Doctoral Dissertation
on
"Role of IT in Organizational Learning - Indian Banking Sector"

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CERTIFICATE

This is to certify that Shri D. N. Venkatesh. Research Scholar. School of Management Studies. University of Hyderabad has pursued the Ph. D. programme on the topic ***"Role of IT in Organizational learning - Indian Banking Sector'****under* our guidance, to our satisfaction. The said research work is an original research work.

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(D. N. Venkatesh)

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Executive Summary

The *First Chapter "Organisational learning and Information Technology"* deals about the earlier researches in the areas of Organizational Learning, Organizational Development. It defines Organizational Learning, emphasis on the need for learning in the competitive environment, challenges in organizational learning and barriers to individual and Organizational Learning, the process involved in acquiring and distribution of knowledge.

The cultural pre-requisites for facilitation of Organizational Learning are explored along with media influences on the individual learning and action learning. The inter-relationship between various sub-aspects such as information systems & knowledge engineering, knowledge management & Organizational Learning.

Subsequently, the factors to be understood in understanding the organizational IT requirements elucidated along with the inter-relationship between the technology and workplace transformation. Exploring the impact of technology the chapter also examines other aspects such as virtual organizations, impact of technology on employees, customers and technology based learning/training. Further, the various stages in technology based training along with a model on the *Training System"* by *Anderson Associates* have been explained in detail.

The chapter correlates the recent topics with the core aspects i.e. learning, the various approaches i.e. KSA Approach, Long's Spectrum, CRAMP Approach, Blooms Taxonomy, Gagne's Hierarchy have been explained in brief.

The various types of learning technologies and advantages along with the role of technology in transformation of training to learning have been covered. The improvement in performance through learning and knowledge along with inter-relationship between Electronic Performance Support System and Organizational Learning has been explored. The cognitive change facilitated by E-Learning, the emerging trends, the pedagogical approaches for optimizing E-Learning have been discussed. Further, the various models i.e. Scientific Experimental Model, Management-Oriented System Model, Qualitative/Anthropological Model along with the Participant Oriented Models have been compared for the evaluation of technology enhanced teaching vs. learning.

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In the next stage, the emerging technological future, as a result of managing the processes of knowledge and knowledge engineering have been explained in detail along with the paradigm shift in knowledge perspective. The quality considerations in training and the impact of organizational culture & values on technology & training have been debated. The contrast between western cultural values and non-western cultural values and the resultant impact on adopting technology in learning context has been analyzed.

The *Second Chapter "Banking Technology & Trends Overview"* begins with a brief overview of the current competitive scenario. It maps the transition and evolutionary phenomena through the various phases i.e. the Foundation Phase, Rapid Expansion Phase, Consolidation Phase and Reforms Phase. The chapter also explores deregulation of banking system and the changing structural dynamics between the various segments of players, the traditional vs. new generation banks and the measures by the central bank in terms of the stringent prudential norms, which made an impact on the banking industry. In the entire process, qualitative human resources have emerged as competitive differentiators, which provide a cutting edge to the bank.

In addition to the facilities and conveniences, the IT environment in the banks, brings along a wide gamut of risk such as the Regulatory Risk, Strategic Risk, Organizational Risk, Location Risk, Outsourcing Risk, Error Risk, Computerized Fraud Risk and Disclosure Risk.

For the purpose of focused analysis, the place in the Indian banking sector has been categorized into the new generation banks and traditional banks. The salient features of the new generation banks have been discussed briefly along with the status of IT adoption by the public sector banks and the old private sector banks.

Subsequently, a comparative analysis of the performance has been made over a period of a decade i.e. from 1991 - 92 to 2000 - 01, based on the data published by the Reserve Bank of India in its Annual Reports titled *'Trends and Progress of Banking in India"*. The parameters used for the analysis are

- Internal Research
- Profitability (Operating Profits to Total Assets, Spread as Proportion of Total Assets)
- Productivity (Business Per Staff Cost, Ratio of Establishment Expenses to Net Income)

Based on the analysis, it is observed that the public sector banks have incurred losses during the years 1992 to 1996, as against the new generation banks. As regards Profitability, public sector banks have improved their performance in terms of spread as percentage to total assets. The Staff Cost to Net Income of State Bank Group was lower than that of Nationalized Banks, while it was found to be substantially lower in case of private and foreign banks.

The trends and perspectives in banking technology present the computerization status of the banks in general and public sector banks in particular. The background of technology upgradation presents a brief synopsis of the recommendations of the various Committees such as Rangarajan Committee, Saraf Committee, Vasudevan Committee etc., which have set the tone for the technology upgradation in the Banking and Financial Sector. The technology path presents an exhaustive continuum on the Delivery Channels available to the banks. It discusses about the aspects to be considered by the banks before embarking upon the technology path and deciding upon the option of delivery channels to provide convenience banking to the customers.

The various initiatives of the Reserve Bank of India has taken-up several initiatives to facilitate technology adoption in the country. A few of the major initiatives include the National Clearing System, setting-up of INdian Financial NETwork (INFINET), Structured Financial Messaging System (SFMS), Centralised Funds Management System (CFMS), Public Debt Office -Negotiated Dealing System (PDO-NDS), Real Time Gross Settlement (RTGS) **etc.**

The evolution of Internet Banking in the country and the emerging scenario along with the virtual banking has been discussed. An attempt has been made to understand the inter-relatedness between the IT and the Competitive Strategy. For the purpose, the model on Business and IT Strategy Formulation by Regie Thomas.

The process of building an enabling technological base is one the most demanding aspects of the building and maintaining successful MIS strategy. The various steps involved are

- •> Develop long-term estimate of capacity requirements, along with manpower planning and their learning requirements
- Develop short-term MIS activities for eth entire planning horizon
- Developing of a Learning Climate for developers as well as users
- Plan for implementation of a communication network
- Plan and manager support services and more importantly new technology

The other steps include planning of organizational information systems, developing of an INTRANET that would serve as "Information Hub" for the entire organization. It is essential to set up an Information Centre that can assimilate and provide Organizational Intelligence However the efficacy of IT in the organization would be dependent upon re-engineering the existing processes. The steps involved in BPR are:

- Development of Business Vision and Process Objectives
- Identification of Processes to be re-engineered
- Understanding and evaluating existing processes
- Identification of the levels of IT
- Designing and preparing a prototype of new processes
- Implementation of the prototype, reviewing the modifications and finally rolling out the final product across the organization

The banks in the India are conscious of the security concerns and to address the needs, they have deployed a wide gamut of security tools such as Intrusion Detection System, Network Security Standards, Firewalls etc. In fact majority of the banks have drawn a comprehensive IT Security strategy and are in the process of implementing it. The Reserve Bank of India has also given the detailed guidelines to the banks in this regard.

A review of the status of computerization in the banks in India in general and public sector banks in particular indicates that these banks have achieved the 70% target set by the Chief Vigilance Commission and are in the process of 100% computerization of the business.

As per the views expressed by the Chief Technology Officers (CTOs) during the BANKNET India 2000 Conference emphasized up the following priorities for the banks in the near future:-

- Establishing Wide Area Network (WAN) for implementing Core Banking Solutions (CBS)
- Connectivity of Branches as a mandatory pre-requisite for implementing various RBI initiatives such as PDO-NDS, SFMS, RTGS etc.
- Standards for inter-operability of Smart Cards to facilitate multi-application
- Secure messaging for launching of funds transfer project and
- Asset Liability Management and Risk Management

Further, the CTOs have laid down a concrete roadmap for strengthening the technology infrastructure in the Banking Sector as below:-

- Introduction of Core Banking Solution within the next 12 — 14 months
- As an interim measure, networking of identified and commercially important branches to roll-out funds transfer product
- Establishment of RA Office for issuance of Digital Certificates to facilitate online and secure funds transfer
- Establishment of integrated treasury for effective intra-day liquidity management
- Integration of existing application to facilitate end-to-end Straight Through Processing (STP)
- Aggressive HRD policy for competence building and retraining in the area of IT skills for the employees
- Restructuring of the bank to make it lean and responsive

The evolution of learning infrastructure in the banks could be traced to establishment of STCs in the country during the 1960s and 1970s. The training infrastructure includes setting-up of exclusive Banking Technology Research & Development Institutions such as Institute for Development and Research in Banking Technology (IDRBT) at Hyderabad.

The technology centers are working complimentarily with other industry level apex training centers such as National Institute of Bank Management (NIBM), Pune, National Institute of Banking Studies and Corporate Management (NIBSCOM), Noida, Bankers' Training College (BTC), Mumbai etc.

In addition to these national level training centers, each of the public sector banks and the old private sector banks have their own STCs at the corporate offices, which supplement with that of the various regional/zonal STCs of the banks. Some of the banks are also leveraging by networking with the IT training solution providers such as APTECH, NUT etc,

Problem, Definition & Scope of the Study

After a review of the contemporary literature on the Organizational Learning, Organizational Change, Technology Based Learning, Inter-relationship between Information Technology and Organizational Learning. It is found that IT supported organizations does not have long history but the recent literature and research on Knowledge Management has also to certain extent precluded the IT supported Organization Learning.

The definitions by Goodman & Darr (1998), which defines Organizational Learning as *"Organisational learning is conceptualised here as the process by which one unit acquires knowledge from another unit in the same organisation. Organisational-level Learning occurs when (1) the problem — solution exchanges and consequences are communicated and known by other organisational members (broadcasting), (2)there is some form of organisational memory that stores problem — solution exchanges and consequences (memory), and (3) there is a mechanism for organisations to share their interpretations about the problem — solution exchanges and tu update the organisational memory about their experiences (updating). "*

The scope of the research included the following: -

- Role of IT in Indian Banking Sector
- Role of IT in Training & learning Processes
- The role of Training Systems in Indian Banks
- Inter-linkage between the Training system and Learning Process

The specific objectives of the research are:

- Role and utility of Information Technology in facilitating learning process
- Effect of Organizational Learning on the profitability and productivity Indian Banks

The *Research Methodology* was based on the secondary data collected from the review of the books on relevant areas such as Change Management, Information Technology, Organizational Learning, Technology Based Learning, Proceedings of National Seminars such as BECON, Annual Results of the Banks, Publications of the Reserve Bank of India, Websites of the Sample Banks.

The sample banks were selected based on Stratified Random Sampling Method and the Primary Data from the sample banks was collected through a questionnaire aimed at IT and HR Chiefs with the objective of eliciting information on the following aspects:-

- What is the role of IT in the Strategic Planning Process in the bank?
- Does the bank have an Institutionalized Process/Planning approach towards identifying futuristic competencies and skills for building them at the bank level?
- Is the bank adopting a planned approach towards creating learning environment with the facilitation of IT at organizational, group/team and individual employee level?
- Role played by the line Managers and Training Managers in Learning Process of these banks?

- What are the IT tools used by banks for facilitation of Learning Process i.e., Technology Tolls for collection and dissemination of information to employees (e-learning etc.)?

The Sample Banks were divided basically into two strata i.e. Traditional Banks consisting of public sector banks, old private sector banks and the Other Strata consisting of new generation banks.

Data Analysis & Interpretation

A. Analysis of IT Chiefs Responses: The data collected from the IT Chiefs was analyzed on the following parameters:-

- *Budgetary Outlay for IT Upgradation:* The budgetary outlay of the new generation banks was lower during the fiscal year 2002 - 2003 as compared to that of the preceding years i.e. 1999 to 2002. Since, most of these banks have started up with full-fledge IT integration into the business processes. In contrast, the budgetary outlay of the public sector banks is on the increase since most of them are in the process of implementing several new IT applications.
- *Purpose of IT Deployment:* The new generation banks i.e. private sector banks have accorded IT deployment for providing support to the business processes as a high priority for utilizing IT for supporting the innovative processes. As regards the public sector banks, it is observed that they have accorded high priority for providing operational support.
- *Information Behaviour and Values Defining IT Use:* Based on the analysis of the data, it is observed that both the strata have accorded high priority to the value such as *integrity, formality*. The main purpose of IT has been found to control, which serves the banks to comply with the statutory and regulatory requirements laid down by the Reserve Bank of India as also that of transparency and disclosure norms. Culturally, it is found that *sharing* for a learning and performing together is yet to gain momentum in both the strata. Another significant indicator is that both the strata have accorded priority to improving *the. proactive behaviour* of the employee.
- *IT Initiatives of the Banks:* Based on the analysis of data, it is found that the new generation banks have implemented several IT initiatives such as Net Banking, Anywhere Banking, ATM Network, E-CRM, Business Intelligence Solutions, Core Banking Solutions, Integration with INFINET. However, the public sector banks are in various stages of implementing these initiatives.
- *Methods/Steps before Implementing IT Initiatives:* It is observed that the new generation banks fundamentally believe in awareness creation among employees before rolling

of new IT initiatives, apart from training of the employees in the required competency areas. In case of public sector banks, it is observed that apart from the measures taken by the new generation banks, they are also discussing with the employee unions/association for effective implementation.

- *Envisaged Ro/efor IT in Employee Empowerment through Information Dissemination:* The new generation banks believe in employee empowerment with IT and for the purpose E-mail and IT newsletter apart from using the Intranet and bulletin boards. The traditional banks are initiated steps for usage of e-mail and are in the process of setting up of Intranets and bulletin boards.
- *Coordination between IT and HR Departments for Identification of Employee Learning Requirements:* The success of IT implementation in any bank can be possible only with the close coordination between IT and HR Departments. Based on the analysis of the responses of eth IT chief, it is evident that the areas of coordination for identification of learning needs of employees are Performance Feedback, Feedback from Employees, and Interaction with Branch & Regional Managers, Post Training Deployment & Assessment. In case of traditional banks, the learning requirement of employees are identified based on the performance evaluation, feedback from employees, CEO/ED meetings with the employees etc.
- *Coordination between IT and HR Departments in Management Areas:* In case of new generation banks, the areas of coordination are performance evaluation, career progression, recruitment and training. In case of traditional banks, the areas of coordination priority-wise are recruitment, training and promotion.
- *IT Learning Initiatives and Competency Building:* The questionnaire focused on three levels i.e. Top, Middle and Junior Management. For the new generation banks, in case of top management, it is observed that Information Security, Business Continuity & Disaster Recovery Plan and Information Audit. For the middle management, the areas of focus for Competence Building are IT Initiatives of the Bank, Systems Integration and Security Administration. While for the junior management, the areas identified for Competency Building are LAN Administration, Systems & Database Administration.

The IT Chiefs of traditional banks have identified that the areas of competency building for the top management are Information Security Management, Business Continuity & Disaster Recovery Plan, Management Concerns of Information Audit. For the middle management, the areas are IT Initiatives in the Bank, Network Management, Systems Integration, Security Administration. While for the junior

management, the areas are IT Operational Aspects, LAN/Systems/Database Administration.

- *Communication of Top Management:* For facilitating the learning process in any organization, the drive and motivation of the top management is essential. The IT Chiefs of new generation banks have confirmed that the top management uses various IT tools such as e-mails, intranet for communication with the employees. In case of the traditional banks, the usage of e-mails is comparatively lower and intranet are rarely preferred.

B. Analysis of HR Chiefs Responses: The data collected from the HR Chiefs was analyzed on the following parameters:-

- *Retention Strategy to Prevent IT Professional Attrition:* Culturally, the banking sector is different from the IT sector, and due to the cultural difference, there is frequent mobility of IT professionals within the banking/financial sector and also between the banking and IT sectors. The HR Chiefs are grappling to fight the attrition phenomenon through various initiatives. The new generation banks are reducing the attrition rates through providing of avenues for knowledge/skills upgradation, challenging assignments, flexible/autonomous work environment along with fast track careers and tailored compensation packages. The traditional banks due to the rigidity in wage policies and compensation structures, are trying to overcome the problem through learning opportunities with challenging assignments.
- *Strategies/Plans to narrow Competency Gap between IT Professionals and Other Employees:* To address the problem of cultural dissimilarity between IT professionals and other employees of the bank, the banks are initiated several steps. The new generation banks have been recruiting general banker with advanced IT skills, while simultaneously training the existing employees. In case of the traditional banks, they are using three pronged strategies i.e. IT Competency building of general bankers, recruitment of general banker with advanced IT skills, shredding the old work force through VRS schemes.
- *Organisational Restructuring Exercises of Banks:* In the competitive scenario, the banks are finding it increasingly imperative to organize themselves to enable customer convenience and also improve profitability of banks. The new generation banks are attempting to restructure through creation of SBUs, profit centers, flat hierarchy. The traditional banks are restructuring through flattening the hierarchy, merger of zones/regions.

- *Reasons for Restructuring:* The new generation banks have indicated Flexibility of Operations, Improved Customer Service, Profitability and more importantly Technology Adaptation and better Resource Allocation. The reasons for restructuring of traditional banks in the order of priority include better customer service, increasing profitability and flexibility of operations.
- *Predominant Ethics and Values:* Both the segments share the three values i.e. Commitment & Dedication, Honesty & Integrity and Ethical Performance.
- *Recent/Proposed HR Initiatives:* The new generation banks have implemented the Performance Management System, Competence Mapping/Management, Assessment Centres, Organizational Climate Surveys etc. The traditional banks are modifying the Performance Management System and are attempting to implement the Assessment Centres and Competence Mapping.
- *Envisaged IT Role in Employee Empowerment:* The new generation banks are extensively using e-mails and intranets while the traditional banks are in the process of catching up with them.
- *Learning Needs Identification (LNI):* The methods adopted by the new generation banks for LNI at bank level are Strategic Vision, Competence Mapping through Organizational Survey and Needs Analysis for Corporate Goals. At the employee level, they are depending upon Annual Performance Evaluation, Consultation of IT/HR Departments with Branch Managers etc. In case of traditional banks, the focus is dissipated both at bank and employee levels, due to lack of systematic approach.
- *Performance Assessment in Post Learning Scenario:* To assess the contribution of training systems and learning infrastructure to the bottom line of the bank, the new generation banks are depending upon Competency Assessment, Performance Evaluation and Skills Rating. While, the traditional banks are depending upon skills rating.
- *Learning Outlook of Employees:* The learning outlook is dependent upon organizational culture of the bank. The employees of the new generation banks pre-dominantly operate from the self-learning mode and secondarily through assisted learning. In case of the traditional banks, the equation is reverse and in addition, there are sizeable number of employees, who have to be prodded for compulsory learning.
- *Interaction of IT with Training System:* The cost prohibitiveness of traditional training approaches of training the employees through STCs is becoming cost prohibitive. The new generation banks are relying upon Web Based Training and Delivery of Learning Content through Intranet apart from tying up with external organizations.

The traditional banks are supplementing **the** additional **training** infrastructure with Web Based Training.

- *Focus of Training System:* The new generation banks are predominantly focusing upon Retail and Corporate Banking along with Information Technology and Treasury Areas while, the traditional **banks** are focusing upon Retail Banking and **Credit** coupled with Information Technology.
- *Sources of Training:* The new generation banks optimally internally train and outsource the training needs of employees, while the traditional banks are primarily depending upon internal training infrastructure apart from outsourcing through external organizations.

To fine tune the findings, an analysis of select six traditional banks i.e. Andhra Bank, Bank of Maharashtra, Canara Bank, Corporation Bank, Oriental Bank of Commerce and Punjab National Bank was made for select parameters. The findings are in conformity with the broad results found at the strata level.

To substantiate the finding and also correlate, a *Correlator) Analysis* of the responses of IT & HR Chiefs was made and the findings indicate that most of the views of the IT as well as HR Chiefs are in sync with each other.

For the purpose of *Cross Validation,* a correlatory analysis of the data for the financial year 2000 - 2001 and 2001 - 2002, was made and the findings are as under:-

2000 - 2001

- The correlation between average business per employee and percentage of branches computerized is 0.605 and for other public sector banks it is 0.514. In case of all the public sector banks, the coefficient is 0.548.

2001-2002

- The coorrelation between the average business per employee and percentage of branches computerized among the State Bank and Associates the Co-Efficient of Correlation is 0.502 while in case of other traditional banks, it is 0.515 and for all the public sector banks, it is 0.474.

The correlation analysis along with the cluster analysis clearly indicates that there is positive correlation between the computerization of the banks and increase in average business per employee. Hence it is imperative for banks to embark upon IT adoption/upgradation, both from the perspectives of commercial profit and competitive reasons. But to sustain the IT

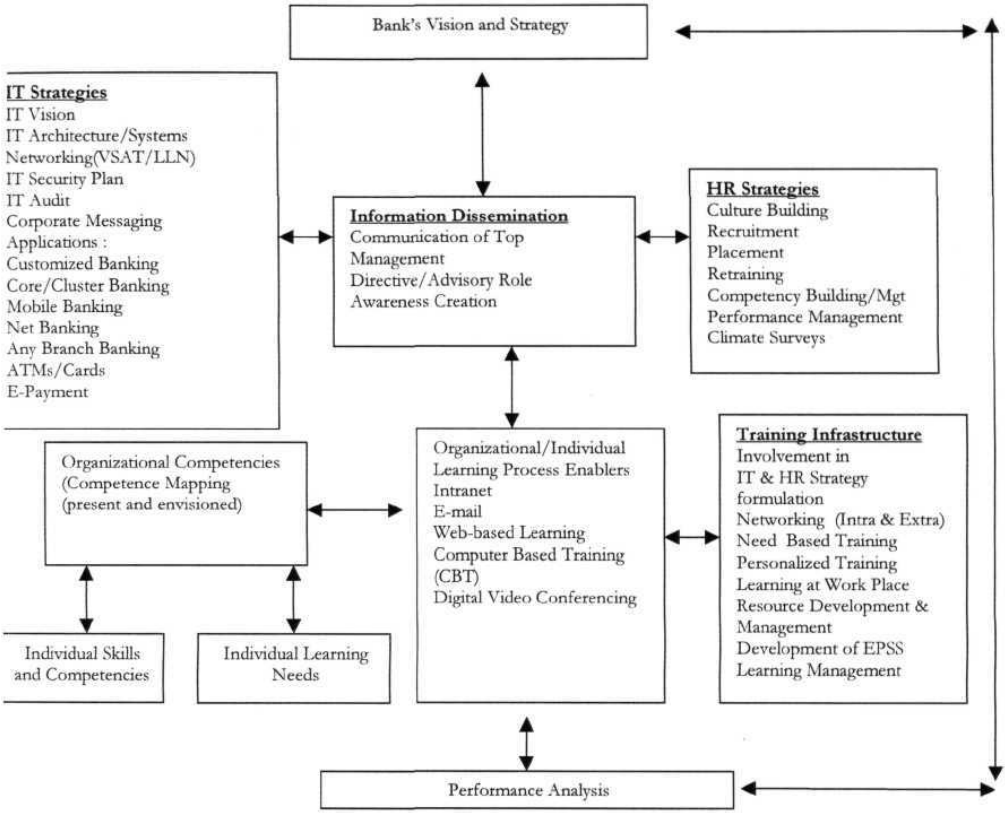
adoption process, the banks have to imperatively build upon the learning processes by leveraging around the IT infrastructure.

The *Findings of the Research and the Suggestions* are as under:-

1. Culturally, though both the segments to place importance, value cultural aspects such as formality, control and transparency. However, in case of sharing of learning and knowledge, both the segments are yet to accord priority as in case of other values. This holds the key to creating and sustaining Technology enabled Learning Processes in banks.
2. The public sector banks have to improve in the areas of training their employees, before implementing new IT initiatives as compared to their private sector counter parts. This would not only engender support for better integration of IT into their business environment, but would also help in facilitating learning processes.
3. The usage of IT in employee empowerment through information dissemination is being implemented through multi-pronged approaches, to ensure better diffusion of learning content, across the length and breadth of organization. However, the public sector banks have to look beyond the introductory e-mail level, to advanced concepts such as intranets for EPSS, web based learning etc.,
4. The coordination between HR and IT departments in Learning Needs Identification (LNI) and Learning Delivery Channels (LDCs), in correlation with Service Delivery Channels.
5. The competency building plans, though in place, at all levels, but more emphasis is required at top management level, for ensuring strategic direction and better IT integration, especially in Public sector Banks.
6. There is need for competency building of general bankers in public sector bankers, both for narrowing the competency gaps and building techno savvy culture.
7. There is need for improving synergy between the performance management and learning systems in banks.
8. The Technology based Learning (INTRANET, E-learning etc,) has to be customized to the Learning Levels - Introductory, Advanced and Expert Levels. A self-assessment test can be made mandatory, based on which the level of Learning Access can be permitted.
9. The IT adoption/upgradation initiatives of the banks have positive correlation on the business performance and profitability of the banks. This emphasizes the need for facilitating learning environment through the IT infrastructure built by the banks.
10. Based on the Analysis and Findings of the Research Study, the following model is being suggested for Banks. The Banks use the model, both as a check list for self-analysis of

the IT Implementation and modernization as well an indicator for the evolution of IT enabled Learning Processes in the bank.

Sttategic Model for IT Enabled Organizational Learning processes



Details of the Model

The proposed strategic model is integrated and holistic.

The model is both descriptive as well normative and it can be used for assessment of the banks' procession in integrating the IT with Organizational Learning Processes in the following three stages:

Stage I:- Formulation/Existence of Strategic Vision/Road map for the Bank. It is imperative for the banks to draw up a Strategic Vision, after competitive analysis, taking into cognizance the existing resources and constraints.

Stage II:- At the stage the bank can evaluate the presence of well defined IT Strategies, HR Strategies and information dissemination exercises for motivation of employees and awareness building. There are three components in this stage:

a) IT Strategy :In this, the bank can evaluate the existence or plan for preparation of IT Vision/Architecture, Networking Architecture VSAT/LLN), Existence of Security Plan and awareness, periodical IT Audit to assess the robustness of the systems and procedures and their adherence by the employees.

The next step in this stage is building up of Corporate Messaging system, which can effectively handle the intra-bank communication requirements.

At the Applications Level, the bank examine in term of implementation of various levels of IT enabled banking services for its customers:

1. Customized Banking
2. Core/Cluster Banking
3. Mobile Banking
4. Net Banking
5. Any Branch Banking
6. ATMs/Cards
7. E-Payment

b) HR **Strategies:** Traditionally the HR Approach of bank in the country has been that of reactive and more of personnel management and IR Approach. In the competitive scenario, when Human Resources are going to be the Co-key differentiates along with IT strategies, the banks have to adopt proactive HR Strategies of **Culture Building** along with reorienting their **Recruitment** to attract qualitative human resources, their **Placement, Retraining** the existing manpower through **Competency Building/Management** efforts and **Performance Management** for organizational excellence. More importantly, it is high time that HR departments in banks train themselves to treat the employees as internal customers and for assessment of satisfaction levels, they should periodically undertake climatic surveys for feed back on their performance and also reorienting their HR strategies.

c) Information Dissemination: The key aspect in the model at stage II is information dissemination efforts of the top management with twin objectives of creating awareness to the IT and learning initiatives of the bank and also to motivate the employees at large.

Stage HI:-

a) Organizational Competencies: In this level, the primary task is mapping the competencies of the organizations, in terms of existing and envisioned. Any learning process per se, has to goal oriented to be effective, more so in the organizational context. Indian Banks have to immediately map the competencies, keeping in view their banks focus areas and strategies. The competency mapping exercise helps in identification of the Learning Needs (LNI).

b) Organizational/Individual Learning Process Enablers: Learning Process needs continues support and sustenance, which can effectively be provided by IT Applications such as E-Mail, Intranet, Web-based Learning, Computer Based Training (CBT), Digital Video Conferencing etc. The usage of technology helps in provided the Learning Content to the employees in work place and provides scope for employee empowerment and also enables work place learning.

c) Training Infrastructure: Traditionally the training system in banks has been relegated to offline position and the systems was supposed to achieve Training targets, in term so the number of employees, as per the decision of the top management. The line management too, end up sending sparable employees to the training programmes. This process over the years has made the training infrastructure more as expenditure. In the IT enabled learning scenarios, the training infrastructure should assume proactive stance and handle the following aspects:

- Involvement in IT & HR Strategy formulation Networking (Intra & Extra)
- Need Based Training through scientific training needs analysis and competency gaps.
- Personalized Training
- Learning at Work Place
- Resource Development & Management
- Development of EPSS
- Learning Management

Stage IV

Performance Analysis: The learning efforts will have relevance and credibility only if they translate into better productivity and profitability for the banks should undertake an annual performance analysis to identify the gaps and accordingly initiate remedial measure to improve the IT and Learning Integration.

Chapter - 1: Organizational Learning £ Information Technology

1.1 Organizational Learning (OL)

In the competitive environment, when the organizations are facing changing and dynamic market conditions, there is increased need for adaptability of individuals and organizations, which can only come through learning. There are several studies and researches conducted by OL and OD theorists. There is recognition by resource based view that resources encompass both tangible, material assets as well as intangible and tacit assets (Prahlad and Hamel, 1990). Idiosyncratic bundles of knowledge and skill — clearly within the domain of organizational learning e.g., huber, 1991) — can be legitimate firm specific resources. Further, in the management literature, learning is presented as source of competitive advantage (e.g., Redding and Catalenello, 1994; Senge, 1990; Stata, 1989), but the definitions have not been clearly defined.

Researchers have pursued the elusive phenomenon of Organizational Learning for years (for e.g., Argyris, 1982; Hayes et al., 1988; Huber, 1991, Schein, 1993b; Senge, 1990; Stata, 1989). Organizational learning is presented as occurring at different levels of analysis — from individuals (Argyris, 1982) to organizations (Levitt and March, 1988). The various processes involved for diffusion of information include individual interpretative processes and interpersonal communication (Argyris and Schon, 1978; Daft and weick, 1984; Weick, 1979) Some studies view OL as *prescriptive* and being manipulable (for ex, Argyris, 1993; Hayes et al., 1988; Senge, 1990) and elsewhere as *descriptive*, documenting factors which influence or impede organizational adaptation are viewed (Huber, 1991; Levitt and March, 1988). The two models tried to address the organizational learning needs, *Inform Much Management Theory* (Morgan 1986), and the consequent advice preferred by consultants in the area of organizational improvement. Alternately, third approach which compares organizational learning with organic evolution by natural selection between replicators; a process enhanced by the punctuation of genetically imposed equilibrium. (Pewley Fort, Pewley Hill, 1996). The organizational evolution (learning) can be considered as a selection process between mental replicators. The biological metaphor of 'survival of the fittest' (usually wrongly attributed Charles Darwin rather than Herbert Spencer) is natural replica to market competition.

The fundamental parallel between evolution and learning was expressed by Gregory Bateson (1973, 1979) whilst Hull (1988), who argues that science can be viewed as natural selection process between competing scientific ideas, and scientific codes of behavior as a logical, self-evolved outcome of that process. The current trend of organizational learning is not new

(Chandler 1977), but what has changed is the rate at which organizations must evolve to remain competitive.

1.2 Learning Mantra for Survival

The mantra for survival and growth in the nineties is dependent on the fulcrum called Organizational Learning (OL). The OL related activities during the nineties were largely focused on incremental improvement of already existing processes, while the leadership and organizations of the present are grappling with the facing with new set of challenges, which cannot faced with traditional methods and concepts of OL. The classical methods of OL are all variations of the same Kolb life cycle (1984), based on reflecting on the experiences of the past. However, organizations aiming at business leadership cannot continue to depend on traditional approach, but would require new cognitive capability, the capability for sensing and seizing emerging opportunities (Arthur 1996, 2000). Both organizations as well leadership must develop by engaging in a different kind of life cycle, one that enables them to learn from future as it emerges rather reflecting on the past.

1.3 Defining Organizational Learning

Many researchers have observed that the literature on OL is fragmented, built of multiple constructs and cross-fertilization of thoughts from various streams. A few of them are based on interventionist models while some are based on Descriptive theory. Definitions of OL found in the literature include:

- Encoding and modifying routines;
- Acquiring knowledge useful to the organization;
- Increasing organizational capability to take productive action;
- Interpretation and sense making;
- Developing knowledge about action - outcome relationships;
- Detection and correction of error.

The focus of some researchers has been to study how Organizations Learn — that is how the social systems adapt, change or process incoming stimuli. The outcomes are functional of typical individual cognitive properties or otherwise of the organizational policies or structures. Some researchers study the learning phenomenon by understanding the response of individual in terms of their development, adaptation and update cognitive models. Thus, the focus of any of these approaches is determination of causality and the objective is to identify managerial actions aimed at improving organizational effectiveness. The following

two-by-two matrix (by Bertrand Moingeon and Amy Edmondson) indicates several learning phenomena i.e.,

- Organizations as embodiments of past learning
- **Individual** learning and development in organizations
- Organizations increasing their capacity for change through active, intelligent participation, and
- Individuals gaining awareness of personal causal responsibility and developing interpersonal skill

RESEARCH OBJECTIVE	Organization	Individual
Descriptive Research	Levitt and and March : Competency Traps Huber; Cyert and March ; Nelson and winter :routines. Shrivastava: individual learning as poor metaphor for organizational learning. BCG, Epple et al.: learning curves. Weick: organizations as interpretive systems. Daft and Weick , Duncan and weiss: langauage and interpretation.	Brown and Duguid: becoming an insider is learning Pedler et al.: flatter organizations create a tension that elicits new learning. Pedler et al.: flatter organizations create tension that elicits new learning and personal development. Pettigrew and Whipp: widespread individual learning is a kind of organizational capability. Stata : Individual learning makes organization more flexible and responsive
Intervention Research	Hayes et al.: institute 'people first' assumptions. Ciborra and schneider: question formative context to enable organizations to adapt. Schein: culture as learning and as malleable.	Senge : individuals can learn to experience awareness of personal causal responsibility. Isaacs and Senge : simulations that help individuals diagnose causality. Argyris : understand and change individuals' theories in use to promote effectiveness.

(A typology of Organizational Learning literature)

The approaches to understand organizational learning is basically focused on two levels i.e., individual level and organizational level. The focus areas can be perceived as under:

	Primary Unit of Analysis	
	Organization	**Individual**
Research	(1) Organizations as embodiments of past learning	(2) Individual Learning and development in organizations
	(3) Organizations increasing the capacity for change through active, intelligent participation	(4) Individuals gaining awareness of personal causal responsibility and interpersonal skill

(Categories of organizational Learning Research)

1.4 Workplace Learning - The Immediate Imperative

The growing need for work place learning has become necessary due to advances on technology and its affect on organizations. The sophisticated work processes created by technology require sophisticated workers. According to a 1996 survey of American Society for Training and Development (ASTD) 73% of the employees said that computer skills were essential for employment. More than half the new jobs created between 1984 and 2005 will require some education beyond high school. Learning has been shifting from classrooms to corporate training centers of work place. Knowledge workers now out-number industrial workers by 3 to 1. Some of the interesting connectors that are emerging between technology and learning, between technology and the work place are: -

- There is increased convergence between work and learning, with technology becoming a connecting tool.
- The learning component of work has become huge.
- 'Life Long Learning' has come to characterize the life long challenge and life long process for employees as well as organizations.

The use of technology and telecommunications has added new dimensions to the learning environment i.e., *Modular, Muiltisensory, Portable, Transferable* and *Interruptible.*

The management and leaders are increasingly conscious of the need for integrating technology, learning and organizational life. During a recent survey conducted by ASTD, the human resource executives expressed concerns regarding: -

- The need to keep pace with the rate of change at workplace as well as technologies.
- Assessing the effectiveness of new learning technologies
- Knowing when and where to apply new learning technologies
- Integrating existing technologies with new learning technologies
- Getting top-management to buy-in on learning technologies

1.5 Challenges In Organizational Learning

Organizations worldwide and specifically in India are grappling with several driving forces for change. The primary being the rise of Internet based "new economy", the Digitization (Castells, 1998; Kelly 1998) and secondly the processes of Globalization and Individualization. The advent of *networked structures* and web-shaped relationships are the interactive forces whose interplay has major impact on the Organizational Learning. At behavioral level, the Organizational Learning response in organizations, change occurs at five levels i.e.,

- Level *V.Reacting* by Focusing on Organizational Structure
- Level *2: Restructuring* the Organizational Structure and Hierarchy
- Level 3: *Redesigning* the Core Processes, *(Reframing):*
- Level 4 *Change* Regenerating The change initiative (Learning process)
- Level 5 *Regenerating.* The approach to change focuses upon deep intention, purpose and will.

The responses levels 0,1,2 and 3 (action, structure, process and mental models) become integrated with contextual variables, referred as purpose (Hock 1999), shared vision or common will (Scharmer 1999) Hence, the level 4 effort implies allowing for flexibility in action, structure, processes, and mental models (level 0,1, 2 and 3) by focusing on redefining the purpose and uncovering common will.

1.6 Process of Acquiring and Distributing Knowledge

The researchers have defined organization learning as a process by which organization expands its repertoire of actions. Huber (1991) defined Learning as *'a process that enables an entity to increase its range of potential behavior through its processing of information. "* Organizational Learning can then be defined as occurring when any of its units acquire knowledge that they recognize as useful to the organization. Because of the potential for performance improvement, learning becomes imperative for organizations. Learning curves have been studies extensively in manufacturing contexts (Epple et al., 1991). Learning constitutes improvement of routines (Cohen, 1991) and is transferable across organization. In a way it is a stored knowledge that becomes useful to the organization. The focus of research has been methods to enhance learning curves to increase competitive advantage.

Organizations per se, can be understood as interpretive systems (Daft and Weick, 1984), in constant flux — artificially stabilized through interpretive processes, routines and standard operating procedures. In the context of traditional psychologist definition, Weick observed that organizations are rarely able to satisfy its condition of producing a 'different response' in the 'same situation'. The non-traditional method of defining organizational learning favors an information-processing view of learning, in which the stimuli are the actual physical events, but rather are interpretations of events (Weick, 1991).

1.7 Role of Individual Learning in Organizational Development

Some organizational learning theorists have examined the individual learning as an adaptation method in organizational context. For instance, Brown and Duguid (1191) describe learning

as becoming 'an insider' by acquiring tacit or *'noncanonkal knowledge'.* Through researchers have studies the process of work groups' formation as *'communities of learning',* it is the individuals who actually learn and make a difference to the group's contribution. Some CEOs have observed that individual learning is source of competitive advantage for their organizations. (Stata,1989). The descriptive theory at individual level of analysis include models which specify condition that facilitate and elicit individual learning and the benefits accrued to organizations, through individual learning activities.

1.8 Organization Structure and Interpersonal Development

Flatter organizational structures create a tension that elicits learning and personal development by employees (Pedler et al., 1990). The new interpersonal challenges encountered in less-hierarchical, more team-based organizations engage individuals to engage in developing their communication and other interpersonal skills. Organizations would be able to implement activities that develop knowledge and skills of the individual, creating a kind of institutionalized learning or 'Organizational Capability' (Pettigrew and Whipp, 1991). The learning *of* individual employees enhances the capability *of the organization.* Research studies suggest that explicit plans and structured processes contribute to effectiveness, and the individual learning becomes relevant in this context.

1.9 Organic View of Organizational Learning - Implications

New species evolve by natural selection operating in small, reproductively isolated, populations. The winners of ever increasing competition to change are realizing that change does not happen in large corporate meme pools any more than it occurs in large gene pools. Change programmes usually don't change anything (Schaffer and Thompson 1992) and seventy percent of cooperate re-engineering efforts fail precisely on account of this reason. *Punctuated Hquilibrium* concept supporting this argument argues that real changes are more likely to happen when smaller populations can evolve free from prevailing, and stabilizing corporate metalics. *Results and Changes, not programmes and theories, drive real learning.*

Genetically, replication occurs without providing scope for transformation of other genes. For evolutionary change to happen, mutations must occur, to lead to genetically superior or luckier strategies. Similarly, in case of corporates, for facilitating learning, they need to change their mental modes, their prevalent mental models and unwritten rules that they create. Only then can new set of behavior evolve. Just as animals have five ways to change, organizations have parallel phenomenon namely, first *Random Selection,* second is through conditioning employees behavior by reward mechanism. Third is by *Training paradigm* through which

employees learn new skills sand competences. Fourth method is *selective breeding* through movement to build shared values and purpose amongst all the employees. The fifth method is genetic engineering through organizations modify their unwritten rules to allow cross functional collaboration, allow objective learning & decision making and also a proper use of helpful systems and development of managerial capability. The strategic possibilities are limited by genetics or mentalics, which is supported by *Classical rational thinking on strategy* (e.g porter, 1980), which explains *niche* approach. The presumption of unlimited movement across industries has been questioned by (Hamel and Prahlad, 1989) through their 'Core competency' theory. The important prerequisite is that for improving focus and efficiency of corporate body, it is vital to preserve the flexibility of corporate mind.

1.1O Barriers to Individual and Organizational Learning

The most succinct insight into change management may still be Machiavellis 500 years old observation that 'Change is difficult because of the incredulity of mankind who do not truly believe in anything new until they have experienced it for themselves'. People do not learn at the level that generates different actions, from the lectures, advice or papers of others. The propulsion for change is released when people discover a possibility for themselves.(Goldratt and Cox, 1989). The quotation has been realized due to Argyris (1982, 1991), as defensive routines. Real learning, double-loop learning; occur only when people enquire their own role in causing the situation. Double-loop learning requires that we unlearn some deeply ingrained beliefs about ourselves. Senge, explained this aspect with his definition of Mental Model (Senge, 1990). Unwritten rules obstacle the learning process. In organizations where individual profile and reputation is critical, reflecting on, and learning from, the past is reputation is quite damaging. Asking fro help is viewed as indication of weakness and giving it a sign that your help is not worth having. Unwritten rules and mental models create a corporate mindset, which — without conscious design — acts to preserve the status quo. The stable mind set which evolves organically strives to preserve itself, even in the face of opposition and demand from external environment, which is akin to DNA (De Oxy Ribonucleic acid) based organic systems. Both tend to create self-perpetuating, self-replicating systems. Few corporate strategies are either (Mintzberg 1994). Viruses are essentially free strands of DNA. Many viruses have evolved mutually beneficial symbiotic relationships with their hosts. It is to Darwin, that we owe the suggestion that the evolution of the human brain, an organ of far greater processing power relative to body weight than any previous species has achieved, created condition for the evolution of second natural replicator: **the meme.** Memes, he proposes, are the new replicators in the soup of Human Culture. As Dawkin has proposed, 'when you plant a fertile meme in my mind you literally

parasitize the brain, turning into a vehicle for **the** memes propagation in just the way a virus may parasitize the genetic mechanism of host cell'.

1.11 Cultural Strategies for Facilitation of Organizational Learning

Further, studies in intervention research, suggest that despite the explicit focus on effectiveness, they do not focus on change implementation aspect, to produce the desired changes. On the contrary, change process is mooted through:

- *Organisational complexity and cognition interacting:* The field of system dynamics, pioneered by Jay Forrester (1961) and expanded by his students John Sterman and Peter Senge, explores characteristics of organizations as complex systems, as well as how cognitive features of individuals interact with these characteristics to produce profound learning dilemmas. A central premise of system dynamics is that *structures* determine these results in organizations although managers tend to perceive these results as being caused by recent events. System dynamicists in their studies proposed that for organizational learning to occur, tools and training are required to facilitate diagnosis of the dynamics of organizations in which actors find themselves (Isaacs and Senge, 1992).
- *learning about culture and culture as learning.* Some theorists propone that organizational learning as a phenomenon in which individuals develop their cognitive maps - that is theories-in-use (Argris and Schon, 1974) or mental models (Senge, 1990) and in the process become effective decision makers. It is 'learned product of group experience' and its strength is a function of the convictions of an organization's founders, the stability of the group or organization, and intensity and nature of past learning experiences (Schein, 1990, 14-15). Secondly, the widely shared, tacit assumptions, which constitute an organization's culture, can preclude organizational learning. The organization's processes and structures reflect and are shaped by cultural assumptions (Schein, 1990), which must be uncovered, examined and often changes, to enable organizational learning. Three kind of learning occur naturally in organizations - *Knowledge Acquisition, Skill Learning* and *Emotional conditioning.* Schein (1993a) argues that organizational culture is and of learning. The emotional component contributes to making cultural assumptions based on past mistakes rather than successes extremely difficult to unlearn; employees can be paralyzed by fear of making a mistake (Schein, 1993b).
- *Capacity increasing for change through intelligent participation:* Interventionist research, at organizational level explores as to how organizations can transform into flexible and responsive entities. Manufacturing experts (Hayes et al, 1988) describe the implementation of Just-in-Time (JIT) production systems as an attempt to create

learning organizations. Making critical information accessible and transparent and by increasing the on-line interdependences among employees is one of the key element of both the importance and chances of learning by individuals, who thereby contribute to create learning organizations. Institutionalizing 'people first' assumptions, such as 'all employees are responsible, thinking adults who inherently want to do their best' and encouraging local experimentation are describes as critical components of learning organization (Hayes et al., 1988). Fostering the participation and learning of all employees is described as essential for sustaining competitive advantage.

1.12 Media Influences on Individual Learning - Implications for Organizational Learning

A growing number of organizations have reported significant improvement in performance, when they have encouraged their employees to learn and share knowledge. For facilitating organizational learning, individual learning needs to be communicated to others and ultimately the entire organization (Crossan et al. 1999). Communication plays a vital role in work place learning and knowledge development (Weick and westley, 1996) and the advanced communication technologies such as e-mail and video-conferencing play an important role in organizational learning by facilitating (or inhibiting) flow of learning among individuals and groups in organizations (Crossan et al. 199). Individual learning and information processing is frequently associated with communication which provides time to allow individuals to engage in important cognitive activities such as encoding, rehearsing, and reasoning.

Individuals communicate in organizations for two distinct reasons i.e., primarily reduce uncertainty and secondly to reduce equivocality (Daft and Lengel 1986) . Reduction of uncertainty needs more information, while reduction of equivocality requires clarification of information. A review of constructivist learning perspectives leads to insight of the need for learners to interact with environment. The constructivist theories with insights from *cognitive psychology* propone that mind of the learner produces interpretation of reality through processes of attention, encoding, rehearsal, elaboration, retrieval, reasoning, and problem solving. The key driver for individual learning process is cognitive-based interactions (i.e., those that engage deep level thought processes like reasoning and problem solving.

According to Oliver and McLoughlin (1997), the five types of interactions between two parties, which result in learning, are: Social, procedural, expository, explanatory and

cognitive. The individual learning theory helps in hypothesizing that individuals who use communication media support for feedback and get time for reflection would perceive greater communication richness and hence greater learning outcomes.

1.13 Action Learning (AL) in Organizational Learning Process

Reg Revans (1997) architect of action learning believed that it is difficult to describe, because, it is so simple. Me Gill and Beaty (1995) defined it as "a continuous process of learning and reflection, supported by colleagues, with the intention of getting things done". Similarly, Inglis (1994) defined AL as "a process which brings people together to find solutions to problems and in doing so, develops both the individuals and the organization".

Action learning is often confused with "learning by doing" (Wallace 1990). Revans himself contributed to the confusion by loosely defining AL's essence as learning from and with peers while tackling real problems (O'Neil and Marsick 1994). AL is not synonymous with project work, job rotation, or any form of simulation such as case studies or business games. Inglis (1994), indicated that AL differs from other methodologies through:

- Learning is centered around the need to find solution to a real problem
- Learning is voluntary and learner driven
- Individual development is equally important as finding solution to problem
- Action learning is a highly visible, social process, which may lead to organizational change
- Action learning takes time of around 4-9 months, excluding implementation period.

There are five basic elements of AL namely, problem, set, client, set advisor and process, detailed briefly below:

- The *Problem* (s) must be salient to the AL participants, which implies that outcome should matter to them (Dixon 1998). Participants with the small group (set) may all work on the same or on different problems (Froiland 1994). The problems may also deal with strategic issues (what to de) or tactical issues (how to do it).
- The *Set* refers to the four to six action learners who work together to solve the problem(s). Each set member acts as a consultant, advisor, and devil's advocate for every other set member (Inglis 1994). The set members need not be specialist, but must be competent and committed to process. The sets consist of members from different disciplines to have a "fresh perspective" towards the problem.
- The *Client* is the person who owns the problem. He may be synonymous with set member or sponsoring organization.

- The ***Set Advisor*** acts as group facilitator. His role is important in the beginning of process and the participants may assume the responsibilities of this role subsequently (Dilworth 1998). He increases group cohesiveness by explaining the process to members and building interpersonal skills. He may increase confidence and commitment of client with open communication.
- The *Process* involves observation of the problem, reflection and hypothesis forming, and action. Factual information is gathered on an ongoing basis. The reflection and hypothesis forming take place, after and during set meetings with individual time limits of 30 minutes each.

1.14 Learning Organization - Integrated use of Information System and Knowledge Engineering:

Knowledge is a fundamental asset within the business context, working as decisive variable impacting the performance of the organization. The mechanisms of creation, representation, diffusion, marketing and exploration of knowledge provide competitive advantage to the organization and can briefly be termed as knowledge management. Learning Organization has been defined by (Malhotra, 1996) that " Learning organization is to have an ingrained philosophy for anticipating, reacting, and responding to change, complexity and uncertainty". In order to manage the knowledge management process and also the organizational learning, it is prerequisite that an appropriate Information architecture and IT tools are in place in the organization, facilitating these processes. (Jaao Vasco Furtado, Cesar Colera, Secrel) proposed a strategy called MC2 strategy which was inspired by ideas from Management Systems about learning organization and knowledge management and is characterized for making integrated use of information systems and knowledge engineering to support these processes. To induce people's participation the learning process, it is important to implement, within the organization, efficient and structured ways in which the attributions, roles and responsibilities are clearly defined. The use of IS as tool for enabling for employee participation is fundamental (Huber 1990; Davenport 1997). IS are important in LO for serving organizational memory and for distributing information.

1.15 Knowledge Management (KM) and Organizational Learning (OL)

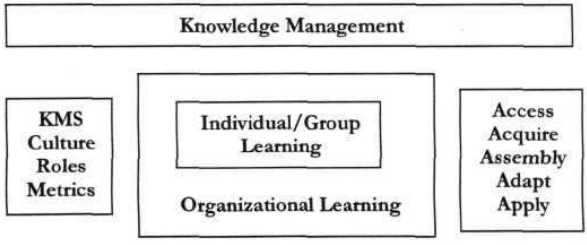
Knowledge Management focuses on the creation of *explicit Processes* that increase knowledge and learning throughout the organization (Alavi and Leidner, 1999). It requires systematic attention to learning processes, culture technology infrastructure and measurement aspects. The process of KM involves generating, capturing and organizing, accessing and sharing, and applying knowledge encompassing supporting individual and organizational learning. The

Information Technology (IT) in organizations is specifically designed for sharing and integration of knowledge through Knowledge Management Systems (KMS) (Alavi and Leidner, 1999). Technology applications such as Internet, Intranet and Group Ware are being increasingly used to facilitate accessing and sharing of information and knowledge.

Organizational learning focuses upon the ability of organizations to adapt to changing conditions (Huber 1991) and improve actions (Fiol and Lyles 1985). The OL has been researched from three perspectives, namely: -

- *Summative:* It suggests that individuals learning can be aggregated into organizational level of analysis (Simon, 1991), through linkage with knowledge management. Organizations can provide learning experiences, to employees or hire new employees possessing knowledge beyond that of current employees (Epple, Argote and Devadas, 1991; Huber, 1991)
- *Interactive:* It suggests that mere aggregation of individual learning, by itself is not organizational learning (Nonaka and Takeuchi, 1995). It argues that as a pre-condition to learning, there must be process of knowledge exchange between individuals (Cohen and Levinthal 1991). Through exchange, new knowledge is created for use by the organization.
- *Rok-Rela/ed:* Learning is determined by the role occupied by the individuals in the organization. Organizational learning is a function of role-related learning behavior, and is thus distinct from the individual occupying the role.

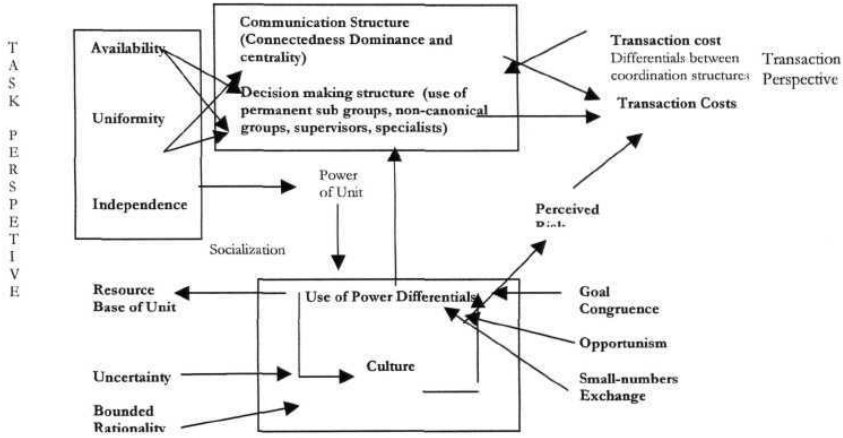
At the core of the knowledge is learned and possessed by individuals, groups and organizations through capability to access, acquire, assemble, adapt and apply knowledge in pursuit of organizational goals and objectives. The enablers of the process include knowledge management system, culture, and leadership roles. The metrics developed (Susan A.Brown, Anne P. Massey) is as under: -



The question of probing include:

- What data, information and knowledge should be collected and shared?
- How can an organization collect, filter and disseminate knowledge?
- *l* How can a knowledge sharing culture be created and sustained?
- What incentives engender sharing?
- What technical infrastructure and system enable learning, sharing, and knowledge creation?
- What metrics are appropriate or inappropriate to assess organizational value?
- What roles emerge in the successful practice of knowledge management in support of organizational learning?

