems are extremely efficient when compared to alternative storage systems. They
also allow simultaneous access, through multiple VDU stations, to the images stored on optical disc.

Other advantages offered by the optical disc storage of documents include the ability to electronically transmit documents which would normally be distributed by hand. The possibility of misfiling, loss or damage of documents is removed and optically stored documents can be sorted faster than paper-based systems.

There are reportedly 18,000 optical disk systems installed worldwide. Installation sites include banks in Japan and the US. In Australia, 25 systems had been installed by the end of August 1989 - four of these by Australian financial institutions. These were St George Building Society, Austwide Finance, and the now defunct Pyramid Building Society and Tricontinental Merchant Bank.

The major Australian banks have been examining the technology for some time: Westpac for five years, ANZ for three, NAB and Commonwealth less than three years collectively. Industry sources predict that they will adopt the technology in 1992 at the earliest. There are a number of reasons for their relatively late entry.

• Firstly, they prefer to wait for the technology to mature further before outlaying the expenditure required to install the technology and introduce the organisational and structural changes necessary for adopting it.

• Secondly, rumour has it that the major banks are collaborating to ensure cross-application and compatibility of whatever systems will eventually be adopted.

• Thirdly, the current telecommunications infrastructure does not enable optical disc systems to be used to their full potential. Transmission speeds on paired wire cabling are too slow for image transmission. This means that the transmission of optical disc images is only practical within a small radius at the moment. The widespread introduction of optic fibre and broadband ISDN will enable optical disc systems to relay stored images rapidly over vast distances.

• Fourthly, current legislation does not recognise electronic images of signatures for legal purposes.
ANZ has recently completed a business systems proposal which examined the viability of optical disc technology. This was a comprehensive business micro-analysis which examined banking infrastructure changes required when Optical Disc technology was adopted.

According to the ANZ, the organisational changes necessitated by the introduction of optical disc technology would mean tailoring organisational structures to integrate the technology for maximum efficiency and profit, instead of introducing it piecemeal. Management claims that employee numbers would not decrease dramatically overall, but the structural shifts of some personnel would occur.

Some indication of the possible effects of Optical Disc technology may be gained by examining a site where the technology is already up and running. For example, St George Building Society installed an optical disc information storage and retrieval system in early 1988, to replace its older microfilm storage technology. The system is used for savings applications, loan files, cheque clearance (signature verification) and deceased estates.

According to St George's General Manager of Systems there were no major organisational changes required in the adoption of optical disc technology. He also claimed that there were no redundancies caused by its introduction, as the system is running in parallel to the older microfilm system.

From the available information on this relatively new technology, a number of tentative conclusions may be drawn:

- Banks will not introduce optical disc technology until 1992 at the earliest.

- If ANZ's planned introductory methodology is adopted by other banks, affected bank organisational structures will be redesigned to gain the maximum benefit of the new technology.

- If management projections are valid, staff organisation will be affected, but there will be no sudden, major loss of employment. However, this process still leaves scope for some loss of employment.

Smartcards
resemble a conventional plastic credit card with a microchip instead of a magnetic stripe.

The microchip provides the card with features such as memory and programmable functions. This means that, with a suitable terminal, details of transactions can be recorded onto the card itself without it being on-line to a central computer.

Smartcards can be used instead of cash, cheque books and also as conventional credit and debit cards. These numerous applications mean that considerable savings can be made through reducing paperwork that would otherwise be necessary.

Smartcards can also be used for many other functions in addition to financial transactions. Other uses include security clearance, and the storage of medical, library and academic records. They can also be used to pay for goods, restaurant meals, petrol, telephone calls, highway tolls and public transport fares.

Recent reports indicate that there are upwards of 31 million in use in France alone. In the United States, MasterCard has carried out extensive pilot tests on the uses of Smartcards. The cards have also gained limited use in Japan, Canada, Norway, Netherlands, South Africa, Germany, Spain and Italy. One report indicates that they are being introduced overseas at a rate of 2 million a month.

