CHAPTER - TWO
2. COMPUTERISATION IN BANKING INDUSTRY IN INDIA
   AN OVERVIEW

2.1. INTRODUCTION:
Banking Industry has undergone a phenomenal change since nationalisation of 1969. The change from class banking to mass banking resulted in wide geographical coverage in terms of branch expansion and ever swelling number of employees [See Table Nos. 6&7]. The last decade and a half brought many more changes, ranging from intensification of competition, diversification, to the regulatory climate and administered interest rate regime which has given way to situation determined by market forces. More recently, the deregulation, and liberalization were bound to make banking more complex and the bankers had to manage it on scientific and data base approach. As it is the speed and accuracy of decision which will determine the future of the organisation and not the size of the organisation or the number of its employees.

A few years ago “The Bankers Magazine”, outlined the major forces that would shape the financial services industry as follows:

- Macro-Economic Environment,
- Competition,
- Regulatory Changes, and
- Technological Innovations.

Computerisation forms part of the technological innovations in the banking industry of today’s world. The banking industry has been an active participant in the computer revolution. The adoption of computer in banking industry on the one hand is closely related to a change in the structure of organisation and nature of operations in banking industry itself, and on the other hand, to the emergence
of computer as a significant organisational tool.

Internationally, computers emerged on the business scene somewhere during the mid-1950s and soon became part of the banking industry. The Bank of America and the First National City Bank of New York were perhaps the first among the banks in the world to experiment with computer processing, especially for high value transactions. But even in the U.S., EDP developments within the banking industry until the mid-1960s were confined mainly to large banks with deposits of over $100 million.

2.2 COMPUTER IN INDIA

In India, too, computerisation started somewhere during the 1950s, when Indian Statistical Institute, Calcutta (ISIC) installed a first generation computer. Another first generation computer, URAL was installed at ISIC in 1958. Till the year 1974 some twenty seven computers were installed in India (Of which fifteen were in Public sector, five in education and R&D and remaining seven in private sector. For detail see Table No.2).

In terms of indigenous capabilities, during the 1960s, India had a very small and unsophisticated electronics industry. It is believed that India’s defeat in the October-November 1962 border war served as a catalyst for a closer attention by Indian planners to electronics industry. In August 1963, an inter-departmental electronics committee (known as the Bhabha committee, named after its chairman Dr. Homi J. Bhabha until his death in 1966) was established to assess the countries requirements in electronics and to suggest an industrial strategy for Indian electronics. It was meant to make India self-sufficient in this field at the shortest possible time and in the most economical manner. The committee suggested, a production capacity of Rs. 2 crore per annum to meet the existing requirement. It further recommended an expansion rate of about 33 per cent to reach the target of Rs. 100 crore within ten years period.
Thus, the Indian policy makers had three explicit goals concerning its ties with the international computer industry. First, Indians should participate in the ownership and control of foreign computer subsidiaries in the country. Second, by the late 1960s and early 1970s, wholly Indian producers should satisfy most of the countries needs and the foreign units were to supply very exotic technologies and large systems on temporary basis. And, third, India should produce advanced systems available internationally at the shortest possible time.

If we take a close look at the computer installation figures, till 1978 out of the 448 computers installed, nearly 86 percent were supplied by the international concerns. The share of IBM, the then giant, works out to be about 30 per cent [see Tables 1-3 for installations]. Majority of these computers were installed in public and private sector, governmental and academic institutions and institutes involved in R&D activities [see tables 1-3]. The period of 1960s saw the establishment of two Indian organisations, namely ECIL (1967) and TCS (1968) for hardware and software respectively.86

According to Joseph, during 1973-83, India took a leap forward from dependency to autonomy when IBM had to wind up its operations from India. Thus the American banyan tree was removed for the Indian shoots to grow.87 But the licensing statistics for the years 1970-90,88 suggest that no substantial growth in terms of indigenous manufacturing could be achieved until the New Computer Policy was announced on November 19, 1984 by the then Congress government along with its policy of liberalization.89

Since the New Computer Policy of 1984, Indian computer industry has grown both in terms of physical output as well as range of products introduced in the market. The compound growth rate in monetary terms during last plan period was about 50 per cent.90 The high growth rate of the last plan period slackened in the subsequent years. The production of computers during 1984-85 stood at Rs. 95 crore,91 which increased to Rs. 424 crore in 1987-88 and Rs. 560
crore during 1988-89. The majority accounted for PCs, PC-XTs, PC-ATs and systems based on 80386 microprocessors. The deceleration in the growth rate of the electronics industry is attributed to a shift in government policy. The growth came down from 44 percent in 1989-90 to mere 24 per cent in 1990-91. During the VIII plan period range of products are to widened as per the blue print. A production target of Rs. 2,800 crore for the 1994-95 has been envisaged [see table Nos. 4 and 4a for production of computer and target during VIII plan]. During 1991-92, the turnover was Rs.970 crore which increased to Rs.1103.78 crore in 1992-93 and now (1993-94) to 1223.86 crore an increase of mere 10.88 per cent. The information technology industry turn over recorded an impressive growth of (Rs.4364 crore) 34.42 per cent during 1993-94. The years 1993 and 1994 are considered as the period of 80386 microprocessor systems, when PC-XTs became extinct and 80286 microprocessor base systems are on its way out.