A probative research to answer these queries would enable the organization to plan and institute an enabling KMS, which facilitates and supports learning process in the organization. The *Know/edge support systems* (KMSS) have been researched by Perrow (1967) noted that *Technology* facilitates the interactions among employees, which ultimately take the shape of Organizations' structures. The Model framework for KMSS research proponed by Nicole Haggerty and Scott Schneberger:



A Model for the study of Knowledge Management Support system

Perrow further argued that control and coordination form two dimensions of task structure. KMSS can provide answer to burning issues faced by the organization i.e.

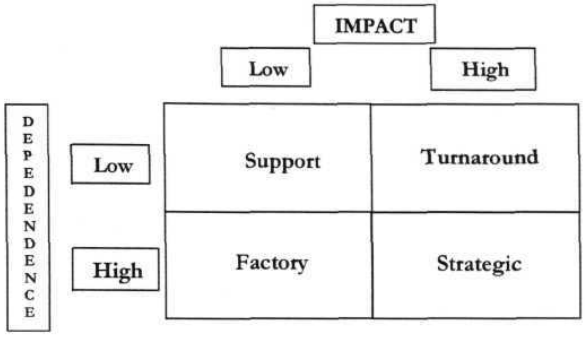
- What is the significance of organizational power and transaction costs in Knowledge Markets?
- To what extent do variations in organizational power and transaction costs induce shifts from knowledge markets to administered allocations?
- What is role of the culture in use of organizational power in knowledge management programs?
- Under what conditions will both knowledge markets and hierarchies fail, and ultimately replaced by a 'Clan' structure based on cultural values?
- To what extent will organizations hybridize market, hierarchical and clan strictures in knowledge management programs?

Facilitating effective and efficient knowledge sharing among organizational members is the primary objective of organizational knowledge management research and practice. Perrow' s framework provided a seminal foundation for later research. Van de Ven and Delbeq (1974) extended Perrow's (1967) analysis to formulate a task contingent model of work-unit structure based upon *Task difficulty* and *task variability. Task difficulty* corresponds to the "degree of complexity of the search process in performing task, the amount of thinking time required solving related problems, the body of knowledge that provides guidelines for performing tasks. *Task variability* corresponds to " the number of exceptional cases encountered in the work requiring different methods or procedures for doing work. Poole began by extending Van de Ven and Delbeq's task-contingent model with Thompson's (1967) concept of *task-interdependence.* He then applied that extension to communication structure. This task model was constructed upon mediation information task constructs of *availability, uniformity,* and *independence. Availability* refers to perceptions of suitability and obtainability of information. Uniformity refers to perceptions that information requirements are consistent in term of amount, type, and report timing. Independence refers to ability of a work unit to meet its knowledge requirements. Poole hypothesized that availability and uniformity affected both communication network structure and mode of information evaluation and integration. Organization power is only dependent on information independence.

1.16 Understanding the Organizational IT Requirements

The foremost management challenge is the ability to develop a strategic organizational perspective in deployment of IT for organizational growth and development. In this context, Warren McFarlan of Harvard Business School has developed a strategic grid for effectively

understanding mapping of IT requirements of Organizations. The grid relates dependence on IT systems to the impact of IT on a business.



(Strategic Grid for positioning Information Systems in Various types of Organisations - source: Professor F.Warren Me Farlan, Harvard Business Review, 98-103, May-June 1984).

McFarlan has developed six questions to determine strategic use of IT (bottom right quarter of the grid):

- Are there ways to use technology to create defensible entry barriers; for example, to produce economies of scale that competitors cannot match?
- Is there an opportunity to increase switching costs, increasing customer reliance on the systems; for instance, airline frequent flier program?
- Can IT Change Competition from cost-based (that is commodity) competition-to-competition based on product differentiation?
- Can Management use IT to build links to suppliers?
- Are there ways to use the technology as a product; for instance, repackaging and sale of data files? (McFarlan and Warren, 1984)

By pondering over these aspects and effect of IT on their industry sector, managers can begin to use IT to the competitive advantage of their organizations.

1.17 Technology & Workplace Transformation

Technology has changes the way works is being done, be it the production, coordination, or management work. The *Coordination Work, which* implies, distance and time (time zones) can be shrunk to zero. Users from can maintain the organization's memory for accessibility and

usage across the globe. *Management Work* is more flexible because of aid and support of technology, in sensing the external environment.

Technology has made it possible for fuller integration of business functions across four directions i.e., *within the value chain, End-to-end links of value chains, value chain substitution* and *Electronic markets.* The structure of the organization needs to be redefined and recreated to allow the re-distribution of power, function and control, where they are economical and efficient. Organizations can become clusters/adhocracies and the technology-driven networks and databases will replace the multi-tiered hierarchy with a wide breadth and depth of that is sum of employee's collective experience. The new *organisational architecture* will evolve around autonomous work teams and strategic work alliances. Technology enables the organization to 'stretch', to democratize the strategy creation process; to tap the imagination of majority of employees. It allows managers to lead their organizations through a complete transformation process. It allows for strategic opportunities for organizations to re-assess their missions and operations. *Charles Handy,* sees the popularity and success of sizing and restructuring organizations as an effective way of dealing with six paradoxes i.e., 1) Power and control, 2) being big and small at the same time, 3) being autonomous within bounds, 4) encouraging variety but, within shared purpose, 5) individuality but also partnership and 6) global and yet local. The shift generated by technology has defined by *Michael]. Marquardt <£r Greg Kearsley,* as under:

Organizational Shifts Generated by Technology		
Dimension	**Bureaucratic**	**Network**
Critical Tasks	Physical	Mental
Relationships	Hierarchical	Peer-to-peer
Levels	Many	Few
Structures	Functional	Multi-disciplinary
Boundaries	Fixed	Permeable
Competitive thrust	Vertical integration	Outsourcing and alliances
Management Style	Autocratic	Participative
Culture	Compliance and tradition	Commitment and results
People	Homogenous	Diverse
Strategic focus	Efficiency	Innovation

The structural aspects have the additional benefits:

- Release of energy due to autonomy
- Allow people to be informed
- Binding of units by trust and common goals rather control.
- Delegation of power to the lowest possible point
- Elimination of risk of centralized bureaucracy, due to spreading of power.
- Right and responsibility with people for their work
- Flatter organizations without losing efficiency.

In precise technology facilitates the transformation of organization into flexible, agile and responsive to the meets the demands of the competitive scenario.

1.18 Virtual Organizations

Virtual Organizations are a temporary network of independent companies, suppliers, customers, even rivals linked by information technology to share their skills, costs, and access to another's markets. They neither have central office, organizational hierarchy, but consist of teams of people working in different companies routinely who together on project-based assignments and are disbanded at the end of the project. Virtual organizations mix and match, the best of other organizations, with the power of technology and can becomes a world-class competitor, with the speed and muscle of lead-edge technology.

1.19 Impact of Technology on Employees

The employees of today are technology savvy and are continuously striving to learn and assimilate the technology in work place. Technology provides for quicker and better transfer of knowledge throughout the organization for various reasons:

- First, it can improve the ability of people to communicate with each other, since it blurs the boundaries of the organization and provide for scope of development of relationships beyond hierarchies.
- Second, technology provides opportunities for interpersonal interaction through various media, i.e., video conferencing, e-mails etc.
- It eliminates the number of hierarchies while increasing the scope of control.

It will place greater emphasis on employee contribution, by effectively measuring the performance. In the process it strengthens, employee's need for recognition to his value-contribution. The pay-for-performance can be effectively administered. The competency

and skills of the employees can be recorded and in the process their learning requirements can be planned for, as a part of overall organizational learning efforts.

In short, it allows empowerment of employees at ground level and facilitates better performance of organization through these front-line at the point-of-interface with customer, which would lead to increased customer satisfaction and improved resultant business performance.

1.20 Technology and Customer

At the customer level, technology has provided customers with more knowledge about the options and standards of services and products that are available to them, but also the quality consciousness. Their demand for customized products and solutions based on the best in terms of:

Cost: What is least expensive and most economical

Quality: with zero defects and thereby meet and rather exceed the expectations of the customer

Time: Providing of products/services in the shortest possible time

Service: Efficient and hassle frees service through empowered employees

Innovation: Envisioning and creating/producing beyond customer expectations, *and*

Customisation: Products/services tailored to specific needs of customer

In precise, technology is the effective way for organizational transformation in what most aspire for i.e., customer centric organization. It facilitates for total reorientation of companies around meeting customer needs and expectations.

1.21 Framework for Learning and Technology-Based Teaching

The organizational breathing cycles can be understood through unfreezing, change and re-freezing process. The organization's response of "Uncovering or Unfreezing", of current reality can be termed as "breathing in" while the process of implementing changed consciousness into practices can be termed as "Breathing Out". Thus the Lewin-Schein model of unfreezing-change-refreezing can be perceived as one sequence with an ongoing process of organizational breathing.

The next issue regarding what it takes to compete in new economy. Brian Arthur (2000) emphasized that in order to do well in new economy managers have to understand their ways of knowledge creation and knowing. Arthur (1996) adds, "If knowledge-companies are

competing in winner-take-most markets, then managing becomes a series of quests for the next technological winner". The cognitive and knowing process is isomorphic top in the levels of change described above and can be understood among four levels of cognition:

- *'Level 1 Cognition: Downloading Mental Models*
- *Level 2 Cognition: Reflection and Reinterpntation*

**/* Level 3 Cognition: Imagination*

- *Level 4 Cognition: Primary Knowing (Presenting):* At level 4 cognition, the quality of attention is the highest and most subtle level allows it to become one with the intention of the emerging whole. This level of cognition is what Rosch (forthcoming) refers to as *primary knowing of wisdom awareness.*

1.22 Learning Organization & Facets

The learning organization is "an organization skilled at creating acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge, and at modifying behavior to reflect new knowledge and insights" (Garvin 1993, p.80) Information Technology (IT) is often used by learning organizations to rapidly disseminate knowledge and overcome "the learning curve" when introducing employees to new procedures or products (Quinn et al., 1996). "Knowledge management technologies" such as intranets, data warehouses, and group-ware products, provide organizations with mechanisms to accomplish these activities.

Tornatzky and Fleisher (1990) provided a broad theoretical framework consisting of three components that influence the information systems adoption process: (1) the organizational context, (2) the technological context, and (3) external environmental context. For example, Grover and Goslar (1992) found a significant relationship between adoption uncertainty, whereas Chau and Tarn (1997) found no such relationship when adoption of open systems. Sherry D.Ryan, Gulillerno Rodriguez, John C.Windsor (2000), in their paper on " Factors Affecting the Adoption of Knowledge Technologies: An International Perspective, proposed a Research Model, taking into consideration the following aspects:-

- **Organizational Context:** It describes the attributes of an organization such as organizational culture, the degree of centralization and formalization. It depicts the processes and structure of an organization and their impact on adoption of technological innovations. Several studies have found significant relationship between these attributes and innovation adoption (Tornatzky and Fleisher 1990; Chau and Tarn 1997) . Lipshitz, Popper and Oz (1996) suggested that Learning Organization consists of two aspects: Structural and Cultural. The structural aspects refer to established structures and

procedures by which organization collects, analyses, stores, disseminates and uses information that is pertinent to organizational effectiveness. Knowledge Management Technologies such as intranets have been identified as supporting these activities. The cultural aspects are result of shared values and experiences, which aggregate individual experiences into a corporate awareness.

- **Technological Context:** It refers to how the characteristics of existing technologies in an organization influence the adoption process. (Tornatzky and Fleisher 1990). Brown (1981) and Rogers (1983) summarized innovation characteristic variables that were commonly found to influence the adoption decision. Lai and Guynes (1994) applied three of characteristics - compatibility relative advantage and complexity to technological adoption process. Compatibility has been defined as "the degree to which a new innovation is perceived as being consistent with potential adopter's current task environment" (Lai and Guynes 1994, p.76)

  Relative advantage can be described as a perception held by the potential adopting firm as top degree to which innovation is superior to the practice(s) it will supercede and other solution that might be possible (Lai and Guynes 1994). Complexity is defined as the degree to which an innovation is perceived as difficult to understand (Lai and Guynes, 1994, p.77). When technology is difficult to understand, it is hard to obtain management commitment to proceed.

- **Environmental Context:** It refers to the various factors in the environment in which the organization is subsisting. These factors vary from culture, values, development etc. Since, the organization is a subsystem of the external environment, it is logical that the environmental factors significantly influence the various internal factors for the organization such as culture, values, ethics etc.

1.23 Technology Based Training

Training, which is one of the important aspect of organizational learning process has become user-friendly, both from the both the involved segments i.e., Facilitators/Trainers as well as learners perspectives. Training, with advent of technology, can now be provided anywhere, anytime and for anyone. The entire gamut of involved processes can be managed through centralized location or even distributed locations networked with the central location. The training involves various stages as detailed below:

- **Pre-Training Stage:** The entire set of processes such as Training Needs Identification & Assessment (TNI & TNA), can be effectively performed with help of Performance Measurement Systems (PMS). The skills and competencies, which are captured during PMS, by the Managers, are surely one of the better ways of capturing the data. The other

aspects such as relating of organizational core competencies with the individual competencies in the process of developing competency index, is one of the important aspects in the pre-training stage. The various aspects involved in the training are

- Identifying the range and extent of training needs from the business needs
- Specifying those training needs precisely
- Analyzing how best the training needs might be met.

The business needs of the organization can be assessed with the help of five main tools, namely viz., human resource planning, succession planning, critical incidents, management information systems and performance appraisal systems. Traditionally, many authors on TNA (Stewart & Stewart, 1978; Goldstein, 1986; Kubr & Pokopenk, 1989) have studied the different levels at which the training needs can be assessed. The most common structure of levels is as follows: -

- ***Organizational Level:*** It involves identification of training needs, which affects the whole organization, for instance, training aimed at introducing cultural change across the organization or induction training.
- ***Occupation/Group Level:*** Identify the training needs affect particular occupations or groups, e.g. training in Asset Liability Measurement (ALM) to the Credit and Treasury Staff.
- ***Individual Level:*** Identifying the training needs of the employees, for instance, training on marketing strategies to target high net-worth Individuals to the retail marketing staff in the banks.

Another aspect focused upon (Boydell, 1990; Kubr & Prokopenko, 1989) whether the training is for the present of future needs. The present needs are seen relative to the current objectives. For instance, training to branch staff on the networking aspects, keeping in view the bank's objectives of total branch networking. Future needs relate to long(er) term objectives. For instance, training of core IT specialists of a bank in areas such as mobile banking etc., then the bank has drawn up aggressive plans for providing into high-tech banking services to its customers. In fact, there is no best approach towards identifying the training needs. The imperative need is for continuous scanning of environment and try to understand, what performance changes are needed to meet the business needs? Further, the most importantly, can those performance changes be met by a training intervention?

IT plays a facilitative role in the entire process. The performance measurement as well as the maintenance of the skills and competence database can be interlinked and can be

maintained as a common database. This can further correlated with the process of training needs identification and assessment.

- **Training Stage:** The Training delivery comprises of design/development and implementation stages. Training per se, has been defined as a process to change employees behavior at work through the application of learning principles. The behavioral change usually has a focus on knowledge or information, skills or activities, and attitudes of belief and value system. A succinct definition of the cope of the subject is "..the systematic development of the attitude, knowledge and skill behavior pattern required by an individual in order to perform adequately a given task or job(department of employment, *Glossary of Training Terms)".* The traditional view is that learning, or behavior change modification, should continue until "experienced worker standard (EWS) is reached. The UK IPM has the wider vision of development and attempts to treat it as a form of continuous learning. Continuous Development (CD) is not a body of theory, nor a collection of techniques; it is an approach to the management of learning. Continuous development means:

  ^ Learning from real experiences at work

  y Learning throughout working life, not confined to useful but occasional injections of "training".

For the individual employee, continuous development means lifelong learning, with a strong element of self-direction and self-management. For the organization, continuous development means the management of learning on continuing basis through the promotion of learning as an integral part of work itself. (IPM Statement, Continuous development people and work).

To meet the IPM's aspirations, short-term task based learning would need to be broadened and the focus would have to be on how the individual 'learned to learn' between various tasks, so that principles of learning can be moved into new contexts to solve new problems. This 'portable learning' seems a long way off to most of the employees. However, such 'portable learning' is more a function of education. The inherent limitations in jobs of most of the employees make CD a great aspiration rather than a reality. The developmental perspective with an over-specialized task approach proves more beneficial to the organization rather than the employees. Enhanced productivity and profitability would be the motivation and spin-off, which can be expected by the organization. The other benefits to an organization from training the employees are:

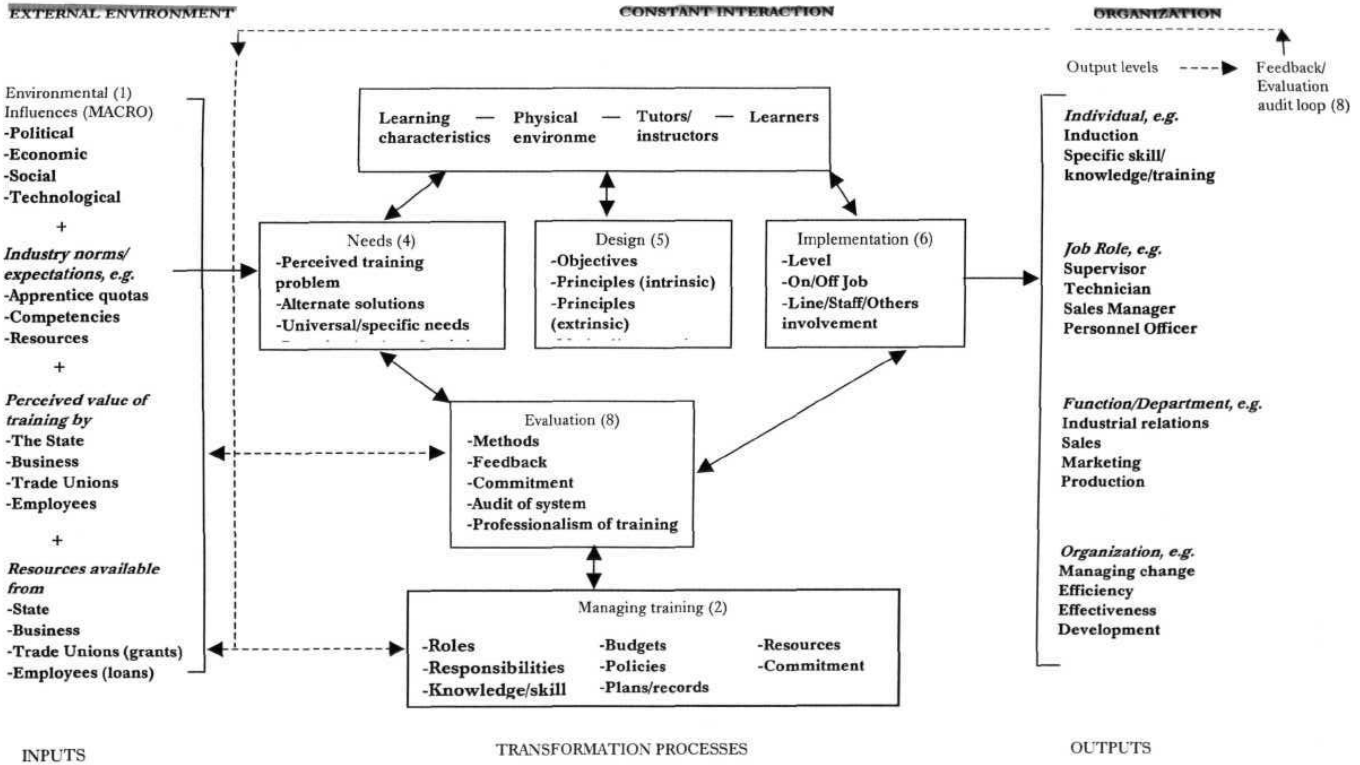
> Reduction of learning time

- ^ Reduction of turnover and Retention of employees
- > Increasing scope for flexibility in job.
- ^ Attitudes towards ethos of organization can be altered
- > Management Training can enhance the internal capacity for decision-making and planning etc., which can impact on the very growth if not the survival of the organization.

Training knowledge and skills without organizational commitment would be futile and can be dissipated. The training skills need to be spread out in the organization and danger of concentration needs to be guarded against. If, we consider the learner, the self development perspective is geared to self-help philosophies and is based on the following premises:

- ^ *Institutionalised training is expensive and often not relevant to learner needs*
- *> It fits everyone and individual takes responsibility for his her own learning*
- *~P Self-Actualization seems to be the real goal*
- ^ *'Anti-expert' slant.*
- ^" *The student participation in the programme is critical.*

Again methods/techniques revolving around the learner, and almost ignoring the other influences in the system, can give a distortion on reality. To over-emphasize the learner is to neglect, if not to negate the learning or training system. The comprehensive model of Anderson Associates, Personnel and Management Advisors, regarding the training system is as under:



The Training System

Source: Anderson Associates, Personnel and Management Advisors

A traditional vision of management can be seen as 'effective planning and regulation of operations'. People were prominent in the analysis of management gurus with a three-fold analysis of managing the 'business', managing managers and managing workers all under the important constraint of time. Others took a wider environmental view and looked at management as some form of 'agency of community'. So, irrespective of the organizational or managerial frame of reference adopted by managers, there are implications for training. Examining the mainstream 'functional approach' and role type of analysis can further illustrate indeed this, which is a serious rival to the functionalists. The functional approach emphasizes the activities of management the military vision of 'commanding' has been liberalized through time to become 'directing and leading'; while coordinating has been absorbed into the organizing/planning function and staffing has now been added. The reality of what managers actually do in effect is seen by others to differ from the functions of management. A role analysis is used as being more consistent with reality. This role, or pattern of behavior associated with a position, involves the manager's view of the behavior as well as the perceived expectation of others. The ***Managerial thought and Training Implications,*** as explained by A.H.Anderson are indicated in the following table:

School	Themes	**Training implications**
Interpersonal behavior	Human Interaction at work is the focus	Skill development/people management important
Group Behavior	Workshop attitudes and motivation to act important	Leadership Training Group Dynamics etc.,
Cooperative social system	Cohesion encouraged; conflict ironed out	'Core value' systems and building up a unitary culture part of the brief for attitudinal change via training.
Socio-technical	Constant interaction between social (people) aspects of the organization and technology (equipment work methods etc.,)	Again people part of eth equation, so groups/individuals affected by interaction, e.g., new technology/machines etc., hence skill implications
Decision Theory	Organization seen as a 'complex web of interlocking structures'. Analyze decision — processes.	In many •ways, management in decision making, shrewd training people 'switch into' the power structures to gain resources etc.
Contingency	A horses for courses approach. No one solution as it depends on the circumstances.	The uniqueness of the culture and organization must be understood and used by the trainer (staff or line)
Classical/ Scientific	'Scientific' selection and training of workers. Scientific analysis of	Training with its skill divisions seen to be a main premise of this school

School	Themes	Training implications
Management	time. Market division of labour (Planners and workers) Differing responsibilities.	
Behavioral	Groups and individuals important to counter the pure 'task' mentality. 'Contented cows give the best milk.'	People to the fore hence training and development important to this school.

In classical managerial philosophy, a clear division is made between the line and staff managers. There may be hierarchy in training system as well, where roles may even be assigned to the line authorities. In practice the responsibility of training is shared in training between the staff and line manager/trainer. The various roles as adopted by A.H.Anderson from the work of Henry Mintzberg, *The nature of Managerial Work* are as below:

Role	Theme	Training implication
Interpersonal Roles		
1. Figure Head	Legal and ceremonial	Training? (Social Graces)
2. Liaison	Network of external contacts	Important information source
3. Leader	Hires, train, promotes and dismisses	Clear training role.
Informational		
4. Monitor	Receiving information (external/internal)	'Control' aspect for policies etc.
5. Disseminator	Gives information to groups (external)	Training is dissemination of information
6. Spokesman	Giving information to groups (external)	Possible liaison type of role but usually internal activity
Decisional		
7. Entrepreneur	Initiates and designs much of the controlled organizational change	Clear Trainer's Role
8. Disturbance Handler	Removing obstacles to change	Perhaps more of an industrial relations role but 'disturbances' may be indicative of a training need
9. Resource Allocator	Schedules own time, authorizes actions etc.,	Training competes here for the resources of the manager/organization

Role	Theme	Training implication
10. Negotiator	Bargaining Role	Very important in getting resources plus convincing subordinates of value etc. of training.

A.M. Pettigrew and Reason had departed from the 'job functions' approach and examined the 'best fit' between job role, person and organizational culture. They identified five trainer types (indicated below) and went to great lengths to pint out the need for 'congruence of role, person and culture, to from any vision of trainer effectiveness.

Trainer Types ***and*** *Effectiveness*	
Provider	Maintenance not change; performance-oriented. likes the concrete and the practical. Nitty -gritty training carried out. Divided into three sub -categories. *Cultural operator* Identifies with mores of organization. Credible but power-based legitimacy given to role by organization. May find difficulty in dealing with sub-cultures. *Individual contributor* Good knowledge base, unique personal contribution. Almost charismatic figure. Organizational and bureaucratic constraints may impinge on this individuals 'freedom to operate'. *Rj)le Performer* Identified with 'system'. More bureaucratic in approach, likes paperwork/routine work.
Training Mangers	Less of a practitioner and more of an overseer. Geared to power and influence. Uses policies/procedures to 'advance training'. 'Co-coordinators' — often based at HQ, subordinates may have 'dotted line' relationship. Manipulative skills to the fore in this potentially 'no win situation'.
Change Agent	Aspire to altering the 'personality' of the organization. Often seen as 'neutral' outside of the structure of the organization.
Passive Providers	Low influence. Many trainers in this category. Waits for 'clients'. Involved in endless details/routine work.
Role in transition	'New Vision' of the organization but lacks clear role marginalization and legitimacy problems abound. Potential for role conflict.

The skills and competences required by a trainer can be perceived through two approaches (1) the traditional knowledge/skills or competency technique, and (2) taxonomy, or classification, of skills required. Jones, 1983, developed a training intervention skills taxonomy, or classification. The research skills from analysis to design are very important for diagnosis. The strategic and

operational roles and responsibilities in Training (assuming line/staff format), defined by Anderson are:

Strategic Activity	***Responsibility***
Corporate Plan	*Senior Management with specialist corporate planners'* assistance (unlikely to have training input unless lobbied by director of personnel)
Human Resource (HR) /manpower plan	*Senior management with HR involvement* at senior level - possibly manpower planner involved - training implications from plan for all managers
Training Policy	Statement (action?) of training position. Usually written, or atleast signed, by chief executive,. Should be used as *'guideline's* for all managers.
Training Plan	Possibly an annual event derived from overall policies and corporate/human plans. Senior training person to draw it up in conjunction with senior line management. Priorities decided by senior management (line and staff)
Operational Activity	***Responsibility***
Needs analysis	Essentially a line task manager has in-depth knowledge of his/her people Technical back up and standardization from staff given to senior management for priority/action.
Design	Traditionally staff role, but learning must percolate through to line. Hence, it is proposed that this is a joint initiative.
Implementation	Again a joint initiative. Line manager /trainer has a focus on training 'on the job', and 'off the job' focus given to staff trainers.
Evaluation	Joint Initiative. Shorter time-scale tends to be line while organizational view and longer time-scale tends to be staff.

- **Training & Learning:** Learning is form of behavioral modification. In case of training, it is geared towards increasing work performance, through the acquisition of modified aspects of knowledge, skills and attitudes. There are many learning issues, which inhibit our behavioral change. Potential difficulties, in the transfer of learning, from training to work environment are:-
  - **Perceptual:** Limited vision of range of learning sources/processes
  - **Cultural:** Individual's background lends itself to planned inputs from specialists.
  - **Emotional/Motivational:** Any threats to credibility/security avoided.
  - **Intellectual:** Learning not perceived as an ongoing activity.
  - **Expressive:** Communication limitations, hence avoids discussions etc.
  - **Environmental Climate:** Risk-taking not encouraged by the organization.

Xo identify the blockages, one needs to examine not just the learner: tutor interface, but the learning context, its environment and the organization must be examined. Apart from the overt humanistic philosophy, the learning variables, the learning variables cited below give a perspective on effective learning environment: -

- ^ The potential for curiosity and learning must be encouraged.
- ^ The learning must be relevant to individual needs.
- ^ Attempts to change people "themselves" is threatening and may be resisted.
- ^ Activity is important for significant learning.
- > The learner must take some responsibility for learning.
- *y* Knowledge of "how to learn" is important for employees to cope up with change.
- ^ Self-initiated learning is relatively long lasting and all pervasive.
- ^ Self-evaluation can stimulate independence, creativity and self-reliance.
- ^ The Trainer/Manager's role is that of a Facilitator to provide an environment in which learners can set their own goals.

The training context presents both opportunities and constraints. Some organizational approaches will be more conducive. Some organizational approaches will be more conducive to training and learning. The impact on effectiveness of training and learning is dependent on:

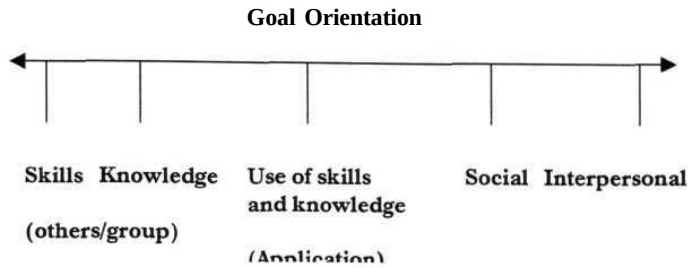
- *P"* Organizational acceptance of training
- ^ Organizational commitment to training
- ^ The level/degree of resources allocated
- ^ The value attributed to training
- ^ The professional approach to training, particularly by the line trainer which reinforces 'value addition" to learning.

1.24 Categories of Learning

There have several attempts to categories the learning and the five major approaches are:

- *KSA Approach:* It is the easiest to use. The training need is bifurcated into K (Knowledge or Information), S (Skills or activities) and A (Attitudes or belief systems). For instance, the employees working in Networking area in the bank, must possess the knowledge or information regarding networking policies of the bank, skill /competences in networking and most importantly the attitude to upgrade his knowledge and also to work in the area.

- *Lang's Spectrum:* Learning was classified by Long as a goal spectrum from eth tangible goal to the abstract. Skills occur at the more tangible end while interacting with others; a more complex goal occurs at the more abstract end.

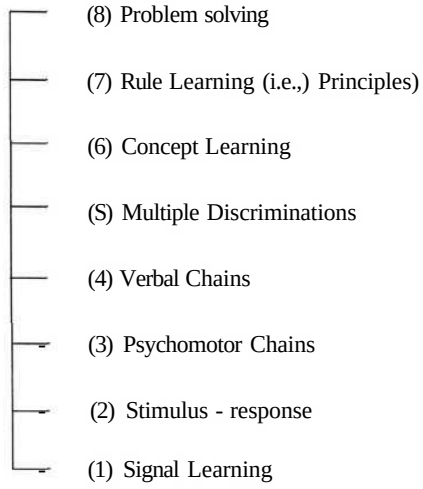


Long's Spectrum as proposed by C.G.L,Long in "A theoretical model for method selection"

- CRAMP Approach: Belbin in conjunction with Clarke, constructed an algorithm to select specific training methods fro training programs. The Classes of Learning activity have been classified as:
  - "/ "C" type learning indicates the *comprehending* of the type of learning. It involves the understanding and the application of what has been learned in some new way or new set of circumstances. It must involve positive transfer and as it is not just rote learning, the effects should be reasonably long lasting.
  - ^ If die aim of the learning process is to develop a) fast reliable responses and/or b) manipulation?, then "R" (reflex) type learning development occurs. These responses are geared to signals or cues. like comprehension, they are long lasting but subsumed in low level of consciousness. That is, it becomes an automatic almost unthinking response.
  - "f If the focus of the learning is on development of new attitudes "A" type of learning or formation which revolves around value system - if not the fundamental belief systems.
  - "S If the aim of the learning is making the learners remember specific facts or figures, then "M" (Memorizing) type learning is the focus. The individual may have to recall specific formulae on given job.
  - ^ If the training objective is to make the learner get acquainted with procedure "P" type learning is the focus.
- Blooms Taxonomy: This approach while drawing upon an educational rather than training base, usually embraces the knowledge and attitudinal objectives. The "affective domain" covers the attitudinal aspect. This includes: an awareness and willingness to listen; willingness

to react/acquiesce, valuing and sensing worth/commitment; organizing values into a system and determining value —hierarchies.

•/ Gagne's Hierarchy: Hierarchies also exist in alternative approach by Gagne, which embraces education and training. Here we not only find a hierarchy, but distinct transition between phases, with mastery over previous phase being a prerequisite.



Conditions of'Learning adapted from JLGagne

The triggers for training/learning are both internal as well as external. The external; factors include Anticipated demand for products/services, Forecast profitability (allowing for environment). The internal factors include, Plans to change method/technology, views of the reporting authority, views of training department, Loss of key employee (unforeseen) etc. The perspectives on origin for training requirements are:

^ Personnel and training requirements are derived from within the organization and are clearly related to product/service demand

^ Changes in technology and methods of work area stimulus across the board from small to medium to large firms, with the larger firms seeing them as more important.

^ The views of training department are important, specifically in larger organizations, while the lower ranking to line be indicative of the absence of or limited development of professional trainers in these establishments.

1.25 Training - Types of Learning Technologies

Learning technology is " the use of electronic technologies to deliver information and facilitate the development of skills and knowledge". It includes both *presentation* (how information is presented to learners) and *distribution* (how information is delivered to learners) elements. The various presentation and distribution learning technologies as categorized by American Society for Training and Development (ASTD) are: -

- **Presentation Technologies:** Electronic Text or Publishing, CBT, Multimedia, Television, Tele Conferencing, Virtual Reality, Electronic performance support system - EPSS *(an integrated computer application using expert systems, hypertext, embedded animation, and/'or hyper media to help and guide users to perform tasks)*
- **Distribution Technologies:**

  S Cable TV, CD-ROM, E-mail, Internet, Intranet, Local Area Network, Wide Area Network.

1.26 Advantages of using Learning Technologies

The use of information technology by organization for imparting of learning is due to host of factors such as speed of learning, quality, relevance etc. Some of the advantages are explained in brief are:

- Available as needed and Just in Time
- Learner Controlled
- Cost Effective
- Self-Paced and User Friendly
- Accessibility over a wide Geographic Area via Distance Learning
- Hands-on Interactiveness
- Uniformity of Content and Delivery
- Adjustment to Individual Learning style
- Adjustment to Motivation level of Learners
- *l* Safety and Flexibility
- Ability to continuously update

1.27 Role of Technology - Transformation from Training to Learning

Research Evidence shows that in traditional training programs, less than 15% of the material covered in the corporate training room ever gets applied in the job. The reasons for this are:

- The training is provided to a group of people with varying degrees of interest and expertise in the subject matter at the time they are receiving training.
- Most of the content is being provided on a just-in-case basis, many participants are not sure if or when they will apply the learning and hence put in little effort to learn.
- Some material may be too advanced to too easy and thereby leading to frustration of boring.
- Since the instructors are reaching 5-30 participants they do not take effort to deliver a top-quality program.

Learning essentially differs from training in the sense, in training, someone else is responsible for seeing that you acquire the competencies you need, while in case of learning, the responsibility rest on self. In the rapidly changing environment, organizational structures with self managed teams or managers supervising 30 to 300 people rather 4 or 5. The managers are required to keep themselves abreast of their learning needs and also resources that can provide such learning.

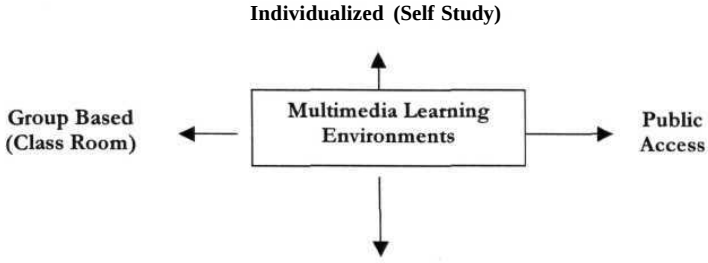
- **Extending Computer Based Training - Interactive Multimedia:** Multimedia technology has dramatically has dramatically simplified the development process for all media and made it possible for anyone with the right hardware and software to develop multi-media presentations that can be run on inexpensive and commonly available personal computers. The unique capability of multimedia offers it the capability to respond to user input and in the process provides unique experiences.

  S Teaching of Business Practices through Multimedia at Anderson consulting: Anderson consulting is a worldwide firm with more than 40,000 employees in 47 countries. The firm's main training center at St.Charles, Illinois delivers thousand of classroom lectures to the employees. But, the cost associated in the firm of travel expenditure and productivity loss was a major source of concern. These reasons led to the firms' quest for use of interactive multimedia to provide opportunity for self-study, "point of need " learning. The first course on business practices, consisting of 65 hours of instructor led training was converted into 40-hour multimedia program consisting of 15 modules and was distributed on CD-ROM. Thus effective learning systems then are those designed to make learning more valuable by simulating tasks that have look and flow of flow of those found in real world. The learning module created at Anderson, have not only cut the costs, but had the associated benefits namely;

  - *Increased motivation*
  - *Appeal to different learning styles*
  - *More Realism*

- *Facilitates multilingual presentations*
- *Higher Retention*
- *Better comprehension*
- *Improved transfer of skills*

The multimedia learning environments can be applied on a variety of applications, but broadly they *can* be used under four settings: a) Individualized Use b) Group based c) Electronic Performance Support System and d) and Public Access



1.28 Learning Process and Managing Knowledge

In developing the knowledge based system or corporate memory of the organization, it is important to recognize the different distinctions and values of these types of knowledge and where they fit in hierarchy vis-à-vis the needs of the organization. The comprehensive systems approach for management of corporate knowledge involves five stages as knowledge transitions form source to use; 1) Knowledge acquisition 2) knowledge storage and mining 3) knowledge analysis 4) knowledge sharing and dissemination and 5) knowledge application and validation.

For organizations to manage their knowledge effectively and efficiently, each of these five components must be interactive. The management of knowledge should be continually subjected to perceptual filters as well as to both proactive and reactive activities. In determining the appropriate technology for knowledge acquisition, it is important to consider how the data/information will be later retrieved by different groups of workers for performing their job tasks. Functional and effective knowledge storage systems are categorized around five elements:

- Learning needs
- Work Objective
- User Expertise

- Function/use of information
- Location - where and how is the information stored?

The souring of knowledge can be internally from the tacit knowledge of the employees, in terms of the employee's expertise, memories, beliefs and assumptions, which are of high value to the organization. The pace of change is so overwhelming that no individual organization can gain control of all effective operating practices and good ideas. The organizations have to look at external sources through a number of methods:

- Benchmarking from other organizations
- Attending conferences
- Hiring consultants
- Reading print materials such as newspapers, e-mail and journals
- Monitoring economic, social and technological trends
- Collecting data from customers, competitors and resources
- Hiring new staff
- Collaborating with other organizations, building alliances and forming joint ventures.

The knowledge so collected must be stored in order to contain and retain knowledge so that it becomes the property of the organization and doesn't go home at night or leave the organization when the employee leaves. Thomas Stewart in his classic *Intellectual Capital: The New Wealth of Organisations* proposed that knowledge could be stored under five general categories in corporate yellow pages, *lessons learned, Competitor and supplier intelligence, Company experiences and policies, Company products and processes.* A comprehensive wide scale transfer of knowledge, can only proceed through the intelligent use of technology, so that knowledge can be available anywhere, anytime, and in any form. Information communications software, including e-mail, bulletin boards and conferencing, allows for interactions between members, both person-to-person and among dispersed groups. Sharing information on a virtual real-time basis, and encouraging wider access to information involves:

- Creating on-line databases that can be used across functional boundaries
- Hooking into online databases and electronic bulletin boards external to the organization such as universities and other learning centers.
- Installing an electronic mail culture where its use is wide spread
- Using electronic data interchange to create comprehensive electronic network systems

The recent survey conducted by the knowledge management network, had identified three major bottlenecks that prevent companies from sharing and transferring knowledge:

- •> Critical Business Processes are available only to a few people
- Knowledge is not available at the pace and/or at the point-in-time when needed
- Transfers and restructuring increases the difficulties in securing knowledge

Learning Management and Technological support: Beckman suggested four sequential but overlapping stages in assuring that the knowledge is collected, stored and shared:

Stage 1: Establish an installed IT infrastructure for all employees

Stage 2: Create enterprise-wide Data, object and Knowledge Repositories

Stage 3: Automate and Unable Operations, Management, and Support Activities.

Stage 4: Develop Integrated Performance Support Systems and Knowledge Discovery and Data Mining Applications through

- Create, research, improve and manage the knowledge repository
- Set and enforce standards, methods, and practices
- Align and coordinate interests with related centers
- Assess work force competency and performance
- Identify gaps and remedy deficiencies in the content and processes of the knowledge and repository
- Provide training and consultancy services
- Supply competent workers to staff projects and processes

1.29 Performance Acceleration through Learning and Knowledge

In the knowledge economy, technology has been redefining competitive dynamics. The only way for prosperity through organizational growth and development is through collective and individual learning power of the employees of the organization. Ernest & Young is striving to ensure its competitive advantage through LEAP (Learning Environment to Accelerate Performance), based on the following underlying principles:

**l* *Performance:* Ernst & Young believes that as a learning organization, it must be first and foremost and be focused on performance at three levels - individual, team and organization. Serving as a human performance advisor to a variety of clients that learning be linked strategically widi the goals of the firm.

* *Transformation of Learning:* Learning has traditionally meant the process of helping individuals acquire skills. Ernst & Young has developed a new definition of learning - One that moves

beyond employee development into broader and more vital context: Helping firm to reinvent itself. In this context, corporate learning includes helping groups build and share a vision, helping teams collaborate, helping individuals and groups make better decisions, and empowering people to do their jobs better by providing learning product they need at the point of performance. This new definition challenges employees, as learning advisors to come up with new processes and solutions fro the constituencies they serve.

- *Technology Solutions:* Technology has enabled Ernst & Young to offer new and exciting tools to accelerate the performance of employees. Satellite based distance education programs allow the organization to transmit knowledge around emerging issues. Web based training allows users to develop basic skills at their won pace and the time most convenient to them. Web communities of practice that allow people to share information and opinions with geographically disparate team members. The classrooms are reinvented for better representation technology enabled work place through use of lap top PCs, Video Conferencing and software tools.
- *Knowledge reuse:* Since, E&Y is the leader in knowledge management through wide use of lotus notes and corporate intranet. Massive amounts of knowledge in the form of best practices in the form of deliverables and thought leadership are created and leveraged. LEAP enables reuse of content by incorporating solutions of specific learning. Learning solutions help in providing better context for knowledge by relating to firm's sense-making and decision-making processes.
- *Learning Environment:* In order to build overall learning environment, E & Y has developed advisors and advisory services, new design and development processes, new technologies that reflect its vision of learning. It h as developed these both internally and through alliances with innovative vendors. A few examples are comprehensive learning management system co-developed with software vendor, distance- learning network hosted by a distance learning company, and collaborative learning environments developed by a knowledge management software company.

E&Y foresees many exciting challenges for the learning industry, due to global expansion of companies, changes in technology, reinventing need at workplaces. These factors will create need for larger and more complex learning solutions. Companies that have redefined learning in its proper broader context, linked to their business strategy, and created effective learning infrastructure will be better able to innovate themselves to serve the market.

There are companies like AT&T, with heterogeneous computing environment, in order to deliver functionality from numerous disparate systems through a common web-based user interface. It had kick started intranet efforts, for existing custom applications such as recruitment along with Peoplesoft, with four self-service applications:

- */* A recruitment application for posting job requisitions, updating resumes, and viewing internal postings
- A personal data maintenance application in which employees can maintain information such as address, email ID etc.,
- •> A manager reporting application for retrieving employee demographic data such as salary band groupings.
- An address update application for updating mail stops and processing employee work address changes.

The above applications eliminated the requirement for faxing hard copy forms and process written change request, reducing cots and generating cleaner data for organization.

1.30 EPSS and Organizational Learning Processes

An Electronic Performance Support System (EPSS) is a computer-based program that assists people to do their jobs more effectively. These range from simple on-line help functions and tutorials that explains how something works to sophisticated multimedia demonstrations involving multi-media. The reason for emergence of EPSS as a knowledge management technology is due to the accessibility of computer to most of the employees at work place. A common type of EPSS is an information database located on a network (either LAN or Internet/Intranet). The external or internal information needed by the employees regarding products, procedures, regulations, market data etc are provided through Intranet/Intranet.

The most intriguing type of EPSS, as far as organizational learning is concerned is the expert system (Durkinn; Liebowitz). The expert system contains collective wisdom of experts on a specific topic or processes. The overall context for development of an EPSS is to improve job performance (and hence organizational productivity), the use of such systems tends to redefine the nature of work activities. The attributes developed by Gloria Gery, one of die leading EPSS experts are:

- Establish and maintain work context
- Aid goal development
- Structure work process and progression through tasks and logic

- Institutionalize business strategy and best approach
- Contain embedded knowledge in the interface, support resources and system logic
- Use metaphors, language and direct implementation of variables to capitalize on prior learning and physical reality
- Provide contextual feedback
- Provide layers to accommodate performer diversity
- Provide alternative knowledge search and navigation mechanism
- Allow customization
- Provide obvious options, next steps and resources

An EPSS is a very valuable tool in building a learning organization, because it provides necessary info-structure, needed to help the organization learn more effectively. The reasons for EPSS enhancing an organization's chances of becoming learning organizations are:

- *Performance-Centered Design:* It is designed to enable an employee to reach required level of performance in the fastest possible time with least personnel support. The systems' design includes embedded knowledge, the ability to structure the flow of work, and adaptability to individual performers.
- *Performance:* It leverages employee's inherent intellectual and social skills by presenting information, knowledge, advice, and support at the moment of need.
- *Individual learning:* An employee can learn in three ways while learning EPSS, a) employee may change his/her behavior after receiving negative or corrective feedback from system b) He may review EPSS modules on the job just before using them; c) He may review EPSS modules off the job when the mistakes could not be dangerous and costly.
- *Generation of New Knowledge:* Employee will develop new techniques, methods, and procedures on the job that were not part of the original knowledge base. In this way he creates new knowledge.
- *Knowledge Capture:* As individual or teams gain new knowledge, the EPSS captures it through some formal process (Mail messages, shared databases, interview, with expert worker etc.,)

1.31 Web-Based Training - The New Learning Facilitator

Organizations are increasingly strengthening their web presence. The percentage of employees with access to a computer in their work place (not to mention home) is increasing each year. Internal version of web (Intranets) and External links to the Internet are present or are being developed in most organizations (Cronin; Gascoyne and Ozcubucku). Organizations like Digital have used MCS

(Multi Vendor Customer Service) groups for installing and maintaining a wide range of computer systems. Digital has developed MCS learning utility, an internet/web-based performance support system, during 1995. The network uses the web to provide access to internal and external databases that contain documentation and training material including hardware/software manuals, CBT courses from Digital and other vendors, information on available class room training and certification testing information. MCS Learning utility has search engine that allows technicians by part number, keywords, type of technology, content etc.

Applied Instructional Model and Web Based Learning

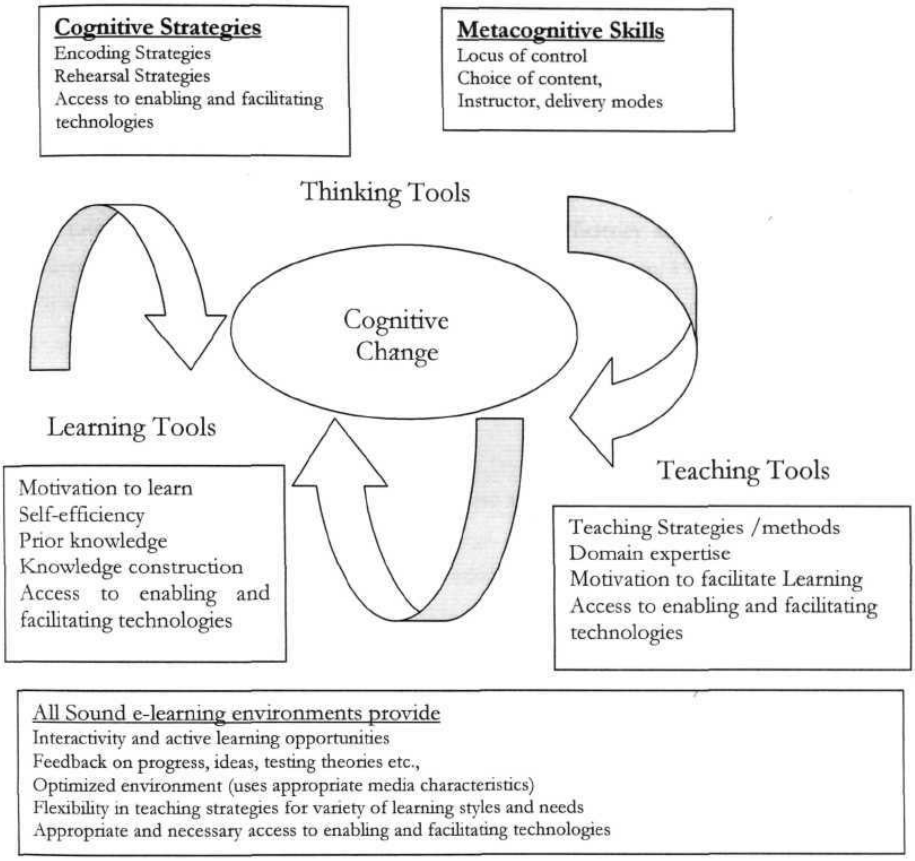
Instructional systems design (ISD) has its roots in behaviorism and systems thinking (Reigeluth, 1999). Formal models of instructional design usually describe step-by-step prescriptive procedure for designing instruction. The model proposed by Dick and Carey (1990) has several specific elements. The elements are presented in step-wise flow chart that is meant to be iterative at many points for revisions and refinement. The first element is assessment, which is meant to determine whether the need for instruction actually exists and what the nature of instruction should be. Needs assessment is critical in most new design situations and particularly when new curriculum is being introduced. The second and third elements are task analysis and an analysis of the learners and their characteristics respectively. These are conducted at the same time to match tasks with learner skills. The goals of instructions are first identified and the goals are then broken into several large tasks that are broken into small component skills depending on the entry of the targeted learners.

The model next moves the designer into identifying performance objectives and developing assessment instrument. This makes sound pedagogical sense: you first document the objectives based on the goals of instruction and then to decide whether the learning has taken pace or not. Performance objectives and assessments are direcdy connected to behaviorism. The next two elements are selected simultaneously: selecting instructional strategies or methods and selecting or designing instructional materials. The next element in the model is a formative evaluation of how of how design is shaping up. The materials are refined or changed as formative evaluation is conducted.

1.32 E-Learning and Cognitive Change

Learning, as per educational psychology his relatively permanent change in behavior as a result of new experiences. Designing for technology enhanced or "e-learning" does not change the fact that, the end result of the learning process is promoting cognitive change in Learners (Bullen, 1998; Wild & Quinn, 1998). E-Learning is the seamless infusion of technology in technology-enhanced teaching

and learning, regardless of the location of teacher and learner They have access to variety of tools and materials for thinking, learning and teaching, some of which are internal, while rest are external. The graphic representation of the concept as proposed by Rogers (2002) is as below:



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There are strategies and methods available and appropriate for the learning task. Teachers choose to use small group strategies for cooperative learning tasks, lecture/ presentations fro providing basic factual information, hands-on learning. Instructors can share large amounts of internalized domain specific. It is assumed that teachers have large amounts of domain specific knowledge with learners through direct instruction mediods or coaching and facilitating methods.

learning Tools

Learners have internal and external tools that aid die cognitive change process. Learning tools such as internal motivation to learn (Keller, 1987), perceived self-sufficiency and predicted success in the class (Salomon, 1984) and the quality of knowledge (Perkins & Salomon, 1989) all contribute to tools available to the learner in the learning context. The external enabling and facilitating technologies provide a means to express or demonstrate new understanding and knowledge gains as well as serve as a source of new knowledge.

Thinking Tools

Both the teacher and learner employ these tools. These are cognitive strategies selected by die learner to encode and recall new knowledge (Gagne, Briggs, Wager (1992). They are tools of knowledge construction (Jonassen, Carr, & Yueh, 1998; Perkis &Salomon, 1989) and motivation to learn. Thinking tools include metacognitive skills, which is the conscious awareness of how one diinks and learns. An understanding of learner characteristics established in research to be critical to certain types of learning environments (such as filed dependence/independence (Al-Saai & Dwyer, 1993), learner control (Arnone & Grabowski, 1992), and a variety of learning styles) influence the choice of teaching mediods and media for a given course.

1.33 Technology and Learning Integration/Implementation Principles

The dimensions of technology vis-à-vis learning can be organized at two levels i.e., Learning Context Level (Class Room) and Organizational Level.