To date, Smartcards have seen limited use in Australian banks:

- Westpac tested a limited Smartcard system in 1988 as a security-clearance device to access the bank's Deskbank electronic banking system. Westpac reportedly does not intend to expand the system to consumers at this stage, and commentators indicate that it may be 1993 before Smartcards come into common use for financial transactions in Australia. However, as a point of interest, Westpac recently ordered 600 combined Smartcard and magnetic stripe card terminals for use by their Indosuez group banks in the South Pacific. The terminals will be used for Westpac credit cards and New Caledonia VISA credit cards.

- the Commonwealth Bank is installing a Smartcard reader/writer on some of their branch bank terminals for employee security access purposes.
Some predictions indicate that Smartcards could take over many transaction-support systems tasks by redistributing vast amounts of data processing work. They could also affect banking employment areas involved in dealing with cash, cheques and conventional credit/debit cards - that is areas such as telling and reconciliation.

Since current predictions indicate that Smartcards will not be introduced on a large scale by Australian banks within the next two to four years employment effects will only become apparent over the long term.

Interactive Video Terminals

An Interactive Video Terminal "is essentially a television screen outfitted with a videodisk, personal-computer-based software, and colour graphics capabilities". By using the touch-screen facility, programs which provide services, and descriptions of services can be accessed.

IVTs have been described as a "second cousin to the automated teller". This description is quite appropriate, as where ATMs dispense cash, IVTs dispense information.

Interactive Video Terminals have already made significant inroads overseas. They have been installed in banks in the US, UK and Spain. A good example of this is provided by the Bank of Barcelona, Spain's third largest savings bank. At the time of writing, 98 of its 300 branches have Interactive Video Terminals installed, 400 more are on order. The IVTs have dual language facilities, perform self-maintenance and process an average 2,400 transactions per machine per month.

The transactions that can be performed on the IVT are comprehensive, to say the least. These functions include balance, loan, deposit, exchange rate and bill payment inquiries, credit card and account statements, credit card sales, mortgage loan information, general loan information, travel reservations, life, accident, home and travel insurance, and even ticket sales for the opera and theatre. Several reasons have been advanced for the Bank of Barcelona adopting IVTs. For example, they reduce personnel costs, increase teller productivity by transferring non-cash transactions to the IVT, and provide an accurate and consistent description of financial products and services.
Two Australian banks have introduced IVT technology, with varying results.

- The ANZ bank opened an *unstaffed* 'Night and Day' branch midway through 1986 in Balwyn, a suburb of Melbourne as part of a pilot program. The branch featured both drive-up and indoor ATMs, a Philips interactive video terminal and also Videotex and 'Fastcash' terminals.

The IVT provided information on ANZ banking products and also enabled customers to investigate loan repayment schedules. As the terminal was 'off line', customers could not access account related information.

The IVT was removed after two years operation. According to ANZ management, this was due to its lack of use which failed to justify the expense involved. Bank staff from a nearby branch stated that the people in the office weren't trained well enough to use the IVT to its best advantage. Another source stated that the Philips IVT technology was a few years old. It was an information only system and it wasn't on line, so its possible range of functions were restricted.

Although ANZ's first encounter with IVT technology was disappointing, the National Australia Bank's attempt seems to have met with much more success.

*National Australia Bank, Forrest Place Branch, Perth*

National Australia Bank opened a fully-automated branch at Forrest Place in Perth in early 1989. The branch consists of four full colour ATMs and an NCR Interactive Video Terminal. There are no counters and no human tellers handling cash. The only cash held at the branch is in the ATMs and these are serviced at night by security branch personnel. The fully automated branch depends on other NAB branches close by for customers who require cash transaction services which cannot be serviced by the ATMs.

The branch has a predominance of savings and cheque accounts and is operated by three staff. As the only cash holdings are dispensed by the ATM, less staff are required. According to a staff member, six staff would probably be required if the branch dispensed cash over the counter.

Fifty services are available from the IVT. These include consumer finance applications, statement printing, cheque book ordering and interest rate
enquiries. An interesting application that has been developed, but not yet introduced, consists of loans that can be credit-checked, confirmed and funds transferred to an ATM immediately, without the need for staff intervention. The main drawback to the introduction of IVT/ATM approved loans in Australia is that loan documents require the customer's signature to be legally binding. However, this application has already been introduced in the US for small loan amounts.