There is a marked drop in the prices of both hardware, software as well as peripherals as a result of the economic liberalization. The competition is going to get intensified further as the internationally known brands such as the IBM, Compaq, and Dell have reentered/entered the Indian market. Since the home market is not to provide Information Technology industry further avenues for growth, the trend is towards export of hardware which accounted for Rs.260-270 crore during 1992-93 and is envisaged to double in 1994. The Software industry turnover for the year 1992-93 amounted to Rs.1080, of which Rs. 675-700 crore came from export. During 1993-94 total software revenue Rs 1715 crore outstripped hardware revenue. The training sector recorded a growth of 65.43 per cent to net Rs 224.90 crore compared to Rs 135.95 crore during 1992-93.

After the IBA’s agreement of 29th October 1993, to computerise 3000 branches of banks in the banking industry, at least three agencies TCS, the ECIL and Kale consultants have announced software packages to perform branch automation.
functions. The packages based on RDBMS, UNIX, and BASIS are made available by the above vendors costing around Rs. 15-20 lakhs. It is believed that the banking industry’s plan to computerise would provide a boost to IT industry in India. Thus we may conclude that all the required technology is available in the country for the banking industry to go ahead with its programme of computerisation.

2.2.1. Computers in Banking

The issue of mechanisation/computerisation in banking industry is closely related to the massive growth of the industry and diversification of its activities. The banks which were confined to urban and commercial centres before nationalisation of fourteen major banks in 1969, were required to play an effective role in the economic development of the nation and social upliftment of its people. The very concept of banking has undergone a sea change, a rapid business expansion, diversification and increasing social orientation. The last few years have brought yet new challenges demanding efficient and timely response to meet the requirements of 1990s.

In terms of geographical coverage, the number of branches of commercial banks rose from a mere 8262 in 1969 to 30,202 in 1979, 57,698 in 1989 and 61,235 at the end of March 1993 [see Table No.6]. A growth of about 741 per cent. Likewise the number of employee, too, increased substantially. From 220,000 in 1969 to 594,000 at the end of 1980, and now it stands at about a million. The aggregate deposit as on January 7, 1994 stood at Rs. 3,03,982 crore (Rs 52540 demand deposit and Rs. 251441-time deposits) which rose from Rs 4646 crore in 1969. The bank credit which was Rs. 3,600 crore has risen to Rs. 160574 crore. Apart from substantial growth on the financial fronts, various new series were also created by the banks like merchant banking, portfolio management, mutual funds, and leasing etc.
The banking scenario in the remaining years of the 20th century and beginning of the 21st century would be expected to witness many changes. Unless the banks change their organisational structure, improve their work technology, and train the staff, they will not be able to cope with the future shock. Banks have been taking many steps to meet changing requirements and one of them is the computerisation.

2.2.2. Computerisation During 1960s and 1970s.

The efforts to computerise Indian banks dates back to 1962 with the introduction of Unit Record Machines at the Reserve Bank of India (RBI). But if we take the financial institutions as a whole, then, in true sense Life Insurance Corporation of India was perhaps the first to install a computer in 1963, for maintenance and processing of insurance policies. Subsequently, in 1967 both RBI and SBI installed computer systems, the former to process statistical data and for research purposes and the latter to reconcile inter-branch transactions.

Since the beginning of 1970 various committees and working groups appointed by RBI, NIBM, IBA, recommended that computerisation was inevitable, though in selected areas of operations only. Following the IBA’s settlement (First Bi-partite settlement) with All India Bank Employees’ Association in 1966, LPMs at Branches and Unit Record Machine at Head Offices were allowed.