- **Classroom principles** expand upon the premise that effective technology integration requires the time and attention of instruction designers. Value is integrated into educational technology to facilitate teaching and learning processes. There are basically three e-tips to prompt an instructor/designer as to what they are teaching, what added value does technology contribute to the learning environment and how technology help the student to assess his learning. These three principles are discussed in detail below:

•> *Learning outcomes drive selection of technology:* As a first step teacher must be clear about the learning outcomes of the learners. This helps in deciding whether a given technology **can** support teaching as well as learning. The teachers can also focus upon learner's acquisition of higher level thinking in specific curricular area. A variety of educational technology i.e., software tools, web sites and peripherals are correlated with the types of outcomes they support.

• *Technology use provides added value to teaching and learning:* The term "added value" in learning context implies individualizing instruction or making it more responsive to the learner's questions and interests or providing additional sources of information. In the sense, educational technology provides "scaffolds" to learners in moving from what they know and can do to what they are learning. It also means that it supports the accessing of data, processing of information, or communicating of knowledge by making these processes more feasible as cited below:

Task	Added Value
Accessing data	*y* Multi-sensory ^ Greater amounts of data ^ Searching and "mining " capabilities ^ Timeliness of the information ^ Relevance of the information
Processing Information	> Self-Paced ^ Individual attention > Remediation ^ Practice to the point of fluency ^ Visualizing information > Develop process or skill capabilities ^ Organize and Categorize information
Communicating Knowledge	^ Publish information ^ Communicate in authentic format, style > Communicate findings and understanding to others

❖ *Technology Assists in the assessment of the learning outcomes:* Planning for the outcomes of the learning is an important *aspect* of designing instruction. Some software or hardware actually collects formative data during its use, and some technologies also provide help in the analysis

of information. It can also to summative assessment, especially when learners are to produce products that allow them to show what they know and can do.

These three principles focus upon technology support features that are present in high quality technology support programs, which are correlated with increased use of educational technology.

B. Organizational Level: At the organizational level the applicable principles are:

- *Providing Ready Access to Supported Technology:* The organization has to ensure convenient and flexible access to and technical support to the instructors/designers facilitate learning environment in the organization. It implies technology must be close to the instructors and learners where they can use it flexibly. Dockterman (1991) describes several possibilities for use of technology in learning environment.

Resource Type	**Technical Domain**
Facilities	Network and Internet Access, hardware, software
Staff assistance and necessary services	Technical support, help desk, network services
One-to-one personal guidance, help	Computer experts fro trouble shooting
Professional development	Operating equipment, general software
Incentives	Release time; free hardware, software and network access; anticipation of expert status
Resource Type	Instructional Domain
Facilities	Content-area specific software, communications access to pedagogical expertise
Staff Assistance and necessary services	Instructional expertise and back ground of people providing support
One-to-one personal guidance, help	Pedagogy, models implementation strategies
Professional Development	Pedagogy, models implementation strategies
Incentives	Release time, support focusing on instructional content

*** *Professional Development is targeted at successful technology implementation:* Technology professional development is the key to employees' learning into the wok environment. The learning needs

can be thought of as, one, about learning to operate the software, and two, about learning to use software as an integrated, instructional tool. The trainers and learners must have frequent opportunity to operate educational pedagogy. Possible sources fro learning include access top shares resources, training modules, mentoring, facet-to-face or online, asynchronous professional development courses or net-seminars, Intranets.

- *Forum for discussing/feedback on supportive role of educational pedagogy:* This principle describes a professional collaborative environment fro integrating and implementing technology. In such an environment technology use would be more effective because the organization would recognize individuals make to the collective knowledge.

34 Facllltatlve Role of Online Discussions for Sharing and Learning

dscussion teaching is "teaching/learning strategy that emphasizes participation, dialogue, and nulti-way communication. It involves the teacher and a group of learners addressing a topic, issue, case study or problem and exchanging information, experiences, ideas, opinions, reactions and conclusions (Heming, 1996)". As an instructional or facilitative strategy, to allow employees/learners to interact with peers, articulate and reach a more critical and informed understanding about the topic under discussion, elaborate on and challenge ideas, hear and incorporate multiple perspectives, while motivating learners through active learning environments (Brookefiled & Preskil, 1999; Heming, 196; Powers & Dutt, 1995).

The purpose of an instructional analysis for online discussion is to determine the primary instructional goals and objectives (Schreiber, 1998). The possible learning activities and the style or mode of presentation need to be considered. *The Instructional Design of Online Discussion (ID-OD),* as proposed by Rogers (2002) is as below:

Phase	Analyze	Tech Reality	High -Level Design	Interactivity Design	Develop	Implement	Evaluate
Activities	Instructional Analysis	Institutional Inventory	Modulanze Content, objectives Assignments	Vary Learning Activities And discussion Formats To maximize Interactivity	Instructional Materials And Discussion Questions	Moderate Discussion	Formative Evaluation: Revision on the fly
	Learner Analysis	Student Technology Inventory	Select Evaluation methods		Evaluation Materials		Summative Evaluation
	Does online discussion Make sense	Technology Support Availability	Plan for tech training		Tech training Materials		Was the discussion effective?

Phase	Analyze	Tech Reality	High –Level Design	Interactivity Design	Develop	Implement	Evaluate
Outputs	Content scope and sequence, Instructional Objectives	Organizational tasks. Timeliness, Responsibilitie s	Module plan, Evaluation Plan, Tech training Plan	Interactivity Plan for each module	Completed course materials	Course delivery	Revise plans And materials as needed

Tfrhnoloev Reality Check

Before developing an **instructional** design model, designing a technology reality check is undertaken to answer a few queries such as,

- What technology is available and if the organization has already chosen required software and hardware?
- Also try to find out if analyze if someone else is already using some version of online discussion, can the same version be used.
- Consider the capabilities of the technology and the expertise of the users and also that of developer/instructor
- */!* Determine the technical support available in the organization
- Training support for the users to get acquainted with usage and benefits of the system.
- Extent of sophistication that would be conducive to organizations needs

Ugh Level Design

There are three main areas to be addressed during the high level design phase: 1) determining the evaluation methods that will be used 2) planning for technology training of the instructor and learner and 3) articulating the design that students will experience with the content, objectives and assignments for the instructional modules.

- *I[1] Ian for evaluation:* Evaluation of the learners, instructor and the course materials must be conducted. Since the learning process is online, instead of the routine seating time in the class, which is not relevant anyway, participation in the online discussions can be measure for evaluation. Evaluation of learner satisfaction, quality of instructor and course content, requires development of some customized instruments. Careful planning of data surveys or mailing of questionnaire via e-mail. Use of web-based online surveys that automatically compute statistics and report results can used as time savers.
- *FHan for training.* The importance of training the learners in the use of technology cannot be overstated. There is steep learning curve for conferencing software and file management procedures, such as creating directories and files for email storage and uploading and downloading assignments. Apart from the technical skills, the learners need to clarify

regarding participation expectations; problem solving assistance, feedback procedure and netiquette must also be established to set the tone for a positive learning environment (Rohfeld & Hiemstra, 1995).

- *Design for interactivity:* Interaction is considered key to effective learning (Keegan, 1990), positive learner attitudes (Thompson, 1990) and the success of distance learning. A great deal of time and effort is expended on the development of learning materials such as electronic course notes and syllabi for online courses. Interactivity design is separate phase in the ID-OD model to highlight the importance of planning for variety of learning activities and discussion formats to increase the level of interactivity in online learning. The four types of interaction, encountered by online learner are: learner-learner; learner-instructor; learner-content; and learner interface interactions. It is essentially learner-learner and learner-instructor interactions that are increased when instructional events incorporate activities that encourage dialogue and engage learners with questions and discussion (Schreiber, 1998). Finally, learner-interface interaction is the learner's adjustment to the technology.

  With regard to the online discussions, Rohfiled and Hiemstra (1995) recommend that instructors plan for varied communication opportunities that allow learners to share views, critique the views of others and reflect on their learning. Instructional designers can choose from a variety of discussion formats and learning activities including dyadic discussion, small group discussions, critique, debates, role-plays, polling, brain storming, cooperative learning projects, group reports, synchronous discussions, guest lecturer or discussant, Socratic Dialogue, personal journal writing, student moderated discussions (e.g., Eisley, 1999; Paulsen, 1995a; Rohfiled and Hiemnstra, 1995). In the development phase of OD-ID, the instructional designer carries out the design plans by fully developing the instructional materials, discussion questions, evaluation materials and technology training materials. The discussion can be started in atleast four ways of asking a question, use common experience, introduce a controversial issue, or list of specific concerns (Vacc, 1993).

1.35 £ Learning - Trends and Perspectives

Research in learning and instruction suggest that people learn most effectively by pursuing realistic goals, which are intrinsically motivated (Schank, fan, Jona, & Bell, 1994). Learning is greatly enhanced when it is anchored or situated in meaningful and authentic problem solving contexts (barron, Schwartz, Vye, Moore, Petrosino, Zech, Brans ford). While "goal based learning" is not constrained by any particular media type, certain delivery technologies can impede anchored

uastruction or situated learning. Conventional classroom-based instruction for instance, while it may be cost-effective is constrained to large extent by its fixed time and space in being able to situate learning in realistic contexts. Contemporary online educational technology, with its temporal and spatial flexibility and its ability to support resource rich multi media content, afford us the opportunity to develop educational opportunities that are known as "generative learning environments" (Cognitive and Technology Group at Vanderbilt (CGTV), 1990).

The term e-learning is growing rapidly and frequendy being used interchangeably with terms such as online education, virtual learning, distributed learning, networked learning, Web-based learning, and also open and distance learning. e-Learning appears to be growing out of three distinct directions:

- From within education institutions, which have historically offered open and distance learning opportunities either in a single/dual or mixed mode.
- From conventional educational institutions, which were never, involved in open/distance learning, which are now using communication and technology to support and enrich their goal.
- From corporate sector which are favoring e-Learning over conventional residential workshop based approaches to staff training and development.

The driving forces behind growth and development of e-Learning include:

- Increasing accessibility of communication and technology at decreasing cost.
- Capacity of information and communications technology to support and enrich conventional educational practices through resource based learning and synchronous and asynchronous communication.
- Need for flexible access to learning opportunities from distributed venues such as home, workplace etc.,
- Demand from isolated and independent learners for more equitable access to educational opportunities and services.
- The belief and the expectation that online learning will reduce costs and increase productivity and institutional efficiency.

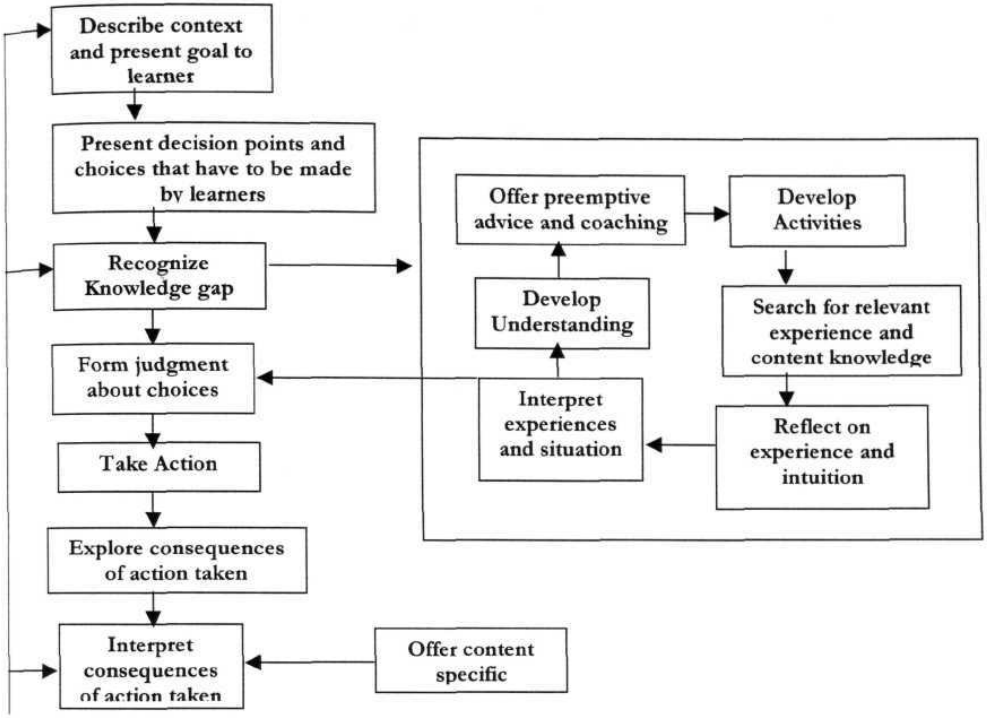
Reconsidering contemporary approaches to e-Learning: There is no doubt that information and communications technologies offer tremendous opportunities for building rich and resource based learning environments. However, these technologies are mere vehicles of educational transaction, and their impacts on learning outcomes are subject of much contention. French et al (1999)

suggested three ways in which information and communications technology can be used to effectively support a self-directed and student-centered learning environment. These are (i) augmenting teaching (ii) virtual learning and (iii) progressive application. Augmenting teaching is based on the premise that educators can enrich their current teaching practices by supporting with more ICT based activities. Virtual learning refers to learning on Internet without any face-to-face interaction/contact with participants. Finally progressive application refers to the process of applying ICT-based technologies to teaching and learning progressively as the learner develops confidence in the use of technology and its imperatives.

1.36 Pedagogical approaches for optimizing E-learnlng

Learning environments are facilitated with goal-based scenarios for anchoring learning. The intent of these environments is to place learners in a contrived but an authentic situation in which they have learning opportunities by committing mistakes in safe environment (Naidu, Oliver, & Koronios, 1999). Goal based scenarios (GBS) are essentially simulations in which there is problem to resolve or a mission to complete. They require learners to assume the main role in the resolution of the problem or die pursuit of their mission (Schank, 1990; 1997). The generic architecture of goal-based learning, as proposed by Rogers (2002) is given in the following figure. This is best described as a mission or task that the learner is responsible for in the scenario, and it is presented in the context of crisis or conflict, which comprises the "precipitating event" i.e., an event that will launch the simulation. The learner is asked to proceed through the simulation, which requires making decisions at various points in the simulation.

Goal-based learning (based on case-based reasoning)



Learner's ability to make decisions at critical points in the simulation will be determined by the success or failure of his/her decisions. In the event of inappropriate or ineffective decision-making, learners will be offered preemptive advice and coaching. This would comprise the formulation of new questions and enabling tasks that will require searching for additional relevant experience **base** and content knowledge to answer.

There are other approaches to technology-based learning:

- *Learning by designing.* This is an educational context in which in which the core learning activity is the design of an artifact. Designing a means for acquiring content knowledge is commonly used in practice-based disciplines such as engineering and architecture (Hmelo, **Holton** & Kolodner, 2000; Newstter, 2000).
- *Web-based role-play simulation:* Role-play simulations are situations in which learners on the role profiles of specific characters in a contrived educational game. As a result of playing out

these roles, learners are expected to acquire the intended learning outcomes as well as make learning enjoyable The essential ingredients of web-based role play simulation are:

> First *Goal based learning*, is acknowledged as a strong motivator of learning. Typically, GBL comprises of scenario or content, which includes a trigger or precipitating event, which is presented as a critical event, to which the learner has to react spontaneously.

> Second Critical ingredient of this learning architecture is *role-play*, both in the sense of playing a role, playing with possibilities and alternative worlds, and playing to "have fun".

> Third critical ingredient of the learning architecture is *web*. The web houses the virtual space for the role-play and enables he communication and collaboration among learners, and between learners and facilitators.

- ***Distributed Problem-Based Learning (PBL):*** It is widely used approach to learning and teaching that uses an instructional problem as the principle vehicle for learning and teaching. The analysis and study of this problem comprises several phases that are spread over periods of group ork and individual study (barrows, & Tamblyn, 1980; Evenson, & Hmelo, 2000; Schmidt, 1983). It refers to use of technology in networked computer-supported collaborative learning environment where face-to-face communication is not essential between participants. It begins with presentation of problem via network and in the next stage learners individually try to solve the problems, by generating explanations for problem, and in the process understand the problem and learn to make decisions through individual research.

***l** **Critical Incident-Based Computer supported Learning:** The growing interest in building learning environments that focus on supporting groups or learners engaged in reflection on critical incident from their work place (Wilson, 1996). A model of learning and instruction that embodies the essence of this focus is eh "critical incident-based computer collaborated learning" (Naidu & Oliver, 1999). The model integrates reflection on and in action collaborative learning and computer mediated communication for learning and instruction.

1.43 W$_e$t, Based Learning (WBL)

The web —based learning programs achieve results for several reasons:

- It employees problem based learning through using actual work experiences
- It uses work activities and tools on-the-job and in the classroom.
- It delivers education just in time, just enough, and at the point of need.

- It supports individual and career development needs
- It shortens the learning cycle and improves learning retention.
- Users can register themselves through online feedback forms and instant replies can be expected.
- Users can from into groups of similar interest and can share the information by uploading (able to put their files in server) or joining online Chats/ discussion groups
- They can subscribe to various newsletters which be sent by e-mail, reducing the need for being hooked up to Internet continuously.

In the context of banking, WBL is more imperative fro certain specific strategic, technical and operational reasons. These are: -

- Computerization and networking of branches and banks makes it necessary for the employees to continuously update their technical skills. The infrastructure, time and cost for traditional training of various categories of employee prohibits them from continuing education and learning at Training colleges.
- Lack of affordable technical experts in specialized areas at the training centers.
- Easy delivery of training to personnel to update their knowledge through the corporate Intranet or Internet.
- Contents of advanced topics can be outsourced and presented periodically.
- It offers flexibility to instructors and users to be anywhere.

The WBL can be managed with Learning Management System (LMS). It offers several advantages to developers, managers and users concerned. It is software with Real Time Database Management system (RDBMS) features to coordinate various activities of administration and management of instructors, learners, courses etc. Similarly Content Development System (CDS) makes the lessons of a course as per the requirements of the instructor and the learners. It is accessible, through browsers and incorporate multimedia, animation and simulation features to a desired degree. However in the entire process, from the security perspective, EDI (Electronic Data Interchange) and control access technologies are incorporated at various stages. In fact, it would be exaggeration, to say that by introducing the WBL into the system, banks would be playing the role of Education Service Provider (ESP). This development is not a deviation for the core business requirements for banks, but it is in fact a competitive necessity, since they an no longer rely on traditional and external sources for critical aspects such as knowledge dissemination, skill and competence upgradation of

their employees. On the contrary, they can become collaborators with external ESP's such as IDRBT, Management Development Institutions, NUT etc., who have competencies in these areas.

1.37 Evaluation of Technology Enhanced Teaching & Learning

Evaluation of technology-enhanced learning comprises the system acquisition and assessment of information to provide useful feedback on the use, worth and impact of learning and instructional designs on intended or projected outcomes. Evaluation is perceived useful, if it aids in decision-making or policy formulation through provision of useful feedback. As per Rogers (2002), the strategies or approaches to evaluation refers to broad perspectives on the data gathering process and the four major approaches are scientific-experimental approach, management-oriented systems approach, qualitative/anthropological approach, and participant-oriented approach.

Scientific-Experimental models: They are probably the most historically dominant evaluation strategies in use. Deriving their values **and** methods from the pure sciences, they focus on the and for objectivity in their methods, reliability and validity of the information and data that is generated.

Management-Oriented Systems Models: The most common of these are the Program Evaluation and Review Technique (PERT), Critical Path Methods (CPM) ad CIPP model where the C stands for context, I for Input, first P fro process, and second P for product (Flagg, 1990). These management models emphasize comprehensiveness in evaluation and placing evaluation within a larger framework of organizational activities.

The third-class strategies are the *Qualitative/Anthropological Models.* They emphasize the importance of observation, the need to retain the phenomenal quality of the evaluation context, the value of subjective **human** interpretation in the evaluation process.

Finally, a fourth class of strategies is the Participant-Oriented Models, which emphasize die importance of the participants in the process, especially the clients and users of the program or technology.

Types of Evaluation: It refers to the form and function of the process, which is identifiable by the object being evaluated, and the purpose of the evaluation. The most basic distinctions between types of evaluation are often drawn between formative, summative, and monitoring or ongoing evaluation (Rogers, 2002).

•> *Formative Evaluation:* It refers to the process of gathering data as a part of design and development process. The goal of this activity is to ensure checks and balances and to enable improvements to be made as the project unfolds. The term formative indicates that data is gathered during the formation of the project so that revisions to it can be made cost-effective. A thorough formative evaluation activity comprises *design- based, expert-based,* and *user-based* evaluation process.

• The *design-based* evaluation involves a designer or evaluator ascertaining the match between the "learning task" or "user model" and the system design specifications. The typical methods for theory-based evaluation are formal modeling (Conceptual, leaning and instructional design).

- The *expert-based* evaluation has the evaluator using the system or the educational innovation to determine whether the innovation matches pre-defined design criteria. The typical methods for the expert-based approach are walk through (with think aloud), observation (combined with structured responses), interview (structured and/or semi-structured).
- The *user-based* evaluation involves representative sample of users completing one or more tasks in an appropriate environment. The typical methods for user based evaluation are observation, video- based recall of user interactions (e.g. querying thinking aloud), user' self-reporting (e.g. critical reflections, student diaries, learning logs), structured and semi-structured questionnaires and audit trail/user log data.

** *Summative Evaluation* In contrast to other approaches, in this approach data is collected at die process or project and in many ways summarizes the project by describing what happened subsequent to the delivery of program or technology. It would focus on whether the object can be said to have caused the outcome or determine the overall impact of the causal factor beyond the immediate target/outcomes and also costs estimated relative costs associates with the project. It comprises of *outcome evaluations,* which investigate whether die program or technology caused demonstrable effects on specifically defined target outcomes. These can be ascertained through *formal assessment tasks* (i.e., through tests and examinations), direct *observation* (combined with think aloud and structured responses), and *protocol analysis on learner's interactions.*

*** *Monitoring or ongoing evaluation:* This approach attempts to keep abreast with the extent to which the innovations, processes and products are being integrated into teaching and learning and their ongoing implications and is carried out as part of the post implementation phase.

1.38 Multi-Media Instructional Design Method

The method was developed is based on the work of Sutdife and Faraday (19994). It consists of four main stages: task analysis stage, information analysis stage, a media selection stage and presentation stage. The first step is the creation of a task model incorporating specification of the content information requirements. The method advises on selecting appropriate media for the information needs and scripting a coherent presentation for a task.

Task Analysis: The method starts with a standard task analysis using one of the instructional analysis methods. Both hierarchical task analysis and information passing task analysis and learner analysis are conducted.

Information Analysis: The main objective of information analysis is to specify what type of information is required during a task. The outcome of the information analysis is to produce the task information model. To form the task information model, the initial goal hierarchy from task analysis model is elaborated by attaching information types.

Information Types: They are used to specify the message to be delivered in a multimedia application and are operated by mapping rules that select appropriate media types. They are similar to those found in many tasks or data models (e.g. actions, objects, procedures). Tasks may require operational information, temporal information, and spatial information.

1.39 Technological Future - Managing Knowledge & Knowledge Engineering

As organizations move toward better knowledge management, providing just-in-time learning, and becoming true learning organizations, knowledge engineering will become the *modus operandi*. The three phases of Business Process Re-engineering (BPR) i.e., Development of a strategic plan, *modeling* of "as-is" and design of "to-be", explain the structured process of knowledge engineering. Knowledge has become the key corporate asset and organizations obviously need to manage and leverage this asset if they are to become world-class organization. The vision, the motivation behind the design must be knowledge based, learning organization benefiting the organization, its employees and other stakeholders. The "As -is " model developed by Douglas Weidner is as below:

Present "As-is" Description of many Existing Organizations		
Topic	**Status**	**Problem or Gap**
Training	Provided in formal classes	The nature of training is " Just-in-case" training - everydiing I may need to know to get this specific task done
Procedures	Documented in procedure manuals	Obsolete or poorly maintained and fallen from use
Organization data and information	Warehoused	Data is plentiful and organized, but how to use it effectively is not so obvious or well documented
Knowledge workers	Substantial portion of ' workforce	They are often asked to do things outside their customary tasks and scope of past experience
Knowledge	Knowledge needs are well documented and often talked about	Little has been done to manage or leverage knowledge

Knowledge is power, but instead of feeling empowered, most of us feel overwhelmed by the vast resources available to us. A dizzying array of publications, procedures manuals staff meetings, training classes, videos and other technology devices can be especially overwhelming in organizations.

Douglas Weidner addressed the issue through a three architectural layers of a potential solution — namely, the knowledge itself, the functionality or structure of knowledge (base) that serves as a repository and the knowledge delivery or access mechanism. A brief outline of implications of just a few axioms and corollaries of the "to-be" design hypothesis on the three architectural levels, knowledgebase functionality and delivery mechanism are:

Knowledge Axioms and Corollaries on Three Architectural Layers			
Hypothesis	*si rchitectural* Layers		
	Knowledge	**Knowledge base functionality**	**Delivery/ Access Mechanisms**
Axiom 1 *Corollaries*			

Knowledge Axioms and Corollaries on Three Architectural Layers			
Hypothesis	*Architectural* Layers		
	Knowledge	**Knowledge base functionality**	**Delivery/ Access Mechanisms**
Relevant Knowledge only threshold of amount Sound knowledge/ Instructional Design	Process/task oriented Beneficial even if partial knowledge	Process-oriented Search	Access to software tools economical at every level
Axiom 2: Right Person Corollaries Knowledge Worker User Compatibility	Need for multiple perspectives/viewpoi nts Diversity of user learning needs	Accommodates multiple view points Accommodates user diversity	Universal Access Multimedia Capable
Axiom 3 Corollaries Existing Knowledge Age of Knowledge	Explicit vs. Tacit Updated frequendy	Previously structured knowledge Easy to author/enrich	Universal and easy accessibility —User Update speed, accessibility to author

Paradigm shift in Knowledge perspective: Similar to the chef metaphor — having all the ingredients beforehand, we have an insight or appropriate metaphor for knowledge — "the best knowledge to die right person just in time", the reverse process of combining die requirement or architectural components can result in the needed knowledge management systems design. Each of the facets in die new paradigm can be understood as below:

- *Best Knowledge:* In the old paradigm, the burden of search was on the knowledge seeker. In the new paradigm, the appropriate ingredients are arranged before the chef in an organized manner at the moment of need. In organizational context, the relevant knowledge is associated with die performance of specific activity or task widiin a known process. The process then becomes a more powerful organizing scheme, than the most robust search algorithm applied to general knowledge. The other aspects include; the threshold amount of knowledge needed and whedier die provided knowledge needs to abide by sound instructional design principles.
- *Right Person:* In the old paradigm, a search algorithm applied to a database might yield textual material written from die perspective of technical analyst, when learner might need

management perspective/approach. This need for multiple viewpoints and perspectives, as well as the necessary attention to diverse learning needs, is critical to system design if the system is to be truly effective.

- *Right Time:* In the old paradigm knowledge was sought when it was needed. This required conversion of unstructured tacit knowledge, in the heads of subject matter experts, into explicit usable knowledge. This has proven to be difficult, if not impossible, just-in-time exercise. In the new paradigm, the ingredients or necessary knowledge must be amassed beforehand, knowing the need associated with common purposes. But even with knowledge gathered beforehand, ease of use is not guaranteed. Apart from ease of use, it is essential to maintain and enrich the knowledge from user's perspective. A knowledge base consists of two types of synchronized information a **Work Breakdown Structure (WBS)** and **References.**
  - > *Work break Down Structure:* It is template of activities and tasks to be performed in order to complete the process or project, the "who", "what" and "when" for each task. Technically WBS is process decomposition model, which is fully documented activity node tree of activities and tasks. It is the backbone or skeleton of the knowledgebase or the organizing scheme for the process knowledge, which is included in References.
  - ^ *References:* They provide the knowledge of process - lessons, guidelines, tools and techniques. The more synchronized references provide the process details and JIT training to support each and every task, the 'why' and 'how' for each task.

Knowledge Bases and creating Learning Organizations: Knowledge engineering has defined two different primary uses for knowledge bases and knowledge base tool functionality. They can be used effectively for 1) for designing entirely new processes, the 'to-be', and 2) for the ongoing optimization of an existing process. In both cases, the knowledge engineering principles as demonstrated through the knowledge base tool functionality fosters the learning organization.

1.40 Technology Needs and Learning Requirements

Many a times trainers and learners are often encounter the question of whether a given technology is appropriate for a particular needs and whether it would result it identified learning deliverables. Trainees often report that technology based training as most satisfying. Kirkpatrick, in his studies has found out tiiat technology based training takes much less time when compared to conventional classroom instruction. In the context of learning technologies, the cost components involve the initial and ongoing expenditures for hardware and software, as well as design and development of

course materials. There are manpower costs associated with the deliver}' and implementation of courses; instructors; administrative and technical staff, consultants etc., Much analytical work ahs been carries on the aspect of media selection (Reynolds and Anderson; Romiszowski) and the variables to be taken into account for the purpose are:

- *S* Audience characteristics (background, age, total number)
- •*S* Nature of learning (type of skills/knowledge to be acquired)
- *S* Nature of the course (goals, extent of usage, timeframe to develop)
- •*S* Availability of existing technology
- •*S* Prior/current experience with specific technology
- •*S* Availability of course content (already exits/new)
- •*S* Management/Staff/trainee support for technology use
- *S* Nature of the learning environment (class room, learning center, work place)
- •/ Availability of developers (in-house, consultants/vendors)
- *S* Availability of technology support/expertise
- *S* Maintenance/updating of the course

The above factors span across instructional, logistical and most importantly the management consideration. If some constituency opposes the use of a specific technology in training (or all technology), this factor is under the consideration of the management. Similarly, if a particular technology has poor history in the organization (rightly deserved or otherwise), it is advisable to choose another. In contrast, if a particular technology has good track record, or is already in use, this is a good reason for considering its use in another application. Some technologies are threatening while others are easily acceptable in certain organization's culture, which need to be considered carefully. The strengths and weaknesses of different technologies are as below:

Description of Technology	Strength	Weaknesses
Print/Electronic Publishing	Inexpensive Reliable Worldwide distribution	Passive updating required
Television/Video	Dynamic Large Audiences	Development time/costs
Teleconferencing	Audience Participation Immediacy (real-time)	Complexity (some types)
Multimedia	Interactivity Highly appealing	Development time/costs

Description of Technology	Strength	Weaknesses
Networks	Interactivity Updating required	**Expertise** required
Electronic Performance Support System (EPSS)	High Job Relevance Uses Existing systems	Development time/costs Expertise required
Simulations	Authentic Learning Higher Skill Levels	Development time/costs Expertise Required

1.41 Quality Considerations In Training

Quality has come into focus largely due to influence of W. Edwards Deming and Total Quality Movement (TQM). The emergence of Malcolm Balridge Award national quality award (in USA and similarly in other countries) and ISO standards has given further impetus to the movement. The basic approach is same in most of the quality approaches. Primarily there must be **broad commitment** at all levels in the organization (especially at the top management level) towards putting quality assessment procedures into place. Their commitment also needs to emphasize customer satisfaction as the most important goal of the entire quality improvement process. The step is to conduct **needs analysis** at the micro (individual groups or departments), macro (the entire organization), and mega (the market place and other organization) levels. The intention being to identify he gaps between present performance and desired outcomes, in order to develop **quality specifications** to be achieved and measured in pursuit of customer satisfaction. The subsequent step is **goals planning** for list of objectives to be achieved by various groups and programs and the responsibilities, resources and timeliness to do so. The least but not the least is the process of **ongoing measurement** of quality indicators to determine if the desired quality improvement has been achieved.

1.42 Impact of Culture on Technology and Training

The researchers and HR professional world over have cognized the fact that culture has major impact the learning aspects of individuals and organizations. The definition of culture has three main components 1) it is a way of life shared by all or almost all the members of the group 2) the older member pass on to the younger members and 3) which shapes one's perceptions and behaviors. Hofstede distinguished a group's culture both from the universality of human nature and individuality of each person. To probe the matter further, the eating and learning, the two basic facets of human life operate at three main levels 1) All humans eat or learn in their daily lives 2) however, each cultural group eats or learns in different ways and 3) Finally, individuals in cultural

group may eat or learn similarly or differently from other members of the group. Robert Kohl's, a noted American Anthropologist, observed contrasts between western and non-western cultured in the following manner:

Western Cultural Vales	**Non-western Cultural Vales**
Individualism	C ollectivism / Group
Achievement	Modesty
Equality /Egalitarianism	Hierarchy
Wining	Collaboration/harmony
Guilt (Self Control)	Shame (External Control)
Pride	Saving Face
Respect for Results	Respect for status/ascription
Respect for Competence	Respect for Elders
Time is Money	Time is Life
Action/doing	Being/Acceptance
Systematic /Mechanistic	Humanistic
Tasks	Relationship s / Loyalty
Informal	Formal
Directness/assertiveness	Indirectness
Future/Change	Past/tradition
Control	Fate
Specific/linear	Holistic
Verbal	Non-verbal

These value contrasts lead to learning situations as below:

- In On-western cultures a high value is placed son visible status. The equality of instruction, the mode of technology used, and the status of educational resources will determine the importance with which the instruction is perceived and who will attend.
- The social expectations of many cultures require more interaction -with instructor, hopefully face-to-face as to meet the affinitive needs of the learner.
- *** Some cultural groups allow little or no mingling of employees or learner of different ages, genders, or rank in training programs.

ffrhnology Based Distance Learning in Banks

Xhe traditional approach of training bank employees at staff training colleges, keeps them way from work place way for period ranging from 3 days to a week. Further, the arduous task of covering the employees geographically spread over branches and offices makes it extremely laborious and time consuming. The problems with traditional approaches are:

- Given the vast network of banks and the large workforce with diverse skill promotion, training institutes find it difficult to impart training in a uniform and efficient way.
- As the training sites are far way from the work place, not all employees can be imparted with training and ultimately very few employees would be sent from each bank resulting in litde impact of training on the system.
- Absence of coordination between the training programmes and the actual work needs. The number of employees to be trained are restricted to a few (25-30) participants and hence the need for scheduling of the same training program again and again. Apart from the high operational costs for conducting such courses, the course becomes repetitive for the trainers.
- The other possibility of sending trainers to employee's work place is cost prohibitive, keeping in view the vast branch network of the banks.

Though it is true that no other way of teaching can be as effective as direct communication, by the instructor, it is very difficult to engage instructors to impart continuous knowledge to such a large number of employees. Thus, the "Distance Learning" facilitated by Information Technology (IT) becomes useful in addressing these issues.

- *Distance Learning:* It reverses the traditional approach by brining the training and learning material to the desk of the learner. It is imparted through paper, audiocassettes, videotapes and broad casts through television, radio. However the advances of technology and technology based learning initiatives have simplified he entire process.
- *Computer Based Training (CBT):* It is one of the effective ways of disseminating knowledge. It has become a useful means to deliver the training courses, due to the developments in multi-media. The benefits of Multimedia CBT Technology are:
  - Personalized individual training based on employee's prior knowledge level.
  - Many people can use the same course simultaneously
  - Productivity losses and Travel expenses associated with off-the-job training time are eliminated
  - Employees can learn at their own pace
  - The content and quality of each course will be uniform across the entire organization

^ By forcing the learners, to answer question, before they advance to advanced topics, CBTs ensures learning and involvement of the learners.

> Special effects of multimedia not only attract the attention of the students, but also set the to tone for learning.

Development of Multimedia CBT requires cross-functional expertise including, specialists, creative writers, designers, knowledge engineers apart from software and hardware suppliers. The main aspects of developing multi media for learning purposes are:

- Content gathering & preparation: Content is the king in multi media
- */* Design and analysis of the presentation style and interactivity design
- J» Programming to support and integrate the content with the presentation style using authoring tools or programming languages.

The disadvantages associated with CD-ROM are that they are of 1) 'read only nature" 2) Additional content have to be distributed using additional floppies/CDs, time gap between course preparation and delivery 3) difficulty in distribution to far-off located learners. These disadvantages have been overcome in **Web Based Learning (WBL).**

1.44 Training for IT Adaptation

The success or efficacy of any system is dependent upon people •who operate it. The employees concerned are to be trained adequately so that they are confident and competent to handle the system/application. The type of training is dependent on the category of the users. Some of the typical training approaches are: -

- **Intensive Classes:** They are best suited for the users, operators and computer support staff. The analyst should train one user thoroughly before taking training sessions for others so that he can serve as a resource person. It also helps in building the level of confidence of in participants.
- **On the Job Training:** It is imparted while users are testing or installing the system for conversion and is naturally conducted at users' site. The steps to be taken, their sequence and error handling aspects are explained in detail to operators, while the system support staff are briefed about he technical aspects at the same time.
- ***/*** **Institutional Training:** Many organizations have their own training institutes managed by their in-house personnel. Once the trainers are trained they transfer the knowledge to the rest of the users in the system.

Thus, as we had seen in the Grst two chapters, a brief overview on the Organizational Learning followed by the advent of Information Technology and its impact on the organizational learning processes. This has set the tempo for the documentation of this research study and now, we will make an attempt to have a glimpse of or overview of the Banking Sector in the country.

It is a harsh reality that we are now a decade old in the liberalized globalization era. The changes in the economy after liberalization and globalization process initiated since 1991 in India have unpacted profoundly the financial system and more particularly the Banking Industry.

There has been radical and perceptible transformation in the operational environment of the banking sector. However, these changes have been induced with a view to develop sound and efficient banking sector in India, at par with international banking standards and practices. The banking sector, which was one of the most protected sectors for first five decades of in the country and more precisely the public sector banks were slowly exposed to deregulated environment in slow and phased manner. The environmental changes have threatened the so-called invincibility and market leadership of public sector banks and financial institutions. The recent "Report of the working group on Restructuring of Weak Public Sector Banks" known as *Verma Committee* is a pointer in the direction. The banks can no longer take their business shares or profitability as *Ceteris paribus,* as also the loyalty of their customer base. The Information Technology (IT) revolution is entirely changing the way banking business is done and has considerably widened the range of products and services as well as the demands and expectations of customers. Risk management, Asset Liability Management, Product and Service Innovation, Securitization, Relationship Banking and Environment Management are some of die current buzz words in the banking scene. There have been few important developments in response to change forces necessitating the Learning Phenomenon for die banks:

2.1 Impacting Developments

Some of the developments in the banking sector are intense competition, changing customer profile, increasing role of IT, innovation, profit orientation aspects etc. These developments have implications not only for present but also for die future in terms of operational aspects such as:

- Who would be the competitors both direct and indirect?
- What scales and capabilities are needed to deliver products and services to customers?
- Areas of focus for improvement of profitability

The qualitative aspects of change include prudential norms like asset classification, provisioning capital adequacy, risk management requirements, transparency, corporate governance, changing

regulatory supervisory system etc. In order to cope up with changes out of internal as well as external environment, it has become imperative for the players i.e., banks to have a clearly defined corporate goals encompassing vision and mission, which the banks have to strive to achieve in long term. Strategic intent has become inevitable and important in the sense of providing direction to the organizations as well as employees. Long range planning not only provides sustainable growth and profit but would also make these organizations continue to be alive and vibrant.

2.2 Transition of Indian Banking

Banking system remains the focal point in the financial set-up of country and more so in the context of a developing country like India. There is importance attached to the banking system, in view of their financial intermediary role in payment system. The economic development in the country is dependent on the banking system in the country. The system has come a long way from the independence era, when the inherited legacy was just 2,876 branches, serving an average population of 82, 000 with deposit base of Rs. 860/- Crore and advances portfolio of Rs. 470/- Crore. The progress of Indian Banking System (IBS), during the past five decades can be captured in the following four phases:

2.3 Foundation Phase (1950-1969)

In the initial period, the need of the hour was to re-organize and consolidate the prevailing banking network, to meet the requirements of the economy. The first step in this direction was enactment of Banking Companies Act, 1949 followed by raid industrial finance. Banks played a facilitative role in the industrialization process. The adoption of social control lead to banks extending credit to agriculture and priority sectors. On July 19, 1969, 4 banks were nationalized to extend credit to all segments of economy and to address the regional imbalance issues. The systems made rapid growth strides, from an annual growth of 1.6% during 1950s i.e., 1950-1960, with deposits and credit growth of 6.9% and 8.2% respectively. During the 60s i.e., 1960-1970, the annual growth expansion of the banks, as well as deposit and credit was significantly higher. The population served per branch increased to 60,000.

2.4 Rapid Expansion Phase (1970-1984)

The motto of the nationalization, was to make Banking system, accessible to common man which was indeed "The first Banking Revolution", Commercial banks acted as vital instruments, for this purpose, through rapid branch expansion, deposits mobilization and credit expansion. A series of measures, were taken up by the given including, introduction of Lead Bank Scheme, District Credit

Plans, setting up of Regional Rural Banks in 1975 etc., for ensuring the penetration into rural areas. During 1970-1980, the pace of branch expansion was 12.0% per annum and during 1980-85, it was around 8.8% per annum. The resources of banks grew significandy and diey were deploying these funds, both in credit as well as investments. During, 1970-1980, the net profit grew annually by 14.7% and during 1980-85; the annual growth was 11.7%.

During second phase of nationalization, six more commercial banks were nationalized on April 5, 1980, and thereby expanding the scope of public sector banks. The government tilt towards socialistic economic approach, had effect on approach towards nationalization of banks, social banking and implementing of government-sponsored schemes. The government came up with a number of stipulations, such as priority sector lending up to 40%, rural credit-deposit ratio of 60%, and weaker section credit ratio of 25% etc.,

2.5 Consolidation Phase (1985-1990)

This period was a phase of consoKdation, where there was more thrust on aspects such as internal control and increasing profitability through new activities. The branch expansion increased from 52, 721 to 58,914, thereby registering a compounded annual growth rate of 2.6%. The growth in the areas of deposits and credit grew by 17.7% and 14.6% respectively, whereas investment grew by 19.0%. The thrust area of profit during the period recorded an annual growth of 51.7%.

2.6 Reforms Phase (1991 onwards)

The Indian Banking system has been subject to widespread structural reforms since 1991. This phase can be termed as "Second Banking Revolution". A wide gamut of reform measures such as introduction of new accounting and prudential norms, liberalization measures etc., aimed at creation of truly competitive and well-structured system resilient from an international perspective. The annul growth rate of branch expansion during the period was 1.1% and the population served per branch was 15,000 members. During the period 1990-2000, the annual growth rates of deposits and credit were 16.1% and 14.8% respectively. The growth of investments was 20.0% as compared to 16.0% during 1985-90 and 18.8% during 1980-85. The net profit of the banking system increased from 555.33 crores at March-end 1990 to 7306.36 crores as at March-end 2000.

Ever since die onset of economic reforms in Indian Economy, in the year 1991, the Indian Banking Sector, which can be described as the backbone of Indian Economy has undergoing complete transformation, changing the character, and face of the Sector. The focus of the regulator, the

Reserve Bank of India, and the nodal ministry for the sector in Government of India — Finance Ministry -, have been attempting to transform the Indian Banking System (IBS), from being a large domestic one to a truly international one. In this direction, it has initiated several regulatory measures. Even those who were scripting the reforms, would have not visualized the pace and intensity of changes that have taken place in IBS in the recent period. The competitive pressures are intensifying and resultandy the shakeout phase has begun. The merger and acquisition phase, which are presendy globally, are becoming more pronounced now. The collapse of banking systems in so many countries particularly the East Asian economies is due to the inability of IBS to withstand tremendous challenges in an effective and efficient manner. Some of die Major impacting changes being witnessed over the last one decade in the systems are:

- Deregulation of the Banking System
- Changing Structural Dynamics
- Stringent Prudential Norms
- Financial Innovation and Focus on Customized Banking.
- Technology Driven Banking
- Qualitative Human Resources, have emerged as Competitive Differentiators

2.6.1 Deregulation of Indian Banking System

After nationalization phase during early seventies, the Banking System has assumed very rigid stature. The lines of competition were clearly drawn to create three major segments i.e., The Dominant Public sector having major market share due to the policy directive of the government, to permit the commanding heights of the economy, due to socialist approach and goals in macro-governance in the country. The balance was divided between the old private sector banks, servicing the niche segments in terms of geographical as well as business segments. The Reserve Bank, as a measure towards increasing the competition has accorded permission for entry several new players into the system. A few to mention are ICICI Bank, UTI Bank, Global Trust Bank, Induslnd Bank. These players, armed with technology, as competitive weapon, and the advantage having no lineage as baggage, have come to assume the Leadership position, both in terms of Technology Deployment and service innovation. This has forced the existing players to redefine their competencies and competitive advantages, which is imperative for their very survival.

2.6.2 Changing Structural Dynamics

The entry of new players other related factors have completed transformed the structure and composition of the entire banking system. There is alignment of the players, based on factors such

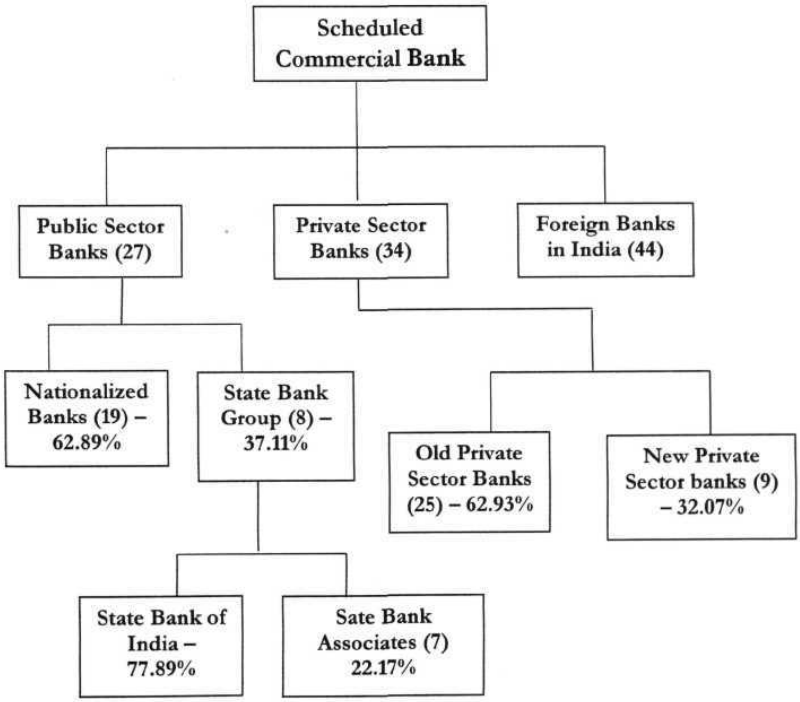
as financial strength and si2e, market share, increase of branch network etc., Some of the recent mergers are: -

- •> Merger of Times Bank with HDFC bank
- •> Merger of Bank of Madura with ICICI bank

In addition, there is an increased convergence of Banking and Insurance segments and evolution of integrated bank assurance system, aimed at delivering Banking and Insurance services to the customer. The players are trying to leverage their mutual strengths through strategic partnerships. Some of the indicative movements witnessed of late are: -

- Life Insurance Corporation of India increasing its equity in soudi based public sector bank — Corporation Bank.
- Max Life insurance entered into strategic partnership with public sector Bank- Oriental **Bank** of Commerce and a few old private sector banks for dispensing the Insurance products.
- Bangalore based old private sector bank — Vysya Bank, in collaboration with ING group becomes one the first licensee to enter into insurance market.

The structure and assets composition of Scheduled commercial Banks, as indicated by Reserve Bank of India, in its Report titled "Report on Trends and Progress of Banking in India (1998-99)" is as under: -



Some of the Development Financial Institutions line ICICI have already transformed themselves into universal banks, while other DFI's, such as IDBI, IFCI etc., are planning to transform themselves into universal banks. The reason being that long-term finance or project-finance, which was hitherto, the exclusive domain of DFI's is now transgressed by banks, due to better asset liability management practices and DFI's are also finding it lucrative to lend through short-term finance. Further, the DFI's are facing the problems such as under-capitalization, non-performing performing assets, and asset-liability mismatches, are finding the route towards conversion into universal banks as panacea for all these problems. The Reserve Bank Governor, in his inaugural address of Bank Economist Conference - 2001, indicated that, conversion into banks, can only be a strategic initiative on the part of FI's and cannot be a solution to their maladies and added that *"The Overriding consideration should be the objectives and strategic interests of the institutions concerned in the context of meeting the varied needs of customers, subject to normal prudential norms applicable to banks. From the regulatory perspective the movement towards universal banking would firmly entrench the stability of the financial system and preserve the safety of public deposits."* The comments of *the* Governor, *assume* significance in the context, where the FI's are not only suffering from asset-liability mismatches and non-performing assets. These approaches are in consonance with recommendations of *Second Narasimham Committee* and Working Group Chaired by Shri S.H.Khan, regarding harmonizing the role and operations of DFI's and Banks. It is increasingly recognized that "Size Does matter" in the Indian banking Industry as well.

The evolving financial structure, lays emphasis on safety and soundness of the banking system, stringer prudential norms, better disclosures, market discipline, improved internal governance and effective official oversight that provide the building blocks in helping the banks to rise to the challenges ahead of them. The reforms and the resultant gradual freedom that banks have now been bestowed with, adjustment to market-led conditions will have to be completed. In short, Indian Banking system is on a "Learning Curve".

2.6.3 Stringent Prudential Norms

The Reserve Bank of India, in its attempt preparing the banking systems towards the strengthening the banking system, has introduced several far-reaching measures, aimed at eliminating the shackles of the system and simultaneously strengthening the financial health of banking system. The major change has been the policy shift of the government and the market regulator (RBI), from dreggiest approach to a market oriented approach.

The reduction of Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR), to the historic low of 5 % **and** 25% is to release the funds from unwanted regulatory provisions and facilitate their investment/lending by banks in the economy. The rising rates of Non-Performing Assets (NPA's), in both the private and public sector players is a cause of concern for the RBI. According to the recent statistics, the total amount of NPA's is close to Rs. 1,00,000/- crores. The RBI, with a view to ensure the well-being of the system, has tightened the NPA provision norms and has also reduced the hitherto non-payment period from 180 days to 90 days, for classification of problem loan accounts as NPA's. The measures taken up by RBI, to tackle this menace, include, creation of Asset Reconstruction Company (ARC) to handle the NPA's, Debt Recovery Tribunals (DRTs) for faster resolution, and Credit Information Bureau (CIB) to enable the banks to share information regarding their defaulters. Further, the Basle Committee on Banking Supervision in its new consultative paper on capital adequacy framework in June 1999, which was released after consultation with several national supervisory authorities was finalized March, 2000 with three objectives of (a) promotion of safety and soundness in the financial system, (b) enhancement of competitive equality, and (c) constitution of a more comprehensive approach to addressing risks. The current Basle Accord is based on the following aspects: -

- *Minimum Capital Requirements.*
- *Interest Kate Deregulation*
- *Supervisory review process.*
- *Effective use of market discipline.*
- *Transparency and Disclosure norms*
- *Reduction of Non-Performing Assets (NPA's)*

2.6.4 Qualitative Human Resources - Competitive Differentiators

Apart from the organizational structure, systems and technology, which have impacting influence on the performance of banks, the key competitive differentiator is the quality of human resources. The new generation banks and the foreign banks had the option of recruiting the best available manpower from the market. Further they have also been training their employees regularly on the emerging trends, which helps them to maintain the competitive differentiation. The other aspect is the average age profile of the employees with the new generation banks and foreign banks, which is on a lower side. This has helped these banks in maintaining a young organization with vibrant performance culture. In case of public sector banks, they have the legacy of five to six decades of existence and most of the decision makers in these banks in their late 40's and early 50's. These banks also have the award staff whose age profile is similar to that of the officers/executives. The

age profile of the employees is leading to skill and competency gaps required for a technology driven banking scenario. Some of the public sector banks have initiated corrective measures for the last one decade by trying to create specialists pool in emerging areas such as information technology, asset liability management etc. Inspite of these measures the skills and competency gaps remain yet to be matched with the new generation/foreign banks. It is for this reason that most of the public sector banks had offered Voluntary Retirement Scheme (VRS) and in the process they have off-loaded about 10% of their surplus manpower.

2.6.S IT Environment and Risks

The Reserve Bank of India, in its paper "Risks and controls in computer and telecommunication systems (February 1998)", categorized the risks under three broad heads (1) Environment Risks (2) IT operations Risks and (3) IT product Risks. They represent the inherent risks that arise in a technology driven banking scenario are:

- **/* Regulatory Risk*
- *Strategic Risk*
- *Organisation Risk*
- *location Risk*
- *Outsourcing Risk*
- *Error Risk*
- *Computerised Fraud Risk*
- *Disclosure Risk*

There is an imperative need for banks to conscious of the risk factors detailed above, and the training system in banks has the onerous responsibility of training and facilitating the learning of employees, for functioning effectively in such a risky environment.