The NAB IVT experiment has been judged successful enough to warrant the installation of more IVTs in other branches. One or two machines were to be installed in Melbourne in December, 1990. One was also installed in North Sydney at around the same time. Two others may be installed in Victoria in the near future.

NAB management has speculated that at some point in the future, a telephone-based supervisor of multiple, unstaffed sites may be feasible.

The following tentative conclusions can be drawn:

- IVTs could replace some of the functions currently performed by tellers and enquiry counter staff.

- IVTs, in combination with ATMs, can reduce branch staff numbers and modify or even dispense with bank staff duties.

The scale of introduction of IVTs will of course, vary from one bank to another, and could range from their installation at selected branches to the full-scale reorganisation of branch banking activities.

One can only speculate on how long it will be before IVTs, in common with ATMs, have the ability to access services and information from multiple banks. An optic fibre communications infrastructure would make such a development a possibility.

**Point of Sale (POS) Cash Machines**

are a cash vending machine specifically designed for installation at non-bank sites such as supermarkets, hotels and clubs.

PosCash machines are operated in a similar manner to ATMs, however they perform cash withdrawals only. This single function ability is not viewed as a disadvantage as 95% of ATM transactions consist of cash withdrawals.
One of the main advantages of PosCash machines is their connection to the unified EFTPOS network. This means that they can access accounts at any bank. ATMs are disadvantaged in this regard as they operate on a split network. This means that ANZ/NAB customers cannot access their accounts through the Commonwealth/Westpac ATM network and vice-versa.

Three Australian banks are currently involved in PosCash technology.

- The Commonwealth Bank has been actively marketing and distributing Unisys PosCash machines since late 1988. They have installed 129 PosCash machines to date with 34 more installations pending. The majority of these POS machines are installed in NSW, although there are a number in other states. At present the machines are mainly in clubs and Sydney hotels however there are plans to expand installation sites into supermarkets, shopping centres, credit unions and university campuses.

Examples of installation sites in other states include: Lindeman's winery in Mildura, and a shopping centre in Darwin. In Adelaide, South Australia, the Mobil refinery Credit Union has installed a PosCash machine to dispense cash for employee salaries. This has enabled Mobil to reduce the costs associated with manual pay distribution and provide a cash service to employees.

- NAB and ANZ began installing Philips cash dispensers at non-bank sites in 1990.

Although there are less than 200 PosCash machines in operation at the moment, all EFTPOS connection sites possess the technical potential for becoming PosCash sites. There are currently 16,000 EFTPOS terminals located throughout retailers, service stations and supermarkets.

As a cash distribution medium, PosCash terminals provide a number of advantages when compared to ATMs. As ATM locations are mainly restricted to bank sites, PosCash machines make cash available to customers at sites where it is actually needed and used.

The provision of cash access facilities on-site can reduce the use of alternative payment methods such as Bankcard and cheques. If the PosCash machine follows the lead of EFTPOS terminals in automating the Bankcard transaction process, there may be a reduction in Bankcard voucher
paperwork processing, effectively reducing the workload of some back office staff. This situation may also occur to some degree with cheque based payments, thereby effecting staff involved in the reconciliation process.

PosCash machines provide another example of a technology which is removing cash transactions from the banks and therefore away from bank employees. The removal of bank services from bank sites further reduces the cash-handling role of tellers.

PosCash tentative conclusions:

- PosCash Machines represent another step in the provision of bank services at sites other than banks;

- Although there are less than 200 PosCash machines installed, the potential for the widespread adoption of the machines is enormous;

- PosCash machines have the potential of converting non-electronic banking customers into users of this type of transaction;

- PosCash machines may reduce the role of bank staff involved in areas such as over-the-counter cash transactions, ATM servicing, credit card settlement procedures and cheque reconciliation processes.