2.2.3. Computerisation in RBI

Even before the formal installation of computer by RBI, it made use of computer on time sharing basis with the Tata Institute of Fundamental Research. The model CDC-3600 was used for forecasting of various business parameters like deposits, bank credits, etc., and also for processing the returns relating to deposit surveys. It acquired Honeywell-400 in 1967/68 and an enlarged version Honeywell Bull Cii 64/60 a third generation computer. The latter was installed at the then department of Statistics (now known as the Department of Statistical Analysis and Computer Services).
2.2.4. Computerisation during 1980s.
The decision of the National Industrial Tribunal (popularly known as the Dighe Award), towards the end of 1981 may said to be the turning point in the history of computerisation in banks in India. After a full length discussion with the disputants; namely RBI and Unions of the employees, who opposed computerisation on the ground of retrenchment of staff and reduction in job opportunities in future, the Tribunal gave an unequivocal award in favour of use of computers and other sophisticated machines. But tribunal put the restriction that not more than ten per cent staff should be displaced owing to computerisation.¹⁰⁷

The Indian Bank’s Association (IBA) entered into an agreement with All India Bank Employees Association (AIBEA), the National Confederation of Bank Employee (NCBE), on 8th September 1983. This was the first industry level settlement on computerisation and mechanisation and paved the way for the use of Electronic Ledger Posting/Accounting Machines, Micro-processor/Mini computers and Mainframe systems to support specific functional area at branch/ zonal and head offices of banks subject to certain conditions. Accounting machines with attached memory modules were to be utilised in banks for the purposes of current accounts, deposit accounts, general ledger accounts cash, credit and loan accounts in urban and metropolitan centres. Computers were allowed for clearing operations, inter-branch reconciliation, remittances, foreign exchange dealings, investment management, personnel inventory, payrolls, Provident Funds account, merchant banking and management information systems. But no mechanisation was allowed for rural and semi-urban branches having fifteen or less staffs. This agreement was valid for a period of three years from the date of agreement.¹⁰⁸

A few months before the first bi-partite settlement on computerisation, the RBI appointed a committee in July 1983, known as Committee on Computerisation/ Mechanisation in Banking Industry, to consider the question of computerisation
and to draw up a phased programme bearing in mind the future expansion. The committee was headed by Dr. C. Rangarajan, the then Deputy Governor, Reserve Bank of India. The committee conducted a detailed study and prepared a plan for mechanisation/computerisation and submitted it in 1984.

The committee submitted a detailed plan for a five year period from 1985-1989. The computerisation were to take place at the following three level:

i. Head Office Level
ii. Regional/Zonal Level, and
iii. Branch Level.

At the apex level, the head office of a bank is organised into divisions/departments, on functional basis. Corporate planning and policy formulations, monitoring and review of institutional performance are the responsibilities of head offices. It is also responsible for audit and inspection of branches in most banks.

The zonal/regional offices are organised on geographical basis, depending upon the concentration of branches within the respective area. A regional office, generally supervise the working of about 30-50 branches while a zonal office supervises the working of 3-5 regional offices. In some banks like SBI, the zonal offices are organised on the lines of head office, called local head office (LHO) with emphasis on operational areas. The zonal/regional offices share responsibilities for planning, development, control over credit operations, personnel management and training and administrative services.

The branches are responsible for dealing with customers and for conducting the actual business of the banks. But some branches are also called non-business branches or extension counters. There are certain branches which deals in functions like foreign exchange and some are called NRI branches.

The Rangarajan Committee recommended mechanisation/computerisation at all three levels of banking structure in two phases. In the first phase between
1985-87, the head offices of the banks were to be equipped with mainframe computer systems. The zonal offices should be equipped with microprocessor systems. About 2500 branches were to be equipped with Machines (ELPM) and microprocessor systems. In the first 10,000 ALPMs, 200 microprocessors and 25 mainframes were to be procured and installed.

Initially standardised hardware and systems software specifications were prescribed for RO/ZO systems. These were finalised with the help of CMC limited. Thus VME bus, MC 68000 family chop, UNIX Operating System, UNIFY Database, Microfocus COBOL etc., were prescribed and vendors expanded on that basis. These have been relaxed recently to take advantage of the state of the art available in the country. The only standardisation insisted upon is UNIX as O/S, Microfocus COBOL, and X.25 protocol support.

CMC limited was also requested to develop standard software packages for the applications listed in the committees report. Banks had the option to acquire them from CMC or develop it in-house. CMC limited came out with the following seven packages: On Credit Information System (CRISP), Personnel Inventory System (PINS), and Weekly Returns to RBI (WIRE), Performance Budgeting, Cash Management, Provident Funds Accounting and Payroll. Most banks have operationalised these packages and quite a few of them have developed in-house, several packages, such as Investment Management, Outstanding entry in Suspense Account, Compilation of Annual Closing Returns, Agricultural Credit Monitoring, Share Applications, and Pension Payments etc.