2.7 Sectoral Analysis for New Generation Banks (NGBs)

The NGBs who are the trendsetters in terms of technology adoption and electronic banking services are in advanced stages. All of them are fully connected through wide area network (WAN)/ Local Area Network (LAN)/ VSAT Network, have their websites and are offering a host of online banking facilities to the customers. They are effectively leveraging technology for innovation in product and service and are offsetting their small branch network with off-site ATMs, Net-banking etc., and are thereby giving tough competition to the dominant public sector banks. A brief summary of the various facilities being provided by some of the players is indicated below:

Name of the Bank	About the bank	Online Banking Facilities provided
HDFC Bank	• Aggressive player in the market • Rapidly increasing share of target customers in corporate as well as retail segments. • Believes in leveraging Technology for growth opportunities	• WAP (Wireless application protocol) banking • Debit Cards • Business Payment Solution & ePay debit payment gateway (B2B, B2C) • Online Mobile messaging (MyCBOL ON-SMS) • Internet Banking (online querying, funds transfer facility)
ICICI Bank	• Aggressive Player in the Market • Attempting to grow both organically and through mergers and acquisitions	• Internet Banking Facility • Business Payment solutions • Strong focus on retail segment
Global Trust Bank	• One of the active players • Attempting to grow organically after failure in attempts to grow through mergers ("with UTI bank) • Offers wide range of electronic and online payment solutions	• Internet Banking facility • Investment banking (De-mat account facility) • E-payment solutions • Mobile banking
UTI Bank	• Promoted by giant in Indian Mutual Fund Market (UTI) • Steady and organic growth philosophy	• Internet Banking • Depository Account facility • Online funds transfer • Overdraft against Fixed Deposits through ATMs • Corporate Advisory Services
IDBI Bank	• One of the new generation private sector banks	• Offers a host of online banking services including Demat Account operations, Electronic Funds Transfer, Insurance in collaboration with Tata AIG, Mobile Banking, Free Phone and Internet Banking
Induslnd Bank	• Aggressive player in market with special emphasis on NRI banking	• Offers a range of IT facilitated banking facilities such as Anybranch banking, Internet Banking, Depository Services etc.

Name of the Bank	About the bank	Online Banking Facilities provided
Centurion Bank	• One of the players	• Offers host of new generation banking facilities such as Anybranch banking, WAP Banking (Mobile banking), Internet Banking, Electronic Funds Transfer, ePay Debit Payment Gateway

2.8 Sectoral Analysis for Traditional Banks

a) **Public Sector Banks:** The public sector banks that have market share of over 70% are slowly catching up with the process of technology adoption. The Market leader SBI has already linked up the main business branches by through a strong VSAT network. It has started to offer facilities line online banking, and is planning to set-up about 1000 ATMs by the end of year 2002-2003. The agile players like corporation bank who are early adopters of technology are advancing ahead with their security plans. The other players like Punjab National Bank, Bank of India, Bank of Baroda, Bank of Maharastra, Oriental Bank of Commerce, Allahabad Bank etc., are on the verge of finalizing their IT strategy/road maps, Information architecture, software architecture with the assistance of Multinational and Indian Consultants. Few of them are into implementation stage of die advice given by die consultants. The other banks are attempting to think in the direction.

b) **Old Private Sector Banks** : The initiation of economic reforms, deregulation of the financial sector coupled with entry of new generation private sector banks, foreign banks has intensified the competition levels faced by the 24 old private sector banks. They have the challenge of carving out a niche in the market, if they have to continue to remain relevant for the system. The deposit base of these banks as of March 2000 is Rs. 55,716.00 crores and the advances stand at Rs38,294.00 crores. They enjoy a market share of 6.54% in deposits and 8.43% in advances respectively. The new private sector banks have been making a big dent into their deposits and advances portfolio. It is imperative for these banks to sustain maintain strong financials to withstand the breeze and storm of competition. They are focusing on adoption of technology and technology upgradation, asset-liability management, improvement of marketing skills of their personnel and are slowing gearing up for providing customized solutions at par with those of the new private sector banks. A significant trend is the consolidation phase being witnessed through mergers and acquisitions. The merger of Bank of Madura with ICICI bank, the new generation financial giant, merger of smaller private sector banks such as Sikkim Bank, Benares State Bank with public sector banks is another

noticeable phenomenon. In case of some banks such as Federal bank, The Vysya Bank there have been moves towards change of ownership by some of the existing partners. These banks will have to adopt strategies of a) quickly improvise on their IT solutions b) create dedicated marketing force and c) provide personalized relationship banking, in order to survive. The major trends in the operational and systems related improvement are: -

- *Credit Deployment through Innovative*
- *Niche Marketing to provide customised services.*
- *Focus on Improving Profitability*
- *Organisational Restructuring/or improvingflexibility & responsiveness*
- *Redefining HR Strategies with emphasis on competence <&performance Management*

2.10 Comparative Performance Analysis of Indian Banks

A study of the performance of the banks in various categories, i.e., Public, Private and Foreign banks, based on the data published by Reserve Bank of India in the Reports " Trends and progress of Banking In India, during the period, 1991-92 to 2000-01 reveals the following trends: -

- **Asset Quality:** The return on assets is measured by Net Profit to total assets. Due to the changes in norms relating to income recognition and provisioning towards non-performing assets, Indian banks had incurred net loses in early nineties. The public sector banks had booked net losses during 1992-93, 1993-94 and 1995-96. Foreign banks had also posted net losses during 1992-93. In cases of all the bank groups, it declined during 2000-01, as compared to earlier years. Non-performing assets as % to net advances, of state bank group, nationalized banks and foreign banks, declined during 2001-01 as compared to previous year. However, it increased in cases of old Pvt. sector Banks and New Generation Banks.

Return on Assets (%)

Bank Group	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01
SBI Group	0.21	0.22	0.25	0.54	0.42	0.84	**1.06**	0.51	0.80	0.55
Nationalized Banks	0.33	-1.71	-1.98	0.10	-0.36	0.41	0.62	0.37	0.44	.033
Pub. Sector Banks	0.28	-0.99	-1.15	0.25	-0.07	0.57	0.77	0.42	0.57	0.42
Old Private Sector Banks	0.59	0.34	0.57	1.15	1.03	0.91	0.80	0.48	0.81	0.62
New Gen. Banks				0.95	1.82	1.73	1.55	1.03	0.97	0.81
Foreign Banks	1.57	-2.88	1.51	1.67	1.44	1.19	0.96	0.69	1.17	0.93

Bank Group	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01
All Scheduled Commercial Banks	039	-1.08	-0.85	0.42	0.14	0.67	0.82	0,47	0.66	0.50

•> **Profitability:** The banks are enormous pressure to reduce the interest rates both on advances and deposits and thus increasing the pressure on the Spread. Public Sector Banks have improved their performance in terms of spread as % to total assets as compared to private sector banks, but in terms of burden as % to total assets the performance of public sector banks were far below the private banks.

a) **Operating Profit to Total Assets** (%)

Bank Group	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01
SB1 Group	2.75	1.81	1.44	1.95	2.10	2.18	2.03	1.63	1.74	1.42
Nationalized Banks	1.29	0.42	0.72	1.12	1.14	126	1.33	1.22	1.30	1.28
Pub. Sector Banks	1.85	0.94	0.99	1.41	1.50	1.60	1.58	1.37	1.16	1.34
Old Private Sector Banks	2.08	1.35	1.85	2.18	2.20	1.89	196	1.21	1.82	1.75
New Gen. Banks				0.95	2.69	2.98	2.84	1.78	2.11	1.74
Foreign Banks	5.08	1.86	3.79	3.93	3.31	3.62	3.90	2.32	3.24	3.05
All Scheduled Commercial Banks	2.09	1.03	1.25	1.64	1.70	1.82	1.84	1.45	1.66	1.52

b) Spread as Proportion of Total Assets (%)

Bank Group	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00
Public Sector Banks	3.22	2.39	2.36	2.92	3.08	3.16	2.91	2.80	2.70
Old Pvt. Sector Banks	4.02	2.91	2.97	3.04	3.14	2.93	2.57	2.15	2.33
New Gen. Banks	-	-	-	1.17	2.84	2.88	2.23	1.98	1.87
Foreign Banks	3.92	3.56	4.21	4.24	3.74	4.13	3.93	3.47	3.85

(New private sector Banks have started operating from 1994-95)

*• **Productivity:** Staff Cost to Net Income was significantly high for Public Sector banks due to huge branch network in rural and semi-urban areas and resistance for computerization of

branches from trade unions. During 2000-01, the staff cost to net income of state bank group (47.28%) was less than that of nationalized banks (51.87 %). For new gen. banks it was low at 9.07% and foreign banks it was 15.93%. The total intermediation cost i.e., operating expenses to total assets of foreign banks was highest at 3.05%.

a) **Business (Deposits + Advances) (Rs.) Per Staff Cost**

Bank Group	**91-92**	**92-93**	**93-94**	**94-95**	**95-96**	**96-97**	**97-98**	**98-99**	**99-00**	**00-01**
SBI Group	64.50	60.99	60.90	53.03	47.90	53.02	57.97	59.66	65.05	59.40
Nationalized Banks	72.84	71.28	69.42	63.90	57.41	60.29	65.43	64.84	67.42	61.74
Pub. Sector Banks	69.74	67.36	66.26	59.78	53.73	57.57	62.67	62.92	66.57	60.87
Old Private Sector Banks	62.32	69.05	78.92	83.84	75.89	83.48	93.41	91.08	93.65	107.68
New Gen.Banks				780.94	433.08	436.35	412.22	382.21	422.07	373.74
Foreign Banks	141.1	145.6	132.5	128.0	114.1	107.8	116.7	99.99	98.31	103.2
All Scheduled Comm. Banks	71.60	69.64	69.41	63.88	57.93	62.63	68.69	68.49	72.70	68.13

b) Ratio of Establishment Expenses to Net Income (Spread +Other Income)%

Bank Group	**91-92**	**92-93**	93-94	**94-95**	95-96	**96-97**	97-98	98-99	99-00	00-01
SBI Group	33.33	42.61	43.51	43.57	44.43	41.63	42.63	44.42	41.98	47.28
Nationalized Banks	46.55	59.99	53.38	49.83	52.49	50.32	47.99	50.13	48.87	51.87
Pub. Sector Banks	40.56	51.92	49.4	47.26	49.05	46.67	45.86	47.85	46.13	50.06
Old Private Sector Banks	41.82	46.56	38.32	34.31	35.58	34.80	32.71	40.45	34.85	32.84
New Gen. Banks				5.55	6.01	6.04	6.69	8.86	7.85	9.07
Foreign Banks	10.23	15.12	13.13	13.40	16.05	15.95	13.82	17.04	16.20	15.93
All Scheduled Commercial Banks	37.15	47.92	44.02	42.46	44.11	41.27	39.64	42.52	40.19	43.03

Thus, as we have seen the transformation of Indian Banking Sector, has been phenomenal due to a variety of factors such as regulatory, competition and most importantly, Information Technology. These changes call for total re-onentation and transformation of the banks. The fundamental pre-requisite for the process is the learning phenomenon, which operates both at the organisational level and employee level.

2.11 Banking Technology - Trends & Perspectives

The financial sector in general and banking sector in specific has been one of the foremost sectors to be affected by and to adopt the technology. On technology front, there is growing convergence of voice data and image technologies impacting the way the process of financial intermediation. Information and communication technologies play a very crucial role in the way a bank can operate. Globally the banking is technology driven. IT spending by the banking and financial services industry in USA is around 7%, as against an estimated 1% in India. (Nasscom Mckinsey Report). Net and WAP enabled banking are perceived to be at a nascent stage, but are envisaged to grow exponentially in the years ahead.

Though Computerization became an integral part of Banking System in Developed Economies, it is only in the mid-eighties that they were introduced in India. This was mainly due to the organized Trade Unions' opposition to introduction of computers in Public Offices. Computerization was restricted to major Scientific Research Organizations and Technical Institutes and Defence Organizations.

However, in the year 1993, the Employees' Unions of Banks signed an agreement with Bank Managements under the auspices of Indian Banks' Association (IBA), which was a major break through in the introduction of computerized applications and development of communication networks in Banks.

The Reserve Bank of India had set up various Committees to improve the functioning of Indian Banking Scenario. Following is a brief description of the recommendations of the various committees set up by RBI:

j^_Wnrking Group on MICR/QCR Technology for Cheque Processing - Damle Q^mittee (1982)

This Committee was wet up to study the feasibility of introducing Magnetic Ink Character Recognition (MICR) / Optical Character Recognition (OCR) MICR/OCR technology for cheques writing and to recommend a suitable system for the purpose of introducing of national clearing of outstation cheques and also work out the details regarding standardization of cheques forms with reference to the size, quality of paper, printing specifications etc.

The recommendations of the committee were:

- Introduction of 'item processing' (sorting and listing of cheques with the help of computers) in three phases.
- First phase: Introduction at the four metropolitan cities viz. Mumbai, New Delhi, Chennai and Calcutta, with the help of MICR technology.
- Second phase: Introduction at all state capitals and important commercial centres.
- Final phase: Introduction of national clearing by dividing the country into four Regional Grids with headquarters at Mumbai, New Delhi, Chennai and Calcutta. Each Regional Centre is required to perform two functions:

  (i) Act as a clearing house for intra-grid instruments, and

  (ii) Participate in national clearing on behalf of the grid for extra-grid outstation cheques.

//• Committee on Mechanisation in the Banking Industry -Rangarajan Committee-I (1984)

In the early 80s, a high level committee was formed to draw up a phased plan for computerization and mechanization in the Banking Industry over a five-year time frame of 1985-89. The focus was on mainly on customer service. Two models of branch automation were developed and implemented through installation of the Advanced Ledger Posting Machines (ALPMs). They were

- Front office mechanization where front desk operations were computerized while back office work was done manually.
- Back office automation covering mechanization of General Ledger and back office operations while the front office work was done manually.

Both these models were intended to provide the customer with error-free accounting, regular statements of accounts etc.

jJl_fnmmittee on Communication Network for Banks and SWIFT Implementation - TJVAJyer Committee-I (1987)

This committee was set up to improve the communication network between banks. The main recommendations of the committee were as follows:

> Setting up of 'BANKNET' (X.25 based packet switching network) to be jointiy owned by the Reserve Bank and the public sector banks.

> BANKNET was to be implemented in two phases.

Phase I: Computer systems available in the Head Offices of the Public Sector Banks in the four metropolitan cities to be connected to the four IBM Mainframe servers.

Phase 2: Connectivity to be gradually extended to eight to ten banking intensive centres, and to a hundred centres over a three-year period.

> The applications identified for die use of BANKNET are:

- o Inter-bank fund transfers on banks' own account and on customers' account;
- o Inter-branch funds transfers on banks' own account and on customers' account;
- o Currency chest transactions;
- o Government transactions;
- o Improvements in payment systems by facilitating automated clearing services (similar to BACS);
- o Any branch banking, etc.

^ India should join the SWIFT (Society for Worldwide Interbank Financial Telecommunication) Network for the transmission and reception of international financial messages.

> The committee also recommended that the BANKNET should strive to emulate SWIFT in matters of data security, encryption, and authentication and SWIFT message standards, which are internationally accepted, should be adopted by BANKNET.

jVjlnmmittee on Computerization in Banks - Rangarajan Committee-II (1988)

Xhis committee gave a detailed perspective plan for computerisation in Banks and for extension of automation to other areas like funds transfer, electronic mail, BANKNET, SWIFT, ATMs etc. The recommendations of the committee are

- > Around 2000 to 2500 large branches located at high activity (urban and metropolitan) centres to be fully computerized
- > Inter- and intra bank transactions using the BANKNET to be set up by the RBI
- > Installation of a network of cash dispensers / ATMs at strategic locations such as airports/railway stations etc., on a shared basis by banks.
- > Further, the committee also made recommendations on the 'Single Window Concept', 'all bank credit cards', credit clearing system, office automation, etc.

Dr. C. Rangarajan, Ex-Governor of RBI, once commented that "The issue in India Banking is no longer whether technology is needed or not. The real *issue* is how much, what type and how quickly." If we study the phases of use of IT in Indian Banking, we can observe that during the initial phase of computer applications, computer was treated as data processing device, that too for *back office support.* The data collected over a period of time, say weekly, manually were collected and processed in centralized computer in batches and process was known as *batch processing.*

With the popularization of mainframe computer, large centralized systems were built which had the ability of capturing data at source and providing output on various terminals distributed across the organization. Time-sharing operating systems like UNIX that supported multi-tier and multi-tasking database management systems like paradox and Foxpro etc., remote terminals and data analyzing software changed the design of data processing methods substantially. These online data processing systems permitted the organizations to exercise operational control on key activities.

Though most of the banks have computerized management information system (MIS), they are not able to derive suitable benefits, due to non-customization of information systems for the needs of particular bank. Most Indian banks are at a disadvantage due to late adoption of IT vis-á-vis dieir global competitors. Though, initially computers and telecommunication products were used by Indian banks for improving operational efficiency, they have realized the need for acquiring managing information strategically in various aspects of modern banking as well as internal resources like;

- •> Non-Performing Assets Management
- <• Assets and Liabilities Management (ALM)
- •> Product Development
- • Credit and Investment Decision
- • Identification of Strategic Business Unit (SBU) and Critical Success Factors (CSF) etc.,
- • Human Resource Management and Organizational Development

In order to address the ever increasing volume of transactions as well as responding to customers in a time-bound manner, banks world over and inter alia, are adopting the following to reap benefits of computerization:

- • Introduction of computer scoring models for credit appraisal
- • Centralizing Credit appraisal at regional centre
- • Maintaining centralized database to serve customer of all branches from any branch. The centralized solution is where the entire customer database as also the day-to-day transactions are stored in a central computer (server), which is accessed from various locations.
- Allowing transaction to customer of a branch from other branches using Internet, Intranet or E-mail
- Providing reconciliation and consolidation of receipts and payments dividend payments etc., of corporate customers; and
- Moving back office accounting to regional processing centres etc.

The Rangarajan Committee on computerization recommended various steps to enhance mainly four areas of concern namely.,

- *The quality of customer service*
- *The level of housekeeping*
- *Improving the Decision Making Process by strengthening MIS.*
- *The Productivity and Profitability*

Y± Committee on Technology Issues relating to Payments System. Cheque Clearing and Securities Settlement in the Banking Industry - Sara f Committee (1994)

This committee was constituted to make some recommendations on the payment systems in India and how technology can be implemented in the payments and clearing process. The following were the recommendations of the committee.

- Establishment of an Electronic Funds Transfer (EFT) system, through the BANKNET communications network.The scheme would be started in the 4 metropolitan cities and to be extended in a phased manner to all-important centres.
- MICR clearing to be introduced at all centres with more than 100 bank branches. Priority should be given to centres such as Ahmedabad, Bangalore, Hyderabad, **Pune and Surat,** which have relatively large volumes.
- Introduction of Electronic Clearing Service (ECS) Credit for low value repetitive transactions such as interest, dividend, salary, pension payments and an Electronic Debit Clearing for payments to utility companies.
- A uniform size for MICR instruments.
- Switch over to on-line inter-bank clearing on a gross basis.
- Introduction of 'Clearing Bank' concept for decentralised cheque processing.
- Large scale induction of computers and communication technology in service branches
- Optimal usage of SWIFT.
- NICNET, to be used for the reporting of currency chest transactions by the chest branches to dieir Link Offices and Issue Departments of the RBI.
- Promotion of a card culture, as well as enhanced training facilities.

VI. Committee on Technology Upgradation in the Banking Sector - Vasudevan Committee (1999)

This committee was set up to suggest steps that facilitate the recommendations of the Narasimhan Committee-II. The following were the main recommendations:-

- Measures to be taken for improving the effectiveness of VSAT network by enhancing the transponder capacity to the extent feasible. Multiple branches of a bank may be connected to the branch with VSAT through leased lines within a city.
- Outsourcing software technology would be a better option for banks
- Banks should select the appropriate vendor taking into account factors such as their standing in the Indian IT industry, their image in respect of services offered within the country, their successful track record etc.
- All new applications should be subject to pre-installation and post-installation audit in addition to periodical audit.

> A robust MIS founded on data warehousing and data mining, at individual bank level is essential for implementing various regulatory guidelines including the latest one on ALM

> The Reserve Bank of India could establish a Data Warehouse on Banking and Finance for the data collected under the regulator)' provisions.

The process of IT adaptation in the banking/financial sector can primarily be attributed to the foresight and vision of leading personalities in the banking/financial sector, who have headed various committees, se-up by the Reserve Bank of India.The Current status of technology adoption can be gauged from he following:

2.11.1 Current Status of Computerization

The advent of new generation banks also ushered along with the importance of technology, more than ever before. Realizing that they will not be able to beat the market leaders through branch network, which was carefully built over the years, they have deployed technology, for providing accessibility and reach to the customer through Anytime, Anywhere and Anybranch banking. The Public Sector banks, which have been late entrants in respect of technology, with the result, their technology absorption has been low. The public sector banks, realizing the need, have gone for large-scale computerization of branches and their operations. Some of the indicate statistics are: -

- More than 65000 PCS and their nodes have been installed in 3800 branches by public sector banks.
- Another 14000 PCs have been installed in controlling offices and HOs along with 5475 LANs (Local Area Networks) systems
- 636 branches have been connected with SWIFT (Society for Worldwide Interbank Financial Telecommunications)
- 70% of the business of the PSB' s has been covered through computerization.

In contrast, the new generation private sector banks have achieved high levels of automation and also offering electronic banking products including, mobile banking, to their high-end customers. Although the public sector entities are moving towards electronic banking which include, ATMs, Shared ATM networks, Issue and distribution of plastic cards, tele-banking, on-line submission of loan applications, considering their vast customer base, they serve, such strategies have been inadequate. The recent establishment of INdian Financial NETwork (INFINET), by RBI (IDRBT), using VSAT technology has solved the long-standing need for standardization and requirement of a safe communication backbone, for inter-bank and intra-bank transactions.

The three segments of the banking industry, namely., Public Sector Banks (PSBs), the Private Sector Banks (PVSBs) including eight new PVSBs and foreign banks are at different stages of IT adoption and integration, due to the their different legacies as much as the differences in their strategic approaches to computerization and technology absorption. The increasing competition as well as the changes would narrow the gaps between the players in three segments. However, the agenda, for different constituents would vary due to organizational differences, the spread and the nature of operations. A look at the performance of the players in the three segments would highlight the fact that growth rates of PVSBs has been one of the highest in terms of most of the performance parameters, vindicating the success of their customer centric strategies and adoption of technology driven solutions.

2.11.2 Delivery Channels - Leveraging of Technology

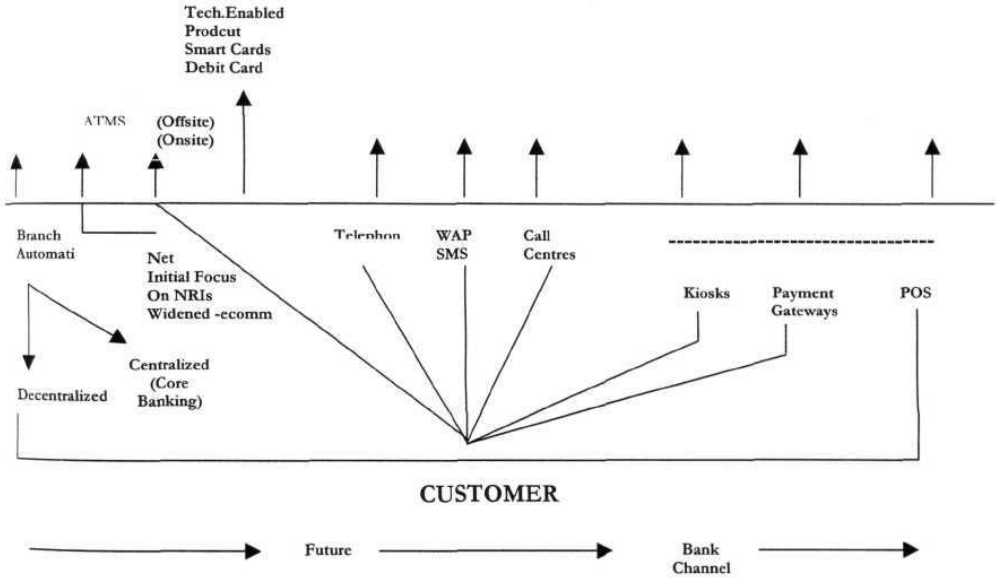
The IT solutions may be categorized in three groups, namely substitutive, complementary and innovative. IT helps in substituting machine power for human efforts, improving employee productivity and providing of new services like CMP (Cash Management Product) etc., which help the clients in their treasury management. The utility of IT is varying and dependent on the levels of the management. In case of Top management it helps in strategic planning, middle management in business planning and control and operational management in improving productivity and cost reduction. The business of banking is information and communication driven. The various reasons for developing an IT strategy in banks are: -

- Increasing span of control
- Flattening of Organization's structure.
- Integration with economy and meet the challenges of market developments
- Enhancing the efficiency of organization
- Most importantly gaining competitive edge

There is growing demand for *convenience banking,* in the form of net enabled banking services, both from the retail as well as corporate customers. The guidelines of CVC (Central Vigilance Commission) for 70% business coverage through computerization, is the first step towards computerization of PSBs. The PSBs are moving towards the next step of networking of branches and centralized processing/technology solutions. The PSBs are trying to rationalize and leverage the branch network, while the new players, are adopting the routes of off-site ATMs, Netbanking solutions to supplement their branch network. The banks while addressing strategic concerns of

enhancing capital adequacy, dis-investment, rationalization of staff, re-organization of systems and procedures. The customer centric approach, can adopted through various technology models for reaching customers through various delivery models. It enables management of data that is critical for business design as well as the reporting requirements, both internal as well as external. It has impact on efficiency of operations, impacting the cost of doing business. It is evident from various estimates that new technology enabled deliver)' channels are viable and attractive from the point of reducing the cost of operations. As against rupee one for branch transaction the costs for Internet transaction is estimated to be Re.0.1, followed by Re.0.35 for telephone banking, and 0.45 for ATM channel. The technology path adopted by various players is depicted in Chart A depicted below:

The Trodden Technology Path: Technology Driven Banking



Most of the PSBs predominantly cover up to the third signpost. The PVSBs especially the new generation ones have covered most of the initiatives. The futuristic aspects i.e., kiosks, payment gateways, Eftpos are underway. The challenge in future would be channel integration and ensuring uniformity of service across all the channels. The PVSBs are looking e-com strategies in their net banking channels. The PSBS have initiated steps for planning and executing IT strategies with commitment to embrace technology and allocated IT budgets.

The above technology continuum indicates that the banks in their path of transformation will have to decide upon the appropriate mix of delivery channels based on their individual status. There are various parameters the banks will have to take into cognizant the mix of delivery channels. Some of the parameters are

- Extent of networking and IT preparedness for the bank
- Availability of competent and trained IT personnel to manage the network
- Outsourcing/In-house network management solution
- Cost implications vis-à-vis the profitability of the bank
- Return on Investment
- Brand identity and positioning of the bank
- Target and segment of customers
- Targeted market reach and penetration etc.

However the banks should be cautious of not to adopt a delivery channel for the purpose of copying/matching the competitor but the bank will have to weigh the option based on the intrinsic strength vis-à-vis the IT/Business strategy of the bank.

2.11.4 Strategic Technology Responses by Reserve Bank of India

The regulator and the lever of the Indian Banking System i.e., Reserve Bank of India, has been constantly focusing on critical areas that need priority for efficient functioning of the banking system. In order to address the technology trends and also to prepare the system the RBI has implemented several technology solutions by taking appropriate initiatives from time to time. Extensive spread of the branches and diversification of banking functions over the last decade, coupled with the present challenges of customer sendee, housekeeping speedy disposal of credit proposals, re-conciliation of inter-office transactions, productivity/profitability, better control as well audit requirements have made it imperative for the RBI to focus upon hastening technology adoption and absorption process through several initiatives: -

- **National Clearing System:** The first significant step by RBI during mid-eighties when it initiated measures to address the mounting problems faced by the banking system as result of lack of automated processing of clearing instruments, it had introduced the mechanized processing of cheques based on Magnetic Ink Coded Character Recognition (MICR) technology through National Clearing Centres (NCC) located in four metros (Mumbai, Delhi, Kolkata and Chennai) initially and has since been extended to 16 other major cities in the country.

- **Development of Inter-bank network (Indian Financial NETwork- INFINET):** The importance of inter-bank and intra-bank network assumed greater significance in the light of banking sector reforms. The banks needed to have in place Asset Liability Management (ALM) and other associated risk management tools, enhance the quality and speed of credit disbursal, through a reliable and efficient technology communication channel. Taking into consideration all these aspects, RBI had set-up a Committee on Technology Issues, during 1994, to undertake a critical review of the existing procedures and practices relating to transfer of funds, payment systems and settlement procedures. The committee suggested adoption of VSAT technology based networking of major centers in the country.

  Thus, the satellite based VSAT network called INFINET, has been set up by Institute for Development and Research in Banking Technology (IDRBT) with a view to provide reliable communication backbone to the banking sector. The network has now about 1600 VSATs covering most of the critical centers in the country. The network is also being integrated with high bandwidth Leased Line Network (LLN) connecting 21 major cities in the country, where RBI has its offices. The VSAT and LLN would be complimentary each other.

- **Other Initiatives:** with a view to address the need for Inter-Bank Electronic Funds Transfer (EFT), and facilities similar to automated clearing houses, RBI has introduced Electronic Funds Transfer (EFT) and Electronic Clearing System (both credit and debit) using the existing infrastructure. The EFT enables funds transfer across different banks among the four metros, Ahmedabad and Bangalore. The ECS service has been made available to corporate bodies/ Government departments for making bulk or repetitive low value payments like interest, dividend, refund, salary, pension etc., at all the 17 regional offices of RBI which have banking department and also at branches of State Bank of India (SBI), which manage clearing houses. Further, RBI has also introduced Delivery versus Payment (DvP) for speedy settlement of government transactions. The recent initiatives of RBI to address the needs of the banking system include:
  - **Structured Financial Messaging System (SFMS):** IDRBT, at the instance of RBI, has initiated development of secure messaging facility to facilitate exchanging of financial messages across branches of a bank and interface with member banks of INFINET. SFMS enables Straight Through Processing (STP) and generation of necessary reports in a highly secure environment, based on message formats which are akin to SWIFT messages (Society for Worldwide Inter-Bank Financial Telecommunications).

- **Centralized Funds Management System:** It provides a real time funds position in a banks' current account across all the RBI offices. This would not only enable the banks to know its funds position at ant point of time, but would help in efficient management of funds. It also envisages facility for banks to send instructions from treasury office to a RBI office requesting for transfer of surplus funds.
- **Public Debt Office (PDO) and Negotiated Settlement System:** The initiatives also include a comprehensive Government Securities handling system called Public Debt Office (PDO) and Negotiated Settlement System (NDS). It would facilitate trading in government securities and funds settlement by banks and financial Institutions. It also provides for accepting bids for auction of Government Securities, Payment of Interest, redemption of securities etc., electronically. The NDS would provide facilities for striking a deal in Commercial Papers, Certificates of Deposits and Call money transactions. The SSS (Securities Settlement System) would interact with RTGS to enable DvP for settlement of Government Securities.
- **Real Time Gross Settlement System (RTGS):** This system would enable gross setdement of high value payment instructions from banks. The RTGS would interact with the current accounts of banks maintained with the RBI and setdes die payment instructions across these RBI accounts on real time basis. The setdement instructions from Deferred Net Setdement Systems like Clearing Houses would also be accepted by die RTGS for setdement. The RTGS system removes many risks associated with die traditional net setdement systems. To enable gross setdement, RBI is also offering intra-day liquidity support to participants of RTGS in the form of Repos. Ultimately, it is envisaged that inter-bank transactions currendy being setded in inter-bank clearing would flow to RTGS and also, the transactions being setded in the high value clearing would be setded as RTGS transactions.
- **Internet Banking:** The RBI has set up its website to disseminate information to the banks. Some of the banks have started extending non-fund services and even operations of their accounts, issue of cheque books, and bill collection on internet after building up necessary security levels. This would pave way for introduction of base transaction level services after taking into consideration die legal, technical and regulatory aspects of banking.

Thus, RBI, at die macro-level has been setting die tempo & direction, for the banks by planning in advance and executing several projects, which are expected to support the mission critical applications of the baking sector.

2.11.5 IT Applications

The advent of IT has influenced the Financial and Banking sectors in a profound way. Banks were among the earliest users of computers. Bank of America installed automatic cheque processing equipment in the early sixties. MICR technology helped banks in the cheque clearing system. Now IT can be described as all pervasive in banking operations. Some of the IT applications in banking are cited below: -

- *On-line Branch Banking and Accounting*
- *Payment Systems* (ie.,Credit Cards, Debit cards, Smart Cards, ATM cards and electronic fund transfers)
- *Tele-banking/Home Banking*

**l* Niche & customised Marketing*

- *Datawarehousinglmining and Business*
- *Electronic Cash (E-Cash).*
- Electronic Clearing and Settlement

2.11.6 Internet Banking

The Chart B depicted below the phases of Internet Banking in India. It was initially targeting at NRI customers of the bank was extended to the high-end customers and now they have begun to extend it to upper-middle class customer to widen the base and increase the turnover. The immense possibilities of B2B and B2C have given thrust to net-banking initiatives. The facilities are being extended to the retail as well as corporate clientele bases. Use of WAP enabled technology in banking is also becoming a global trend, and the same is being explored by a few PVSBs and foreign banks in India, due to its impact on retail as well as corporate business of banks. Some of the PVSBs have covered up to third module and in collaboration with service providers such as utilities, stock brokers etc., for content and service provision. The net initiatives of these banks have also been branded, for instance, *Infinity* of ICICI bank, *iconnect* of UTI bank and *netbanking* of HDFC banking, with a view to emphasize the exclusivity of service. The pervasiveness of net banking is bound to grow in coming years with the estimated figures by 2003 envisage 44 million telephone lines, 11 million PC users, 7 million internet users and 15 million mobile users.

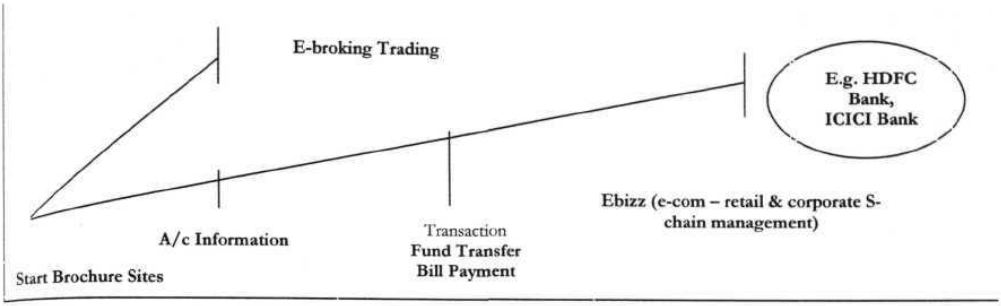


Chart B

Phases of Internet Banking in India

Future Scenario: At a broad level the fundamental **change** in technology absorption would occur when it becomes a decision support tool part from its use in delivering different products and services to discerning customers, data management for internal as well as external reporting purposes. It is a moot question whether, technology influences business or business influences technology because banking and financial services have become highly technology driven in contemporary context. Globally the business model in equilibrium is a click and mortar one. But the brick model is used more for changing, focusing on high net worth clients and increasing number of customers-volume business being directed to the lower number of customers-volume business being directed to the lower cost channels based on web and WAP. The offering of these services has become ***business imperative*** from the perspective of meeting customer expectations of providing **"anytime anywhere service".** The global trends in financial industry are leading to 24x7 and straight through processing systems. The increasing focus is Customer Relationship Management (CRM), Datawarehousing and mining are also being used both for decision support purposes and also offer tailored solutions to meet the requirements of customers. The current research in the area of interactive television etc., are likely to have significant impact on the banking sector. Datawarehousing and mining will become important to banks from decision-making perspective. Banks are trying to build homogenous databases, to enable leveraging on technology driven systems. The Vasudevan Committee sector (an RBI initiative for identifying road map) has broadly set the agenda for technology absorption in Indian Banking Sector. The pilot project on Smart Cards (SMARS), by IDRBT, IITB (Mumbai) and SBI has been successfully completed, and some banks are taking steps for their introduction.

Xhe concept of business driven is yet to take off fully within banks in India. It implies that line units sponsor the customer-focused IT solutions that they need rather than the IT department promoting IT solutions that either are needed by the business units or represent a lower priority of customer need. For instance, what is the extent of utility or WAP or Internet banking facility for retail customer, currently, which have come to symbolize for the banks that they have "in-thing", in the services, but where the actual usage is negligible. Before investing in IT, management is required to analyze the risk-return trade-off in holistic way.

In future, when technological divide in technology adoption narrows between banks from all segments, there would be greater need for branding of services and products by banks apart from innovation to stay ahead in the race. The competitive differentiator would be the ability of banks to leverage upon contemporary and futuristic technologies.

2.11.7 Virtual Banking - The Emerging Phenomenon

The trend world over for banks is to be accessible anytime and anywhere and the Indian banks too are moving in this direction. It is now increasingly been realized that branch expansion is cost prohibitive and serves limited purposes, beyond a certain limit. On the contrary, virtual presence provides immense opportunities of in terms of reach, marketing possibilities as detailed below: -

- *Increase Customer Base for all Profit Centers*
- *Increase the Overall Breadth and Quality of Services*
- *Decrease the Proportion of Routine Transaction in the Branch*
- *Improve General Customer Satisfaction*
- *Reduce the Overall Risk Possibility for Banks*
- *Increase Quality of Bank's Marketing Initiatives*
- *Increase the Retention Rate of Employees and Perceived Staff Morale*

2.11.8 IT and Competitive Strategy

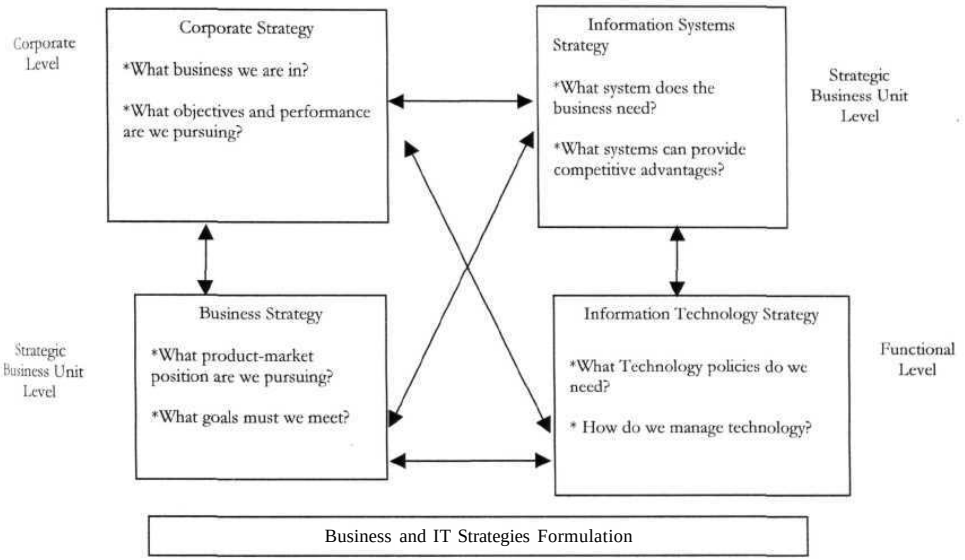
As discussed earlier, an information system that begins to exploit potential of information processing will become a strategic resource impacting the organization's competitive ability. Michael porter identified the following characteristics that govern the organizations' competitive position:

- Efficiency and effectiveness of firms internal operations
- Relationship of the firm to its suppliers (in term of bargaining power, degree of coordination etc.,)

•> Relationship of the firm to its customers (e.g. bargaining power, degree of coordination, cost of switching to a competitor)

- Exposure of the firm to entrance of new competitors (Banks entering into insurance and vice versa)
- Exposure of firm to substitute products (banks facing competition form Stock Market, Mutual Funds etc.,)

Thus the firm's competitive position can be built taking into cognizance the above factors. The strategy can rest on sophisticated and evolving technology that competitors cannot match. A framework for drawing up business strategies and relevant IT strategies as proposed by Regie Thomas in "implementing a MIS strategy" is given below:



It is advisable to incorporate information system and sophisticated information technology into the overall business strategy of the organization, for obtaining competitive advantage over the competitors.

However, there are certain difficulties in the process of organization upgrading its technological capability such as Conceptual Difficulty in planners IT strategy pinning down the organizational

values and procedures which have to aligned with IT strategy, Technological Gaps i.e., IT planners not being able to visualize the development of IT, making it redundant, even before it is unplemented.

5.11.S.I Building an Enabling Technological Base

The process of developing an appropriate technological base is one of the most demanding parts of building a successful MIS strategy and the following actions to be taken:

- Develop long term aggregate estimates (3 to 5 years) of capacity requirements, along with manpower planning and their learning requirements.
- Develop detailed short-term (2 year) for MIS activities with in the over the entire planning horizon.
- Develop the Learning Climate and process for developers and users of MIS
- Plan for implementation of the communication network
- Plan for managing and implementation/operation for data-sharing mechanism
- Plan and manage support services
- Developing mechanisms for identifying and introducing promising new technology

2.11.8.2 Planning of Organizational Information system

The key prerequisites of planning organizational information systems are to capture the complete information, which can meet the organization requirements. It requires careful planning and significant cooperative efforts among all the persons involved in the process. The determination of information requirements is vital part of their cooperative activity. It is difficult for the users to define the requirements. A complete database system will consist of the database schema and applications software that uses the schema. The schema implements data requirements of the organization for which the system is being developed. The applications software meets the functional requirements of the organization.

The analysis of information requirements for database construction involving planning the process, assembling a team of people to carry out the work and deciding upon the configuration of the hardware required for DBMS. The database and database management should fulfill the requirements of *Availability, Sbarability, Evolvability, Data Independence and Data Integrity.*

The development of requirements for database consists of an overall planning strategy and process to define an overall architecture, existing as well as anticipated requirements. Based on these processes there are three alternate requirements development strategies:

- Development Strategy based on overall architecture
- Evolutionary development strategy based on existing files
- Anticipatory development design strategy.

The overall architecture for database is based on two types of requirements ie., *Transaction Process Requirements* and *Management Requirements.*

2.11.8.3 INTRANET as Corporate Communication Strategy

The basic purpose of any Management Information system is to help an organization coordinate its activities and thereby achieve its goals more efficiently and more predictable manner. The core aspect availability of needed information to the employees. The technologies for managing and distributing information have changed over time, but the functions required for human organizations have remained fairly constant.

Intranet uses the technology, which is more or less similar to Internet, but the access is restricted to the corporate members of the employees. The basis for evolution of Intranet is initially LAN, followed by WAN. The term Internet is of recent origin and was coined in 1995.it basically provides communication infrastructure, based on communication standards of Internet and content standards of World Wide Web. It can be set up in a very short time and can ultimately serve as an "Information Hub" for the entire organization. Intranet offers the following application feature set i.e., *Rapid Prototyping, Scalability and Easy Navigation.*

2.11.8.4 Information Center & Organizational Intelligence

Information center evolved from the need to help the end-users and end-user departments learn about and take advantage of decision support resources. Most information centers are created primarily to assist end users and develop their own computing systems. The information centers offer a lot of benefits to the users and the organization and some of the benefits are:

- The services of information centers can contribute to supporting the competitive position of the organization.
- The information center can be a focal point for the implementation of corporate information plans relative to end-user computing.

- User-developed systems can help alleviate MIS development backlogs.
- End user productivity can be enhanced.
- It can provide first-line support to end-users.
- It can be a clearinghouse to share solutions and applications among the users.
- Compatibility among systems can be encouraged or enforced.
- Individualized, flexible training can be provided on an as needed basis.

2.U.8.5 Decision Support System (DSS) - Relevance and Pertinence

Decision Support System is specialized type of computer-based business information system. Some of the definitions are:

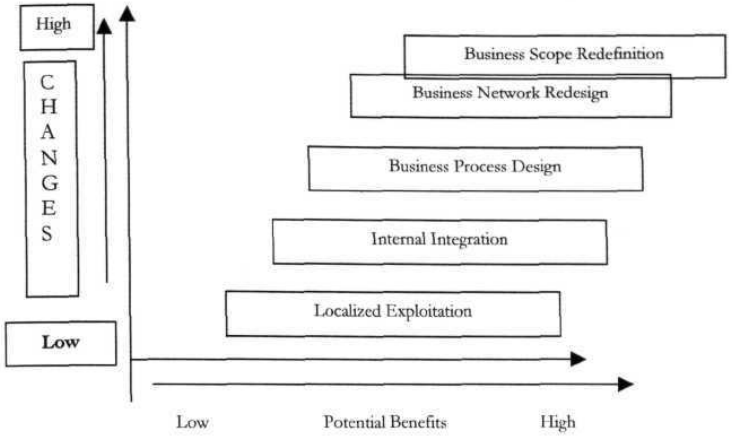
- An interactive computer-based system, which facilitates solution of unstructured problems.
- A system that provides tools to managers to assist them in solving semi-structured and their own and somewhat personalized, way.

DSS is set of tools, data, models, and other resources. It is not intended to make decisions for managers, but rather to provide managers with a set of capabilities that enables them to generate the information they need to make decisions. The five components involved are Hardware, Dialogue Management, Model Management, Data Management and Systems Programs.

2.11.8.6 Business process Re-engineering/System Reenglneering

Reengineering is an integration and extension of well-established theories with a new twist. System reengineering is a process is process by which an organization may redesign the "way it does business to maximize its core competencies. In other words, system reengineering is defined as the fundamental rethinking and redesign of operating processes and organizational structure. In turn, this redesign results in dramatically or significandy higher profits, greater satisfaction, lower expenses, consolidated activities and increased productivity. Since such reengineering changes the whole business process radically, it is also known as Business Process Reengineering.

System Re-engineering involves reorganizing workflows, cutting waste, combining various steps of processing and eliminating repetitive tasks. System/Business Process Reengineering changes processes completely, so that they are logical and efficient and driven organization's core competencies. The progression from the stages of evolution to the stages of revolution is captured below: -



Business Process Reengineering (BPR) is for achieving improvement in critical contemporary measures of performance. It is basically a creative process. BPR lacks a formal, precise methodology but it provides some guidelines, which make up a set of principles.

The objectives of system reengineering /BPR include Cost Reduction, Time and Space Shrinkage, Quality Enhancement, Work life Enrichment, Profit Improvement, profit Improvement and Survival in Future. The implementation of BPR should precede a carefully drawn out strategy and the steps to be taken in the process are:

- Development of Business Vision and Process Objectives
- Identification of Process to be re-engineered
- Understanding and evaluating existing processes
- *l* Identification of Information Technology (IT) Levels.
- Designing and preparing a prototype of die new processes

Reengineering projects generally fall into three categories. At the very basic level, reengineering efforts simply streamline operations. Moderately ambitious projects take an approach to integrate work and unify jobs. The most aggressive projects truly transform die entire organization. The various methods adopted in the BPR include Preparing for change, Planning for change, Designing change and Evaluating Change. The basic technologies necessary for applying BPR are Networking - It is absolutely critical that an organization pursues a network vision to connect all the computers

to create an electronic path to provide for collaboration across functional lines, geographic boundaries and time zones. Databases - Database technology' enables us to store information in an organized fashion. It allows multiple people to access information at different times from different places. Desktop Tools - The seven components are spread sheet, word processor, and presentation graphics, filing system, calendar, electronic message and access to external data. The tools must be consistent and be able to share data with other programmes.

System Reengineering has positive implications on the functioning of the organization. It will streamline the functioning of the organization, enhance the quality of products and service, enrich the work-life of the people concerned, help in better time and space management, more importantly improve the business and profitability which will ultimately help the organization to survive in future.

2.11.8.8 System Reengineering and Product Development

The adoption of Information Technology in the banking has helped in providing of more and more services to the customers such as ATMs, Plastic Cards, Telebanking, making it imperative for organizations to reengineer the process. System Reengineering for product development in an organization for new product development is done of the models: Technology Push - It is characterized by high level of investment in information technology, systems & procedures and operations. Product development is pursued with inputs from IT. Market Pull Model - The ideas, suggestions and request of customers have strong influence on product innovation. The market needs influence the innovation of new facilities/service. Balanced Model - It is a combination of Technology Push and Market Pull Models and takes into account positive features of both the models. The other models are Proactive Model and Reactive Models, which are self-explanatory. For instance, any tie banking operates on the following perceptions: -

- The customers need products and service anytime (in their time frame and not the time frame of the bank).
- The bank, which delivers customers, products and services in more real time, relative to their competitors will have a decided advantage.
- Operating in real time means no lag-time between identification and gratification of the needs of the customers.

In the process of adopting system reengineering for anywhere and anytime banking, banks have to focus on the four dimensional model mentioned below:

- *First Dimension* - Banks' domain is fixed and the customers are to move into the bank's domain for doing banking transactions.
- *Second Dimension* - Bank's domain is expanding and thus becoming nearer to the customers. But still the customers are required come into bank's domain for transactions.
- *Third Dimension* - Bank's domain has expanded to such an extent that it has moved into the domain of the customers and the customers need not move for transacting banking business.
- *Fourth Dimension* — Bank's database has been made real time and available to the customers round the clock so that customers can do anytime banking.

2.U.8.9 Online Transaction Processing (OLTP)

Online Transaction Processing (OLTP) is a process by which a transaction, which has been put into a system, will be available to all the users who are working in the same system. It implies that information regarding the system will be available online, due to on-line processing of the transaction and its availability to everyone in the system. The transactions are basically of two types i.e., Financial Transactions (FT) which have a direct impact on cash accounts or funds management. The Non-Financial Transactions (NFT) is the ones, which deal with actual movement of funds. However, NFT can subsequently lead to FT later on. OLTP can be classified into two categories i.e., inter-office and intra-office OLTP. The on-line transaction in a computerized but which is not connected with other branches is an example of intra-office OLTP.

OLTP provides enormous opportunities for radically redefining the work processes and goals of the process include Good Customer Service, More Business, More Profitability, Less pilferage of funds due to frauds or otherwise etc. The technology prerequisites for OLTP are Networking, Common Database, E-Mail, Group Ware, Magnetic Strip Readers etc.

2.11.8.1O Technology Banking and Security

There are certain disadvantages along with advantages and this is the natural phenomenon. There are security threats to technology banking basically are from, Physical, Hardware, software, networking aspects. The physical threats are being countered through Intrusion Detection system, while the hardware security is ensured through comprehensive testing, electrical protection through protective diodes, capacitors, shielding, card identifiers, Biometric/individual characteristic measurement devices. The software security is provided through logical security, Intrusion Detection System (IDS), Network Security Standards, Firewalls, Authentication & Digital signatures,

key management procedures, Automated LAN administration, Network & IT Audit and more recently ethical hacking to examine the robustness of the system. The threat perception to banks has necessitated for banks to evolve an *"IT Security Strategf'*, since security is no longer a peripheral issue, but a strategic issue affecting the core functions of the entire bank.

2.11.9 Technology Adoption - Concerns and Issues

The adaptation of technology in Banks in India is guided by the fact that "the key to success in the changed environment of business will be the ability to reach the client at his doorstep with visibility, transparency and service." The trends in banking can be categories into three namely, Traditional Banking, Technological Banking and Tactical Banking. The technology adaptation is undertaken with three strategic objectives:

- Satisfy the needs of the customer,
- Improve organizational capabilities
- Provide Strategic Decision Support & information system.

A bird's view of the reasons behind technology adaptation by banks would bring out that the padi adopted by banks is affected due to the following pitfalls:

- Absence of awareness and acceptance of reforms by the labour unions
- RBI report as "bible" for implementation
- Inadequate political will for total IT implementation
- Labour agreement restricting the size, capacity and areas of computerization

A study of the IT strategies/plans of the banks organizational plans would highlight and bring to the fore, the following drawbacks: -

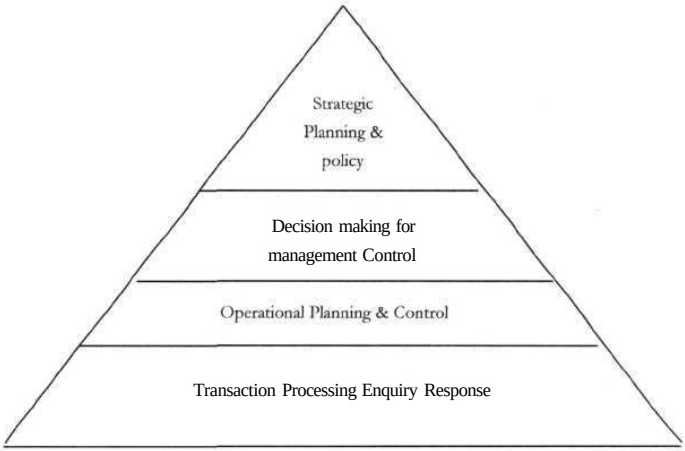
- Absence of integrated IS plan
- Absence of top management commitment for introduction of IT as a decision support and decision management strategy
- Inadequate Human Resource Development & Training Policy and program for implementation of IT
- Absence of board level representation of IT services division.

The parameters for measurement of technology are Productivity, Efficiency, Effective Controls etc. Each of these factors has their own importance in justifying and also sustaining the investment levels in technology upgradation. An investment per se, can be justifies b the management only if

there is a correlative returns. The strategies being adopted by banks towards the purpose are three pronged i.e., Branch Computerization, Bank Computerization and Inter-bank Integration. The entire focus of IT adoption in Banking aimed at making the organization flexible and responsive. Building a suitable Decision Support Systems and also evolving suitable business strategies for the purpose can only achieve this.