**Telephone-banking**

services can be divided into three fairly distinct levels:

- telephone banking which uses normal push-button telephones and some form of voice response technology;

- 'Hi-tech' telephone banking which uses recently developed telephones designed specifically for banking service provision and;

- telephone banking as a total replacement for normal banking service provision.

1. **Phonebanking as a supplementary service to normal banking service provision**

Initially starting out as a bill paying service, phone banking has evolved to a point where it is no longer necessary for bank staff to be physically
involved in the phone banking process. The combination of voice-response systems and touch-tone telephones have done away with that.

With a touch-tone telephone, customers dial in and enter their account number and and personal identification number. Once these are verified, the bank's computer will talk to the customer via voice synthesis, and invite them to press the appropriate buttons to indicate, for example, the amount of money to be transferred or the number of the account from which the funds are to be drawn.

Automated voice response telephone banking systems offer banks a number of advantages. Not only do they operate 24 hours a day, 7 days a week, they also remove the necessity for some bank customers to carry out their banking at branches, thereby increasing productivity and in some cases reducing staffing requirements.

ANZ's Will Bailey has argued in the past that he didn't see home banking as a serious option because it lacked 'the opportunity for customers to socialise and rub shoulders with other people'. However, a survey of customer attitudes in the UK to voice response telephone banking contradicts this. It found that over 80% of survey respondents said they would use such a system and would prefer automation to people.

**Australia**

Varying levels of telephone banking services have been introduced by Australian banks. Examples of these are the Commonwealth Bank, Westpac, the State Bank of Victoria and the State Bank of New South Wales.

- The Commonwealth Bank's telephone banking service, 'Phonebank', enables customers to gain access to account balance information, transfer funds and make bill payments by phone to over 1,500 registered organisations.

- Westpac reportedly spent over $2m developing the system used by its Handyline telephone banking service. Customers have access to the service seven days a week. As at July, 1990, over 100,000 customers were reportedly using the service. Westpac plans to expand its telephone banking facilities by introducing a 'loans over the phone' service in the 1990s.
• The ANZ Director of Retail Services, Mr Don Mercer, commented on the inevitability of the introduction of some form of telephone-based banking by the ANZ.

Overseas, telephone banking services have been introduced by banks in the UK, USA, Japan, New Zealand and Finland. In the US, for example, several million people reportedly use telephone banking services.

The next stage of the evolution of phone banking is about to commence with the release by several manufacturers of new generation phones designed specifically for multiple home banking applications.

2. High-tech phonebanking
Recent developments in Japan and the USA have seen the release of Electronic banking phones. These devices make it possible to directly communicate with a bank's computer via the phone keyboard and can printout or download relevant account information onto the telephone's printer, screen or Smartcard depending on which particular telephone is being used.

3. Phonebanking as a total replacement for normal branch banking service provision
The prime example of telephone banking's potential is provided by Britain's Firstdirect Bank. Firstdirect has no branches, all services are provided remotely by phone and are available 24 hours a day, seven days a week. All customer contact and transactions are handled over the telephone, through the post or via a shared ATM/EFTPOS network. Customers have access to a number of services such as the payment of bills, provision of mortgage finance, share dealing, personal loans, insurance products and foreign exchange.

In Australia, the newly-formed Over 50s Building Society is following Firstdirect's lead by having no branch network at all. It's customers will also conduct all transactions by telephone.

The future evolution of telephone banking will, as in the past, depend on the development and application of enabling technologies. At this point in time a number of technologies present foreseeable applications in telephone banking. These include speech recognition systems, artificial intelligence and Smartcards.
In future, speech recognition will enable customers to transmit instructions to their bank via telephone by speaking them, rather than pressing numerical keys. Although not technologically fully developed yet, speech recognition with artificial intelligence will provide the truly interactive system.

Westpac has already recognised the potential for speech recognition in banking applications. Their 1988 Annual Report revealed that their Research and Development Unit was investigating potential banking applications of voice recognition.

Australian banks have reportedly expressed interest in entering the reformed Australian telecommunications industry as a competitor to Telecom. It is not hard to envision a future where the introduction, and increased usage of Smartcards, will provide the opportunity to utilise modified public telephones and mobile phones for the provision of banking services.