In order to accomplish the massive task of computerisation, immediate establishment of Electronic Data Processing (EDP) Cells was recommended. It was envisaged that 40,000 to 45,000 data entry personnel and about 1000 systems Analyst would be required and the staffing requirement would totally be met from within. They should be trained in individual bank's TC/STC for low level skills while for high level skills, NIBM and other allied institutions will
impart training.

There were three considerations for mechanisation/computerisation; viz.,

* Volume and type of data required to be captured;
* Objectives of information to be extracted from the data and the type of processing involved; and
* Form in which these data are to be stored and retrieved subsequently.

Although the banks embarked on the programme of mechanisation from the beginning of 1985 but it was not until the second bi-partite settlement on 29th March 1987 that any smooth result could be achieved. The agreement laid down a detailed norms for computerisation.

The second Rangarajan Committee (1989) suggested full automation of 2,000 to 2,500 branches by the end of 1994. It also suggested installation of additional mini computers at the RO/ZO level so as to take the total to 900 mini computers. But the agreements of 1983, 1987, and 1989 diluted the target. Instead of 30,000 ALPMs, only 5,700 or less than 19 per cent were to be installed. The plan of computerisation of 2000-2500 branches was reduced to one branch per bank per year in 1989 agreement. However no major changes were carried out at the level of Head Office and ROs/ZOs. Against the target of 300 microprocessors the agreement of 1983 itself suggested for 18 mini computers per bank at the ROs/ZOs and at the Apex level one mainframe per bank was agreed upon.

A study by E.S. Mohan suggests that the actual installations are much below the target even in the beginning of 1990. The following figure shows installations in the beginning of 1990:
Table- B

Target of ALPMs on 30.09.1989
at Branch Level

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Shortfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordered</td>
<td>5270</td>
<td>305</td>
</tr>
<tr>
<td>Delivered</td>
<td>5224</td>
<td>46</td>
</tr>
<tr>
<td>Installed</td>
<td>4936</td>
<td>288</td>
</tr>
<tr>
<td>Operational</td>
<td>4661</td>
<td>275</td>
</tr>
<tr>
<td>Live-run</td>
<td>3812</td>
<td>849</td>
</tr>
</tbody>
</table>

Target of 311 Mini Computers as on 30.09.1989
At Zonal/ Regional Offices

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Shortfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordered</td>
<td>266</td>
<td>45</td>
</tr>
<tr>
<td>Delivered</td>
<td>256</td>
<td>10</td>
</tr>
<tr>
<td>Installed</td>
<td>236</td>
<td>20</td>
</tr>
<tr>
<td>Operational</td>
<td>231</td>
<td>05</td>
</tr>
<tr>
<td>Live-run</td>
<td>231</td>
<td>00</td>
</tr>
</tbody>
</table>

By the end of June 1992, Public Sector banks alone had installed 5942 ALPMs at 2068 branches of which 5506 were operationalised and 5217 were on live run. Banks also installed 289 mini computers at ROs/ZOs. There were thirteen bank’s head offices having mainframe computers and several others were at an advance stage of installation. The number of trained manpower stood at 49400. This is against the figure of 1991 when 5190 ALPMs were installed at 1798 branches and 4977 were operationalised and the number of mini computer stood at 282.
2.2.5. Objectives of Computerisation:
The objectives of computerisation are as follows:

2.2.5.1. Branch Level:
* improvement in customer service;
* improvement in house-keeping operation; and
* speedy transmittal of statistical data for generating MIS control.

2.2.5.2. Zonal/Regional Office Level:
* to capture data on computer media such as floppy disc or tape, validate/ edit them for generation information for control and follow up purposes; and

* to transmit these data for direct input to mainframe computer system at head office of the bank.

2.2.5.3. Head Offices:
* orderly storage of data in a meaningful format and to facilitate their retrieval;
* analysis of data to exercise control and audit checks;
* generation of report for management, policy formulation and evaluation of performance; and
* maintenance of external data base on domestic and international economy.

At head offices, certain batch processing application too were to be performed:
   i. reconciliation of inter-branch transaction;
   ii. weekly statement of affairs;
   iii. basic statistical returns; and
   iv. performance of branches.

This is besides the Word Processing, training report generation, software development and consolidation of Annual Accounts.
2.2.6. Computerisation scenario in 1990s.

Computerisation in banking in the present decade is to be largely governed by the second Rangarajan Committee (1989) report and in accordance with the Third Bi-partite settlement of 1993 (i.e., The agreement of 29th October 1993 between the Management of 58 banks as represented by the Indian Banks’ Association and their workmen, represented by All India Bank Employee Association (AIBEA) in supersession of all previous industry level bipartite settlements on computerisation and mechanisation). This agreement does not put any restriction on individual banks entering into an agreement with their unions for higher degree of computerisation. But benefits would be on the basis of standard set by the industry level agreement.