2.11.9.1 Information Technology (IT) Enabled Management Information System (MIS)

MIS can be understood as an integrated, user-machine system for providing information to support operation, management and decision making in an organization. The information needs are correlatory to the levels of the organization. The pictorial representation depicting the informative needs at different levels is indicated below:



The banking sector deals with more information than money. A significant part of bank employee's working and personal time is spent in recording, searching for and absorbing information. Most of the banks have been attempting to understand their MIS as well statutory information needs With increasing globalization banks should put in place systems that allow their management's to have both the information and procedures to be aware of their own risk exposures and be able to modify such exposures.

"•••• Good governance requires comprehensive internal control procedures and policies that are implemented by skilled personnel and monitored by management. "[Report on Trend and Progress of Banking in India 1996-97- RBI].

The information system that begins to exploit the potential of information processing will no longer be confined to the back office role of routine data processing, but would assume strategic importance with major influence on organization's competitive ability. For information - intensive business such as financial services, competence in managing information has already become **critical** success **factor.** Some of the benefits of information systems are: -

- Operational Efficiency — through improved transaction processing
- Functional Effectiveness — Through Decision Support system
- Spotting and advantage of emerging opportunities
- Better Customer Service
- Product creation and improvement - through analysis of data of customer transactions for identifying customer preferences
- Altering competitive advantages - for instance, obviating the need for geographical presence through net banking initiatives

2.11.9.2 Status of Computerization In PSBs

As per the details published by the Reserve Bank of India during September, 2002, the status of computerization in public sector banks is as under:

Parameter	Details
Total Number of Branches in India	46528
Partial computerization at Branch Level	16,256
Number of Fully Computerized Branches	13,078
Number of existing service branches	385
Number of partially computerized service branches	63
Number of fully computerized service branches	318
Total ATMs installed	2490
Online terminals at corporate sites installed	5980
Debit cards (as ATM cards) issued	30,62,628

2.11.9.3 Factors Influencing Technology Initiatives

- Heightened competition, a persistent bearish market, and a general erosion of consumer confidence continue to influence banks' IT decisions in 2003.
- Increasing number of banks are looking at IT deployment as part of a comprehensive IT strategy, rather than as fragmented investments.
- Offering of allied products such as insurance and investment products will drive the growth for total automation.
- In wholesale banking, banks will further harness Internet-enabled technologies to improve customer offerings and service.
- New initiatives by the RBI, such as data warehousing will open a lot of new avenues.

2.11.9.4 Areas of Emphasis in IT Plans/Strategies of Banks

As per views expressed by the Chief Technology Officers (CTOs), during Banknet India 2003, the following issues were highlighted by the IT Chiefs/CTOs as issues of emphasis/priority for banks in near future.

- Establishing a Wide Area Network (WAN) for networking of branches for implementation of core banking solutions.
- Connectivity of branches is a mandatory prerequisite for implementing RBI initiatives on Payment and Settlement Systems such as PDO-NDS, CFMS, SFMS and RTGS.
- Standards for inter-operability of Smart Cards will enable multiple applications on a small chip.
- Secure messaging for launching fund transfer projects.
- Asset Liability Management and Risk Management

2.11.9.5 Roadmap of Banks to strengthen the existing financial Infrastructure

Further, the Chief Technology Officers (CTOs), during Banknet India 2003, have laid down the following roadmap for strengthening existing financial infrastructure:-

- Introduction of Core Banking System within the next 12 — 24 months.
- As an interim solution, networking of branches and identified commercially important centers immediately and start Funds Transfer products.
- Immediate establishment of Registration Authority (RA) office for issue of Digital Certificates for use in Funds Transfer products.
- Establishment of integrated treasury branch or in the interim proper reporting arrangements from major centers for effective management and maintenance of Intra-day liquidity.

- Integration of existing applications to facilitate end-to-end straight through processing (STP).
- Have an aggressive HRD policy for retraining in IT Skills.
- Take up restructuring/reorganization for the entire bank.

2.11.10 Learning Infrastructure in Indian Banks

The evolution of learning culture in the banks in the country can be traced of late 60's & 70's, when majority of the public sector banks have emphasked upon the training & development of their employees. For the purpose, they have established the Staff Training Colleges (STC) across the length & breadth of the country.

All the public sector banks have minimum of one STC and the major banks have around 3 - 4 STCs in different regions of the country, based on which the number of STCs for the public sector banks could be stdmated to be around 60.

In case of the private sector banks, including some of the new generation banks have their own STCs and also colleges established by consortium of banks such as South Indian Banks Staff Training College (SIBSTC), Bangalore. The number of training colleges in the private sector are around 15.

In addition, the Reserve Bank of India has established the following apex level training centers to cater to the needs of the banks:-

- National Institute of Bank Management (NIBM), Pune
- National Institute of Banking Studies & Corporate Management (NIBSCOM), Noida
- Indian Institute of Bank Management (IIBM), Guwahati
- Bankers' Training College (BTC), Mumbai
- Reserve Bank Staff College (RBSC), Chennai
- College of Agriculture Banking (CAB), Pune

Further, the Institute for Development and Research in Banking Technology (IDRBT), established and fully funded by the Reserve Bank of India, as an apex level Institute for Banking Technology inj the country, also conducts apex level training programmes, which are aimed at training the trainers, with a view to facilitate technology adaptation and also competence building in the banking industry.

Further, during mid 90's, the banks especially the public sector banks have felt the need for training of their employees in IT adaptation and IT skills and for the purpose, the major public sector banks have established the exclusive IT training centres and currently there are around 6 dedicated IT training centers.

The consolidated statistics of learning infrastructure in the banking sector is as under:-

Sl. No.	Segment	No. ofSTCs
1.	Apex Level Training Centres	7
2.	Public Sector Banks	60
3.	Private Sector Banks	15
4.	Focussed IT STCs	6
Total		**88**

In addition, the banks have also been depending upon the external sources (reputed academic/training institutions) such as Administrative Staff College of India (ASCI), IIMs (8), Management Development Institute (MDI), Jamnalal Bajaj Institute of Management etc., for training and development of their skilled manpower. Some of the banks depute to overseas institutions for training in specialized areas such as foreign exchange etc. The banks have also tied up with IT training institutions such as NUT, APTECH for training of their manpower.

The new generation banks such as ICICI etc., have also tied upto with reputed training institutions for web-based/virtual learning facility to their employees.

The above particulars clearly prove that there is strong culture of learning in the Banking/Financial Sector of the country. However, there is strong need for transformation of training to learning apart from integrating IT with the learning strategies that could facilitate continuous learning and competence development of the employees, through their careers.

2.11.11 Analysis of Training Programmes

For the purpose of finalizing the training infrastructure and also the trends in training system, both at national and bank level, the data has been collected from the following apex level training Institutions.

2.11.11.1 Institute for Development and Research In Banking Technology (IDRBT), Hyderabad

It is an apex level R&D Institute in the areas of Banking Technology and related areas. The Institutes believes in niche and focused training programmes, not addressed by other training Institutes in the country. The programmes are aimed at training the Trainers and also providing the hands on experience to the operational functional in IT field. Further, to promote the awareness and also hasten up the face of technology adoption, it conducts workshops, seminars, symposia etc. The Institute also hosts the learning contents of the programmes through the WebCT software in its website for making it accessible to the learners. The details of the training programems conducted by it during the last four years are as under:-

SI. No.	Area	2002-2003	2001-2002	2000-2001	1999-2000
1.	CMDs/IT Chiefs/Principal's/ RD's Conference	5	4	3	
2.	INFINET and Application related areas	14	11	8	11
3.	Payment Systems	8	1	3	1
4.	Network Management & Security	4	3	4	1
5.	Information System Audit	4	3	1	-
6.	Others	14	16	10	3
Total		49	37	29	16

2.11.11.2 Bankers Training College (BTC), Mumbai

BTC is a premier Institution set-up and fully funded by the Reserve Bank of India (RBI) to cater to the training requirements of the RBI, commercial banks. BTC conducts a wide range of programmes in the areas of foreign exchange management, treasury management, integrated risk management etc. Of late, it has been focusing on training the trainers and also programmes aimed at senior bank executives in the areas detailed below:-

- Management of balance sheets at banks
- Operational risk management
- Latest development in payment system
- Corporate debt restructuring

- New regulatory initiatives like Prompt Corrective Action (PCA)
- •> New capital account
- •> Risk based supervision

The College conducts a wide range of collaborative training programmes in collaboration with other premier Institutes such as Administrative Staff College of India (ASCI), Jawaharlal Nehru Institute of Development Banking (JNIDB) etc.

2. 11.11.3 Reserve Bank Staff College (RBSC), Chennal

The RBSC caters to the training and developmental requirements of the officers of the RBI and constantly upgrades the content of training programmes. It develops case studies for training purposes and forwards them to the regional offices. It also conducts off-site training programmes to the officers of Department of Non-Banking Supervision (DNBS), Department of Banking Operations and Development (DBOD). In accordance with the priorities of the Central Bank, of late it has also started focusing upon "Integrated Risk Management".

2.11.11.4 College of Agriculture Banking (CAB), Pane

The RBI with a view to promote agriculture banking aimed at improving the plight of rural India has set-up an exclusive college dedicated to the area of agriculture banking. The CAB regularly conducts the on-site and off-site programmes to the officers of scheduled commercial banks, urban cooperative banks, central cooperative banks state cooperative banks etc.

2.11.11.5 Zonal Training Centres (ZTCs)

The RBI has established the four ZTCs at four metropolitan centers i.e. Delhi, Mumbai, Kolkata and Chennai to cater to the training needs of the Class III & IV employees of the bank. The facents of training include HRD areas such as motivation, inter-personal skills, communication, team building etc. The other areas of training include Indian economy and monetary policy, regulatory and supervisory challenges of the RBI etc.

2.U.11.6 Statistics of Training Programmes - RBI Colleges

fhe details of various training programmes conducted at RBI Colleges are as under:

College	2002--2003		2001--2002		2001--2000		2000--1999	
	No. of Progs.	No. of Ppts.	No. of Progs.	No. of Ppts.	No. of Progs.	No. of Ppts.	No. of Progs.	No. of Ppts.
RBSC	139	3013	125	2795	140	2949	109	2489
BTC	146	3422	115	2532	113	2436	95	2137
CAB	173	3461	179	3777	153	3179	124	2596
ZTCs (Class III)	153	2991	131	2576	100	2013	86	1660
ZTCs (Class IV)	31	535	26	470	17	313	16	312

2.11.11.7 State Bank of India Institute for Communication and Management (SBIICMJ, Hyderabad

The SBI with a view to train its officers in the area of Information Technology and also to develop internal competencies for evaluation of various applications related software for SBI and its Associates. The Institute caters to the training and developmental requirements from SBI and its Associates and other scheduled commercial banks. The details of training programmes conducted by the Institute are as under:-

Year	No. of Faculty	No. of Progs. Conducted	IT	Other Areas
2000 - 01	14	148	148	--
2001 - 02	12	136	136	--
2002 - 03	11	155	155	--

2.11.11.8 State Bank Staff College (SBSC), Hyderabad

The SBI with a view to address the training and developmental needs of officers of SBI and its Associates in South India, has established SBSC. The areas of training programme include credit, marketing, cash management product, risk management, balance sheet analysis, asset liability management etc. The details of programmes conducted by the Institute during the last two years are as under:-

Year	**No. of Faculty**	**Co. of Progs. Conducted**	**General** Bkg.	BS	**Credit**	**Mktg.**	PMIR	IB
"2000^ 01	**17**	160	67	25	**30**	8	13	17
2001-02	**18**	194	101	23	**29**	18	12	19

The above statistics of training programmes at various apex level institutions indicates that there is increased emphasis on training, which is vindicated by the number of participants trained, number of programmes conducted and also the number of Faculty Personnel. Further, it also indicates that there is increased focus on information technology. In the banking related areas, there is emphasis on profitability management, balance sheet analysis and also the risk management.

Thus ***as perceived from the perspectives the managements of the banks and also from the*** *statistics* ***of Reserve Bank of India, Banks have to address the various issues and concerns raised above while addressing the security needs in order to sustain techno-driven competitive advantage for overall efficiency and profitability.***

Chapter - 8: Problem Definition S Scope

3.1 Organizational Learning

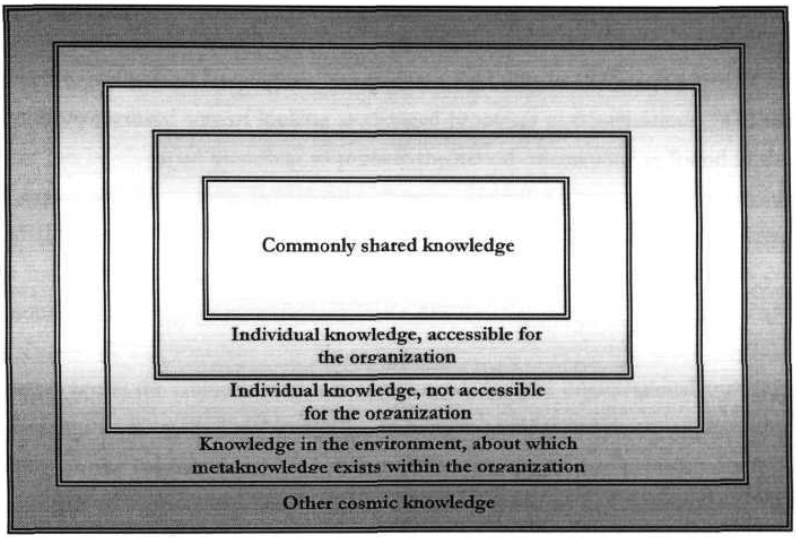
In the competitive environment, when the organizations are facing changing and dynamic market conditions, there is increased need for adaptability of individuals and organizations, which can only come through learning. There are several studies and researches conducted by OL and OD theorists. There is recognition by resource based view that resources encompass both tangible, material assets as well as intangible and tacit assets (Prahlad and Hamel, 1990). Idiosyncratic bundles of knowledge and skill - clearly within the domain of organizational learning e.g., Huber, 1991) - can be legitimate firm specific resources. Further, in the management literature, learning is presented as source of competitive advantage (e.g., Redding and Catalenello, 1994; Senge, 1990; Stata, 1989), but the definitions have not been clearly defined. The Meta Learning Model (Schwandt, 1995) was used to develop a Meta Framework for Organizational Learning (Callahan & Schwandt, 1998). The Integration of Complexity Theory, Knowledge Management and Organizational Learning was analyzed by researchers too (McElroy, 2000). The relevance of Organizational Learning was also explored in the wider context of theories of organizational structure, culture and change (Burnes, Cooper &West, 2003).

The authors (Argyris, 1992; Argyris and Schon; 1978, 1983, Bomers, 1989; Garvin, 1993; Senge, 1990) all explained the concept of learning organization from the perspective of individual learning with in the subjective area of psychology. In fact, most of the definitions of learning organizations have been drawn from this perspective. Argyris (1992) argues that organizations learn through the actions of their individual employees. Hence, in order to increase the learning capacities of their employees, the management has the responsibility to create suitable conditions to influence individuals' mental paradigms, their conceptual frameworks and approach towards work and problem solving. Most of the authors have discussed two types of learning processes: single-loop learning and double-loop learning (Argyris and Schon, 1978; Bomers, 1989; Duncana nd Weiss, 1979; Fiol and Lyles, 1984, Pedler et al, 1991).

Researchers have pursued the elusive phenomenon of Organizational learning for years (for e.g., Argyris, 1982; Hayes et al., 1988; Huber, 1991, Schein, 1993b; Senge, 1990; Stata, 1989). Organizational learning is presented as occurring at different levels of analysis - from individuals (Argyris, 1982) to organizations (Levitt and March, 1988). The various processes involved for diffusion of information include individual interpretative processes and interpersonal

communication (Argyris and Schon, 1978; Daft and weick, 1984; Weick, 1979). Organizational Learning was perceived as a process of adaptation by Researchers on Knowledge-based Approaches to Organizational Learning (Duncan/Weiss, 1979), during which dominant coalition in the organization, tries to adapt the organizational behaviour vis-à-vis the environment. The trigger for the learning process, being comparison between the actual and desired state of organization, with guidance based on organizational paradigm, by identifying the performance gaps.

Organizational Learning was also defined as utilization, modification and development of an organizational knowledge-base (Pautzke, 1989) and the Pautzke's model of Knowledge Layers (outer to inner) guiding the organizational learning process is depicted below:



Researchers (Cohen and Levinthal, 1990) have identified that previous knowledge and previous learning experiences facilitate learning and also found out that absorptive capacity of an organization depends on the absorptive capacity of the individuals.

In the research (Eric Feller, 2002), that is focused on the differentiating factors between organizational and inter-organizational learning is dependent upon relative absorptive capacity and inter-organizational trust.

Some studies view OL *as prescriptive* and being manipulable (for ex, Argyris, 1993; Hayes et al., 1988; Senge, 1990) and elsewhere as *descriptive*, documenting factors which influence or impede organizational adaptation are viewed (Huber, 1991; Levitt and March, 1988). The two models, which tried to address the organizational learning needs, *inform much management theory* (Morgan 1986), and the consequent advice preferred by consultants in the area of organizational improvement. Alternately, third approach which compares organizational learning with organic evolution by natural selection between replicators; a process enhanced by the punctuation of genetically imposed equilibrium. (Pewley Fort, Pewley Hill, 1996). The organizational evolution (learning) can be considered as a selection process between mental replicators. The biological metaphor of 'survival of the fittest' (usually wrongly attributed Charles Darwin rather than Herbert Spencer) is natural replica to market competition.

Even though organizational learning has emerged as a field only in 1970s and 1980s, it has come to symbolize the recognized way of looking at changed processes in organizations. OL theories and approaches can be classified according to primary theoretical orientations as found in the literature body of organizational science: behaviourist theories, cognitive theories, personality/dominance-orientated theories, systemic theories (Schuppel 1996). These theoretical perspectives share the common hypothesis that phenomena of change in organizations are connected with collective or inter-personal processes of learning (Ronald Maier 2002).

OL processes aim at the connection of individual knowledge into organizational knowledge and can be classified into *micro organisational learning* (i.e. learning in groups) and macro organizational learning (i.e. learning on the organizational level, Reber 1992). OL approaches provide concepts, methods and instruments to support organized collective learning *(processes)* in Organizations (Wilkesmann 1990).

The fundamental parallel between evolution and learning was expressed by Gregory Bateson (1973, 1979) whilst Hull (1988), who argues that science can be viewed as natural selection process between competing scientific ideas, and scientific codes of behavior as a logical, self-evolved outcome of that process. The current trend of organizational learning is not new (Chandler 1977), but what has changed is the rate at which organizations must evolve to remain competitive.

In the research titled "Inter-Partner Process Learning in R&D Alliances - a Step Towards Process Innovation" (Erik Feller, 2003), Organizational Learning was categorized (Shrivastava, 1983) into the following areas:-

- Organizational learning as adaptation
- Organizational learning as assumption sharing
- Organizational learning as developing knowledge of action-outcome relationships: knowledge-based approaches

The researchers have defined organization learning as a process by which organization expands its repertoire of actions. Huber (1991) defined Learning as *'aprocess that enables an entity to increase its range of potential behavior through its processing of information."* Organizational learning can then be defined as occurring when any of its units acquire knowledge that they recognize as useful to the organization. Because of the potential for performance improvement, learning becomes imperative for organizations. Learning curves have been studies extensively in manufacturing contexts (Epple et al., 1991). Learning constitutes improvement of routines (Cohen, 1991) and is transferable across organization. In a way it is a stored knowledge that becomes useful to the organization. The focus of research has been methods to enhance learning curves to increase competitive advantage.

Organizations per se, can be understood as interpretive systems (Daft and Weick, 1984), in constant flux - artificially stabilized through interpretive processes, routines and standard operating procedures. In context, of traditional psychologist definition, Weick observed that organizations are rarely able to satisfy its condition of producing a 'different response' in the 'same situation'. The non-traditional method of defining organizational learning favors an information-processing view of learning, in which the stimuli are the actual physical events, but rather are interpretations of events (Weick, 1991).

Probst and Buchel (1997) quoted Pautzke (1989) , that *"Careful cultivation of the capacity to learn in the broadcast sense, i.e, the capacity both to acquire knowledge and to develop practical abilities, seems to offer a realistic way of tackling the pressing problems of our time".*

The common propositions underlying the concept of Organizational Learning (Burnes, Cooper & West, 2003) are: -

- In order to survive, an organization must learn at least as fast as its environment changes. That is to say, an organization's ability to keep pace with changes in its ability environment is dependent on its ability to learn.
- The degree to which an organization needs to move away from traditional forms of learning to organizational learning is dependent on degree of **instability (change)** in its environment.
- In the past, maintaining alignment with the organization's environment was the responsibility of a few senior managers; however the environment is now changing so fast that it is beyond the ability of a small elite of managers to keep pace with the necessary changes.
- The entire workforce needs to be involved in identifying the need for change and implementing it, which in turn requires them to be involved in learning, if the organization is to keep aligned with its environment.

As the above review indicates, the above four propositions are based on argument put forward by proponents of Organizational Learning that:

- Change is now fast and so prevalent that if organizations fail to keep pace with it, they will not survive; and
- The Speed and prevalence of change is such that it cannot be managed in the traditional manner by a few senior managers, but must become the responsibility of everyone in the organization.

*The **above literature suggests that die researcher have focus on different perspectives and implications of organizational Learning right from the definitions of learning and the relevance of learning to die organizations in die contemporary context.***

3.2 Information Technology and Organizational Learning

There is abundant literature with regard to the technology upgradation in banking sector world over.

Jens Broendsted and Bente Elkjaer (2000) have discussed about the inter-relationship between information technology and organizational learning in the context of IT becoming increasingly wtegral part of organization life. One of the disciplines, which have begun to attract attention in the field of organization learning, is a discipline of information systems. The basic research issue within this discipline is how IT enables or support organizational learning (Brennen & Rubenstein, 1995;

Goodman & Darr, 1996, 1998; Masino, 1999; Neilson, 1997; Pentland, 1995; Robey et al., 2000; Roth & Niemi, 1996).

The frame of reference on learning is inspired by a framework developed by the American Anthropologist, Jean Lave (1997), who for many years have researched into the issues of learning. However, the problem with Lave's framework is that she has not made any explicit attention as to how IT can be a mediator or act as a tool to support organizational learning. Orlikowski (1992) has been one of the pioneers who has researched into the role of technology in the development of organizational learning. She argued that the two important aspects of technology are (a) *Scope of technology* (what is defined as comprising technology?) and (b) *Rok of technology* (how is the interaction between technology and organization defined?).

On a perusal of IT-supported organizational learning, it is observed that it does not have a long history and to a certain extent it appears as if the discussion on knowledge management has to certain extent precluded the issue of IT supported organizational learning, before it really got started (Scarbrough et al, 1999). But, transforming learning into a question of knowledge acquisition, application and diffusion is however not an unfamiliar conception of learning in the literature on organizational learning. As early as 1983 Shrivastava, in his review article on organizational learning spoke about organizational learning as a development of a "Knowledge Base". Subsequently, Huber (1991), in his widely cited article dealt about four constructs leading to organizational learning i.e. knowledge acquisition, information distribution, information interpretation and organization memory. Huber defined learning as 'an entity learns if, through its processing of information, the range of its potential behaviour is changed'. The information processing involves a query, distributing or interpreting information.

Pentland (1995) described his typology of organization learning as a 'knowledge system framework that is similar to Huber's typology of processes'. The Pentland's knowledge processes include knowledge construction, organization, storage, distribution and application.

In the literature that deals with IT supported organizational learning, importance of knowledge for organizational learning is very explicit. Goodman & Darr (1998) defined organizational learningas follows:-

> *'Organizational learning is conceptualised here as the process by which one unit acquires knowledge from another unit in the same organisation. Organisational-level learning occurs when (1) the*

problem - solution exchanges and consequences are communicated and known by other organisational members (broadcasting), (2) there is some form of organisational memory that stores problem - solution exchanges and consequences (memory), and (3) there is a mechanism for organisations to share their interpretations about the problem - solution exchanges and to update the organisational memory about their experiences (updating).'

Further, Goodman & Darr posed two questions, i.e. (1) How many specific features of computer-support enhance organizational learning? and (2) How does the organizational context influence computer-support in organizational learning?

Robert et al (2000) defined organizational learning as an organizational process, both intentional and unintentional, enabling the acquisition of, access to, and revision of organizational memory, thereby providing direction to organizational action.

Information processing perspective on organizational learning, has been criticized from several positions, mainly the problem of transfer has been in the line of fire, i.e. the idea that knowledge can be transferred from one context to another, from one person to another and from the information system to a person and vice versa (Detterman & Sternberg, 1993; Salomon, 1993).

In addition, viewing of knowledge as a reified entity to be acquired by individuals are to be stored in an organizational knowledge databases or memory systems may not be a sufficient point of departure for organizational learning. Reified information and knowledge do not encompass the way knowledge is created in everyday life. Instead, individuals and groups create knowledge by egotiating meanings of action, situations and artifacts (Gherardi et al, 1998).

Viewing learning as an integrated part of social practices in organizational life inevitably leads to formation of different social communities. Lave & Wenger (1991) through their concept of Communities of Practice (COP) emphasized the unity of social practice and communities that emerge as people engage in practice.

According to Wenger (1998) three dimensions assume criticality by which practice becomes source °f community i.e. *mutual engagement, joint enterprise and shared repertoire.* In a sense, teams are formal organizational structure designed to do specific assignments in contrast to COP, which are informal

groups of people that emerge in response to changing conditions and opportunities in work practice (Brown & Duguid, 1991; Wenger, 1998).

Jens Broendsted & Bente Elkjaer (2000) have viewed IT as a non-problematic way of leveraging, learning and knowledge in the organizations does not encompass the complexity of the social context in which the learning occurs. It is not adequate in an organizational learning context to perceive technology as a mere tool for information processing. Technology inevitably plays a significant role in organizational learning, but only to the extent that IT relate to the social context (Brow & Duguid, 1998).

Jens Broendsted & Bente Elkjaer (2000), have broadened the role of IT in organizations by including three features oriented towards learning facilitations in Communities of Practice (COP) as below:-

- The technology should be a medium or a forum for communication, interaction and mutual engagement.
- The technology should be a tool that is integrated in and mediates the natural flow of the work practice and the joint enterprise.
- The technology should be a medium for accumulation of the community memory of shared stories, discourses, routines and so on.

IT is an integrated part of social world and thereby needs to be negotiated within the specific social context in order to be become meaningful - IT is equivocal (Weick, 1990; Orlikowski, 1992). Arguing that IT is an intertwined part of the social world could be equated with the dialectic notion of the subject — world relation in the social and situated learning theory.

For technology in order to be integrated with specific work practices, it should create a virtual space for *mutual engagement* to substitute or complement the physical space of interaction and engagement. Virtual and physical communities of practice are thus co-existing and in many occasions are also overlapping each other (Mynatt et al).

Technology per se apart from supporting formal communication should also support the more informal and emergent interaction. However, of late, many organizations have been trying to control the interaction within organizations by implementing strict rules about what is accepted and what is not e.g. on the corporate intranets or in the e-mail systems (Brown & Duguid, 1998).

3.3 Indian Banking - Information Technology & Organizational Learning

In the Indian banking context, the information is available more through the various publications of the Reserve Bank of India and its allied institutions such as National Institute of Bank Management etc. Further, the other source of information as regards the status of technology upgradatdon in Indian banking is through the various publications of Indian Institute of Bankers and the annual Bank Economist's Conference (BECON).

The introductory chapters in the thesis have dealt with the various initiatives of the Reserve Bank of India for facilitating the intra & inter-bank financial transactions. Experts in the area of information technology have mapped the various stages and facets of technology upgradation in the Indian banking sector. Hence, a review of literature may not be possible in strict sense as regards technology upgradation in the Indian banking sector and the entire process has to be understood from the perspective of the central bank, commercial banks and IT experts in the country.

The reports of Rangarajan's Committee I & II can be remarked as the initial landmarks, •which have laid down the technology progression of Indian banks. Prof. S. M. Padwal, in his various articles and conference presentations has also dealt with the strategies and the processes of technology upgradation, the details of which have been covered at appropriate places while discussing the technology concepts in the initial chapters of the thesis.

There is lot of analysis and literature on technology upgradation in the banking sector. However, there are no confirmed research findings to substantiate and correlate that the investment in information technology has a positive effect on the performance of the banks in India.

Based on the data and information collected on the various facets of organisational learning and technology upgradation in Indian banking sector, it is clearly observed that there is a need for research to examine the folloivingfacets:-

- *Organisational learning and its relevance to the Indian banks.*
- *Technology upgradation and its inter-linkage with the learning processes/ systems in the banks.*
- *Effect of IT in facilitating organisational learning.*

3.4 Scope of the Research

The Research study assumes importance against the backdrop of transition phenomenon being witnessed in the banking sector. The research aims at understanding the following aspects:-

- Role of IT in Indian Banking Sector.

- Role of Information Technology in **Training** & **Learning** Processes
- The role of training system in Indian Banks
- Inter-Linkage between the Training System and Learning Processes.

The Research is carried out with the following specific objectives of: -

- Role and utility of Information Technology in Facilitating Learning Process
- Effect of Organizational Learning on the Profitability and Productivity of Indian Banks.

Chapter-4: Research Methodology and Data Collection

This explorative research aims at identifying the strategic planning process being **pursued by the** Banks India in facilitating the transformation of the Banks to Learning Organization. An attempt has been made understand the impacting factors in the process of transformation through Organizational learning process facilitated by Information Technology. The sample banks for research have been identified through *stratified random sampling method-* public sector banks, new generation banks and old private sector banks. The data collection would be through a combination of methods such as Primary data and Secondary data collection methods.

Secondary Data Collection: - The secondary data has been collected from a variety of sources, depending on the type of data required for the research study:

- Review of Books on relevant areas for the research such as Change Management, Information Technology, Learning Processes, Technology based learning Technology driven banking,
- Proceedings of Seminars/conferences books on conferences — Bank Economist's conference (BECON),
- Other Publications such as Banks' Annual Results
- Press releases and interviews by executives/decision makers regarding Banks approach to Information Technology
- Web Information: Web sites of banks, other sites such as indiainfo.com, bankersindia.com etc.

Primary Data Collection Method: - The primary data required for the research was collected by mailing questionnaires to the sample banks. The questionnaire was designed with the following objectives:

- What is the Role of IT in the Strategic Planning Process in the bank?
- Does the bank have an Institutionalized Process/planning approach towards Identifying futuristic competencies and skills for building them at the bank level?
- Is the bank adopting a planned approach towards creating learning environment with the facilitation of IT at organizational, group/team and individual employee level?
- Role played by line managers and training managers in Learning process of these banks.

- What are the IT tools used by Banks for facilitation of Learning Process i.e., Technology Tools for collection and dissemination of Information to employees (e-learning etc.,)

4.1 Sampling for the Research

The objective of the research is to understand the emerging trends in the area of technology in Indian banking with a view to study the adoption process of technology, the phenomena of learning, the role of technology in facilitating learning processes in Indian banks. The changes in the form of competition and technology which are the two major driving forces in Indian banking context have made it imperative for the banks to focus upon learning for providing sustainable competitive advantage. The advent of technology has not only changed the way banks are functioning in this country but in the process it has also changed the working environment as well as the skills and competencies acquired by the employees for performing in the changed scenario. The technology adaptation for technology by the employees requires their learning of not only the technology facets but of several emerging areas such as asset liability management, net banking and other such recent IT initiatives of the banks. This calls for a contemporary learning in the work context itself as against the earlier practice of off the job learning. This concept of learning of the job while performing not only possesses a challenge to the banks but also to the employees at the individual and also at the group level. The study aims to understand the performance of various players i.e. public sector banks, old private sector banks, foreign banks and new generation banks vis-a-vis their levels of technology adoption, the learning environment, subsisting in them and also the extent of usage of IT by these banks in facilitating the learning environment.

4.2 Sample Strata

The methodology adopted for selection of the samples, the banks, based on the categorization of the Indian Banks Association (IBA), the major players have been categorized into following strata. The brief profile of each of the strata has described below:

Strata 1: Public sector Banks: These banks which were occupying commanding heights during eth license are now seriously facing the onslaught of competition and the increasing influence of Information Technology. The scenario of these banks presents a kaleidoscope. Some banks have excelled in terms of IT adoption, while the rest are gearing to the situation are either in the stage of finalizing their IT plans/strategies or implementation of the decided IT plans.

Strata 2: Old Private Sector Banks: These banks have the mixed characteristics of the public sector as private sector banks. Their structure, systems and even the manpower competencies are closer to the public sector counter parts. Some of the players who were the leaders in the private sector are trying to catch with their younger counter by taking up the recruitment and IT adoption on an aggressive scale to meet the competitive pressures.

Strata 3: New Generation Banks: These banks have come into the existence in the post liberalized scenario since 1991 and most of them had recruited the best available manpower from the existing payers and have taken up the help of Information Technology, not only to differentiate, but also to overcome the deficiency of branch network with ATMs and other technology driven services to provide accessibility to the customers.

To understand the sub-sectoral dimensions with the above parameters and to study the differences it is proposed to carry out the research in two segments, which are selected through stratified random sampling method.

In case of Public sector Segment, it is proposed to take the banks, which have excelled in terms of implementation of IT initiatives and others, which are in the process of IT adaption.

Private ***Sector segment,*** similarly, it is proposed to take two banks randomly, from the new generation and the second from the old generation banks for comparison purposes. Among the new generation banks, ***Global Trust Bank, HDFC Bank*** *which are* aggressive players, and fore runners among the new generation banks to offer technology driven facilities to the customers. Among all old generation banks **J** & **K** ***Bank*** & ***The*** *Vysya* ***Bank,*** are typical old generation banks, which were leaders till the early nineties, but were over taken by the new generation banks. They have been carrying out the reformation to transform into a modern banks.

The brief profiles of the sample banks have been given below: -

4.3 Public Sector Banks

4.3.1 The Corporation Bank

The bank was established on March 12, 1906 and would be celebrating its centenary year shordy. The performance parameters of the bank are: -

Total Business: During the financial year 2000-2001, the performance of the Bank soared to new heights in terms of total business. The business of the Bank crossed the landmark of Rs.25,000 crore and the business stood at Rs.25,226.24 crore, recording a growth rate of 14.4 per cent.

The total deposits of the Bank have grown by Rs.2280.51 crore from Rs. 14279.63 as on 31st March 2000 to Rs. 16560.14 crore as on 31st March 2001 registering a growth rate of 15.97 **per** cent.

The Bank had adopted a cautious approach in expanding credit in consonance with its policy on Credit Risk Management. The loans outstanding have risen by Rs.888.64 crore from Rs. 7777'.47 crore as on 31st March 2000 to Rs. 8666.10 crore as on 31st March 2001 registering a growth rate of 11.4 per cent.

Financial Results: The year 2000-2001 has been one more year of success for the Bank as far as maximization of profit and profitability is concerned. The superior performance in each of the functional areas yielded the desired results thereby enhancing the returns to shareholders. The constant monitoring of pricing of deposits and advances through effective tools of Asset-Liability Management and measuring, monitoring and controlling risk through a well defined risk management system helped the Bank to sustain and improve the spread.

Income Analysis: In spite of cuts in PLR during the year, the Bank could improve the Interest Income and at the same time, reduce the Cost of Deposits and also show a reasonable growth in Non-interest Income.

Parameters	2000 - 2001 (April/March)
Interest Income	1804.54
Interest Expenditure	1223.21
Net Interest Income	581.33
Fee, Commission & Other Revenue	292.09
Net Operating Income	873.42
Operating Expenses	341.36
Gross Profit	532.06
Provisions & Contingencies	135.07
Profit Before Tax	369.99
Provision of Tax	135.15
Net Profit	261.84

The total income (interest income plus non-interest income including fees, commission and revenue) has improved to Rs.2096.63 crore during the fiscal 2000-2001 from Rs. 1875.20 crore in the previous fiscal year, recording a rise of Rs.221.43 crore (11.8%). Total Interest Income amounted to Rs.1804.54 crore for the financial year 2000-2001, as compared to Rs.1604.39 crore in the previous financial year, registering an increase of Rs.200.15 crore (12.5%).

Non-interest Income showed a reasonable growth of Rs.21.28 crore (7.9%) from Rs.270.81 crore in the financial year 1999-2000 to Rs.292.09 crore in the financial year 2000-2001. The percentage of Non-interest Income to Total Income stood at 14.0%. The Net Income from operations (Interest Spread plus Non-interest Income) has increased to Rs.873.42 crore in the financial year 2000-2001 as compared to Rs.729.11 crore in the financial year 1999-2000, dius recording a growth rate of 19.8%.

Spread Analysis: The efficient and prudent Asset Liability Management enabled the Bank to improve the interest spread. The yield spread increased by 40 basis points, from 3.00 per cent in financial year 1999-2000 to 3.40 per cent in financial year 2000-2001. The details of the spread analysis is furnished here below:

	FY 2000 - 2001	**FY 1999 - 2000**
Average Working Funds	16900.00	15100.00
Total Interest Income	1804.54	1604.39
Total Interest Expended	1223.21	1146.09
Spread	581.33	458.30
Yield on Funds (%)	10.6%	10.6%
Cost of Funds (%)	7.2%	7.6%
Net Interest Margin (%)	3.4%	3.0%

Gross Profit: The Gross Profit for the financial year 2000-2001 stood at Rs.532.06 crore as compared to Rs.425.12 crore in die financial year 1999-2000, thus registering an increase of Rs.106.94 crore (25.2%). The Asset Utilization Ratio (percentage of Gross Profit to average Working Funds) has improved from 2.8% in die financial year 1999-2000 to 3.1% in the financial year 2000-2001.

Capital Funds and CRAR: The Net Worth of the Bank as on 31st March 2001, stood at Rs.1347.70 crore as compared to Rs.1144.76 crore as on 31st March 2000. The Capital to Risk

Adjusted Ratio (CRAR) improved from 12.8 per cent as on 31st March 2000 to 13.3 per cent as on March 31, 2001, which is well above the stipulated Reserve Bank of India norms of 9%.

Branch Network: During the year 4 branches were opened, thereby taking the number of branches to 652 as on 31.3.2001, spread over 21 states and 2 Union Territories. The Bank has presence in 93 out of 100 top centres of the country. The number of specialized branches rose to 118 during the year 2000-2001. The number of Extension Counters stood at 45 as on March 31, 2001.

Specialized Branches	
Category	**No**
Personal Banking	**28**
CAPS	10
Industrial Finance	**6**
SSI	**4**
Asset Recover)'	**4**
Housing Finance	**2**
Overseas	**2**
Commercial Banking	**2**
NRI	**1**
Commercial & Personal Banking	49
Service	**9**
Fast Collection Sendee Branch	**1**
Total	**118**

Category	**Branches**	
	No.	**% to Total**
Metro	169	**26%**
Port Town	21	**3%**
Urban	143	22%
Semi Urban	154	**24%**
Rural	165	**25%**
Total	652	100

Customer Service: The Bank has been continuing its endeavours to provide the best of the sendees to its clientele. The Bank has taken many strategic initiatives to improve the standards of customer service at Branches. Service with quality is the essence of success in winning the customer confidence. The Bank secured ISO 9002 certification for service excellence at nine of its branches. The business hours of computerized branches are extended by one hour on week days and by thirty minutes on half-days. The Bank has also extended non-cash business hours till one hour before closure of working hours at all the branches. The Bank has identified the key areas in which the level of customer satisfaction can be enhanced on an ongoing basis tlirough customer service surveys and self-audit by branches. Corrective measures have been initiated wherever required with a view to improving the service levels at branches. The Bank declared the year 2000 as the "Year of Customer Care" to make the entire front-line employees customer focused.

Customer Grievance System: Aggrieved customers can lodge their complaints with the branch manager, zonal manager or with the Head Office. Customer Service Division at Head Office monitors the redressal of customer complaints. The Bank has evolved a system to promptly redress the complaints.

Social Concerns: As a good Corporate Citizen and as part of the Bank's societal concerns, the Bank sponsored Road Dividers in Mangalore with an objective to help the Civic Authorities in regulating traffic in busy roads. The Bank has donated Rupees one crore to the Prime Minister's National Relief Fund for the rehabilitation of the Gujarat earthquake victims. The members of the staff also donated one day's salary amounting to Rs. 41 lakhs to the Prime Minister's National Relief Fund. The Bank's endeavours on societal concerns in various parts of the country have contributed in a larger measure in enhancing its image in the eyes of the public.

Performance of Subsidiaries and other units sponsored by the Bank

- **Corpbank Homes Limited:** The housing finance subsidiary, viz. Corpbank Homes Ltd., launched by the Bank on 22nd May 1998, has posted satisfactory performance during the fiscal. The subsidiary earned an operating profit (profit before tax) of Rs. 2.13 crore for the year as against Rs.1.43 crore for the previous year. The net profit after tax for the year ended 31st March 2001 was Rs.1.66 crore as against Rs.1.09 crore for the previous year. The loan disbursements by the Company aggregated to Rs.54.19 crore during the year and the outstanding advances stood at Rs.82.54 crore as at March 2001. The net worth of the

Company stood at Rs.12.57 crore as on 31st March 2001 and the Capital Adequacy **Ratio** was at 14.53 per cent.

- **Corpbank Securities Limited:** Corpbank Securities Limited, a wholly owned subsidiary of the Bank was set up to function as a Primary Dealer and started business operations on **14th March** 2000. During the first year of full-fledged business operations, Corpbank Securities Ltd. posted excellent financial results. The company earned an operating profit (profit before tax) of Rs.25.24 crore. The net profit after tax for the year ended 31st March 2001 was Rs.14.79 crore. The net worth of the Company stood at Rs.86.19 crore as at 31st March 2001 and the Capital Adequacy Ratio was 26.21 per cent.
- **Regional Rural Bank:** The Chikmagalur Kodagu Grameena Bank [CHIKO **Bank],** sponsored by the Bank, recorded satisfactory progress in its overall performance during the year. As on 31st March 2001, the deposits and advances of the Grameena Bank stood at Rs.83.70 crore and Rs.69.34 crore, respectively. The CHIKO Bank posted net profit for the fifth year in succession and the net profit for the year 2000-2001 stood at Rs.218.29 lakhs. The Grameena Bank has a network of 46 branches and one extension counter.
- **Corporation Bank Self Employment Training Institute:** Corporation Bank Self Employment Training Institute [COBSETI] has completed five successful years of its existence. COBSETI has so far conducted 91 vocational training programmes since inception covering various areas. The institute has so far trained 2588 unemployed youth from Chikmagalur and Kodagu Districts. Of these, 1294 trainees have taken up self-employment ventures.
- **Economic Development Foundation:** The Bank continued its social service under the aegis of Corporation Bank Economic Development Foundation. Financial grants to the extent of Rs.22.88 lakhs were sanctioned to 17 needy schools for providing infrastructural facilities such as building construction/renovation, furniture and drinking water. Computers were donated to 34 schools towards enabling school children residing in remote areas to have access to Information Technology. Various health care projects and a seminar on population policy for Karnataka were also organised by the Foundation

Technology Driven Banking Services for Corporates —

(Collection and Payment Services-CAPS)

The bank launched Internet Banking for the corporate customers of its Collection And Payment Services (CAPS) i.e., Cash Management Services. Shri. Keshub Mahindra, Chairman, Mahindra &

Mahindra Ltd. launched the Net Banking Facility at an impressive function held in Mumbai on January 1,2001.

In the niche area of Collection And Payment Services, Corporation Bank has a leadership presence in the country and caters exclusively to the Cash Management requirements of the corporates. The Bank, within its network, has ten specialized CAPS Branches, which are fully automated and currently service over 900 companies.

The Bank's Fast Collection Services (FCS) is one of its Premier Products as per which collections from 135 cities / towns are pooled at locations of corporate's choice. The Bank is able to substantially collapse the time involved in transfer of funds representing the receivables, benefiting the corporates in terms of improved liquidity, reduced interest cost, elimination of reconciliation hassles etc.

In keeping with the tradition of improving the services continuously. Corporation Bank has now introduced the Internet Banking facility for the corporate customers of CAPS. This facility will significantly change the way the Cash Management Services is currently delivered. It will impart convenience of accessing data / information round the clock on all days at the user.

- *CORP DIAL;*. Anything that saves you time nowadays must be worth its weight in fold. That's why the bank has launched tele-Banking service. Customer can check their finances and also manage money when it's most convenient to them and not necessarily during banking hours only.

Remote Access from Companies and Homes: Corporation Bank offers CorpReach, the Remote Access facility for its customers that enables the customers to bank from the comfort of your home, or even from workplace.

Corp Reach: The salient feature of the service is that remote Access is provided to the customer through computers and:

- Customer is able to get all account related information on his/her computer
- Facility to download account statement as ASCII text file
- Can leave instructions to the Bank
- */* Can view advices given by the Bank
- Authentication using Personal Identification Number

The Special services offered include, Balance Enquiry, Statement Enquiry - printing/download, Stop payment Request, Cheque Book Request, Transfer of Funds Request, Withdrawal Request, Outward Clearing Cheque Status Enquiry, Outstanding Bills Query, Deposit Interest Rate Query, Advances Scheme Details, LC Application Entry, Bills Purchase Application Entry, Deposit Application Entry etc.,

4.3.2 The Andhra Bank

Andhra Bank is one of the leading Nationalized Banks in India. Its Head Office is located at Hyderabad, Andhra Pradesh. It was established in 1923 by the illustrious leader of freedom movement, great visional}' and a Telugu man, Dr.Bhogaraju Pattabhi Sitaramayya at Machilipatnam, Krishna District, in the erstwhile Madras Presidency. The history of Andhra Bank spans over a period of more than 7 decades and the Bank has been rendering invaluable service to the customers and contributing for economic, industrial and agricultural advancement of the Nation. Starting from a humble beginning, the Bank has grown from strength to strength and made rapid strides.

The Bank is having 978 full-fledged branches, 27 Clusters and 65 extension counters, operating in 17 States and 2 Union Territories of India with a work force of 16,200 employees. The Bank has opened one Industrial Finance Branch at Hyderabad and four Specialized Small Scale Industrial Finance Branches and designated three Branches as High-Tech Agricultural Branches besides one as Auto-Tech Branch.

The total deposits of the Banks stood at Rs.18,490 crores and advances at Rs.9678 crores as on March 31, 2002 . The Bank is a pioneer in the Credit Card Business and is the only Bank having arrangements with all the three major International Organizations - Visa, MasterCard and JCB.

The Bank has its presence in core sector industries in Steel, Power, Cement and other industries like Textiles, Paper, Sugar, Drugs and Pharmaceuticals etc. The Bank participates in project finance and working capital loans both Domestic and Export-based. Substantial number of Export clientele is with the Bank.

The Bank has been making continuous efforts to improve the customer service to the satisfaction of its clients. The Bank has started special counters for "issuance of Demand Drafts and for attending to 'Senior Citizens". The Bank has also introduced 'Seven-day Banking' and 'Extended Business

Hours at selected branches'. Fast track cheque collection system is introduced initially covering 181 branches at 15 major centers.

4.3.3 Canara Bank

Canara bank was founded in 1906 as Canara Bank Hindu Permanent Fund, after that it blossomed into a limited company as Canara Bank Ltd. In 1910 and after nationalization in 1969 it became Canara Bank. Canara Bank has more than 2400 branches spread over 22 states with 13 circle offices and 32 regional offices. They have international Divisions and Foreign Departments to support NRI's.

HRD PRACTICES: From a small town Bank, started way back in 1906, today the bank has grown to become a frontline Banking Institution of India with sound foundations. The bank firmly believes that Human Resources as a most valuable asset. He employees have inherited a unique heritage of open and informal family culture. There are a series of people-building HRD initiatives. The emerging challenges of a HberaKsed economy entail a responsibility for developing motivated and knowledgeable workforce to meet the requirements.

Canara Bank has been a forerunner in establishing its own training system way back in 1950s itself. The Apex Level Training College at Bangalore ably supported by 13 Regional Centres spread over length and breadth of the country takes care of the knowledge, skill, and attitudinal development of the employees. Being proactive to the requirements of empowered workforce, the Bank also sponsors individuals to external training programmes both within and outside the country.

In order to ensure that a well-motivated workforce contributes towards the growth of the institution, our Bank has made inroads towards establishment of Quality Circle concept among its employees. The growth of this concept can be gauged by the fact that as on date, we have over 700 active quality circles. These quality circles have carved out a niche for themselves at various National and International level competitions and have returned with handsome prizes.

The bank is a socially responsive and active corporate citizen and it has undertaken several initiatives for training of Artisans in production and marketing activities, Training in Self-employment of rural women and youth, drinking water schemes in rural areas etc.,

Technology Thrust: The bank has also been adopted a progressive approach towards technology adaptation. The bank is the way of preparing IT security Policy. The bank also offers Anywhere and ATM banking facility to the customers.

Performance Highlights & Working Results :: 2001- 02

- Gross profit increased from Rs. 1131 crore for 2000-01 to Rs. **1656** crore in 2001-02, registering a healthy 46.4% growth.
- Net profit shot up to Rs.74i from Rs. 285 crore, posting an all-time high growth of 160%.
- Profitability, as measured by Return on Assets, increased from 0.43% to 1.02 %.
- Business per employee rose from Rs. 1.91 crore to Rs.2.15 crore. Profit per employee moved up from Rs.0.63 lakh to Rs.1.64 lakh.
- Capital adequacy ratio went up by two percentage points to 11.88% as compared to 9.84% as at March 2001.
- Gross NPA declined from Rs.2243 crore to Rs.2155 crore, bringing down die Gross NPA ratio from 7.80% to 6.22% during the year. Net NPA came down from Rs.1345 crore to Rs.1288 crore, reducing the Net NPA ratio from 4.84% to 3.89%.
- Global Business of the Bank rose from Rs.86902 crore to Rs.97157 crore registering a growth rate of 12%.
- Global deposits of the Bank rose to Rs.64030 crore compared to Rs.59070 crore as at March 2001.
- Advances (net) increased to Rs.33127 crore as at March 2002 vis-a-vis Rs.27832 crore as at March 2001, registering a growth rate of 19%.
- Disbursals under retail lending stood at Rs.1700 crore, taking outstanding retail loans to Rs.3075 crore.
- Priority sector advances, at Rs. 10536 crore, formed 41 % of net credit as against die stipulated norm of 40%.
- Under Kisan Credit Card Scheme 2.96 lakh cards were issued as against the target of 2.75 lakh, taking the total number of cards issued to 7.4 lakh, with a credit coverage of Rs.1633 crore.
- Foreign business turnover aggregated to Rs.59333 crore.
- Number of computerised branches rose to 1564 from 996, covering 65% of branch network and 81% of the Bank's business.
- ATM strength rose to 103 from 31.

- Bank's subsidiaries/sponsored entities recorded improved performance during the year.
- Number of branches under ISO 9001 certification went up to 122from 14.

The comparative performance analysis of the bank for the previous three financial years is as below:

Rs. in Crore

Details	1999-2000	2000-01	2001-02
Branches	2397	'2405	2409
Deposits	48001	59070	64030
Advances (Net)	23547	27832	33127
Total Number of staff	55363	48257	47796
Net profit	236	285	741

Future Plans

- Total projected business of the bank for the year 2002-03 is Rs. 1,12,000 Crore comprising of Rs. 73500 Crore deposit and advances of Rs. 38500 Crore.
- *t* ATM strength to be raised to 250 and "Anywhere banking Facility" to be extended to 300 branches by March 2003.
- Plans to launch debit card, Internet and Mobile Banking facilities
- VSAT strength to be increased to 50 and 650 branches at select centers to be connected by 2002-03.

4.3.4 State Bank of Hyderabad

State Bank of Hyderabad was constituted as Hyderabad State Bank on 8.8.1941 under Hyderabad State Bank Act, 1941. The Bank started with the unique distinction of being the central bank of the erstwhile State of Hyderabad, covering present-day Telangana region of Andhra Pradesh, Hyderabad-Karnataka of Karnataka and Marathwada of Maharashtra, to manage its currency - Osmania Sikka and public debt apart from the functions of commercial banking. The first branch of the Bank was opened at Gunfoundry, Hyderabad on 5th April, 1942.

In 1953, the Bank took over the assets and liabilities of the Hyderabad Mercantile Bank Ltd. In the same year, the Bank started conducting Government and Treasury business as agent of Reserve Bank of India. In 1956, the Bank was taken over by Reserve Bank of India as its first subsidiary and its name was changed from Hyderabad State Bank to State Bank of Hyderabad. The Bank became a

subsidiary **of the** State Bank of India on the 1st October 1959 and is now the largest Associate **Bank** of State Bank of India.

ORGANISATION: The Bank is managed by a Board of Directors. Chairman, State Bank of India, is the ex-offkio chairman of the Board which comprises experts in various fields, e.g., agriculture, business/industry, management, etc. and the representatives of Workmen/Officers Associations besides nominees of Government of India, Reserve Bank of India and State Bank of India. The Chief Executive Officer, Managing Director is appointed by the State Bank of India in consultation with the Bank's Board and with approval of the Reserve Bank of India. The management team consists of the Managing Director, Chief General Manager and five General Managers. There are separate senior functionaries to look after various functional and developmental activities.

The organisational set up is decentralised with seven Zonal Offices at Hyderabad, Secunderabad, Warangal, Vizag, Gulbarga, Aurangabad and Mumbai headed by Deputy General Managers. 25 Regional Offices attached to the zones act as controlling offices for branches.