Employment effects
Whichever form of telephone banking is introduced, the service provides another example of a technology performing duties previously performed by bank employees. Potential employment effects of telephone banking vary depending on which forms of the service are introduced by the various banks. The effects could vary from a reduction of the number of routine cash transactions handled by branches, thus freeing staff for more productive activities, through to a major reorganisation of the delivery of banking services and a subsequent displacement and reduction of bank employee numbers.

The future of branch banking?
We have examined a number of technologies and their possible organisational and employment effects. The case studies presented here indicate some broad trends in the Australian banking sector. The extent and effects of the introduction of specific technologies will depend on which banks introduce them. For example, this paper has indicated that, in the main, large banks are more likely to introduce new technologies on a large-scale basis than smaller banks. This relative scale of introduction would probably play a major role in determining how largely organisational structures are modified or redesigned. This is turn would affect the magnitude of personnel reshuffles.
In general, the case studies suggest that the introduction of individual technologies will not lead to any sudden, major loss of employment in the Australian banking industry, and that natural attrition will, in most cases, shed redundant personnel. Several positions will be redefined and their skill requirements may also be downgraded. The role of the teller is a particular example of this process. However, this situation still leaves scope for a certain amount of employment loss in the longer term.

Banking services are now moving beyond the boundaries of their traditional place of delivery, the local bank branch. Many tasks formerly performed by bank employees are now being performed by supermarket checkout operators, garage attendants and shop assistants in general. EFTPOS technology has made this possible. This is not even taking into account the move to self-service by the banks' customers themselves.

In these days of direct salary deposit, ATMs and EFTPOS many customers no longer require traditional forms of delivery of bank services. Since their introduction, there has been a steady increase in the usage rate of these devices by the public. In fact, Westpac recently reported that more than 43 per cent of their transactions are now carried out by automated machines such as ATMs. The rise of card-based electronic banking means that customers are no longer tied to a specific retail branch. The banking system itself, rather than the individual branch, has become the means of delivery for financial services.

In combination these factors have the potential to significantly change the nature and form of branch banking as we know it. I have described the way these technologies are shifting the delivery and processing of services away from branch outlets to other locations. So I will now turn to examining other trends which may provide some indication as to the future form banking may take in the future.

Strategies adopted by some of the newer 'niche' retail banks, such as Citibank and Chase AMP, demonstrate that widespread branch networks are no longer a necessity for operation in the Australian banking environment. These banks reap significant savings by offering customers account access via ATM networks, mail services and sub-agencies, instead of operating extensive (and expensive) retail branch networks.
While it may not be practical for the larger and older banks to follow this lead in the short term, there is a distinct possibility that electronic banking may provide opportunities to reduce branch and staff numbers in the longer term.

The ANZ, Commonwealth, National Mutual Royal and Westpac banks have sold and leased back a number of their branch premises over the last two years. Various reasons have been given for this move, such as the reduction of administration involved in multiple small property holdings, and the raising of capital to fund other areas of expansion. However, these explanations aside, the question begging to be asked is, do these property sales constitute a preparatory step towards a reduction in the number of operational retail branches by these banks?

There are a number of possible alternatives to the traditional branch outlet structure. We have previously examined alternative forms of bank branches made possible by Interactive Video Terminals and ATMs. That is, fully automated branches with reduced or no staffing requirements.

As these technologies continue to evolve and converge into integrated banking technology systems, many revolutionary possibilities arise. Combinations of technologies such as ATMs and IVTs; PosCash machines and the EFTPOS network; Optical disc storage systems and Optic fibre; Electronic Data Interchange and Electronic Funds Transfer; Smart cards and telephone banking provide the potential for banks to form co-operative agreements to share premises and equipment.

In such an arrangement, it would only be necessary for there to be one banking outlet in any town, instead of half a dozen or more as there is currently. The overhead cost savings that could be reaped by such co-operative arrangements would be enormous.

As a large proportion of bank employees are actually employed in bank branches, any menace to the branch banking structure such as this would pose a major threat to employment in the banking industry.