2.2.6.1. Branch Level Computerisation as per the 1993 Agreement.

Banks may partly or fully computerise/mechanise some or all operations in branches as specified below:

All branches falling in the category where 750 or more vouchers are processed daily and fall in urban, metropolitan, urban agglomeration and peripheral territories treated at par with urban and metropolitan centre for the payment of HRA/CCA. Branches not covered above but categorised as special branches and non-business branches/offices carrying out ‘special functions’.\(^{115}\) Besides, each bank may fully or partly computerise branches every year on the following basis:

i. bank with branches not exceeding 500, one per cent or a minimum of 3 branches every year;

ii. banks with total number of branches exceeding 500, 1/2 per cent, with a minimum of 5 branches every year.

The banks may also install ATMs on similar lines as in i & ii above. The provisions for Note Counting Machine, Signature Verification Equipment, Pass Book Printers and Demand Draft Printers has also been made.\(^{116}\)
All workman/employees who are in bank’s permanent service and permanent part time employees drawing scale wages on 1, November 1993 will get one advance increment in the scale of pay along with all the consequential benefits. Those on probation on 1, November 1993 will get one advance increment, one year after the confirmation.

In the face of the agreement/settlement of 1993 the target of computerisation of 4000 branches set by Rangarajan Committee out of total of 61248 branches by October 1996 does not seem possible. But experts in TCS believe that a realistic target would be about 2,000. If we calculate the total number of branches to be computerised per year on the basis of minimum i.e, 1/2 per cent. the figure would turn out to be 3062 branches per annum. Everything remaining constant the whole industry (commercial Banks) would be computerised by 2010-15.

2.3. CPPD/EDP:

One of the most important recommendations of the Rangarajan Committee (1984) was the immediate establishment of EDP cells to undertake the job of computerisation at the banks end. After the bipartite settlement on computerisation (1983), all major banks set up a separate department at the Head Offices and LHO known as the Computer Policy and Planning Department CPPD and EDP cells [see Chart for Organisational set up in appendix B, Nos. II&III] at the ROs/ZOs. But in the absence of any guide lines either from RBI or from the committee on computerisation and also owing to lack of experience, the only source available to banks was to venture into the western literature and identify the objectives of the proposed department.

The organisation set up of the computer/EDP department may vary from organisation to organisation, however, a typical structure may look as given below.
CPPD officers were identified after conducting a selection test by BSRB from within the bank. It is believed that “it is more difficult to convert an outside computer expert into a banker, than a banker into a computer specialist”. Initially an eight weeks training (on the job) on mini computer and practice to equipment with higher level EDP skills were given to the selected personnel. Thirteen modules were identified to be administered. The duration of these programmes varied from five to fifteen days and the total package of 13 modules were to continue for a period of eighteen months. The training was to be conducted in the following:

1. File Organisation and Access Techniques,
2. Computer Architecture,
3. Computer Operating System,
4. UNIX and C,
5. UNIFY - DBMS,
6. Systems Programming Standards,
7. Data Structure,
8. Advanced Programming Techniques,
9. Techniques for On-Line Systems Design,
10. Quality Assurance,
11. Data Communication and Networking,
12. Design and Control of Information Systems, and
13. Effective Team Management.

The two basic functions of CPPD were identified as:

i. Systems Development, and

ii. Systems Operations.

Taking a specific case of Canara Bank, we find that a Data Processing section was established in 1965. This section was upgraded into CPPD in February 1985, headed by an Assistant General Manager. Here, too, like any other bank, people were selected from within, based on an aptitude test and trained extensively on a hired DGS in COBOL, and Systems Analysis and Design. Realising the importance of this department later on a Deputy General Manager was made incharge in 1988.

In almost all major banks, we found either an AGM or a DGM heading the CPPD section. The organisation chart of Canara Bank has been cited in appendix as example for the location of CPPD in the total organisation. An Annual Conference of the CPPD chiefs is a regular feature where they get opportunity to exchange their views and also abreast themselves with many new ideas.

At the Zonal level, we find EDP cell in existence, which collects data from the regional offices and respective branches, compile them and transfer to the respective head offices for up-date of the database at the apex level. Therefore, the set found is, CPPD at the apex level followed by EDP cells at the regional/
zonal offices and stand alone PCs at the branch offices or ALPMs in operation. What is noteworthy here is that Networking is yet to be done, except in some banks LAN platform is in operation. Data transfer is through disc or tape to the head offices and vice-versa and to the users in the form of print outs.