Performance Highlights as on 31st March 2002

OPERATING PROFIT	Rs. 600.05 Cr.	RETURN ON ASSETS	% 1.02
NET PROFIT	Rs. 226.49 Cr.	RETURN ON EQUITY	% 25.73
NET NPAs	% 4.97	CAPITAL ADEQUACY	% 14.03
BUSINESS TURN OVER	Rs. 26318 Cr.	EARNING PER SHARE	Rs. 1313
CAPITAL FUNDS	Rs. 1278.46 Cr.	BOOK VALUE PER SHARE	Rs. 5788

Technology Implementation: The bank technology orientation is in consonance with the other members of the State Bank Group, which have been steadily and aggressively moving towards technology adaptation and providing of techno-banking services such as ATMs, Internet banking facility etc., to the customers.

4.3.5 State Bank of Bikaner and Jaipur

State Bank of Bikaner and Jaipur, a professionally managed Public Sector Bank with a track record of uninterrupted profitability and dividend payment (except one year) since its inception in 1963, came into existence after amalgamation of the erstwhile State Bank of Jaipur with State Bank of Bikaner, as a subsidiary of State Bank of India.

The Bank took over the business of 'the Govind Bank Pvt. Ltd.' on 25th April, 1966. Bank's main area of operation is Rajasthan with presence in almost all-important banking centres in the country.

Out of total 6 zones of the Bank, 2 zones viz Delhi and Mumbai are located outside Rajasthan. The other 4 zones are Bikaner, Jaipur, Jodhpur and Udaipur. The Bank, through these 6 Zonal offices and its 802 branches including 8 service branches (139 outside Rajasthan in 18 states) caters to all banking needs of the people. The Bank, a member of premier State Bank Group, extends its reach to almost every part of the Globe, through agency arrangements with its correspondent banks.

The Bank commands nearly 30% business of all scheduled commercial bank's business in Rajasthan. Over the years, the Bank expanded rapidly. Bank's business crossed Rs.10000 crore mark during 1997-98. Bank's maiden public issue of Rs. 73.44 crores was oversubscribed by 3.83 times in Dec. 97 and the Bank was awarded autonomy by the Govt. of India in the same financial year. The total business of the Bank has crossed 17,500 crore Rupees as on 31-03-2002.

Thrust Areas: The Bank is giving thrust on fee-based income and relatively safe high yielding advances like Trade advances, Personal segment advances and Agricultural advances. The Bank provides Demat Services and Trusteeship for debenture holders to increase its fee-based income. The Bank is planning to introduce Cash Management Services, for the benefit of corporate customers.

The Bank is giving high priority for adoption of modern technology to provide efficient and prompt customer service. The Bank has 287 computerised branches covering more than 73% of its business. The Bank has installed 25 ATMs and proposes to start 75 more ATMs by march 2003. The Bank has prepared an action plan to Network various departments at Head Office and Zonal offices and connect important branches in Delhi, Mumbai and Jaipur through VSATs.

4.3.6 Punjab National Bank

The bank was established in 1895 at Lahore, undivided India, Punjab National Bank (PNB) has the distinction of being the first bank to have been started solely with Indian capital. From its modest beginning, the bank has grown in size and stature to become a front-line banking institution in India at present.

The bank has its presence in virtually in all the important centres of the country and offers a wide variety of banking services, which include corporate and personal banking, industrial finance, agricultural finance, financing of trade and international banking. The clients of the bank include, multinational companies, Indian conglomerates, medium and small industrial units, exporters and

non-resident Indians. The large presence and vast resource base have helped the bank to build strong links with trade and industry. At the same time, the bank has been conscious of its social responsibilities by financing agriculture and allied activities and small-scale industries (SSI). Considering the importance of small-scale industries bank has established 16 specialised branches to finance exclusively such industries. The Bank is a member of the SWIFT and 75 branches of the bank are connected through its computer-based terminal at Bombay. The Bank also maintain accounts in 13 currencies. With its state-of-art dealing rooms and well-trained dealers, the bank offers efficient forex dealing operations in India.

Keeping with its tradition of excellence in customer sendee PNB has adopted a quality movement "Alliance with Quality". Under this as many as 364 offices of the bank have been awarded the coveted ISO 9002 certification. The bank is committed to maintaining the highest standards of service and will be covering more offices under this quality movement

At the end of March 2002,the bank had 3857 branches and 411 extension counters spread throughout the country, die largest amongest the nationalised banks. Besides, the bank has set up 2 Large Corporate Branches (LCBs), 4 Mid Corporate Branches (MCBs), 14 SSI financing branches,ll International Banking Branches, 2 hi-tech agricultural finance branches and one each for industrial finance and non-residents. The achievements and select highlights of the bank at the end of the last fiscal year are as under:

- Achieved a Net Profit of Rs.562.39 **crore** at the end of March 2002 as compared to Rs 463.64 crore at the end of March 2001 registering a growth of 21.3%. and thus registering a registering a growdi of 56%.
- Gross Profit of the bank improved to Rs.1474 crore including Rs. 438 crore from treasury operations, at the end of March 2002 compared to Rs. 945 crore in the previous year, registering a growth of 56%.
- The Bank's Capital and Reserves increased to Rs. 3216 crore as on 31.3.2002 as against Rs.2669 crore on 31.3.2001. Bank's Capital to Risk Asset Ratio (CRAR) improved to 10.70% at the end of March 2002 from 10.24% at the end of March 2001.
- Total Business increased from Rs.84160 crore in March 2001 to Rs. 98492 crore in March 2002, registering a growth of 17 percent.
- Total deposits of the Bank amounted to Rs.64, 123 cores at the end of March 2002 as compared to Rest. 56,131 core in March 2001 registering a growth of 14.2%. The low cost

deposits comprising savings and current deposits formed 44.3% of total deposits at the end of March 2002.

- Total Advances increased by 22.6% from Rs.28,029 crore at the end of March 2001 to Rs. 34,369 crore at the end of March 2002. Disbursals under the retail lending increased to Rs. 3,074 crore at the end of March 2002 from 1,655 crore in previous year, a growth of 86%. 'PNB Privilege Card[1] was also launched as a pre-approved personal loan. Education Loan Scheme was fine tuned and credit assistance of Rs. 135.31 crore to 7542 students was provided during the year for pursuing study in India and abroad.
- Priority Sector (PS) Credit at Rs.15,179 crore formed 45.5 percent of Net Credit, surpassing the national goal of 40 per cent.
- The bank established 'PNB Centenary Rural Development Trust[1]. The Trust runs a training centre for providing training for self employment to rural youth at Village Dhudike(Moga,Punjab) and has also established a 'Soil Testing Centre' and 'Artificial Insemination Centre' for the benefit of farmers at Village Matki Jharoli (Sharanpur,UP)
- Ratio of net NPAs to net advances declined to 5.32 percent from 6.69 percent at the end of March 2001.
- The bank provided export credit to the tune of Rs.3,013 crore during the year 2001-02.
- Total income during the year rose to Rs. 7626 crore from Rs. 6642 crore in March 2001 registering a growth of 14.8%.
- Total Expenses at Rs. 6154 crore have registered a growth of 8.02% during the year.
- Staff productivity measured in terms of business per employee rose to Rs. 1.68 crore from Rest. 1.42 core at the end of March 2001.
- PNB came out with an IPO in the end of March 2002 and raised Rs.164.49 core. The issue received overwhelming response from the investors and was oversubscribed 4.23 times.
- In its endeavour to become a universal bank, the bank introduced the Gold Import Scheme in the beginning of September 2000, which has received an encouraging response.
- The bank launched the PNB International Credit Card, which is co-branded with Hongkong and Shanghai Banking Corporation (HSBC). The cards are being issued under VISA/Master Card franchise with Gold and Classic variants.
- *IT Strategy*. Recogniżing that technology is emerging as a key-driver of business, the bank has been gradually increasing its investments in information technology. As part of its IT strategy, the bank has been focusing on computerization of operations and provision of technology based banking solutions. At the end of March 2002, the bank has effected computerization in 2395 branches. This has enabled it to capture more than 79% of its

business through computerization. Towards **providing alternate channels** of service delivery, the bank has installed 165 ATM facilities, while Telebanking services and Remote Access facilities are provided in 115 offices and 44 offices respectively. PNB was the first bank in the country to provide Electronic Data Interchange (EDI) through which payment of customs duty and receipt of duty drawback is facilitated through electronic media. To facilitate faster collection of instruments, a Cash Management Sendee is provided in 82 centres for retail customers and 44 centres for corporate clients. As a medium term strategy, the bank is implementing Centralised Banking Solutions (CBS) by establishing connectivity between 1500-2000 branches. This will enable the bank to offer "Any time, Any where" banking. The bank will be entering Internet banking once the CBS is implemented. PNB is the first bank to implement the Bilingual Total Automation and the system was implemented in 18 branches during the year.

4.3.7 Bank of Maharastra

The bank commenced its operations in the year 1936 and its deposits base crossed 10 million mark in 1944. The bank was nationalized in the year 1961 and it had opened its 200th branch in 1970, while the depsoits had crossedl billion mark in 1981. The bank has celebrated its Diamond jubilee in 1996.

IT Efforts : The bank in its efforts for total computerisation Bank has:

- Computerised 502 branches
- Installed ATMs at 38 locations
- Introduced telebanking at more than 89 centres.

Bank of Maharashtra has an ambitious target of providing computerized services at its branches. The Bank has an ambitious outlay of over Rs.l billion for computerization of branches while entering the new millennium.

Future Plans: The bank has progressed by leaps and bounds in the Information Technology sector. Reflection of the same is also clearly evident in its future plans. For the year 2002-2003 the Bank has planned:

- To use its Information Technology Training Institute for creating an army of IT savvy personnel. (Information Technology Training Institute already established in Pune and fully functional since 22.05.2000)

- To establish inter-branch connectivity at selected centers like Pune, Mumbai, Delhi, Kolkatta, Chennai, Bangalore and Hyderabad. In second phase, inter-city connectivity will be established.
- To extend Tele-Banking in total 100 branches in Mumbai, Delhi, Kolkatta, Chennai, Bangalore, Hyderabad, Aurangabad and Nagpur and Pune.
- To establish " Touch Screen " query terminals at 88 branches in various cities.
- The bank has already initiated steps for implementation of the SFMS initially at 3 cities i.e. Mumbai, Pune and Hyderabad. The SFMS will provide messaging solution for inter-bank and intra-bank transactions across die country on the lines of SWIFT.
- 262 additional ATMs would to be installed all over India taking the total to 300.
- The implementation of the Rural Branch Mechanization Project will commence in the year 2002-2003 after which the comprehensive data relating to bank's business will be captured on the computers. This will help the Bank to take informed decisions including effective assets liability management.
- To ensure 25 % growth in business so as to achieve the dream of "doubling the business within three years".
- To increase it's Net Profit, more particularly non-interest income as of March 2003.
- To attack hard core Non Performing Assets with systematic approach for, bringing down the gross level of NPAs.
- 25 branches will be opened at strategic business centers.
- To increase the customer base by more thanl4%

Performance Highlights (2001-02):

- Net profit for the year 2001-2002 showed a rise of 221.77% and reached a level of Rs.1454.15 million, as against 451.94 million of the previous year. Operating profit of 4150.40 million showed a growth of 72.95%.
- Deposits reached a level of Rs. 191306.33 million registering a rise of 12.37%.
- Net credit reached a level of Rs. 82551.22 million showing a rise of 23.72%.
- Per employee business as on 31.03.2002 is registered at Rs. 19.14 million.
- 100% of its investments marked to market as on 31.03.2000.
- Export credit outstanding as on 31.03.2002 at Rs.5374.10 million.
- A wide network of 1222 branches all over India.
- 502 computerised branches.
- Seven days working at its 28 strategic branches.

- Telebanking at 89 branches and query terminal at 29 branches

4.3.8 Central Bank Of India

Established in 1911, Central Bank of India was the first Indian commercial bank, which was wholly owned and managed by Indians. During the past 90 years of history the Bank has weathered many storms and faced many challenges. The Bank Successfully transformed every threat into business opportunity and excelled over its peers in the Banking industry. A number of innovative and unique banking activities have been launched by Central Bank of India and a brief mention of some of its pioneering services are as under:

- 1921: Introduction to the Home Savings Safe Deposit Scheme to build saving/thrift habits in all sections of the society.
- 1924: An Exclusive Ladies Department to cater to the Bank's women clientele.
- 1926: Safe Deposit Locker facility and Rupee Travellers' Cheques.
- 1929: Setting up of the Executor and Trustee Department.
- 1932: Deposit Insurance Benefit Scheme.
- 1962: Recurring Deposit Scheme.

Subsequently, even after the nationalization of the Bank in the year 1969, Central Bank continued to introduce a number of innovative banking services as under:

- 1976: The Merchant Banking Cell was established.
- 1980: Centralcard, the credit card of the Bank was introduced.
- 1986: 'Plantinum Jubilee Money Back Deposit Scheme' was launched.
- 1989: The housing subsidiary Cent Bank Home Finance Ltd. was started with its headquarters at Bhopal in Madhya Pradesh.
- 1994: Quick Cheque Collection Service (QCC) & Express Service was set up to enable speedy collection of outstation cheques.

Among the Public Sector Banks, Central Bank of India can be truly described as an All India Bank, due to distribution of its large network in 27 out of 28 States as also in 4 out of 7 Union Territories in India. Central Bank of India holds a very prominent place among the Public Sector Banks on account of its network of 3114 branches and 281 extension counters at various centres throughout the length and breadth of the country

Details and Performance High lights (2001-02^

- Net Profit up by 251% from Rs.46.46 crores as on March 2001 to Rs.163.30 crores as on March 2002.
- Total Business increased to above Rs.70000 crores registering growth of 13.38%.
- Net NPA as a percentage to Net Advances declined to 7.98% as compared to 9.72% in the previous year.
- Business Per Employee increased by 35% from Rs. 110.38 lakhs as on March 2001 to Rs.148.77 lakhs as on March 2002.
- 78% of the Bank's business brought under computerization through 1221 computerized branches

4.3.9 Dena Bank

The bank's mission is to be identified and recognized as a dynamic, modern bank with enduring age-old values. It aims to be a bank that provides exemplary customer services backed by professional competence and the latest technology.

Dena Bank was founded on 26th May, 1938 by the family of Devkaran Nanjee under the name Devkaran Nanjee Banking Company Ltd. It became a Public Ltd. Company in December 1939 and later the name was changed to Dena Bank Ltd. In July 1969 Dena Bank Ltd.

Bank's Motto

'To be identified and recognised

- as a dynamic, modern bank with enduring age old values.

- as a bank that provides exemplary customer service backed by professional competence, latest technology and systems"

Some of the milestone developments are:

- One of the few Banks to receive the World Bank loan for technological upgradation and training.
- Introduced Tele banking facility of selected metropolitan centers
- Dena Bank has been the first bank to introduce
- Minor Savings Scheme
- Credit card in rural India known as "DENA KRISHI SAKH PATRA"(DKSP)
- Drive-in ATM counter of Juhu, Mumbai
- Smart card at selected branches in Mumbai

l Customer rating system for rating the Bank Services

Performance Highlights in 2001 - 02

- The Bank's total business has crossed Rs. 23600 crores
- The Bank's investment portfolio has grown by 12.15%
- Operating expenses have been reduced substantially by Rs. 119.50 crores
- Over 79% of the Bank's business has been brought under the umbrella of computerization
- Dependance on high cost deposits was further reduced by 39.36 %
- Cost of deposits has been reduced by 51 basis points
- Gross advances has grown by 3.03 %
- Non interest income has increased by 77.30 %
- Growth in NPA was contained at 3.51%
- Ratio of net NPA to Net Advances was reduced from 18.37 % to 16.24 %
- Share of priority sector advances has further gone up by 44.05 %
- Per branch business has increased from Rs. 18.36 crores to Rs. 20.82 crores
- Per employee business has further increased to Rs. 2.21 crores

IT Initiatives of the Bank

The bank has undertaken several I.T initiatives to improve the sendees. Over 79% of the Bank's business has been brought under computerization with 82 branches computerized during the current year(2002-03). As of now, around 175 branches offer Multi Branch Banking services and 8 branches are providing Cash Management Sendees. Nearly 95% of the bank's Metro / Urban branches have been computerized.

4.3.10 Vijaya Bank

For over 69 years, the bank has been endeavoring to provide you efficient and friendly banking semces - tuning into your needs, and constantly performing to your satisfaction.

Vijaya Bank has performed creditably during the year 2001-02. The year has been the most profitable year for the Bank since its inception in 1931. The highlights of the Bank's performance are given below:

Financial Highlights (2001-02)

- Net Profit crossed the Rs.100 Crore mark and amounted to Rs.130.90 Crore for the year 2001-02, as against Rs.70.73 Crore in 2000-01, recording 85.1% increase

- Gross Profit [profit before Provisions & Contingencies] amounted to Rs.252.51 Crore as compared to Rs. 178.48 Crore in 2000-01, recording 41.5% increase
- Return on Assets improved to 0.86% from 0.53%.
- Return on Net worth improved to 21.98% from 13.44%.
- Earning per share improved to Rs.3.65 from Rs.2.48.
- Total Income increased to Rs.1727.33 Crore, from Rs.1512.45 Crore recording 14.2% increase. Non-interest income recorded 20.8% growth.
- Operating Expenses declined to Rs.421.63 Crore, from Rs.438.13 Crore mainly due to decline in staff cost to Rs.305.92 Crore from Rs.330.42 Crore.
- Total deposits increase to Rs.14681 Crore, from Rs.12632 Crore recording 16.2% increase, as against 9% in 2000-01.
- Average aggregate deposits recorded an increase of 17.9%, as against 13.7% in 2000-01.
- Growth rates at 16.2% and 17.9% were higher than the corresponding growth rates of 14.3% and 17.6% recorded by Scheduled Commercial Banks in 2001-02.

Organizational Restructuring

- Head Office set-up was restructured by merging / closing certain departments.
- Regional Offices were restructured by merging 9 Regional Offices thereby reducing the number of Regional Offices to 14 from 23.
- Branch network was rationalized by merging 16 branches with nearby branches.

IT Initiatives

- The coverage of computerized branches in total business improved to 76.7% from 72.6%
- Single Window concept is introduced at 167 fully computerized branches
- 347 branches / offices have been connected through I-Net.

Human Resources Performance

- Staff strength reduced to 11,827 from 13,471
- Staff productivity [average business per employee] improved to Rs.1.69 Crore, from Rs.1.23 Crore, a rise of 37.4%.

Action Plans for 2002-03

- To increase the total business to Rs.25000 Crore, compared to Rs.21000 Crore in March, **2002.**

- To disburse over Rs.lOOO Crore under different retail lending schemes
- To computerize 110 branches and to enhance the business coverage **through** computerization to 82%; to install 50 ATMs
- To implement Core Banking and Internet Banking at select branches.
- To commence Depository Sendees and to provide Bancassurance Services at select branches.

4.3.11 Allahabad Bank

- Oldest Public Sector Bank in India having branches all over India and serving the customers for the last 136 years.
- Offers wide ranging attractive Deposit Schemes to the Non-Resident Indians.
- Tradition of trust towards its customers and customer-oriented employees renders efficient services.

Details of Financial Performance

Highlights			(Rs. in crores)
	March, 2002	**March, 2001**	March, 2000
Deposits	22665.94	20106.02	17642.10
Total Expenses	2249.77	2044.35	1850.00
Operating Profit	407.98	266.00	252.51
Provisions	327.77	226.09	183.18
Net Profit	80.21	39.91	69.93
Spread	730.47	684.79	564.22
Average growth over previous year			
a. Deposits	0.15	0.12	0.16
b. Advances	0.12	0.22	0.17
c. Investments	0.18	0.04	0.17

IT Initiatives

The bank has already been providing ATM services to its customers and is planning to undertake a major restructuring exercise after receipt of IT Consultancy report and recommendations from its consultant.

4.3.12 Oriental Bank of Commerce

The bank was established in Lahore on 19th February 1943 and made a modest beginning under its Founding Father, Late Rai Bahadur Lala Sohan Lai, the first Chairman of the Bank. Within four years of coming into existence, the Bank had to face the holocaust of partition. The business figures for the last five years are as under:

Rupees in Lakhs

FOR THE YEAR	1996-97	1997-98	1998-99	1999-2000	2000-2001
Total Income	135493	159649	204641	267943	302645
Total expenditure	117468	138649	181629	240081	282356
Net Profit for die year	18025	21000	23012	27862	20288
AT THE END OF	MAR 1997	MAR 1998	MAR 1999	MAR 2000	MAR 2001
Deposits	1005406	1305802	1680488	2209521	2468043
Advances	488642	631846	770756	932553	1107641
JTotal Assets	1155899	1478152	1878416	2454120	2707243
No. of branches	755	841	899	915	932
No. of employees	13580	14238	14447	14398	13588

The customers of die Bank are given the best of attention and this is why they have stayed on and have till today found reminiscences of their dealings with OBC. Because OBC seeks customer satisfaction as foremost, the National Institute of Bank Management (NIBM), Pune in an evaluation study on customer service in OBC, rated the Bank as "Customer Friendly" Bank.

Projects - A Handful of Success

The Bank has launched several projects aimed people's participation in die planning process at grass root level essentially to tackle the maladies of poverty. The various Grameen projects/Initiatives are:

- Implementing a GRAMEEN PROJECT in Dehradun District (UP) and Hanumangarh District (Raiasdian), formulated on the pattern of the Bangladesh Grameen Bank.

- The Bank is engaged in providing training to rural folk in using locally available raw material to produce pickles, jams etc.

Performance Highlight and Achievements (As on March 31, 2002)

- Amongst the strongest banks in India Capital & Reserves of the Bank stood at Rs. 1549 crores - Placing OBC in one among the strongest Public Sector banks in India.
- The bank has High Capital Adequacy Ratio of 11.81% as on 31st March 2001 as against a norm of 9% prescribed by Reserve Bank of India.
- The Bank has consistendy made profits for over two decades. For the year, 2000-01, the operating profit of the Bank was Rs.534.10 Crores - one of die best among the public sector banks.
- National Institute of Bank Management, Pune, in an evaluation study on customer service in OBC, rated the Bank as a "Customer Friendly Bank". Reserve Bank of India, on the basis of the NIBM findings, rated customer service in Oriental Bank as "Good".
- The maximum Spread over Prime Lending Rate fixed by OBC at 3.5% is among the lowest in Banking Industry.
- The Bank has achieved Rs.24680 crores in Deposits and the total working stood at over Rs.35700 crores joining the big league in die Banking Industry.
- 'P1+' for Certificate of Deposits Programme. 'FAAA' for Fixed Deposit Programme accorded by CRISIL - a prominent Credit Rating Agency.
- The productivity per employee stood at Rs.2.63 crore, one of the highest among the Public Sector Banks.
- Non-performing assets at 3.60% are one of the lowest in the banking industry

4.3.13 Indian Overseas Bank

Shri M.Ct.M. Chidambaram Chettyar, a forerunner in the areas of Banking, Insurance and Industry established the Indian Overseas Bank on February 10, 1937. By the year 1947, IOB had increased their domestic and international coverage, widi 38 branches in India and 7 branches overseas. The Deposits and Advances at that period were Rs.6.64 Crores and Rs.3.23 Crores respectively.

Post-nationalization Period (1969-92)

- During this period IOB made considerable progress, with the opening of more branches, domestically and internationally.

- The United Asian Bank Berhad in which IOB held 16.67% of the paid up capital, was setup in 1973 as a result of the Banking law in Malaysia, which prohibited foreign government banks from operating in the country
- To facilitate the take over of IOB's branch at Bangkok in Thailand, the Bharat Overseas Bank Ltd was created in India in 1973 with 30% equity participation from IOB
- IOB expanded its global operations by opening a Foreign Currency Banking Unit in the free trade zone in Colombo and a branch in Seoul
- Apart from sponsoring 3 Regional Rural Banks - Puri Gramya Bank, Pandyan Grama Bank, Dhenkanal Gramya Bank, IOB also created a department entirely dedicated to the computerization of the Bank
- With the main objective of independently developing software packages and for the purpose of training their staff in this field, IOB setup the Computer Policy and Planning Department (CPPD).

Technology Upgradation

IOB has always striven to keep pace and stay updated with the latest in technology. As of March 2001, IOB has...

- Computerized 798 branches accounting for 56% of their branches, 424 partially and 374 branches entirely
- 30 Automated Teller machines (ATM) are in-operation
- 10 centres linked under Any Branch Banking (ABB) covering 184 branches
- A STAR service that was initiated in December 1999 with the objective of ensuring the speedy processing of outstation cheques. At present IOB has 14 STARs and one controlling center for this service
- In September 1999, IOB had the distinction of being the first Bank in the industry to be awarded with ISO 9001 Certification. Det Norske Veritas (DNV), Netherlands in recognition of IOB's Computer Policy and Planning Department, presents the certificate. It includes the Design, Development, Implementation and Maintenance of software developed independently by IOB, acquisition and supply of hardware and execution of turnkey projects.
- In another move towards total computerization, the Central Office is now connected with all Regional Offices using IOBNET, which was developed almost entirely inhouse
- The Bank has finalised an e-commerce strategy and has developed the necessary internet banking modules in-house

Financial Performance

Global deposits of Rs.27,414 crore and global gross advances of Rs.13,096 crore. **The** net profit after provisions and contingencies amounted to Rs.115.93 crore against Rs.40.34 crore in 1999-2000

4.4 Private Sector Study

4.4.1 The Global Trust Bank

A team of professionals established the bank led by Shri Ramesh Gelli, the former Chairman of Vysya Bank. It was started with the mission "To be a Modern and a Model Bank" and its vision is:

- Build the Business and the Institution
- Create Shareholder Value
- Grow Profitably
- Develop a Complete Financial Services Organization
- Foster a Caring and Sensitive Organization

Technology Driven Focus: Technology is a key differentiator between a successful bank and another. Therefore technology driven products, technology supported convenience and technology based access is the focus of Global Trust Bank.

Software development and IT enabling of critical areas such as Asset Liability Management, Fixed Asset Reporting and Management System are few of the ongoing initiatives. The bank has in-house capabilities to develop Software comparable to any professional IT services provider.

This emphasis on technology has led the Bank's concerted forays into Internet banking in addition to Automated Teller Machines and Phone Banking. With ibank@gtb, the Internet banking capability, customers can bank from home just by clicking away while the ATMs bring in the convenience of round the clock banking. The Banks telecommunication network is one of the best deployed in the country. Today a customer can access Global Trust Bank from anywhere in the world, anytime.

Technology Focus of GTB: The bank has been focusing on IT to achieve its goal of becoming a 'modern and model bank'. It believes that the key differentiator between a successful bank and any other bank is the stress each lays on technology. Therefore it began to focus on technology driven products along with technology-supported convenience and access. Its President, P. C. Narayan,

says that "There is a belief across the entire organization, right from the Chairman and board of directors down to the junior-most employee, that good technology is a pre-requisite for banks of the future. This belief is reflected in all spheres and as a part of its plans to consolidate its operations by focusing on growing retail assets as strategic business units, enhance its exposure in the area of micro credit besides upgrading its technology infrastructure, it has undertaken to increase the number of ATMs.

It believes that Internet will soon evolve as a significant delivery channel and have therefore established a strong presence in this space through in Internet Banking and Bill Payment facilities. Using the ibank@gtb, customers can bank from home at the click of a button. The Internet Banking infrastructure, located in the data centre, is fully secured using Firewalls from Check Point and other security features such as 128 bit encryption, digital certificates etc. The bank did not make investments in this sector on the basis of pay back. It foresaw the Net becoming a significant part of emerging delivery channels and therefore decided to leverage it to increase customer satisfaction." To build it's IT infrastructure, GTB uses hardware from Compaq Computer with application software from Infosys Technologies, Bangalore. Microsoft Web servers and related operating systems.

According to Shri Narayan, "The benefits of IT are all pervading in the organization". It is reflected in the fact that all transactions are processed in real time i.e. customer accounts are debited in real time no matter from where in the country the transaction originates, be it at a branch, an ATM or the Internet. Furthermore, IT has facilitated a very efficient and effective banking operation thereby resulting in a very high level of customer service, which is available 24 X 7,365 days in a year.

To date, the bank has invested somewhere around Rest. 40 crore on developing its IT infrastructure, with Rs.150 lakh of that being spent on its Net banking initiatives. Banking on these technology upgrades, and it plans to consolidate and increase the number of branches in the country. A large number of Techno - Banking Products offered by the bank and some of them are:

- E-Payments: The Internet Banking facility of Global Trust Bank, ibank@gtb offers a payment facility called ipay@gtb onsite or a payment facility linked with any other merchant's website serving as a payment gateway. The bank offers this facility to any payment-related agency such as Online Shopping Malls, Stock/Securities Trading Agency or a Utility Service Provider.

- **DEMAT Services:** The advent of automated trading brought with it several associated benefits such as transparency in trading and equal opportunity for market players all over the country; the problems related to settlement of trades such as high instances of bad deliveries and long settlement cycles have continued. As an answer to the myriad settlement problems, National Securities Depositor}' Ltd. (NSDL) was inaugurated in November 1996 as the first depository in the countr}'. The introduction of scrip less holding and transaction of securities provides various benefits to investors viz.,
    - ^ Elimination of bad deliveries such as signature mismatches, invalid transfer deeds, etc.
    - ^ Elimination of all risks associated with physical certificates, such as loss, theft, mutilation, etc.
    - ^ Advantage The Global Trust to the customer include, Operations fully done on the plank of technology, Operating from multiple locations in the country.

4.4.2. The ING Vysya Bank

Vysya Bank was incorporated in the year 1930. Bangalore has a pride of place for having the first branch inception in the year 1934. With successive years of patronage and constantly setting new standards in banking, Vysya Bank has many credits to its account. Given below are milestones, reflecting the upward growth of this institution:-

- **Operations of the Bank:** The bank has 11 regional offices, which are controlling 484 branches spread across the length and breadth of the country. The total business, comprising Deposits and Advances, increased to Rs. 12457 crore from Rs.11362 crore during the year ended March 31, 2001 registering an increase of 9.64%. The deposits of the Bank recorded a growth of 9.66% and were at Rs. 8141 crore. The focus on increasing the low cost deposits continued to yield favorable results with increase in savings bank .The Bank's advances increased from Rs. 3938 crore to Rs. 4316 crore as on31st March, 2001, recording a growth of 9.6%. The average advances during the year increased from Rs. 3103 crore to Rs. 3759 crore registering a significant growth of 21.1%.

  The ongoing restructuring and reorganization of the Bank's business by setting up Strategic Business Units lays considerable emphasis on enhancing the assets portfolio. In keeping with this, the sales and marketing functions have been organized under five Strategic Business Units viz., Corporate, Commercial, Retail, Rural Credit and Treasury. A separate Department looks after credit risk functions while Loan Review Department undertakes post sanction

review and monitoring. The strategy of leveraging its customer base and brand image to distribute third party financial products yielded favorable results which was evidenced by sales of mutual fund units to the extent of Rs. 150 crore during the year.

- HR **Matters:** The industrial relations were cordial and peaceful throughout the year. Core competence development programmes in areas like Credit and Marketing apart from Modular Training Programmes for the staff at various Branches /Regions was conducted.
- **The IT Banking Initiatives 'Self Bank[5]:** The Bank has integrated its 'Self Bank' ATMs at Bangalore, Hyderabad and Chennai through a centrali2ed ATM switch network established at Bangalore. This enables die Bank to offer inter-city/intra-city ATM services to the customers. The number of ATMs increased from 5 to 8 during the year under review. The ATM network is across the country would be hooked on to this scalable network.
- **Branch Computerization:** As on March 31, 2001, the number of Totally Computerized Branches and Partially Computerized Branches went upto 79 and 251 from 76 and 215 respectively. During the year 2000-01, the Bank launched 'VysyAMulya' Project, envisaging an investment of about Rs. 60 Crore spread over two years and involving setting up of a Data Centre and networking of branches for an on line real-time Centralized Processing through Sanchez's Core Banking solution — 'PROFILE Anywhere to offer AAA (Anytime, Anywhere and Anyhow) Banking.' The Data Center of VysyAMulya Project at ITPL, Bangalore, is fully operational at Eight branches spread across Bangalore, Hyderabad, Chennai and Mumbai which are hooked till date to the new Centralised Core Banking Solution platform. The Bank expects to roll out 16 branches per month shordy and achieve the set target of 225 oudets comprising l31Branches, 74 Extension Counters, 8 Regional Collection Centres, 11 Regional Offices and Corporate Office.
- **Change Management:** The Bank, realizing the need to provide architecture for gradual change, with the customer as the focus and improved operational efficiency as the objective, has identified the key areas, which require further toning up viz., Policies, Practices and Systems apart from Human Resources that exist within the organization. As a part of the on going process of restructuring including establishment of Strategic Business Units, an Integrated Change Management approach has been adopted as a means to reach the customer with greater care and attention. Towards this direction, a competency profiling process was undertaken with the help of M/s. Eicher Consultancy Services and initially, 699 Officers of the Bank were subjected to diis process. Further, systematic and structured training programmes are being offered for the staff for assimilating the new technology and work culture in moving towards centralized on-line processing system.

- **Subsidiaries/Other Operations:** The bank has two subsidiaries of the Bank viz., The Vysya Bank Leasing Limited and Vysya Bank Housing Finance Limited. The Bank along with ING Group, a world renowned conglomerate in banking and insurance and second largest in the world in insurance business, promoted a joint venture company called 'ING Vysya Life Insurance Company Private Limited' for undertaking life insurance business throughout India.

- **Technology Products:**

  - **VysSwift:** Cutting distance, electronically, VysSwift Collection Service, is a dynamic facility, providing **quick, efficient, assured fiscal support across the country.** A service that uses high-end technology, for companies, dealing in high volumes of out station cheques. The service is available from over 275 locations in the country. It provides Customized pooling data flow of funds, as per Company's need Funds can be transferred to any Vysya Bank location in the country with "Same day" access.
  - **Electronic Clearing Services (Credit Clearing)** : The bank will sponsor payments of dividend, interest through ECS in Mumbai, New Delhi, Calcutta, Chennai, Bangalore, Hyderabad, Ahmedabad & Poona and in other centres, when covered by the services The companies, that have periodical/large volume payments to fixed group of investors/beneficiaries, will find ECS (credit clearing) can derive benefit from this service.

4.4.3 Jammu and Kashmir Bank

The J&K Bank Ltd. incorporated on October 1st, 1938 commenced business on July 4th, 1939. From a small beginning the bank has grown to become a giant with a network of 441 branches spread over the length and breadth of the country. A significant contributing factor for this fast growth is the solid founding principles, which are dedicated to the cause of transforming the Bank not only as a financial heart but also the social heart of the community.

Technology Upgradation: The bank has been swift in responding to the need for technology adaptation in meeting its commitment to the customers and offers the best of services and a wide range of products. The bank is investing in a big way in information technology; Installation of ATMs at important centres; introduction of EFT and E-Mail services.The number of computerised branches of the bank has risen to 246 as on March 2001, which accounts for 80 per cent of total bank business. The tele-banking facilities are available at 23 branches with such services being extended to 65 branches in the near future. The Anywhere banking facility available at 23 branches

shall be raised to 65 soon. The Bank is in the process of connecting its branches through VSAT and lease lines from the existing 23 to 85. The number of ATMs which is most convenient system of extending 24 hour banking facility is 23. ATMs at six locations are having 1ST Switch connectivity. Once the Data centre is completed the bank would be the first to introduce the Internet Banking in the J&K State. A new concept of customer facility Touch Screen kiosks shall be installed at 65 branches of the bank.

The landmark achievements of the bank in some important fields of operation since its inception to March 1999 are detailed below: -

- **Deposits:** The bank performed commendably during the year by registering the growth rate of 26.40% against the national average of 16.1%.
- **Credit Dispensation:** During the last two years the advances registered an emphatic growth and were recorded at Rs.4763 Crores as on 31.03.2001.
- **Investments:** The total investments in Govt. and other approved securities, bonds debentures were to the tune of Rs.792 Crores as on 31.03.1995. During the last few years bank's investments portfolio grew at amazing pace as investments of the bank stood at Rs.5425 Crores.
- **Profitability:** The Bank recorded a net profit of Rs.168 crore for the financial year 2000-01 registering an increase of 39.44% over the last year figure of Rs.120.17 crores. The Bank's total income at Rs.l 157.28 crores for 2000-01 recorded a growth of 16.93% over the previous year figure of Rs.989.72 crores.
- **IT Implementation:** The IT application to the banking operations to offer value added services/products to the customers received major fillip with the introduction of 1ST Switch at Delhi which has networked ATMs of the bank installed at various centres. As a consequence the ATM Card Holders are able to access any ATM of the bank with the same card. To further add value to the bank's ATM card the bank has entered also agreement with the Master Card International- the leader in debt card arena to launch Maestro Deposit Access Programme in collaboration with them. With this the bank's ATM Card Holders will be able to purchase goods and services at all Maestro acceptance locations in India and Overseas and will also be able to withdraw cash globally through the MasterCard Maestro/Cirrus network of 2100 ATMs in the country and 6.75 lakh ATMs worldwide.
- **Total Business:** Total business of the bank for the year touched an all time high of Rs. 19335 crores registering a growth of 21% over the last year figure of Rs.15930 crores. The Deposit portfolio of the bank has increased by 16% to Rs. 12911.11 crores as on March

2002 from Rs. 11,168 crores of March 2001, against national average growth of 14%. Despite sluggish credit growth of 12.8% at national level the aggregate Advances of the bank have recorded an impressive growth of 35% to Rs. 6423.89 crores as on March 2002 from Rs.4763 crores of March end 2001. Area of the Technology application in the Bank's operations continued to remain the thrust Bank's policy and today 50% of our branches are fully computerized constituting more than 80% of the Bank's business. The bank has started various technology driven services like Tele/Banking, Anywhere Banking, and networking of ATMs at several branches/locations. The networking of computerized branches, which is presently in progress, will further enable the Bank to make available these services at other computerized branches soon. The centralized data centers of the bank shall also be in position during the current year. With its accomplishment the data warehousing, data mining will become possible which would facilitate the Internet banking service.

Development of human resources to cope up with the rapidly changing banking scenario has been the focus of HRD policy. As the quality of human resources indicates the ability of the bank to deliver value to its customers, foremost attention is being given to development of skill, and knowledge of personnel of the bank. The bank lays prime emphasis on integrating HRM strategies with business strategies. HRM strategies of the bank include managing change, creating commitment, achieving flexibility and improving teamwork. To achieve excellence in this critical area, 2103 staff members (1363 officers, 717 clerks, 23 subordinates) were trained at Bank's Staff Training Colleges Srinagar/Jammu and other Institutes of repute within and outside the country in banking, economic and I.T. related fields.

The bank's performance during the last few years, transformed the bank, which was very little known to develop a strong brand image on the banking map of the country. To take the growth further and also consolidate die bank its position the bank has drawn up a road map in the shape of Vision 2005 with forecasted business turnover of over Rs.40, 800/- crores by the year 2004-05, with Deposits and Advances of Rs.27, 200 crores and Rs.13, 600 crores respectively. The bank also has plans to achieve a sustained growth rate of 40% in profits so as to achieve a net profit of over Rs.550 crores for the financial year ended March 2005. The net worth of the Bank is aimed to increase to over Rs.2, 200 crores by the end of the said period. The Bank will lay emphasis on consolidation with selective expansion at centres offering high business potential.

The Bank has planned to computerize all its branches by the end of the plan period and achieve 100% automation and on-line banking operations. The Technology application **shall** remain the thrust area so as to enable the Bank to offer world class banking facilities to its customers

4.4.4 HDFC Bank

The Housing Development Finance Corporation Limited (HDFC) was amongst the first to receive an 'in principle' approval from the Reserve Bank of India (RBI) to set up a bank in the private sector, as part of the RBI's liberalization of the Indian Banking Industry..

HDFC Bank's mission is to be a World Class Indian Bank. The Bank's aim is to build a sound customer franchise across distinct businesses so as to be the preferred provider of banking services in the niche segments that the bank operates in and to achieve healthy growth in profitability, consistent with the bank's risk appetite. The bank aims to ensure the highest level of ethical standards, professional integrity and regulatory compliance. HDFC Bank's business philosophy is based on four core values: Operational Excellence, Customer Focus, Product Leadership and People. The Bank signed a strategic business collaboration agreement with Chase Manhattan Bank in February 1999.

Miles Stones

Times Bank Amalgamation

In a milestone transaction in the Indian banking industry, Times Bank Limited (another new private sector bank promoted by Bennett, Coleman & Co./Times Group) was merged with HDFC Bank Ltd., effective February 26, 2000. The amalgamation added significant value to HDFC Bank in terms of increased branch network, expanded geographic reach, enhanced customer base, skilled manpower and the opportunity to cross-sell and leverage alternative delivery channels.

HDFC Bank is headquartered in Mumbai. The Bank at present has an enviable network of over 201 branches spread over 102 cities all across the country. All branches are linked on an online real-time basis. Customers in 39 locations are also serviced through Telephone Banking. The Bank's expansion plans take into account the need to have a presence in all major industrial and commercial centres where its corporate customers are located as well as the need to build a strong retail customer base.

Technology

HDFC Bank operates in a highly automated environment in terms of information technology and communication systems. All the bank's branches have connectivity, which enables the bank to offer speedy funds transfer facilities to its customers. Multi-branch access is also provided to retail customers through the branch network and Automated Teller Machines (ATMs).

The Bank also has a network of almost over 615-networked ATMs across these cities. Moreover, all domestic and international Visa/MasterCard, Visa Electron/Maestro, Plus/Cirrus and American Express Credit/Charge cardholders can access HDFC BANK's ATM network. It is the only bank in India, which provides access to all the 3 major International Card Networks on its ATM network.

The Bank has made substantial efforts and investments in acquiring the best technology available internationally, to build the infrastructure for a world-class bank. In terms of software the Corporate Banking business is supported by Microbanker, while the Retail Banking business by Finware, both from i-flex Solutions Ltd. (formerly Citicorp Information Technology India Ltd.). The systems are open, scaleable and web-enabled.

Business Profile

HDFC Bank caters to a wide range of banking services covering both commercial and investment banking on the wholesale side and transactional / branch banking on the retail side. The bank has three key business areas: -

a) Wholesale Banking

The Bank's target market is primarily large, blue-chip manufacturing companies in the Indian corporate sector and to a small extent, emerging mid-sized corporates. For these corporates, the Bank provides a wide range of banking services, including working capital finance, trade services, transactional services, cash management, etc.

b) Retail Banking

The objective of the Retail Bank is to provide a full range of financial products and services, giving the customer a one-stop window for all his banking requirements. The products are backed by world-class service and delivered to the customers through various delivery channels including the branch network, as well as alternative delivery channels like ATMs, Phone Banking, NetBanking and Mobile Banking.

c) Treasury Operations

Within this business, the bank has three main product areas - Foreign Exchange and Derivatives, Local Currency Money Market & Debt Securities, and Equities.

d) Rating/Awards and Accolades

HDFC Bank was selected as the "Best Bank - India 1999" and "Best Domestic Bank - India 2000", "Best Bank - India 2001" by Euromoney, and "Best Domestic Commercial Bank - India 1999" and "Best Domestic Commercial Bank - India 2000", "Best Domestic Commercial Bank - India 2001" by Finance Asia. In the October 2000 issue, Forbes Global selected HDFC Bank amongst the top 20 in the Forbes listing of the world's best small companies. Closer home, HDFC Bank was selected for The Economic Times Award — Corporate Excellence for Emerging Company of the Year 2000-01 and as Business India's Best Bank for the year 2000.

e) **Product Range**

Savings, Fixed Deposits, Current and Demat Accounts

f) Savings Account

Apart from the usual facilities, you get a free ATM Card, Interbranch banking, NetBanking, BillPay, PhoneBanking, Debit Card and MobileBanking, among others.

4.4.5 The Federal Bank

The Federal Bank Ltd is a regional banking giant with strong national presence and global reach. From its humble beginning as Travancore Federal Bank Ltd, Federal Bank has grown to become India's largest private sector bank and is now one of the largest scheduled commercial bank in Kerala.

All the actions are ultimately aimed towards building bonds of relationship, eventually leading to customer delight. The bank strongly believes that service without an element of human touch is incomplete and strives to offer personalised services to our clientele.

Statistics

The bank's Clientele base is about two million, has 6393 employees and has branch network of 406 branches.

Snippets

- One of the Largest among private sector banks.
- Strong patronage of NRI Community, NRI deposits constitute 28% of total deposits as on M01
- Track record of uninterrupted DW payment (except in 1964)
- Service is an organizational commitment at Federal.

Financial Performance & Growth Rates

	March - 2000	March - 2001	March - 2002
Assets	-5.8	16.01	15.01
Deposits	-4.7	18.60	15.65
Advances	-4.5	20.28	6.90
Investments	2.5	13.86	23.73
Total Income	4.3	2.98	20.92
Net Interest Income	54.2	31.37	16.58
Net Income	55.7	15.80	37.17
Net Profit	17.56	31.47	34.43
Other Income	17.1	-5.44	76.18

IT Initiatives at Federal Bank

a) **Fed bank's IT Plans and Achievements**

The Bank has adopted information technology as a strategic tool for achieving competitive edge and has started implementing its ambitious 3-year IT Strategic Plan 2003. The Bank automated 80% of its business with the help of its strong in-house IT infrastructure.

The FedSoft software, developed in-house for branch automation, is based on state of the art technology and using the workflow automation concepts. It runs on any **RDBMS** and has **GUI's** (graphical user interface), making it elegant and user-friendly. In addition to the usual transaction processing and backoffice funcrions.The bank also offers Mobile Banking and Networked ATMs to its customers.

productivity Parameters

	March - 2000	**March - 2001**	March - 2002
Business/Employee (Mn.)	16.1	19	21.9
Profit/Employee (Rs.000)	72	97	131
Business /Branch (Mn.)	258.6	304.61	341.13
Profit/Branch (Mn.)	1.1	1.48	1.99

The selection of samples was made in such a way as to ensure equitability in terms of representation of banks, which have features of technology advancement and also those, which have just begun their tryst with their destiny in the journey of technological upgradation.

Chapter - 5: Data Analysis and Interpretation

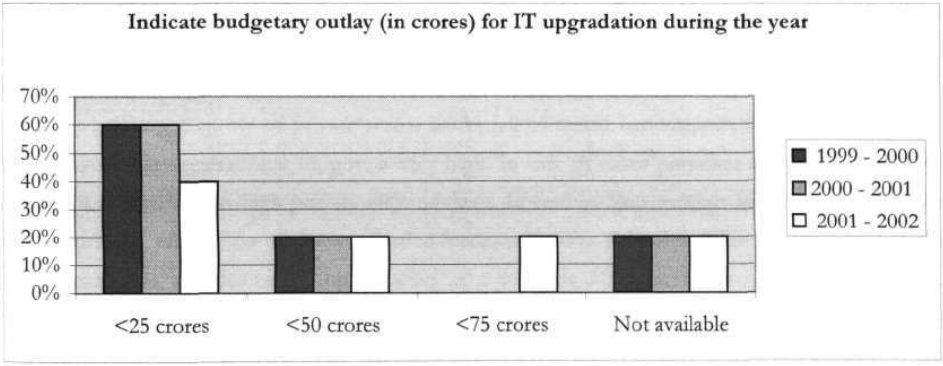
The data collected from the IT and HR Chiefs of the banks has been collated and on a perusal and analysis of the data collected through questionnaire, during primary research, the following aspects have been observed.

Analysis of IT Chiefs Responses

1) Budgetary Outlay for IT Upgradation

a) Private Sector Banks

The budgetary outlay for IT upgradation of most of the private sector banks (40%) of the respondents had outlay of less than 25 crores during the current financial year (2002-03) In case of the preceding three financial years i.e., 1999-2000; 2000-01; 2001-02, it is observed that The outlay remained more or less steady. This could be partly attributed to the fact the most of diese banks have implemented several key IT projects during the initial years of operations and are currently focusing on consolidating growth during the current year coupled with the scale of operations and business profile of these banks are other influencing factors.

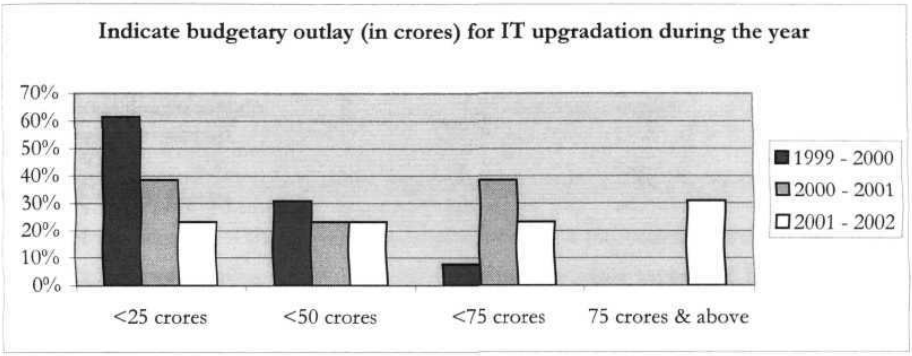


b) Public Sector Banks

In case of the public sector banks, the majority of the respondents, (around 30% of them) had budgetary outlay of Rs. 75 crores and above budgetary outlay during the current and previous fiscal years (2002-03, 2001-02) and around 20% of them had outlays equitably in other three categories i.e.,

< Rs. 25 crores, < Rs. 50 crores, and < Rs. 75 crores respectively. During the fiscal years 1999-2000 and 2000-01, majority (around 60%) of them had outlays in the < Rs 25 crores category.

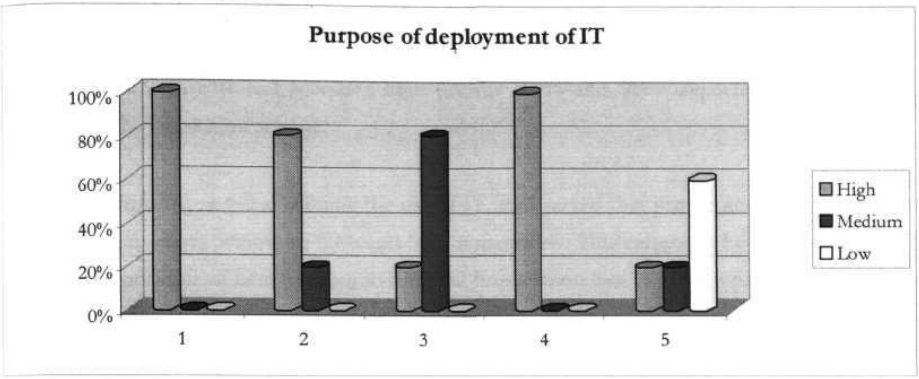
This aspect can be attributed to the fact that in case of majority of the public sector banks, the IT outlays have been increasing significantly of late, on account of increasing competition from their private sector counter parts and customer demand for convenience and technology driven banking services such as Any branch banking, ATM banking etc.,



2) Purpose of IT Deployment

a) Private Sector Banks

An overwhelming majority of private sector banks (all of them) had suggested that the purpose of *IT* deployment for operational support is very high. In case of other purposes i.e., Business Process Support was accorded as high priority 80% of them. In case of Management Support 20% felt it be of high priority, while 80% of them accorded medium priority. One significant aspect is that all the respondents had undertaken IT upgradation as a tool for Strategic Support. Similarly, 60% of respondents used IT for innovation support.

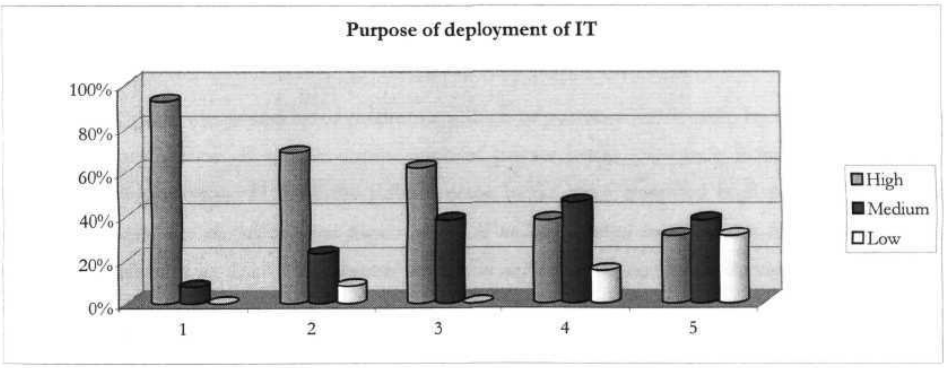


1 — Operational Support
2 — Business process support
3 - Management support
4 — Strategic support
5 — Innovation support

b) Public Sector Banks

In case of this segment, 92% of them, has responded that IT has been deployed as high priority for operational support, while only 8% of them felt business process support as high priority and few i.e., 15% of them felt strategic support as high priority.

It essentially implies that public sector counter parts are relatively at lower end of value chain and are using IT more for operational reasons rather than strategic reasons.



1 — Operational Support
2 — Business process support
3 — Management support
4 - Strategic support
5 — Innovation support

3) Information Behavior and Values Defining IT Use

On a comparison of data of private and public sector banks, significant number of respondents from both the segments had accorded high priority (80% and 92% respectively) on maintaining . ***integrity*** of the employees at large.