By now all banks having any form of computerisation have a CPPD department at their central offices. But a criticism for the functioning for the CPPD department is that it has not been involved in framing policies and in planning for computers in banks. This kind of criticism seems baseless except where it is not yet fully established and where it is still headed by lower cadre staffs. In five banks it is still staffed by scale III and IV officers. There still exist some vacancies to head this department in many banks and technically qualified people are not available.

However, we find a substantial progress made in this direction and banks are now self-sufficient. It may be worth noting here what Narsimham committee with regard to recruitment suggested, “given the increasing diversity and sophistication of business, it may be necessary for banks to go to the market for recruiting manpower with special skills from time to time and, it would be therefore, necessary to establish a convention whereby a certain percentage of posts in several cadres in a bank may be recruited from the open market”. If this recommendation is implemented even in part, the problems of CPPD and EDP section would be minimised to some extent.
2.4. EFFECTS OF COMPUTERISATION:

There is nothing new in fears about the impact of new technology on jobs. In the U.S, in 1934, one of the very first Gallup Polls asked people the reason for high unemployment. Most people blamed machinery. A study of the British organisation shows that the unions were found to be concerned for job losses. Association of Scientific, Technical and Managerial Staffs (ASTMS) expressed their fears on job losses to the extent of 40 per cent of staff in insurance, banking and finance. However, this may not be true, as has been suggested by Cooper. Technology potentially creates more jobs than it destroys. It creates them by making totally new products, services and business. O’Brien James cited the example of commercial bookkeeper, one of the largest job classification in banking, which was eliminated but in lieu of this new positions came up. He suggests that this change has not caused a permanent decrease in total bank employment because of the continued growth of services and activity. It has, however, reduced the employment requirement of the banks. Rosemerry Stewart argues that the computer may potentially contribute towards:

1. reduction in the clerical workforce,
2. more work with existing/same staff, i.e., loss of potential employment,
3. better defined and more systematic work,
4. more accurate data processing, and
5. faster data processing.

While the first two may mean less employment, but the other may possibly lead to more employment opportunities.

In 1963 when L.I.C., India introduced computers in Calcutta, the Employees Association started an agitation taking the view that the computers had no place in the labour surplus economy, though employers found in it a tool for better
management control and decision making.  

Between 1965 and 1969, in the banking and insurance, the office employment rose sharply from 15,222 to 19,213 i.e., 26.2 per cent. While during the same period clerical employees increased from 13,13,398 to 15,747 i.e., by 17.5 per cent. But it is not clear whether the increase in employment was owing to modern technology or expansion in services of the above institutions.

The Committee on mechanisation/computerisation 1984, observed that the programme of computerisation envisaged would not result in any reduction of labour but some re-allocation of work would take place. As the objective of computerisation is not to replace man with machines but to make work life more meaningful and reduce the drudgery involved in the routine work. The committee correctly pointed out that the work force in the banking industry must look upon computerisation as a means to improve customer service and efficiency which would lead to growth and thus help to expand employment. But Dholakia believes otherwise. The latter asserts that in the U.S and Japan, electronics had an adverse impact. Hence, India should cautiously plan its policy of computerisation in view of the high job displacement potential of the electronics industry. Perhaps Dholakia is not the only person who fears this, even Rangarajan did not rule out the possibility of some job displacement or job redundancy. The question arises will there be worker redundancy also? The 1993 settlement on computerisation puts the issue in these words, “there will be no retrenchment on account of computerisation. Displacement of staff, if any, as a result of computerisation/mechanisation in a branch shall be kept to be barest minimum. The staff so displaced, shall be deployed in the same city or town subject to any bank level understanding about rotation, transfer/deployment of staff”. What matters is not the present job only, the process of computerisation will certainly hamper the future creation of jobs as shown by an in-house study at the State Bank of India.
2.5. RESISTANCE TO CHANGE AND COPING:

Managers today, are facing, a number of problems with regards to change of any kind introduced in the organisation. Most of the resistance to change comes from lower cadre employees and some time even from managerial personnel. It is either because of their non-involvement in the decision making concerning introduction of new technology or their inability to cope with the new technology. One of the most important factors in delayed deployment of computers, even in the Western World is attributed to resistance from the employees, let alone the Indian banking industry where it was delayed at least by a decade.

Why do people resist change in general and computerisation in particular? There are very few researches and conceptual works to help us understand the interaction of computers and people in an organisational setting. However, there are some studies from the West which can help us analyse ‘resistance’ and ‘adoption’.

The business and industry world over has taken a quantum technology leap, greater than any since the industrial revolution of 1800s. Workers have adopted coping attitudes ranging from ‘blind acceptance’ of change to ‘counter revolutionary resistance’, with majority somewhere in between. In behavioural terms, the more extreme reactions resemble modes and/or rate of response which may be labelled “pathological”. The pathological behaviour can be defined as “any behaviour that is not reinforced by the environment or the reinforcing community”. Some of the sources of antecedents of pathological behaviour may include attitudes, thoughts, abilities, and expectations.

With regard to computerisation, it has been said that even the word “computer” may give rise to emotional reactions of many kinds. As Berner observes, “say the word computer, and people react with love, hate, excitement, technocratic arrogance and profit lust”. Computer fear or addiction is not confined to any particular industry or community. Some writers suggested that,
fear of computer is related to the more general fear of change (a general fear of learning called “mathophobia” or expected to change beyond one’s capability and made to look like a jerk” called “jerkophobia”).

2.5.1. Resistance to Computerisation in Banking Industry:
Initially, resistance to computerisation seemed to be widespread in the banking industry. The above fact is born out in the number of strikes faced by the banking industry during the last ten years or so. The Dighe award of the Industrial Tribunal bears a testimony to this fact and the various bipartite settlements (1983, 1987, 1989, and 1993) on computerisation, further substantiates the same point. The two committees on computerisation (1984 & 1989), assured the employees that there would be no worker redundancy, and the job redundancy or work redundancy will be tackled through retraining and redeployment. A study on banking conducted in the mid seventies, suggests that the resistance to computerisation is caused by three general factors:

1. lack of information to employees regarding decision to automate. As the employees resisted the known change more than the unknown ones,
2. the necessity to give up the “tried and true” ways of doing things under new operational methods and techniques, and
3. loss of authority, power or prestige.

The study further suggests that, it is the clerical staff where the resistance is more widespread.

During the course of this study in a number of personal interviews with personnel people it was observed that the kind of resistance pointed out by Vijayaditya is still prevalent to a large extent. And resistance among elder generation of the personnel staff was mainly due to the fear of loss of power and authority. They see the young personnel of the EDP cells, a threat to their authority and sometimes even resist in the form of disbelief to the facts and figures supplied by them and perform manual calculations instead. But reliability is found
to be increasing with the passage of time.

2.5.2. How to Cope with Resistance?

‘Every one likes change, no one likes to be changed’,\textsuperscript{140} emphasises that introducing change without providing any insight in how to manage it. One of the best way to deal with problem behaviour of any kind is to prevent them. There are several indications that adverse reactions to computers can be prevented by programmes ranging from conceptual and academic to hands on training with machines.\textsuperscript{141} Some authors have suggested group sessions for managerial and professional staffs, \textsuperscript{142} while others have emphasised a more concrete approach of training both awareness and skill based.\textsuperscript{143}

In short, to minimise the employee resistance to computer require the following:

1. involvement in decisions to computerise,
2. training both awareness and hands on with machines,
3. regular meetings of computer personnel with other staffs, and
4. assurance from top management.

2.6. PERSONNEL INVENTORY SYSTEM (PINS)

2.6.1. Introduction:

The term “Inventory” in common management parlance means list in stock. Personnel Inventory refers to the list of people employed by the organisation with their biographical details, education level, skills, abilities etc. A personnel inventory system helps in manpower planning. It ensures the supply of individuals from within the organisation for any position that may be in hand or arise in future, apart from determining different HRD activities.

For the success of a manpower planning or an HRD programme in any enterprise, a complete data regarding persons employed in the organisation must readily be available in an accurate and up-dated form. The data, either complete
or incomplete, available in the personal files of employee is to be put together in a meaningful format. Since most of the data in personal files are found to be static and incomplete it has to be updated from primary sources to build up an inventory of complete, and non-redundant records. This record when processed on a predetermined parameters, would provide information to management for the day-to-day administrative decisions. On a higher level, it also assists in corporate policy formulations for the organisation as a whole. The fact to be born in mind at this point is that a personnel inventory system forms part of Personnel Information System/ Human Resource Information System.

Literature on banking industry in India indicates that plethora of data is generated by the banking operation. But still the weakest link in the banking system today, is the information system and the personnel function is no exception to this fact. A computerised information system could be helpful in making the required data available in time and in an accurate form for decision making. This will be helpful in avoiding adhocism and arbitrariness. The creation of an inventory system is perhaps the first step in dealing with the above problem. The PINS should be backed by powerful report generating capacity to get the maximum benefits. Some of the Indian organisations like L&T, BHEL, NTPC, ONGC, ITC and Voltas etc., are already having a sophisticated Human Resource Information System. There are a large number of packages available in markets in India and abroad like the personnel inventory supplied by MANTEC in CP/M, DBASE, the Skill Inventory by the same supplier in Microfocus COBOL and the Personnel Inventory and Records by SONATA in WS and LOTUS. The Andhra Predesh government has been using personnel inventory system for the placement, transfer and promotion of the doctors since a long time.