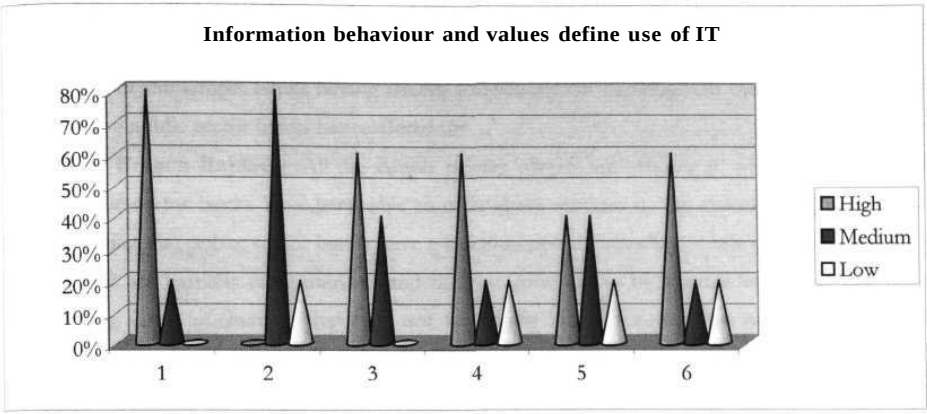
In case of ***formality,*** as value defining the use of IT, it observed that private and public sector **banks** have placed a medium priority of 80% and 54% respectively. This can pardy be attributed to the fact that the very business of banking, due to financial implications has to rely on procedural compliance (read as formality) to guard against frauds.

As regards preference for ***control*** measure, some of the private and public sector banks have given high priority of 60% and 54%. The rest too have placed medium priority of 40% and 31% respectively. It effectively implies, that irrespective of the degree of preference, the banks have control, as one of the focus areas in IT deployment. It can be because of the fact, as business, per se, demands, adherence to the prudential procedures and guidelines, laid down in the interests of the sector by the Reserve Bank of India and also internally by the banks due to statutory and regulatory compliance requirements.

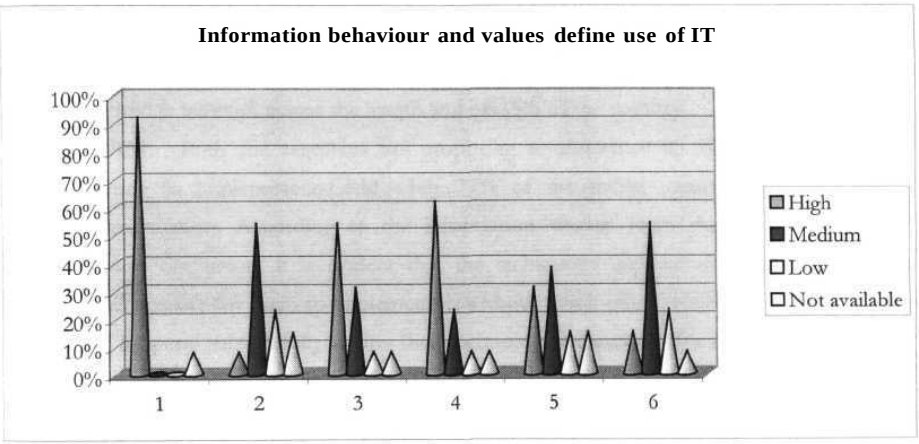
In relation to ***transparency,*** it can be observed from the analysis, that 60% of the private sector players gave importance, while 62% in case of the players from public sector. This is due to the fact that RBI, has been exhorting banks to adhere to the disclosure norms laid by it, as measure to facilitate graduation of the banks to BASLE norms.

Sharing, as a value was found be of medium and high importance (40% each) by the players. This is due to the composition of sample composition of private banks (two each from the old and new generations respectively). 31% of the public sector banks have accorded high priority. *It effectively implies that majority of the public sector players are yet to undergo cultural transformation in order to create and nurture caring environment, which is fundamental prerequisite and key to Organisational learning process. This aspect can be correlated with the analysis of the responses received from HR chiefs of these banks.*

Pro-activeness as value behavior, accorded high priority by private and public sector banks to the extent of 60% and 15% respectively. *This is a pointer to the cultural outlook of the players, and has major bearing on the Organisational Learning process.*



Private Banks



Public Sector Banks

1 — Integrity
2 — Formality
3 — Control
4 — Transparency
5 - Sharing
6 — Pro-activeness

4) IT Initiatives of the Banks

- **Net Banking:** The private sector players have proved their technological advancement with 80% of the sample banks having already introduced net banking. On the contrast, only 23% of the public sector banks have offered it.
- **Any Branch Banking:** All the sample private players are offering it, while only 36% of the public sector banks have been able to offer these sendees to the customers. This is due to the fact that public sector banks have a kaleidoscope of branches, while some are networked, some are partially computerized and the rest continue to be manual branches. The reason being cited by them is that it is not financially viable for them to network 100%of the branches. They have been adopting the principle of 20/80 principles i.e., 20% of the branches, which add upto 80% of their business, are being focused upon.
- **ATM Network:** All the private sector players have ATMs networks in place, while only 38% of the public sector players are offering ATM services, and that too to a limited extent. This can be partly reasoned, due to the differences in organizational strategies of respective players. The private players are strategically extending their reach to the customers in cost effective way, with technology support. The public sector is not very aggressive, due to their vast branch network across the length and breadth of the country.

E-CRM: Both the segments are proposing to introduce it. All the private banks are planning to implement e-CRM while 77% of the public sector banks have plans for implementation. According to the information elicited from the IT Chiefs during the informal discussion, it is evident that the technology architecture of *the* private players makes it easier for them to implement it, without much effort, while the public sector banks have to spend substantially to alter their technology architecture for its implementation.

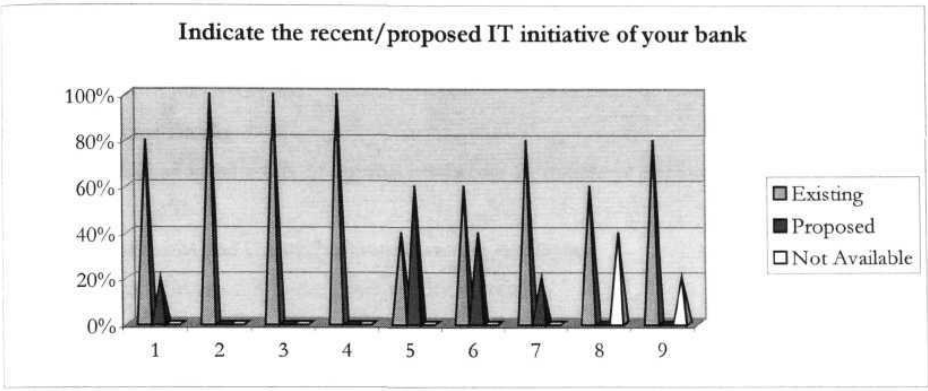
Business Intelligence Solutions: There is significant gap between both the segments. This fact is evident, as according to the analysis, 40% of the private players have already implemented it while a negligible 8% of the players from public sector have implemented it.

l **Centralized Banking Software Solutions:** A majority (60%) of the private players have already implemented the software solution, while a very few (8%) of the public sector players have implemented it. The reason, which was attributed during the informal discussions was that the IT architecture of private players being the main reason for the difference.

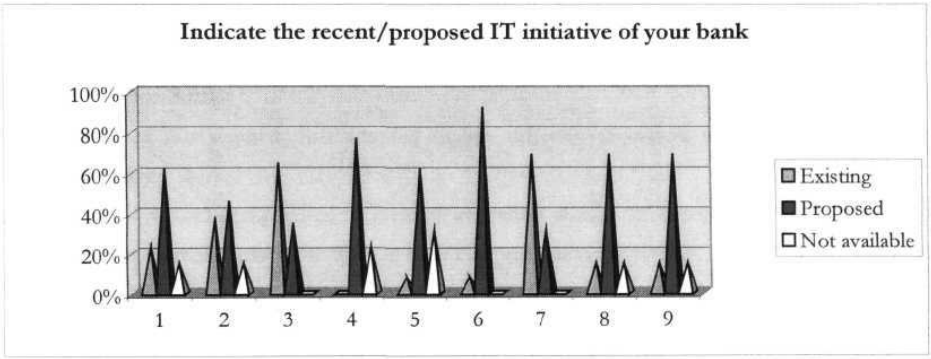
Integration of bank's network with INFINET: The majority of the banks from both the segments have integrated their corporate network with INFINET (80% & 69%) respectively. According to the informal discussion with experts from IDRBT, diis would facilitate reduction of disparities between private and public sector banks. It is incidental to

note that private and large public sector banks, which have their own corporate networks, are using INFINET as backup, while the smaller public sector banks are using it as backbone for their networks.

- **Mobile Baking Solution:** The private banks as in case of other IT initiatives have the lead over public sector counter parts in implementation. (60% vis-à-vis 15%)



Private Banks



Public Sector Banks

1 - Net Banking
2 - Any Branch Banking
3 - ATMs/ATM Network
4 - e-CRM
5 - Business Intelligence solutions
6 — Centralized banking software solutions
7 — Integration of bank's corporate network with INFINET
8 — Mobile Banking
9 — Core Banking solutions

5) Methods/steps before implementing IT initiatives

One of the major factors, which determines the success rate of implementation of IT initiatives is creation of IT awareness in the entire organization at large. There are several methods such as creation of awareness among the employees, discussion with association/representatives etc. The larger the employee involvement, the better would be its impact, unless the users are involved in the implementation process. This aspect is being focused by information systems (IS) auditors during IS audit. Further, it also has impact on die organizational preparedness through the learning processes.

a) **Private Sector Banks**

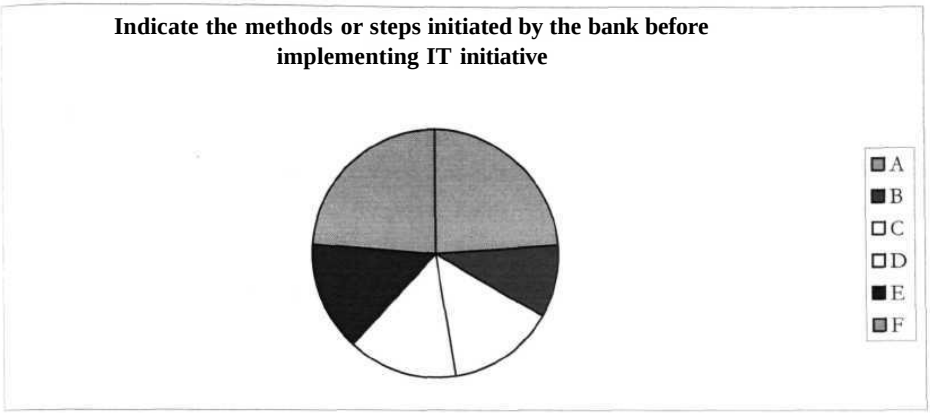
These banks had adopted a mix of approaches before IT initiatives implementation and the analysis is as under :

- 24% of banks had Created awareness among employees
- 10% had discussed it in customer service meetings
- 14% have discussed with their employee associations and representatives
- 14% of banks informed dieir stakeholders through wider publicity
- 14% trained their new recruitees
- Significantly i.e., 24% trained their employees from both IT as well as other departments in required skills and competency areas.

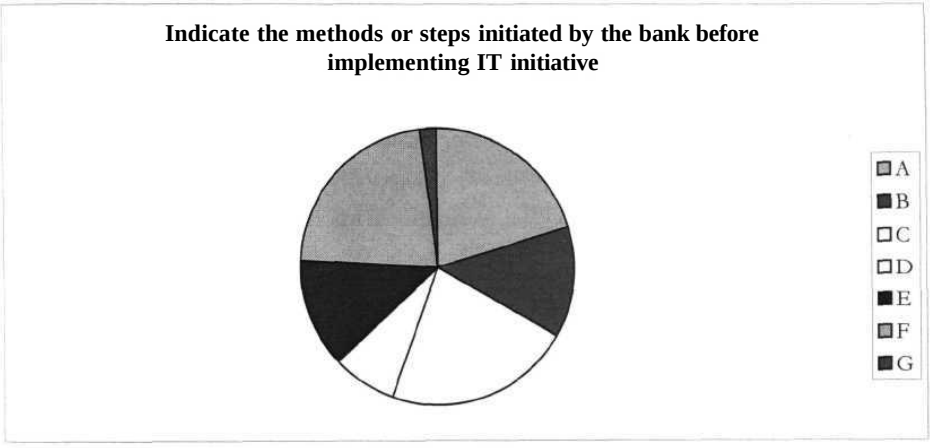
b) **Public Sector Banks**

The member of this segment had adopted slightly different approach, which is reflected by the analysis as under:

- 20% of their efforts focused on creating awareness among their employees
- 13% of them discussed the issue in their customer service meetings
- As the employee associations/unions are very strong in the publíc sector banks, they (22%) discussed with employee associations/representatives.
- The other approaches used by them are informing stakeholders through wider publicity (7%) and Training of new recruitees (13%).
- The employee profile of these banks demands that a large number be trained and re-deployed before IT initiative implementation and notably (22%) trained employees of IT and other departments.



Private Banks



Private Sector Banks

A - Creating awareness among employees
B - Training the employees of IT and other departments in required skills and competences
C - Training of new recruitees
D — Inform the stake holders through wider publicity
E - Discuss the issue in the customer service meeting
F - Discuss with employee associations/representatives

6) Envisaged role for IT in employee empowerment through information dissemination

The banking environment presents a scene of continuous and dynamic change. Traditionally, the banks used to rely upon the release of circulars both by RBI, based on which the head offices used

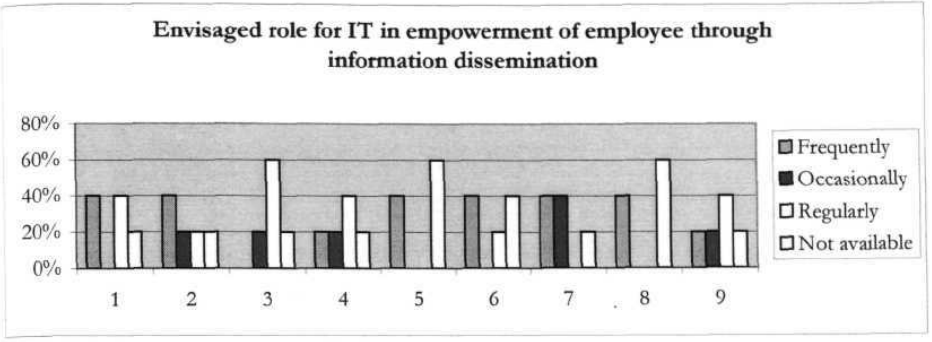
to issue circulars, giving clarification/informing changes in operational guidelines. The entire process used to take anything between 20 days to one month.

But today, the employee in front offices can't afford to keep their customers wait for so log. Another aspect is that in traditional context, the employees in branches used to refer most of the matters to reporting offices (Regional/Zonal Offices) or the head offices for guidelines/clarifications. This lead to delay in customer-response time. The picture today is totally contrasting, and quite often, branches are required to sanction retail loans immediately, or within with hours of application and further, typically the customer demand for response time even for loan applications running to a few crores in 48 hours. It is in this context, that employee empowerment has assumed increased importance.

a) Private Sector **Batiks**

The private sector banks have high levels of employee empowerment and this fact is vindicated by the analysis as detailed below:

- 40% each of them use e-mail frequently and rarely.
- 40% of them are frequently informing their employees through IT newsletter.
- Significantly 60% of them are disseminating information regularly through Intranet (Banks portal for employees)
- Internet/Web based Learning is being used regularly by 40% of them for information dissemination
- Similarly, 40% of them have regularly using on-line bulletins for employee empowerment.
- CBTs are being used by frequently (40%) and regularly (20%) of them for specific software products/functional areas (FX, Credit) etc.,
- External organizations (training institutions etc.,) are also involved frequently (40%) and occasionally by 40% of them.



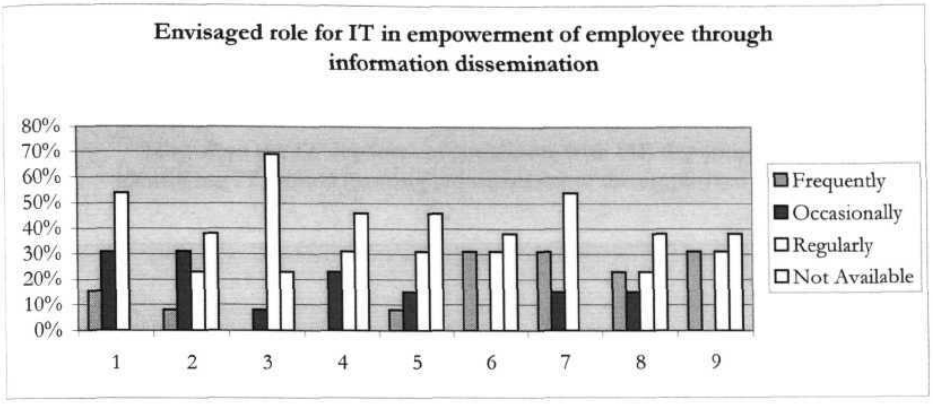
Private Banks

1 - E-Mail
2 - IT Newsletter
3 - Intranet (Bank's portal for employees)
4 - Internet/Web-based learning (Centralized at HO)
5 — On-line bulletins
6 — CBT for specific software products /functional areas (FX, Credit) etc.
7 - Presentations/lectures/training courses by professionals with inputs from IT (training courses from external Institutions)
8 - Chat
9 — Bulletin Board

b) Public Sector Banks

These banks have also been adopting different approaches, to varying degree as per the analysis detailed below:

- 54% of them have using e-mail regularly, for information dissemination. This is partly due to systems such as Mail Messaging System (MMS), being provided by Apex level institutions such as IDRBT.
- The culture of IT info dissemination through IT newsletter by a few 21% of them and the growing trend is indicated by occasional (31%) usage.
- Significantly, 69% of them have stared using Intranet, for information dissemination.
- The usage of other approaches i.e., Internet/Web based Learning is being increasingly used (31%) of them - regularly; regular usage of on-line bulletins by 31% of them.
- The dependence on external organizations (training institutions) for information dissemination has been regular by 54% of them.



Private Banks

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7) **Coordination of IT Department with HR Department in identification of employee learning requirements**

The adoption and usage of IT by the banks is dependent mainly on the extent of competencies/skills of employees, which is correlated to that of the learning needs of the employees. Further, the implementation and priority of various IT initiatives is determined by IT department and quite logically the IT department has a major say in IT Leaning Need Identification of employees.

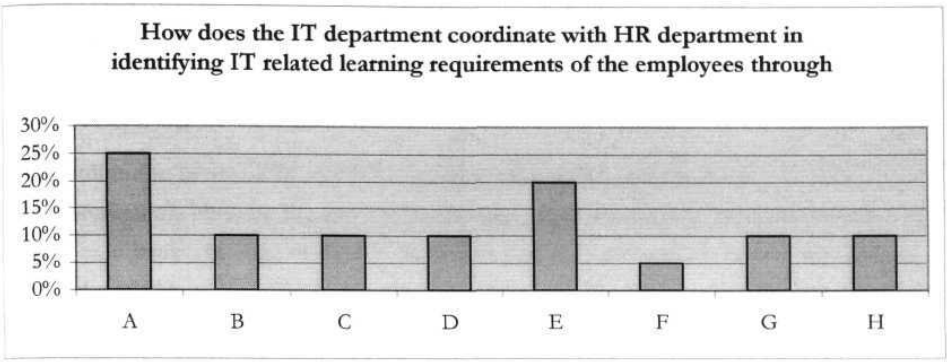
In order to test this correlation, the question was included in IT Chiefs questionnaire and the analysis is as below:

a) Private Sector Banks

The usage of different approaches is reflective of their priorities:

- Performance management in Private sector banks is quite comprehensive and has multiple objectives. One of the keys being Identification of learning requirements and more specifically IT related. This evident by 25% of them using it as tool for the purpose.

- Feedback from employees is yet another major tool for (20%) of the banks.
- The other tools being used are HR dept. consultation with branch managers (10%); IT dept. interaction witii branch managers (10%).

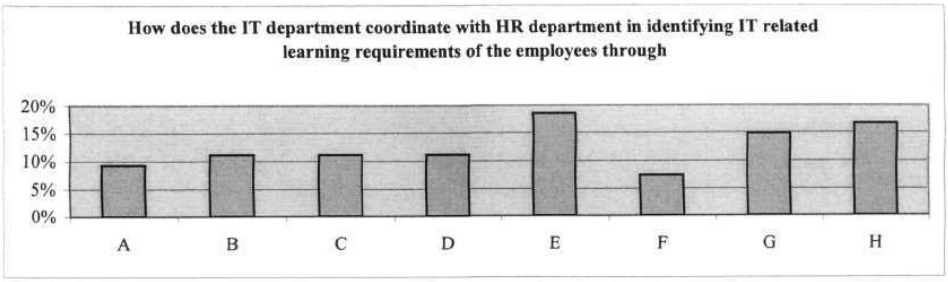


Private Banks

A — Annual performance evaluation of employees (performance vis-à-vis competence/learning need)
B — Feed-back from the employees
C — CEO/ED meetings from the employees
D — Regional Heads meeting with Branch Managers
E — Branch Managers concerned in coordination with IT/CPPD dept
F — Branch Managers concerned in consultation with HR dept.
G — Random selection or opportunity to every employee
H — Post training deployment/assessment

b) Public Sector Banks

The tools are being used sparing by various players Annual performance appraisal (9%); HR and IT departments consultation with branch managers (11% each); significandy feedback from employees by sizeable (19%) of them.



Private Banks

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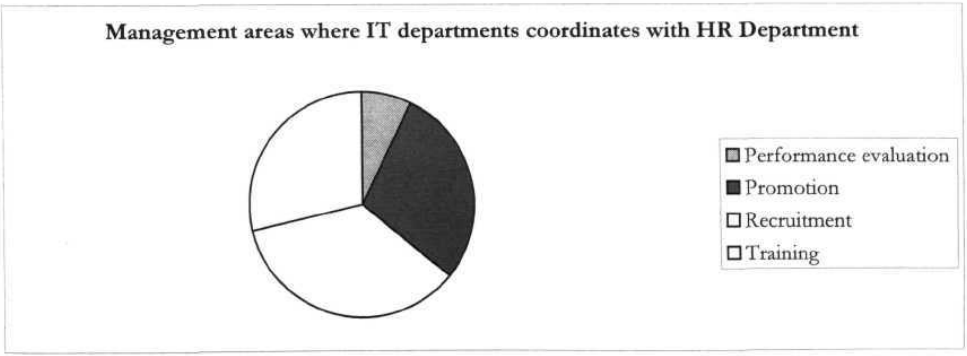
G - Random selection or opportunity to ever)' employee
H — Post training deployment/assessment

8) **Coordination between IT and HR Departments in management Areas**

The coordination between IT and HR department plays crucial role in implementation of IT initiatives in Banks. In order to identify the extent of interaction between the two departments, the question was addressed to IT Chiefs. *The same question was also addressed to the HR chiefs and in order to assess the perceptual differences.* The analysis of the data is:

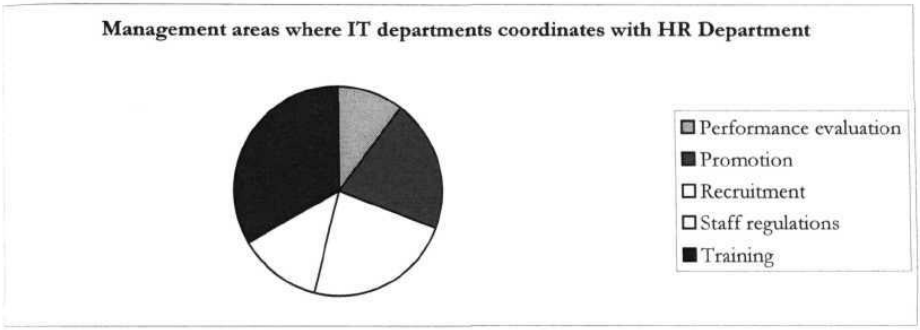
a) Private Sector Banks

The three focus of interaction, in the opinion of IT chiefs are Recruitment (36%), Training (29%) and Promotion (29%). The appraisal has lesser significance (since only 7%) of them favored it. Thus the It department has been driving home the point that choosing the candidates with right skill-mix is very important. Further, it stresses on training die employees, in merging priority areas, complementary to the banks' focus areas. It is also stressing on sustenance of motivation levels of the IT employees by playing a predominant role in the promotional aspects too.



b) Public Sector Banks

Xhe perspective and focus of IT chiefs from these banks is different on account of contextual (Organizational) factors. The focus areas of coordination for them are Recruitment (23%); Training (33%); Promotion (21%) respectively. One significant aspect to be noted that there is interaction in framing of Staff Regulations (13%). In case of performance evaluation the coordination is to a limited extent of 10%. This is due to the fact that the performance management in public sector still continues to linger on confidential reporting system which is quite subjective and doesn't provide scope for development of employee.



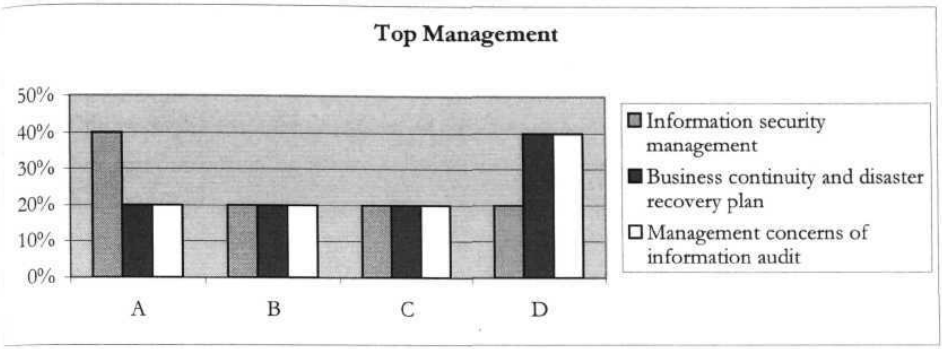
9) **IT Learning Initiatives and Competency Building**

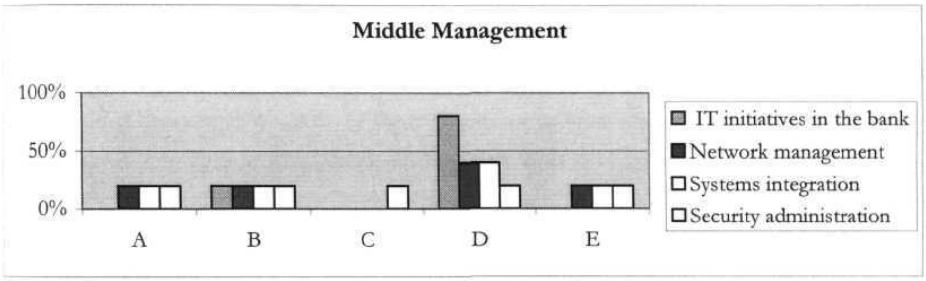
The IT learning initiatives would fizzle out unless they encompass the entire organization. Further, the focus areas vary for different layers in the organizations. In order to probe this aspect the questionnaire focussed on areas of concern for three key components i.e., the Top, Middle and Junior Management .The analysis for both the segments is placed below:

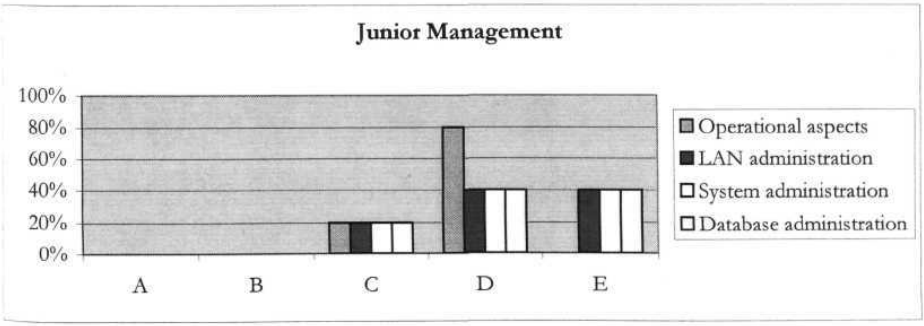
a) **Private Sector Banks**

- ***Top Management:*** The sample banks covered equitably in the area of Information *Security Management* for three levels — 20% each have been covered upto 25%, 25%-50% and between 50%-100% of top management. The scenario is also similar in the areas of Business Continuity & Disaster Recovery Plan and Information Audit.
- ***Middle Management:*** Upto 80% of them have been trained in IT initiatives of Bank; 20% of the banks (upto 25% staff) and 40% of them (between 50% - 100% of staff) have been trained in Network Management; The scenario is quite similar in Systems Integration and Security Administration.

- *Junior Management:* Up to 80% of them have been covered in operational aspects. The training in other operational aspects i.e., LAN administration, Systems & Database Administration has been extended to majority of employees.







A – Envisaged
B – 25% trained approx.,
C – between 25 – 50%
D – between 50 – 100%
E – Not Available

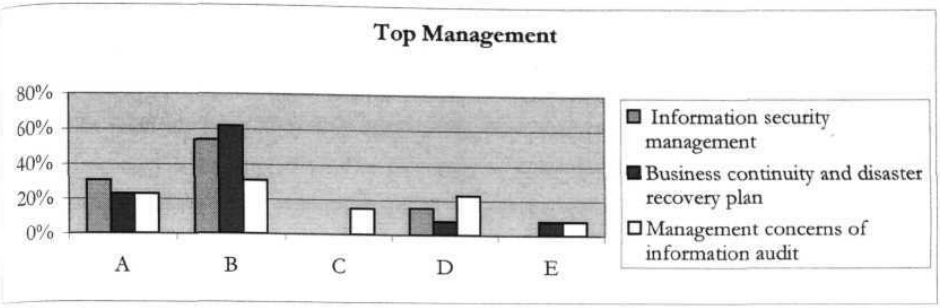
b) **Public Sector Banks**

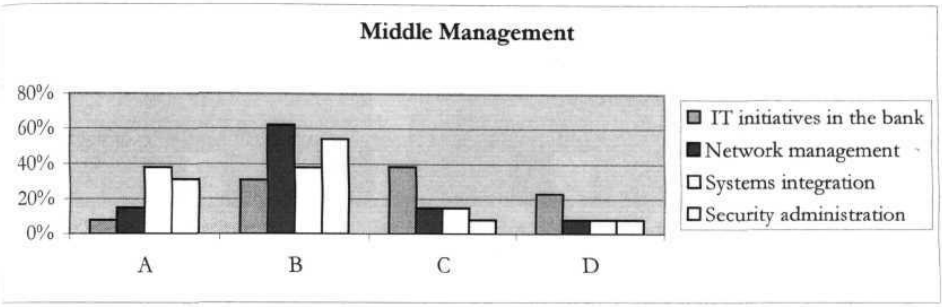
- ***Top Management:*** The public sector banks in the post September 11 and December 13 scenario have also become cautious and conscious of Security concerns, both physical as well as Virtual. This increased focus in reflected in the analysis, wherein 54% of the banks had trained upto 25% of their Top management members about awareness and concerns of Information Security. Another 15% have trained between 50-100% of their top management, while the rest (31%) are envisaged to educate the entire team shortly, in future. This aspect is correlated by training of top management in 62% of the banks (upto 25% of their team members) on Business Continuity and Disaster Recovery Plan, which is part of their overall strategy towards security and contingency planning.

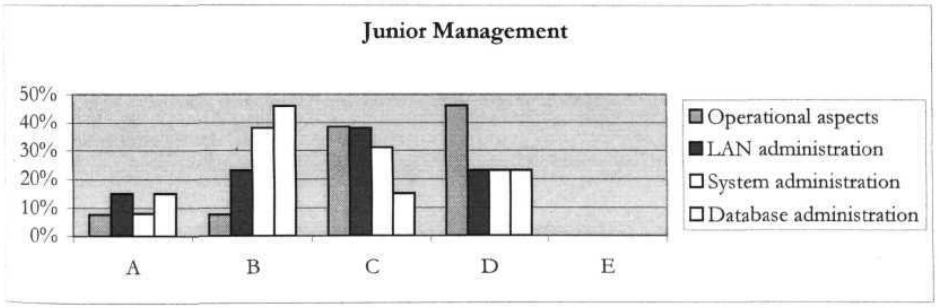
  Audit per se, has been one of the key areas for management's in banks, as strategy towards, control and MIS. The focus assumes even more importance in IT enabled banking scenario, and this where IS Audit or also called as Information Audit becomes one of the important areas for top management in banks.

- ***Middle Management:*** From the data, it is observed that 31% of the banks have trained approximately upto 25% of their middle management on IT initiatives, while another 38% trained between 25% - 50% of them. In case of network management, 62% of banks have trained upto 25% of their middle management. In case of systems integration, 38% of them have trained upto the same level. In case of security administration, 54% of the banks have trained upto 25% of their middle management team. It indicates that the public sector banks too have started the process, but are yet to aggressively cover the entire team.

- ***Junior Management*** It is observed from the analysis, 38% of the junior management team, has been trained (upto 50% of the staff) on operational aspects. The trend continues in case of aspects on LAN & systems administration, while in case of Database administration it is slightly higher to the extent of 46%.







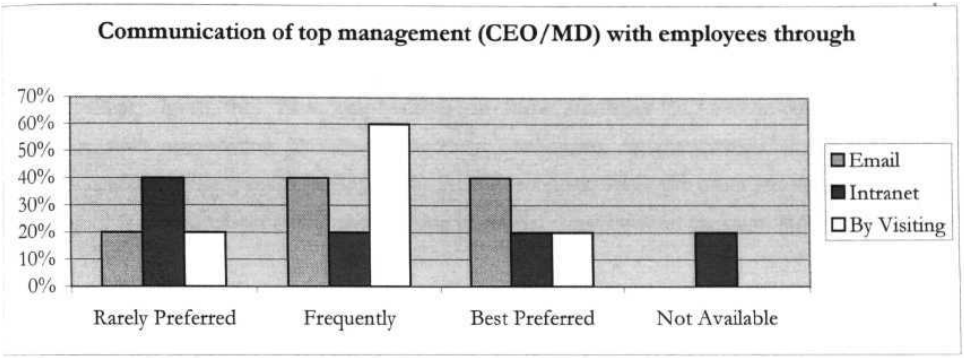
A - Envisaged
B - 25% trained approx.
C - between 25 - 50%
D - between 50 - 100%
E - Not Available

W) Communication of Top Management

The organizational learning process to a large extent, depends on the drive and motivation of top management through its continuous communication with the employees at large.

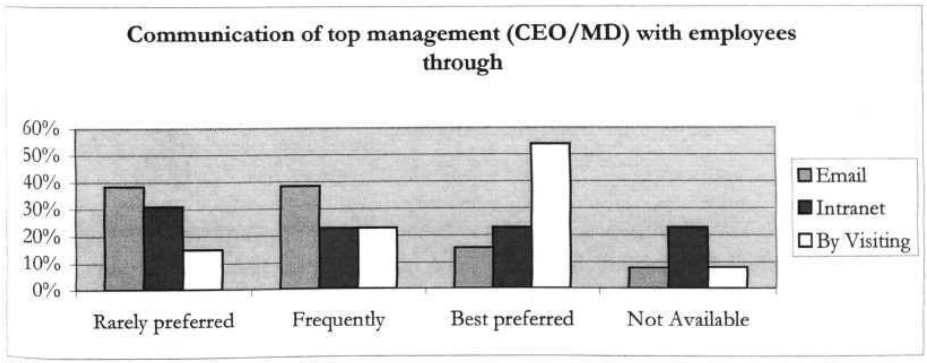
a) Private Sector Banks

The top management seems to prefer (40% of them) e-mail as the best option and frequency too is found to be high (40%). As regards, usage of intranet, as mode of communication, the preference seems to be relatively low (20%). But, significandy, they seem to prefer (20%) the visit to branches and die frequency is higher (60%). The frequency of communication is found to occur annually, along with financial results or as monthly (60%) to motivate towards performance management.



b) **Public Sector Banks**

The top management seems to prefer (38%) e-mail for communication, while intranet is rarely preferred (23%) by them. The odier methods, visit to branches, and periodic communication, the preference is relatively lower. These factors indicate that cultural transformation is yet to set in among die public sector banks.



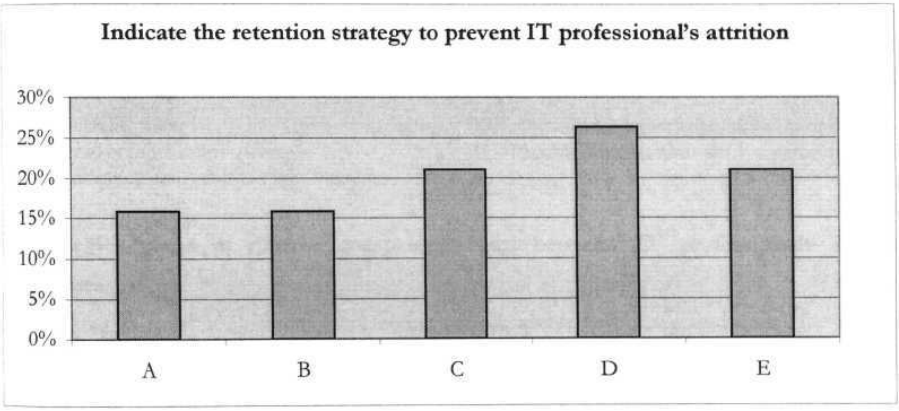
Analysis of HR Chiefs Responses

1) Retention Strategy to Prevent IT Professional Attrition

The advent of IT has not only brought in certain advantages, but has thrown quite a few challenges to the HR managers of the banks. One significant of cultural compatibility of the IT personnel with the Banking Environment and the result phenomenon being rising levels of attrition of IT professional in Banks. To examine during the data collection phase, the retention strategies of HR chiefs were examined, and the analysis has shown a few interesting results as below:

a) **Private Sector Banks**

At the primary level, they have emphasizing on three strategies i.e., Providing Avenues for knowledge/skills upgradation (26%); Giving them Challenging Assignments(21%) and a Flexible and autonomous working environment (21%). At the secondary level, the other strategies have been Providing of fast track career (16%) and offering of special compensation packages (16%).



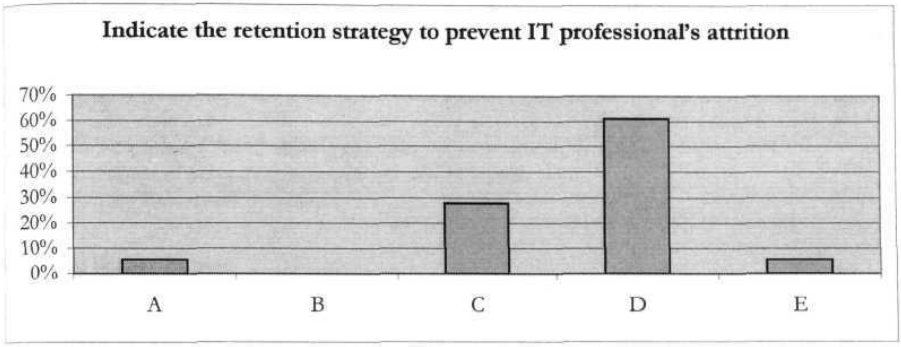
A - Fast track career
B - Special compensation packages
C - Challenging assignments (with learning)
D — Avenues for knowledge/skills upgradation
E — Flexible/autonomous work environment

b) **Public Sector Banks**

On the contrast, in public sector banks, during the rigid policies and limited flexible of the environment, The HR Chiefs, have striving with significant emphasis on the strategy of Providing avenues for knowledge/skills upgradation (61%). The other major strategy has been Offering the IT professional with challenging assignments with scope for learning (28%). The other two strategies

ye sparingly used i.e., Fast Track Careers (6%) and Flexible work environment (6%), more due to environmental and policy constraints.

however, the success of HR chiefs IT has been only to a limited extent. During the informal with the HR Chiefs of the public sector banks, they had shared with the information, where the key members middle management in IT department had put down their papers, due better offers from IT industry.



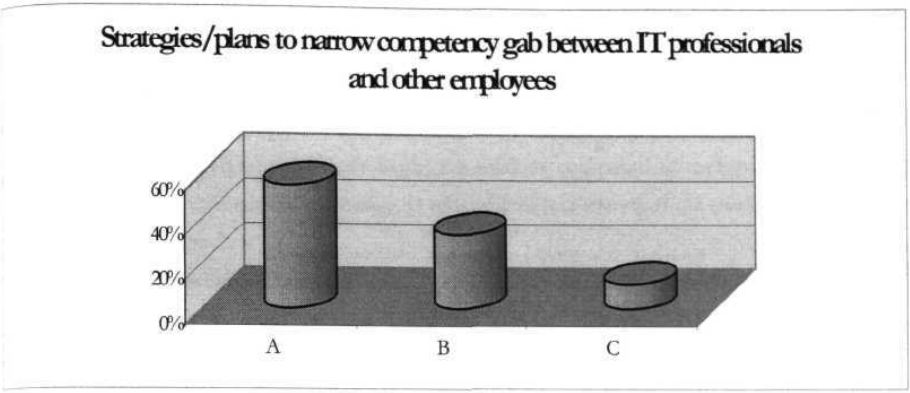
A - Fast track career
B - Special compensation packages
C - Challenging assignments (with learning)
D — Avenues for knowledge/skills upgradation
E — Flexible/autonomous work environment

2) **Strategies/plans to narrow competency gap between IT professionals and other Employees**

The banking in today is different from earlier period, and is fully integrated with IT. The banks, during the initial phases had attempted to meet the challenges by recruiting IT professional. However, the cultural compatibility on hand and wide competency gap between the banking professional on the other, has virtually created two parallel organizations in one organization. The analysis of responses from HR chiefs is as below:

a) **Private Sector Banks**

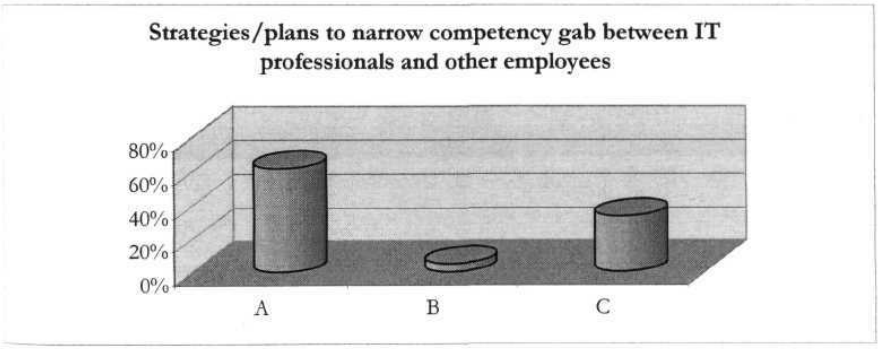
They have been adopting a planned approach for IT skills upgradation of Bankers (56%) and simultaneously, they have been Recruiting General Bankers with advanced IT skills (33%). The old private sector banks have used Voluntary Retirement Scheme (VRS) — 11%, to address the issue.



A - Planned approach for IT skills upgradation (core competency building)
B - Recruitment of general bankers with advanced IT skills
C - Voluntary Retirement Scheme

b) **Public Sector Banks**

They have been adopting a planned approach for IT skills upgradation of their employees (62%) and have offered VRS (33%), to the employees, who are unable to adjust to new environment.



A - Planned approach for IT skills upgradation (core competency building)
B - Recruitment of general bankers with advanced IT skills
C - Voluntary Retirement Scheme

3) **Organizational Restructuring Exercises of Banks**

The IT enabled work environment, demands a new approach and changes work environment, where he response time and reach to customer holds the key to profitability of banks, and die not age old

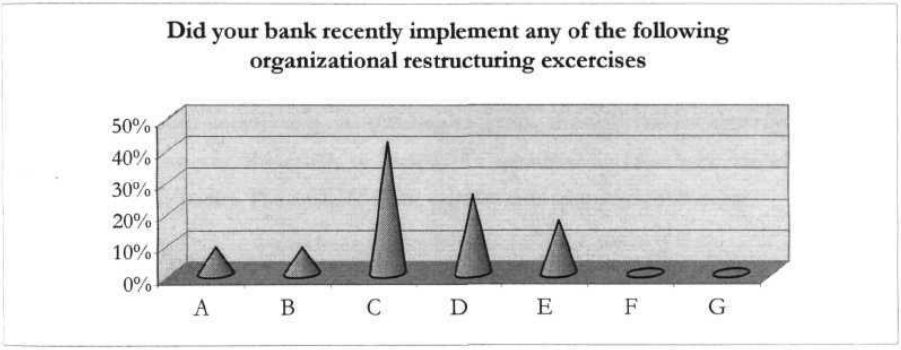
spreads or margins. The adopt to the transformed scenario, the banks have restructuring themselves. The analysis of various approaches for restructuring are:

a) **Private Sector Banks**

The size, scale of operations of these banks are small as compared to their public sector counter parts. Further, the adaptability to change, is relatively higher among these banks and it is indicated by the mix of approaches:

- Creation of strategic business units (42%). {They are structured into SBUs based on the business such as retail banking, corporate banking, Treasury, Cash Management Services etc.,}
- Creation of Profit Centers (25%)
- Merger of regions/zones (8%)
- Elimination of tiers/hierarchy (8%)

(The mix of third and fourth approaches is more due to influence of the old private sector in the sample)



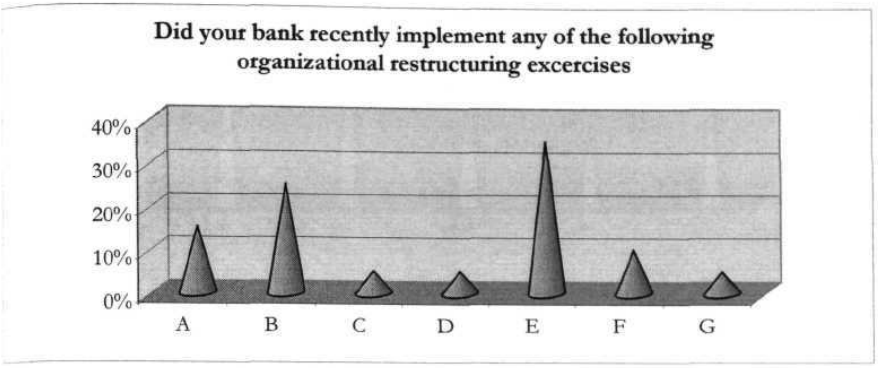
A — Merger of regions/zones
B - Elimination of tiers in hierarchy
C - Creation of strategic business units
D — Creation of profit centers
E — Reporting hierarchy (corporate/head office)
F - Not Available
G -Not done

b) **Public Sector Banks**

In their case, the mix of strategies are different. They have been attempting to reduce response time to customer and making more flexible through :

- Changing of reporting hierarchy (35%)
- Elimination of Tiers in Hierarchy (25%)

•> Merger of regions/zones (15%)



A - Merger of regions/zones
B - Elimination of tiers in hierarchy (i.e. removing of regional/zonal systems)
C — Creation of strategic business units
D - Creation of profit centers
E - Reporting hierarchy (corporate/head office)
F - Not Available
G - Not Done

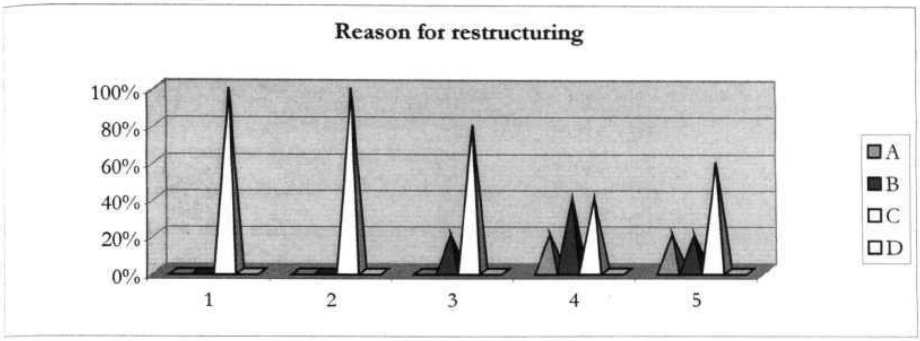
4) **Reasons for Restructuring**

The banks have been undertaking restructuring exercises, through various approaches, discussed in earlier analysis. However, the causes or reasons for restructuring have been varying, depending on the priorities of the banks. The analysis of the primary data reveals the following:

a) **Private Sector Banks**

The old generation banks, in order to tune themselves at par with those of new generation banks, have undertaken restructuring exercises. The priorities reflected during analysis are:

- *Flexibility of operations* has been their top priority (100%), a unanimous and overwhelming response.
- J* *Customer Service,* as focal aspect was accepted by all of them (100%)
- •> *Increasing profitability* was agreed as yet another concern for all of them (80%) indicated as high priority.
- *Technology adaptation (60% of them indicated as high priority); Better Resource Allocation* were focus of restructuring for *(40% of them have indicated as medium and high priority)* of them.



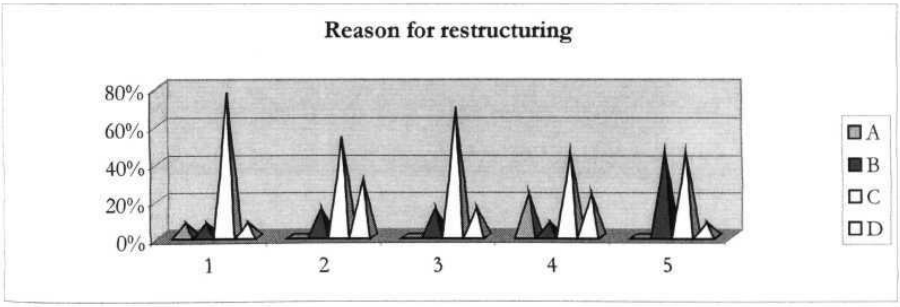
1 — Better customer service
2 — Flexibility of operations
3 — Increasing profitability
4 — Resources reallocation
5 - Technology adoption

A - Low priority
B — Medium Priority
C - High priority
D - Not Available

b) Public Sector Banks

In their case, the response though in synchrony, with the private sector banks, the extent of priority has been different and is as under:

- Flexibility of Operations (54% - high priority), Better Customer Service (77% - high priority) and Increasing profitability are a high priority for 69% of them
- Technology Adaptation, is medium and high priority for 46% of them
- Resources Reallocation, is a high priority for 46% of them



1 — Better customer service
2 - Flexibility of operations
3 - Increasing profitability
4 — Resources reallocation
5 — Technology adaptation

A — Low priority
B — Medium Priority
C - High priority
D - Not Available

The above indicators show that, while the private sector banks have been pursuing restructuring with vigor and determination, die public sector banks have been carrying out, due to competitive reasons and as reactive response.

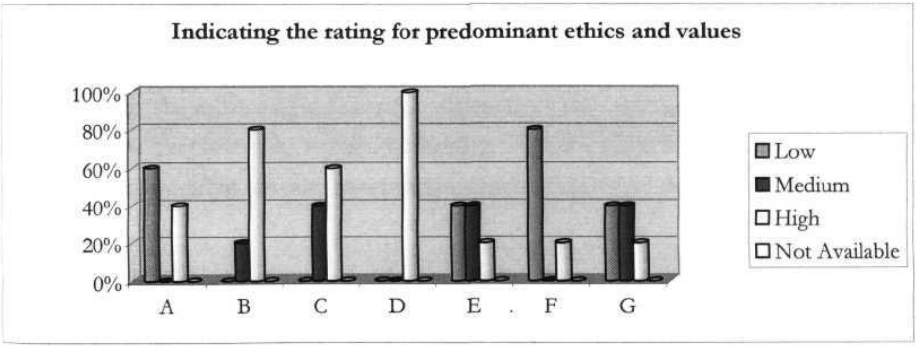
S) **Rating for Predominant Ethics and Values**

The culture of any organization is guided by the prevalent Values Ethics. They guide the relationships that are intra and extra organizational. In this research study, which focuses upon the technology and learning inter-linkage, it was felt essential to address the issue. The analysis of the responses by the HR chiefs of the indicated the following:

a) **Private Sector Banks**

They seem to guided by the eternal values, inspite of dieir modern oudook as:

- *I** 80% of them rated Commitment & Dedication — as high priority; 100% of them rated high priority for Honesty & Integrity.
- Success at any cost, was indicated as low priority by 80% of diem.
- *> Ethical Performance, was rated as high priority by 60% of diem.
- However, die learning indicators, Individual Learning (40% - medium) & Collective/Shared Learning, was rated as medium (40% - high prority)
- Transparency was rated as medium (40%) and high (20%) of them.