2.6.2 PINS in Banking Industry

The history of the creation of PINS in the banking industry is as old as the history of computerisation in the history. Even before the first bipartite settlement on
computerisation and mechanisation (08.09.1983), some of the banks said to have proactive personnel management, took up the work of building up a personnel inventory system. This was meant to provide an easy access to data for decision making purposes. For example, the Bank of Baroda made efforts to build up a personnel inventory system of officers as far back as 1968-69 and 1972-73. At about the same time, the State Bank of India, the largest bank in India, also made efforts to build up an inventory system. Another bank in State Bank group, State Bank of Patiala also followed the suit. But the real break through came, when the 1983 settlement allowed the use of computers including mini computers for building a personnel inventory, apart from management information system and other functions. Following the Rangarajan Committee report, CMC limited developed PINS for the banking industry.

2.6.3. Process of Building a Personnel Inventory System

The banks which developed an in-house inventory system even before CMC came out with a package called PINS, which followed a two stage process in building a Personnel Inventory System or Manpower Inventory System. In the first stage, through various seminars and discussions the scope and objectives of PINS/MPIS were determined. Later on, on the basis of reports to be generated, data requirement of inventory system was ascertained. The required data fell in both, the static and the dynamic category. Since the number of employee to be covered was very large and there were numerous data fields, the personal files became the first source of data. First of all data mostly static in nature were culled up from the personal files of officers and a profile was prepared. The profile when checked were found to be suffering from enormous inaccuracies, and some were even incomplete. But the purpose was served, that is some kind of a database came up.

In the second stage a detailed format along with a list of code number cum instruction was prepared to capture data from the individual concerned. This was
circulated among employee with a request to return them within the specified period of time. In the meantime using 4GL compiler an application was developed in-house- a Data Base Management System and data collected after validation was fed into the data base. The exercise started at the head office and came down to ROs/ZOs. The former was for the entire bank and the latter for the RO/ZO concerned. Most of the data were collected from the ROs/ZOs, updated verified and transferred on magmatic medium to the head office. This is in the absence of networking (proposed). Most of these data bases are in UNIFY-C- Interface or COBOL. At the zonal level the system used are mini computers where as at the head offices on mainframe. Some banks have even replaced their mini computers with RISC MAGNUM. In either case Operating System used are UNIX or any other multi-user environment. After the development of PINS by CMC limited, the banks have started using it for the maintenance of inventory. But owing to the large volume of data the process of data entry for employee other than officers are still in process.

2.6.4. Data Requirements

The data requirement of an inventory system fell in the following categories:

1. Biographical Details,
2. Service Particulars,
3. Educational Qualifications,
4. Technical/Professional Qualifications,
5. Training Particulars,
6. Experience Details,
7. Languages Known, and
8. Family Particulars.

Each of the above category of data heads were further divided into several fields [ for details see appendix B-1].
2.6.5. Problems in Data Collection and Up-date.

One of the major problems was the very size of the scheme itself. The data was to be collected from the primary sources which mostly resulted in large data redundancy and inaccuracy. The late response or non-response from the concerned individuals also became a problem. Whether due to resistance or mere negligence, the work of data collection was hampered.

After the data were collected and checked for completeness, feeding posed a problem of yet another kind because of low priority given to the personnel inventory. Then came the issue of keeping the data in an updated form which required continuous updating. Although, a definite schedule exists but mostly it is not adhered to or the data needed are not available. In Canara Bank, the data update responsibility rests with the personnel staff trained for the purpose but in most cases it is the EDP personnel who performs the work on behalf of the user department.

2.6.6. Reports to be Generated

There are two types of reports generated by the PINS. First, the standard report like:

1. seniority list in the organisation,
2. seniority list zone-wise,
3. list of women employee,
4. list of reserve category employee,
5. list of employee trained during the year,
6. list of employee having no training,
7. list of employee having specialised training,
8. list of employee having computer literacy etc.

The second category of reports are called the adhoc reports. These reports are generated on request from the user on the parameters provided. The SQL help the system generate report on one or more parameters.
2.6.7. Summary

In most banks, inventory system is in existence. They are either developed in-house or are supplied by CMC limited called PINS. But data available on computers are mostly for officers only, for the other category of data, the process of building is still on. The work is taken up by CPPD/EDP at the HOs/ZOs. The data transfer is still through disc or tapes. No networking has yet been done. The training colleges of some of the banks are having stand alone PCs for maintenance of training records. The data maintained are widely used for training, promotions, transfers and demotions/ punishment etc.