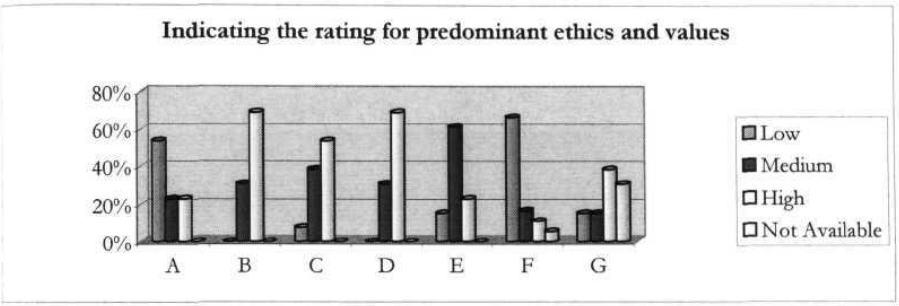


A - Collective/shared learning
B — Commitment and dedication
C - Ethical performance
D - Honesty and integrity
E — Individual learning
F — Success at any cost
G - Transparency

b) Public Sector Banks

The analysis reflected the following trends:

- Commitment & Dedication (23% - high priority) and Honesty & Integrity (69% - high priority).
- Success at any Cost, was rated as low priority by 67% of them.
- Ethical Performance was rated as high priority by 69% of them.
- Individual Learning was rated as medium priority by 62% of them and Collective Learning was rated as high priority by only 23% of them.
- Transparency was accorded high priority by 38% of them



A — Collective/shared learning
B — Commitment and dedication
C - Ethical performance
D — Honesty and integrity
E — Individual learning
F — Success at any cost
G — Transparency

Interpretation: The above data indicates that players from both the segments share the same trend in die first diree parameters. As regards the learning arena, the public sector seem to emphasize on Individual learning while private sector banks balanced between the individual and collective learning.

6) **Recent/Proposed HR Initiatives**

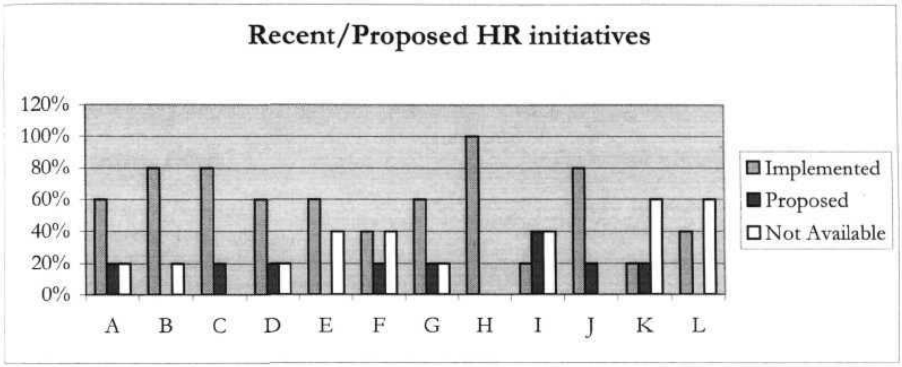
The HR Department, plays a predominant role, in building die performance culture and learning environment in the organizations. The outlook and influence of HR department have been analyzed by recent/proposed initiatives in both the segments:

a) **Private Sector Banks**

Majority of them (60%) have implemented *Performance Management System,* while 40% of implemented the *Electronic Performance Management.* In relation to competency management areas, 60% of the have

implemented *Assessment Center* and *Competency Mapping* approaches. A significant aspect is that 80% of them have implemented *Competency Buildingplans.*

For ensuring continuity of organizational performance, 85% career planning and *Succession Planning.* The Organizational Climate Survey can study the performance of HR management and majority (60%) of them have conducted it. For performance improvement, only 40% of have planned for *Process Reengineering* and *Total Quality Certification* and in contrast 60% of them had implemented Cost to the Company Approach (CTC), as a measure towards performance management. To promote learning environment, 40% of them, have implemented *Web Based learning.*



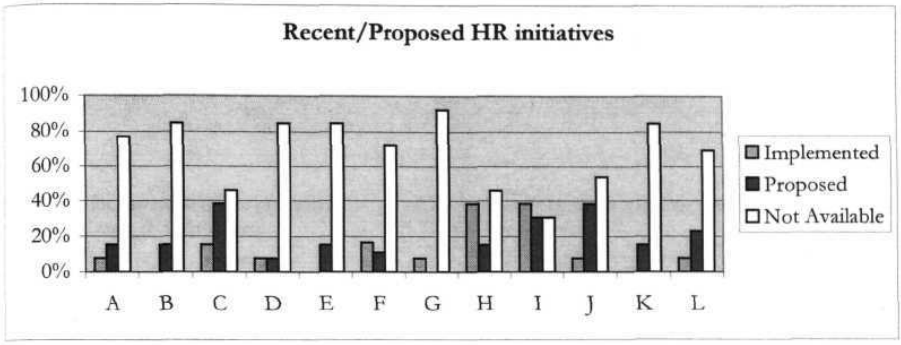
A — Assessment Centre
B — Career Planning
C — Competency Building
D - Competency Mapping
E - Cost to the Company Approach (CTC)
F - Electronic Performance Support System (EPSS)
G — Organization Climate Survey
H— Performance Management System
I — Process Reengineering
J — Process Reengineering
K - Total Quality Certification
L — Web Based Learning

b) **Public Sector Banks**

Many of them (38%) have implemented *Performance Management System,* while very few (17%) have implemented EPSS. In the area of competency management, only 8% have implemented *Assessment Center, Competency Planning* and relatively few more (15%) have implemented *Competency Building* approaches, while only 15% of them are planning for CTC.

To manage organizational continuity only 8% have implemented *Succession planning* while none of them have proposed *Career Planning.* A few of them have conducted Organizational Climate Survey

(8%). For work processes improvement, 38% of them have implemented *Process Reengineering*, while surprisingly none of them have planned for TQC. To promote Web Based Learning only 8% have implemented it and 69% have proposed for it.



A — Assessment Centre
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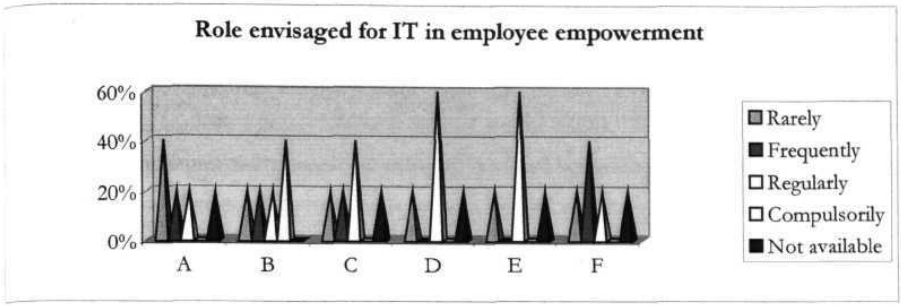
E — Cost to the Company Approach (CTC)
F - Electronic Performance Support System (EPSS)
G — Organization Climate Survey
H— Performance Management System
I — Process Reengineering
J — Process Reengineering
K — Total Quality Certification
L — Web Based Learning

7) **Role Envisaged for IT in Employee Empowerment**

In the competitive banking environment, customer service, to a large extent dependent on employee empowerment, which not holds the key to performance management. Traditionally, employees in banks used to be dependent on the manual circulars, to provide guidelines and directions. However, with technology adaptation, it has now become possible to empower employee with information through various IT tools, such as e-mail, Intranet etc., To understand the role of IT in employee empowerment, the responses received from HR chiefs of Private and Public Sector Banks indicated the following:

a) **Private Sector Banks**

- The usage of *e-mail* frequendy (20%) and regularly (20%) respectively. In case of usage of Intranet it is found that 20% each were found to frequendy and regularly.
- *Web based Learning (60% - regularly) , Online Bulletin (60% - regularly), Computer Based Training (CBT) - 40% (regularly).* This indicates that the usage of technology aids for learning initiatives in die private sector banks has been increasing constandy and significandy.



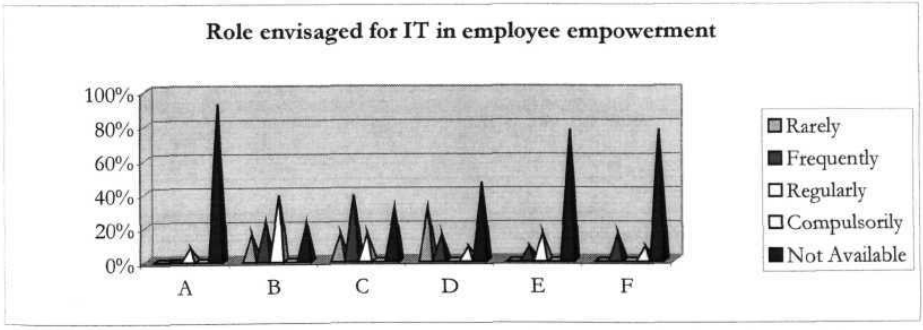
A — CBT for specific software products/ functional areas (FX, Credit) etc.
B- Email
C - Intranet
D — Intranet/Web based learning (Centralized at HO)
E — On-line bulletins
F — Presentation/lecture/training courses by professionals with inputs from IT (IDRBT training courses)

b) **Public Sector Banks**

The scenario here differs, on account of difference of integration of IT. The parametric analysis indicates:

- *E-mail(38% - regularly)* and *Intranet (38% -frequently),* is being used by them.
- The usage of Intranet, the frequency of usage is found to be 38% regularly. While *On-line Bulletins, are* being used by 38% of them frequendy.
- CBTs are being used by only 8% of diem regularly.

The analysis indicates that die private sector banks have been emphasizing on communication through technology tools. However die learning initiatives through technology enabled process are yet to begin.



A - CBT for specific software products/ functional areas (FX, Credit) etc.
B-Email
C — Intranet
D - Intranet/Web based **learning (Centralized at HO)**
E — On-line bulletins
F - Presentation/lecture/training courses by professionals with inputs from IT (IDRBT training courses)

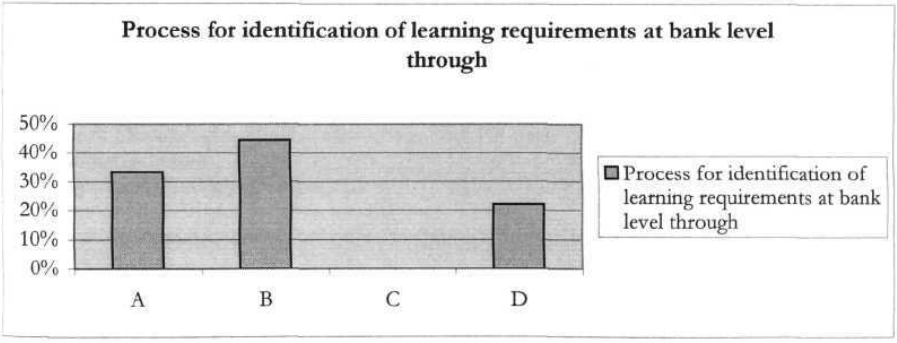
Interpretation: The above analysis, clearly indicates that IT is fully integrated into working environment for employee empowerment and as regards creation of IT enabled learning environment, the process has just begun in case of private banks. On the contrast, the public sector banks, have just begun the process of using IT enabled communication tools and are far from integrating IT into their work environment and any kind of initiatives are yet to begin in regard to IT enabled learning environment.

8) **Learning Needs Identification (LNI) Process-Bank Level & Employee Level**

The preliminary step in creating of a learning environment is identification of learning needs both at the organization level (bank level) and individual level play a crucial role. The research study, being focused on Learning process in banks explored in depth through a variety of questions to the HR chiefs, and the analysis of their responses revealed interesting aspects as below:

a) **Private Sector Banks**

- **LNI - Bank Level:** They appear to be focused and the core area appears to be *Strategic Vision* (44% of them). The other secondary guiding factor is Competency *Mapping through Organisation survey Method* (33% of them) and *Needs Analysis based on Corporate Goals* is yet to be correlated.

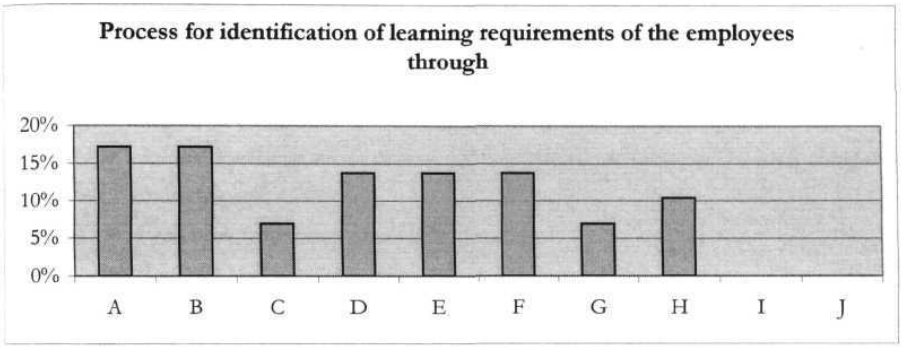


A - Competency mapping for organization through survey method
B - Strategic vision
C - Need analysis in tune with corporate goals
D - Not Available

- **LNI - Employee Level:** They have been adopting multi-pronged approach as detailed below:

- ^ Annual performance evaluation of employees (performance vis-à-vis learning needs) (17%).
- > Branch Managers in consultation with HR Dept. (14%).
- > Branch Managers in Consultation with IT Dept. (14%).
- > Regional Heads Meeting with Branch Managers (14%).
- > Feed-back from employees (17%)

The other minor factors are CEO/ED meetings with Regional Heads (7%); Opportunity to every employee (10%); Random Selection (7%)

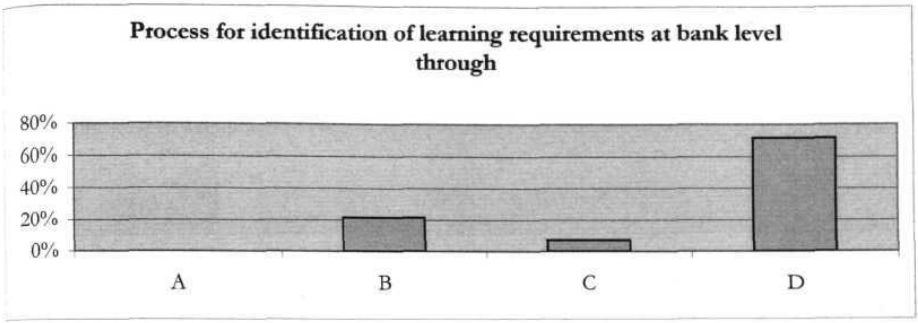


A - Annual performance evaluation of employees (performance vis-à-vis competence/learning need)
B — Feed-back from the employees
C — CEO/ED meetings with Zonal/Regional Heads
D —Regional Heads meeting with Branch Managers
E — Branch Managers concerned in coordination with IT/CPPD Dept.
F — Branch Managers concerned in consultation with HR dept.
G — Random selection
H — Opportunity to every employee
I - Every employee should be given training once in a year
J - Zonal Managers/Controllers concerned in consultation with HR dept.

b) **Public Sector Banks**

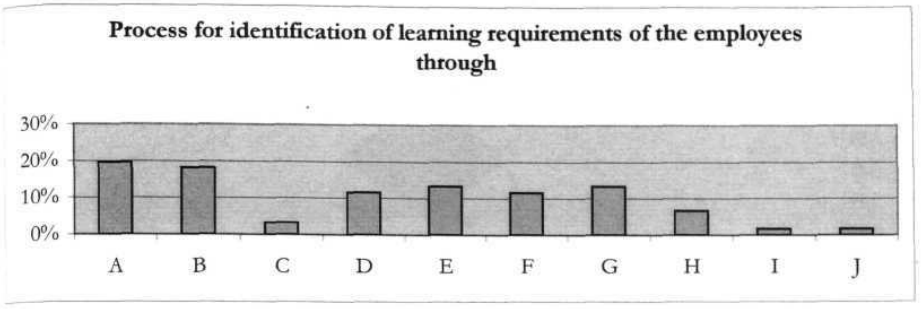
They appear to be guided by few factors at corporate level and at individual level, the factors are varying, based on circumstances:

- **LNI - Bank Level:** The two impacting factors are Strategic Vision (21%) and Needs Analysis in tune with Corporate Goals (7%)



A — Competency mapping for organization through survey method
B - Strategic vision
D - Not Available
C - Need analysis in tune with corporate goals

- **LNI- Employee Level:** The influencing factors, based on the priority are:
  - > Annual Performance evaluation of employees (performance vis-à-vis competence / learning need) - 20%
  - ^" Feed back from employees (18%)
  - ^ Regional Heads Meeting with Branch Managers (11 %)
  - > Branch Managers in consultation with HR Dept. (11%)
  - > Branch Managers in consultation with IT Dept. (13%)
  - > Opportunity to every employee (7%)
  - > Random Selection (13%)
  - > CEO/ED meetings with Zonal/Regional Heads (3%)
  - > Every employee should be given training once a year (2%)
  - > Zonal Manages in consultation with HR Dept (2%).



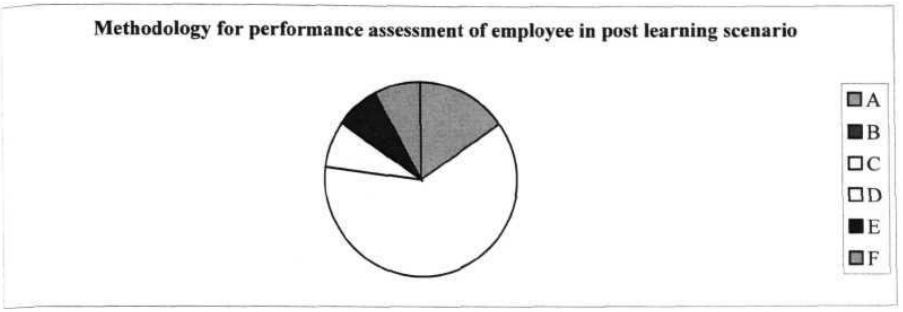
A — Annual performance evaluation of employees (performance vis-à-vis competence/learning need)
B - Feed-back from the employees
C - CEO/ED meetings with Zonal/Regional Heads
D -Regional Heads meeting with Branch Managers
E — Branch Managers concerned in coordination with IT/CPPD Dept.
F - Branch Managers concerned in consultation with HR dept.
G — Random selection
H — Opportunity to every employee
I - Every employee should be given training once in a year
J — Zonal Managers/Controllers concerned in consultation with HR dept.

Interpretation: On a perusal of the above analysis, it is evident that the private sector banks are focused, both at the corporate and Employee levels to make die learning system correlative to the organizational performance. However in case of public sector, the focus appears to dissipated among various steps due to blind adoption of procedures.

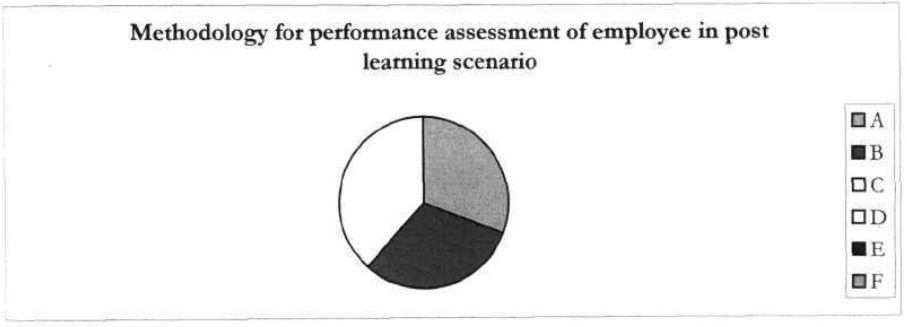
9) **Performance Assessment in Post Learning Scenario**

Learning per se, would have no relevance, unless it is transported into work environment *(Transfer of Learning),* in the post learning scenario. The study explored the this aspect and found the following during the analysis:

The Private Sector Banks, seem to equitably (33% each) depend three factors i.e., Competency Assessment; Performance measurement/evaluation and skills rating. In case of Public Sector Banks, They are dependent on two factors, namely Skills Rating (44%); Performance Measurement/evaluation (22%).



A — Performance measurement/evaluation
B — Competency assessment
C - Skills rating
D - Not Available
E — Not qualified & quantified
F — Yet to be introduced

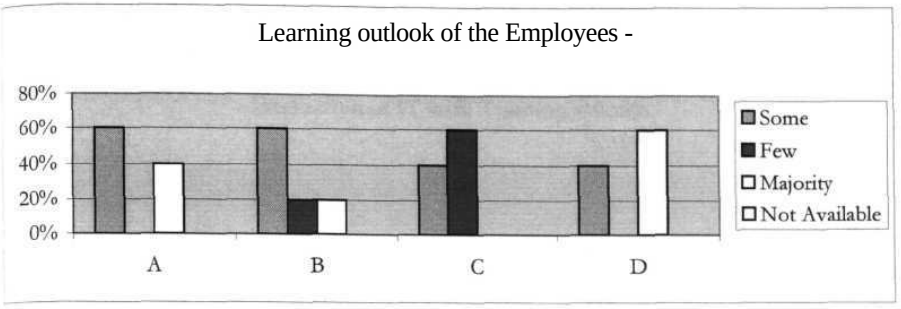


10) Learning Outlook of Employees

The extent of learning is to a large extent dependent on the attitude and outlook of the employees. In the absence of employee involvement, the corporate strategies and plans are bound to become redundant. The Analysis of responses from both the segments elucidate the following:

a) **Private Sector Banks**

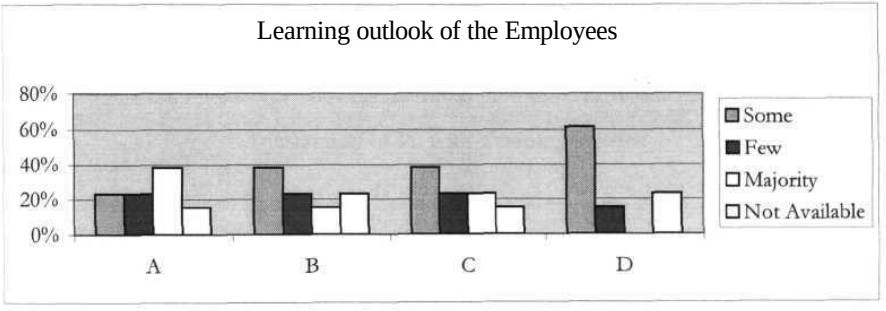
Some of the employees operate from *Assisted Learning (40%),* while the majority of the employees operate from *Self Learning* (60%) Mode. Rarely, do the employees are required to be prodded into *Compulsory Learning.*



A - Assisted learning
B - Compulsory learning
D -Self learning
C — Reactive learning

b) **Public Sector Banks**

There are close to 38% of employees, who rely on *Assisted Learning,* and a minority of about 15%, who operate from *Self Learning* mode. On the contrast, there are sizeable (38%) of the employees, who operate from *compulsory and reactive learning* Modes.



A - Assisted learning
B - Compulsory learning
D -Self learning
C — Reactive learning

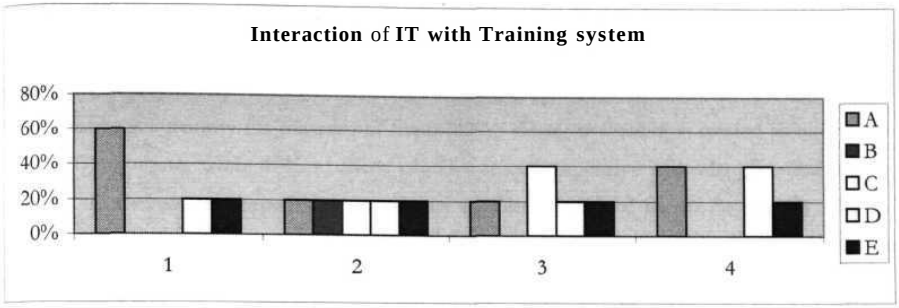
11) Interaction of IT with Training System

The traditional methods of training practiced in banks, are cost and time prohibitive, which can no longer support the ever growing and dynamically changing training needs of banks in the country. It is here that IT, which has become omni-present in work place, has a key role in training context too. The analysis of responses from both the segments are :

a) **Private Sector Banks**

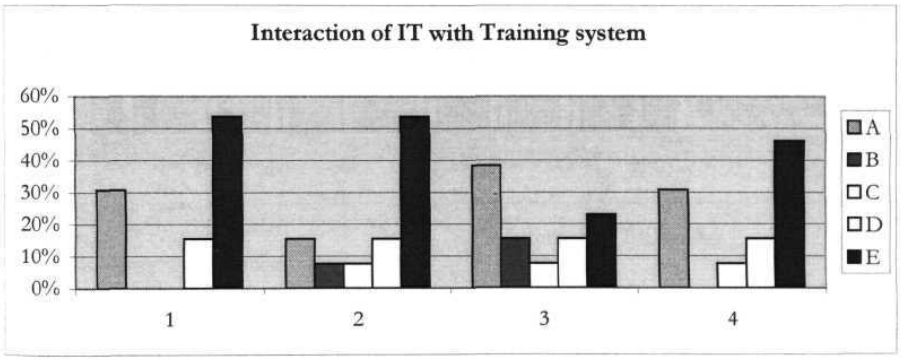
In their case, close to 40%, there is fair amount of implementation of Web Based Training (through centralized solution at corporate level) and Delivery of training through Intranet (60%) on Specified

Areas. As far as Learning by accessing web sites (some of the employees - 20%) and Tie-up with other Organizations, 40% of the employees have been using them.



b) Public Sector Banks

In cases of about 31% of them are envisaging use of Web *Based Learning* and *Delivery of training modules on specified subjects.* For the close to 15% of cases, Learning through Web sites, is being envisaged. Here, it is pertinent to note that in cases of majority of diem, Internet Access is simply non-existent, on grounds of cost-prohibitiveness on one hand and Security Concerns on the other. Similarly, there are 15% of employees, who have access to utilize *Tie-up facilities with other organisations.*



1 - Intranet for delivering training modules on specified areas
2 — Learning through access web sites
3 -Tie-up with other organization (Management Schools/IT Institutions etc.,) for online learning by employees
4 -Web-based learning (through centralized solution at corporate level

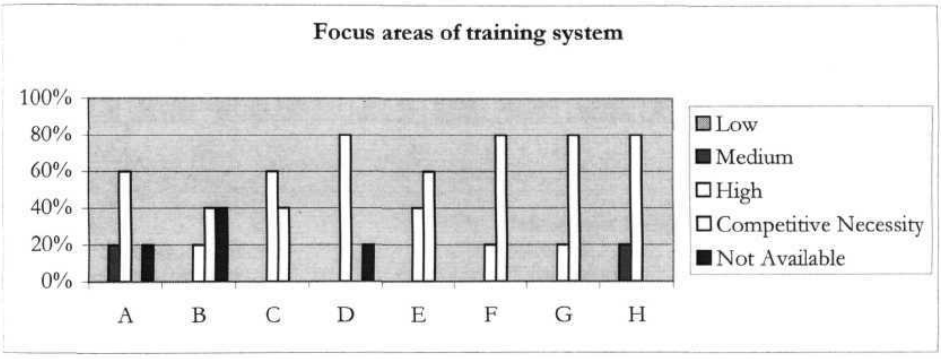
A - Envisaged
B — Used by some employees
C - Used by most of the employees
D - Fully integrated with work processes
E - Not available

12) Focus of Training System

The focus areas for training system have quite logically undergone change, to meet the demands of changed scenario. The priorities of both the segments, as per the analysis are :

a) **Private Sector Banks**

Retail Banking is a priority for majority of them (80%). *Corporate Banking* is treated as high priority by about 60% of them, while 40% of them perceive it as competitive necessity. *Information Technology*, naturally, is viewed as competitive necessity by majority (60%) of them. As regards *Treasury* area, which is a source of profitability, which is technology and intellect driven is viewed as high priority by majority of them (80%). It is incidental to note that the private sector banks, inspite of their relatively smaller size, are major players and have recorded high profits, over the last 3-4 years and hence, the emphasis. Similarly, *Forex* is perceived as high priority area for training by about 60% of them.

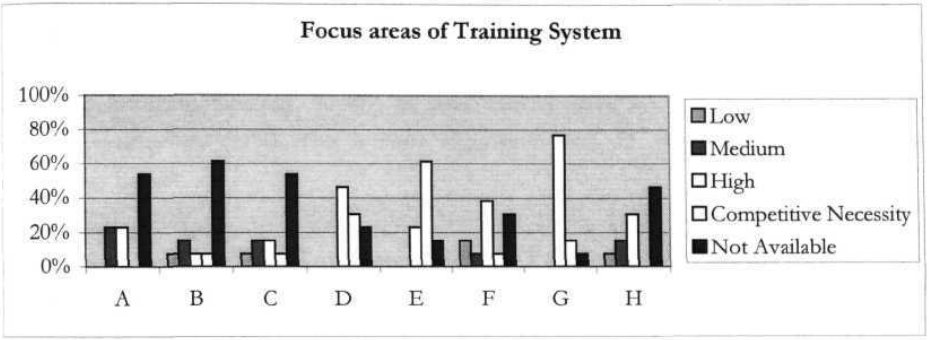


A — Forex
B — Cash Management Services
C — Corporate Banking
D - Credit
E — Information Technology
F — Marketing
G — Retail Banking
H — Treasury

The growing customer awareness and increased competition in the market, has lead to renewed emphasis, on *Marketing* as competitive necessity by 80% of them. The increased scope for profitability and non-fund based business, has made *Cash Management Services*, into a competitive necessity for about 40% of them.

b) Public Sector Banks

In dieir case too, due to reduced credit off-take and Dis-intermdiation in case of blue chip firms, coupled with high Non-Performance Assets, has made them to focus upon *Retail Banking* and *Credit*, which have quite logically become a high priority for 46% of their training system. *Corporate Banking*, is high priority for about 15% of them. *Information Technology*, obviously has become competitive necessity for 62% of them. *Treasury*, is Medium priority for about 15% of them, while *Forex*, is high priority for about 23% of them, especially, the larger banks, who have greater exposure to FX business. They are yet to wake up to die need to prioritize *Marketing* and *Cash Management Services* (which are closely inter-related) and hence these areas low and high priorities for about 8% and 15% respectively.

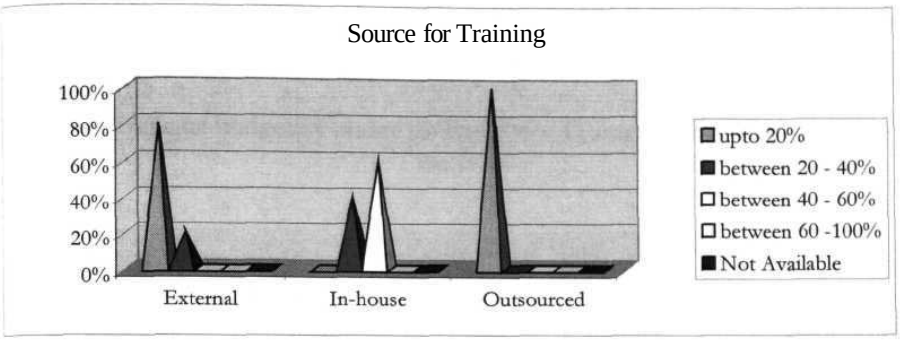


A - Forex
B - Cash Management Services
C — Corporate Banking
D - Credit
E — Information Technology
F - Marketing
G - Retail Banking
H — Treasury

13) Sources of Training

In the era of specialization and Customization, it is virtually impossible for Banks to be totally self-reliant for their training needs. The response from the segments reflects this aspect.

The *Private Sector Banks*, have capability to the extent of 60% to meet the training needs internally and upto 40% of their training needs are being met from external sources by 80% of them.



In case of *Public Sector Banks,* between 20-40% **of their training needs are met** internally by about 31% of them. In some cases (large banks) between 60-100% of there training needs are being met internally by about 46% of them. Between 20-40% of them, get their (23%) training needs met, through outsourcing. Similarly, 20-40% of their training needs are met by having tie-ups with external organizations (31%). This is more so in areas such IT, where these banks have low competency bases.

Analysis of Select PSBs: Top Rated (Select) Public Sector Banks

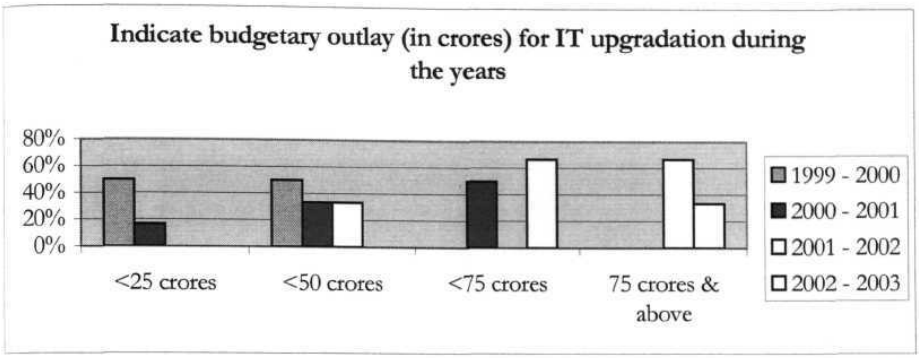
A. Response of IT Chiefs

In addition to the analysis we have seen earlier separately for public vis-a-viz private secotr Banks, for the purpose of better understanding, from among the sample Public Sector Banks included in the study, after analysis of responses received both from the IT Chiefs and HR Chiefs the following Public Sector Banks have been shortlisted for having a better understanding of the trends/features during the analysis:

1. Andhra Bank
2. Bank of Maharastra
3. Canara Bank
4. Corporation Bank
5. Oriental Bank of Commerce
6. Punjab National Bank

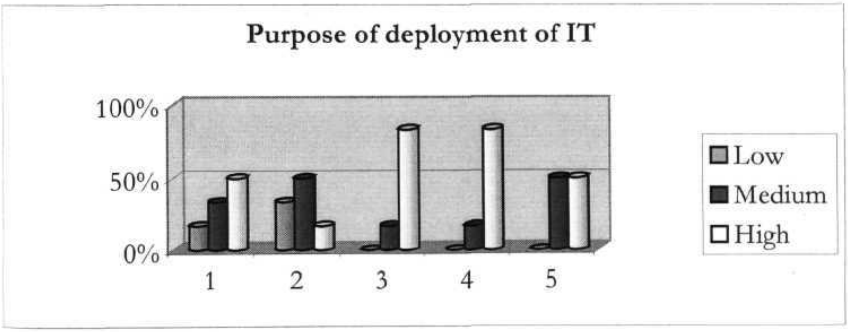
the following parameters have been considered for the purpose of analysis:

1. **Indicate budgetary outlay (in crores) for IT upgradation during the year**



From among the six banks it is observed that two banks have budgetary outlay of less than Rs.25 crores during the year 1999-2000 while just one bank had a budgetary ouday of less than Rs.25 crores during the year 2000-2001. As we analyze the trend, it is observed the budgetary outlay of the banks is increasing over the year and consolidating between Rs. 50 - 75 crores

2. **Purpose of Deployment of IT**

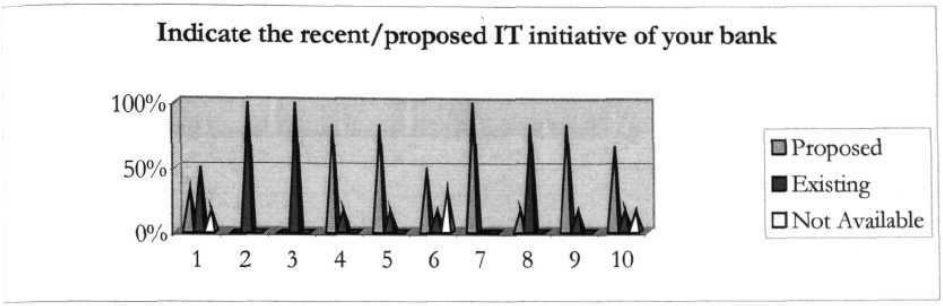


1 — Business process support
2 — Innovation support
3 - Management support
4 - Operational support
5 - Strategic support

On a perusal of the purpose of IT deployment by the banks, it can be seen from the above chart the banks have been according high priority to both management support as well as operational support.

Similarly, business process support and static support are also been emphasized by the public sector banks when they are deciding upon IT deployment.

1. **Indicate the recent/proposed IT initiative of your Bank**



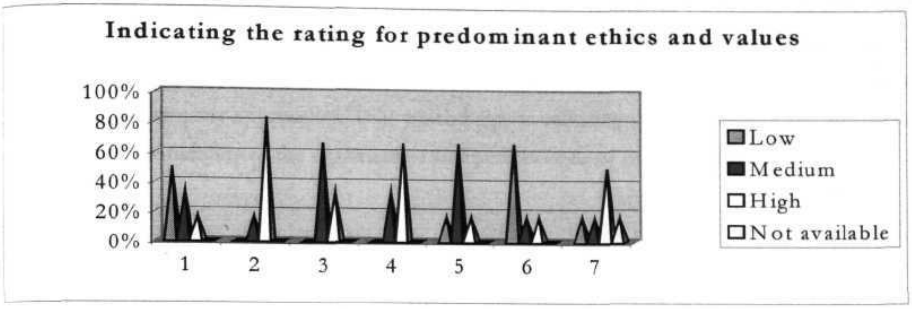
1 - Any branch banking
2 - ATM Network
3 - ATMs
4 - Business Intelligence solutions
5 - Centralized banking software solutions
6 - Core Banking Solution
7 - e-CRM
8 - Integration of banks corporate network with INFINET
9 — Mobile Banking
10 - Net Banking

From the above chart on indicating the various initiatives that have been implemented by the public sector banks it is observed that an overwhelming number of them have already established ATM Network and are also in the process of setting up of ATMs. limited number of them have implemented any branch banking. This can be attributed to the fact most of the public sector banks, thought they have been computerized, the reality is that majority of the computerized belong to the categories of partial/fully computerized branches without being networked.

B. Response of HR Chiefs

The banks indicated above have also be considered for the analysis of the responses of HR Chiefs.

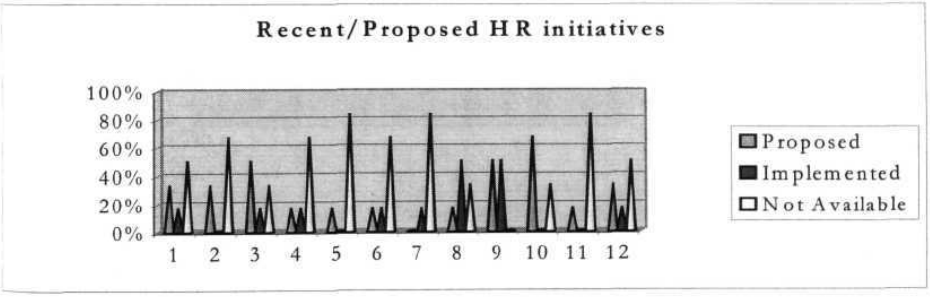
1. Indicating the Rating for Predominant Ethics and Values



1 — Collective/shared learning
2 —Commitment and dedication
3 —Ethical performance
4 —Honesty and integrity
5 - Individual learning
6 - Success at any cost
7 - Transparency

When we analyze the predominant values and ethics as perceived by the HR Chiefs it is observed that they have been placing high priority on "Commitment and Dedication", "Honesty and Integrity". Significantly, "Collective/shared learning" has been accorded low priority by the HR Chiefs. This implies that learning per se, remains to be a personal prerogative of the employees. Further the intense competitive for career progression is with holding the employees from participating in shared learning.

1. **Recent/Proposed HR initiatives**



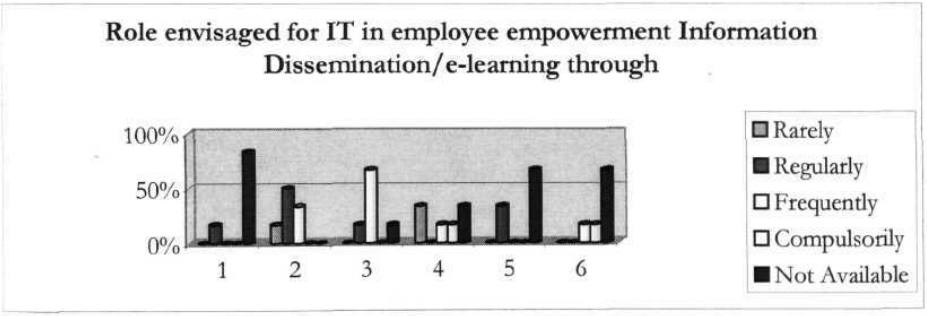
1 — Assessment Centre
2 —Career Planning
3 —Competency Building
4 —Competency Mapping
5 - Cost to the Company Approach (CTC)
6 -Electronic Performance Support System (EPSS)
7 - Organization Climate Survey
8 -Performance Management System
9 -Process Reengineering
10-Succession Planning
11-Total Quality Certification
12-Web Based Learning

On a perusal of the HR initiatives of the select banks, it can be seen from the chart that very few banks have implemented the learning environment facilitating initiatives such as assessment centre, competency building, competency mapping and electronic performance support system. Another matter of concern as project from the chart is that data is not available to the banks on key aspects such as cost to company approach (CTC), which helps in reducing the manpower cost, and helps in improving the profitability of the organization and performance of the individual.

Similarly, these banks woefully lack data about organization climate survey, which effectively indicate that the Public Sector Banks have not made any attempt in scientific study of state of the organization. And most often the various HR initiatives are being taken up because of the personal interest of either the CEO or the HR Chief.

Further to the banks seem to be ignoring the importance of total quality certification, which helps in improving the other ends to systems and procedures, which is mandatory for guarding against frauds and also in improving the functional efficiency.

1. Role envisaged for IT in Employee Empowerment through Information Dissemination/E-learning



1 - CBT for specific software products/ functional areas (FX, Credit) etc.,
2 -Email
3 -Intranet
4 -Intranet/Web based learning (Centralized at HO)
5 -On-line bulletins
6 —Presentation/lecture/training courses by professionals with inputs from IT (IDRBT

The analysis of the above chart helps in understanding the role envisaged for IT in employee empowerment and information dissemination the following is being observed:

Jhe banks for routine communication are using e-Mail extensively. The usage of intranet is also found to be frequent among the select banks. However the banks seem to be lagging behind in usage of On-line bulletins; presentation/ lecture/ training courses by professionals with inputs from IT (IDRBT training courses). The usage of CBTs for CBT for specific software products/ functional areas (FX, Credit) etc.,

Chapter - 6: Correlator^ analysis

1. **IT Upgradation:** On a perusal of the data, it is observed that the budgetary outlay of private sector banks towards IT upgradation has been stabilizing, due to the fact, they have been consolidating the growth, and in case of public sector banks, the expenditure has been picking up and has been varying, due to the scattering of these banks at various levels of IT upgradation.

2. **Purpose of IT Deployment** The *private sector banks* have been focusing equally both on the operational as well as strategic support areas. They have been also been emphasizing upon the business process support and management support. This vindicates the fact that they have been adopting an integrated and holistic view towards IT. It also indicated that IT is well integrated into their business process, since their strategy has been to leverage IT for their competitive advantage. This is possible when awareness and learning is an organization wide phenomenon. This aspect is elucidated with the correlatory focus of HR chiefs, to provide "Avenues for knowledge and skills upgradation". They have been planning for attraction & retention strategies by providing *Challenges Assignments (with scope for learning), Flexible and slutonomous work environment* apart from ensuring *Vast Track Careers,* and individualized and attractive *Compensation Packages.*

   The public sector banks on the contrast have emphasizing upon the operational aspects, over the other aspects i.e., business process, management and strategic supports. Due to regulatory constraints, such as Industry Level wage agreements and bank level bi-partite agreement, they have been utilizing the available training infrastructure, as part of their learning initiatives. But, the question is whether traditional training approach, alone can motivate the employees to learn and create or sustain a learning environment in these banks. This is leading to two significant implications, first level of self learning attitude among the employees and higher exodus of IT personnel to IT Industry and Private sector Banks.

3. **IT Implementation and Organizational Initiatives:** An analysis of the data indicates that both the private and public sector banks at the primary level have been focusing primarily on Creating Awareness among employees, Training employees of IT, discuss with employee associations/representatives. This helps in creating learning tempo among the employees at large. The other aspects have been Training employees of IT and other departments in required skills and competencies.

IT is "being deployed effectively by both the segments. E-mail & Intranet are being for the purpose.

4. **Competency Development and Learning Initiatives** As recruitment strategy the private sector banks have been implementing planned approach for competency building apart from recruiting general bankers with advanced IT skills from HR chiefs perspective. The IT chiefs in coordination with HR Chiefs have been focussing training the various categories of management in relevant areas. Both the departments have been synergizing their initiatives for effective results.

5. **Performance Management and Learning Initiatives** Learning is not an end in itself, but is imperative in the context of organizational performance, which can be driven through performance management and associated learning initiatives at employee level.

The *private sector banks* have been adopting an integrated approach by implementing *performance management system, Career planning Competency building competency mapping cost to company approach and process re-engineering approach.* A study of the above methods indicates that they have effectively addressing the learning needs at micro (employee level) as well as macro (bank level) approaches.

The *public sector banks* on the contrary present a poor scenario, where a majority of these are relegated to academic debates. The response from IT as well as HR chiefs confirms the fact. During the informal discussion with them, they have expressed their inability to initiative drastic measures to improve the situation, due to *Systemic Inertia.* {Inertia in relation to kinetic physics refers to the tendency of the system to continue the status of dynamism (movement).

6 **IT Tools and Organizational Learning:** The private sector banks have been regularly using email, intranet and online bulletins for information dissemination and employee empowerment. The public sector banks on the contrary are found to use sparingly these tools.

It is an indication to the extent of cultural adaptation to the IT implementation. The private sector players have been attempting to make IT an integral part while the public sector banks perception is that of adapting to inevitable phenomenon and forced situation.

The approach and strategy have to differ in both the cases. The private players have to advance into higher levels of usage i.e., implementing CBTs, learning management system, web based learning. The public sector has to shun its apathetic approach and adopt a more proactive approach. A beginning for this would be to discard the traditional notion that training system is parking place for ineffective and unsuccessful from field operations.

Another major factor is the interaction with external aid/institutions in sourcing IT enabled learning services. The private sector, realizing that it is not dieir area of competency have been outsourcing by tying up with external bodies, from cost factor, flexibility and learning updation perspectives. The public sectors on the contrary have been dependent more on internal capability due to established infrastructure widi a little support from external agencies.

This factor is closely related to the learning outlook of the employees in term of assisted learning, compulsory learning, reactive and self-learning modes.

Chapter - T: Cross Validation Analysis

Apart from analysis of primary **data collected for the purpose** of arriving **at** findings and conclusions, a need was felt for cross validation of the data with other sources especially in case of the Public Sector Banks. It is in this context that the data which would be secondary from the perspective of this research, however relatively speaking the data obtained from alternate source can also be categori2ed as primary. The reason being the data was collected from the data submitted by the Public Sector Banks to IDRBT (Institute for Development and Research in Banking Technology), an apex level Institution established and funded by Reserve Bank of India. The information submitted by the Public Sector Banks for the financial years pertaining to 2000-2001 and 2001-2002 for the *"Annual Awards for Excellence in Banking Technology* being presented by die Institute since 2001.

The Banks axe advised to submit the data in the format specified by the Institute, based on various parameters such as extent of computerization in Bank, Number of Network Branches, Plan for implementation of Technology Solutions, usage of INFINET etc., during that year and die ensuing year. Technology Implementation/Upgradation by Public Sector Banks is only a means for better business results and improved profitability. Hence the Public Sector Banks in accordance with die format specified also include information about the business performance indicators like business per employee etc. The consolidated data based on the information submitted by the Public Sector Banks to IDRBT has been considered for the purpose of following correlation analysis.

The data submitted by the banks for die financial year 2000-2001 and 2001-2002 has been captured in die following tables I (a & b) and II (a, b) :

Table - 1 : Correlation Analysis for the financial year 2000-2001.

Table I - a: State Bank and Associates

Sl.No.	Particulars	Average Business / employee (crs.)	% of Branches Computerized
1.	State Bank of Hyderabad	1.65	0.13
2.	State Bank of Bikaner & Jaipur	1.22	0.04
3.	State Bank of India	1.56	**0.31**
4.	State Bank of Indore	1.26	0.17
5.	State Bank of Mysore	1.22	0.12
6.	State Bank of Patiala	1.50	0.34
7.	State Bank of Saurashtra	1.24	0.17
8.	State bank of Travancore	1.57	0.29
Correlation Analysis: 0.605			

Table I-b: Other Public Sector Banks

Sl.No.	Particulars	Average Business / employee (crs.)	% of Branches Computerized
1.	Allahabad bank	1.41	0.14
2.	Andhra Bank	1.96	0.42
3.	Bank of Baroda	1.73	0.20
4.	Bank of India	1.81	0.23
5.	Bank of Maharashtra	**1.67**	0.28
6.	Canara Bank	1.79	0.23
7.	Central Bank of India	1.10	0.22
8.	Corporation Banl	2.33	0.72
9.	Dena Bank	2.07	0.23

Sl.No.	Particulars	Average Business / employee (crs.)	% of Branches Computerized
10.	Indian Bank	1.50	0.32
11.	Indian Overseas Bank	1.64	0.27
12.	Oriental Bank of Commerce	2.47	0.17
13.	Punjab & Sind bank	1.58	0.19
14.	Punjab National Bank	1.51	0.06
15.	Syndicate Bank	1.52	0.14
16.	UCO Bank	1.21	0.12
17.	Union Bank of India	1.86	0.34
18.	United bank of India	1.32	0.17
19.	Vijaya Bank	1.62	0.34
Correlation Analysis : 0.514			

For the purpose of correlation analysis, out of the data submitted by twenty seven Public Sector Banks, for the purpose of analysis of this research, two parameters i.e, average business per employee and % of branches computerized in the respective banks has been considered for examining correlation.

- The Correlation between Average Business per Employee and the % of computerized branches for the year 2000-2001 for the 27 Public Sector Banks is 0.548. This implies that the IT expenditure towards computerization of greater number of branches by the Public Sector Banks has a positive correlation with the average business per employee.

Cluster Analysis

a. **Cluster - I (State Bank and Associates^:** The correlation between average business per employee and the % of computerized branches in case of State Bank and Associates for the year 2000-2001 is **0.605.** This implies that correlation between increase in average business per employee vis-à-vis percentage of computerized is positive and higher when compared to the overall correlation for the all Public Sector Banks at large.

b. **Cluster - II (Other Public Sector Banks^:** The correlation between average business per employee and the % of computerized branches in case of other Public Sector Banks for the year 2000-2001 is **0.514.** This implies that correlation between increase in average business

per employee vis-à-vis percentage of computerized is positive and slightly **lower when compared** to the overall correlation for the all Public Sector Banks.

Table - II: Correlation Analysis for the financial year 2001-2002

Table II - a: State Bank and Associates

Sl.No.	Particulars	Average Business / employee (crs.)	% of Branches Computerized
1.	State Bank of Hyderabad	1.60	0.18
2.	State Bank of Bikaner & Jaipur	1.36	0.40
3.	State Bank of India	1.73	0.34
4.	State Bank of Indore	1.69	0.24
5.	State Bank of Mysore	1.30	0.20
6.	State Bank of Patiala	1.86	0.63
7.	State Bank of Saurashtra	1.52	0.27
8.	State Bank of Travancore	1.79	0.35
Correlation Analysis : 0.502			

Table II - b: Other Public Sector Banks

Sl.No.	Particulars	Average Business / employee (crs.)	% of Branches Computerized
1.	Allahabad Bank	1.73	0.20
2.	Andhra Bank	2.19	0.57
3.	Bank of Baroda	2.12	0.24
4.	Bank of India	1.75	0.35
5.	Bank of Maharashtra	1.84	0.38
6.	Canara Bank	2.10	0.29
7.	Central Bank of India	1.48	0.32

Sl.No.	Particulars	Average Business/employee (crs.)	% of Branches Computerized
8.	Corporation Bank	2.76	0.79
9.	Dena Bank	2.21	0.44
10.	Indian Bank	1.45	0.34
11.	Indian Overseas Bank	1.78	0.32
12.	Oriental Bank of Commerce	3.10	0.19
13.	Punjab & Sind Bank	1.78	0.22
14.	Punjab National Bank	1.62	0.08
15.	Syndicate Bank	1.61	0.20
16.	UCO Bank	1.34	0.13
17.	Union Bank of India	2.42	0.60
18.	United Bank of India	1.40	0.18
19.	Vijaya Bank	1.77	0.38
Correlation Analysis : 0.515			

Similar to the correlation analysis for the year 2000-2001, the data for the year 2001-2002 submitted by twenty seven Public Sector Banks, in terms of two parameters i.e, average business per employee and % of branches computerized in the respective banks has been considered for examining correlation.

- The Correlation between Average Business per Employee and the % of computerized branches for the year 2001-2002 for the 27 Public Sector Banks is **0.474.** This implies that the IT expenditure towards computerization of greater number of branches by the Public Sector Banks has a positive correlation with the average business per employee. However the extent of correlation is slightly lower when compare to the previous year.

* **Cluster Analysis**

a. **Cluster - I (State Bank and Associates):** The correlation between average business per employee and the % of computerized branches in case of State Bank and Associates for the year 2001-2002 is **0.502.** This implies that there has been positive correlation between increase in average business per employee vis-à-vis percentage of computerized branches is

positive and higher when compared to the overall correlation for the all Public Sector Banks at large. However, relatively the correlation is lower by 0.102.

b. **Cluster - II (Other Public Sector Banks):** The correlation between average business per employee and the % of computerized branches in case of other Public Sector Banks for the year 2001-2002 is **0.515.** This implies that correlation between increase in average business per employee vis-à-vis percentage of computerized is positive and slightly higher when compared to the overall correlation for the all Public Sector Banks. This is in contrast to the lower correlation of other Public Sector Banks vis-a-vis the overall correlation for all the public Sector bank during the year 2000-2001.

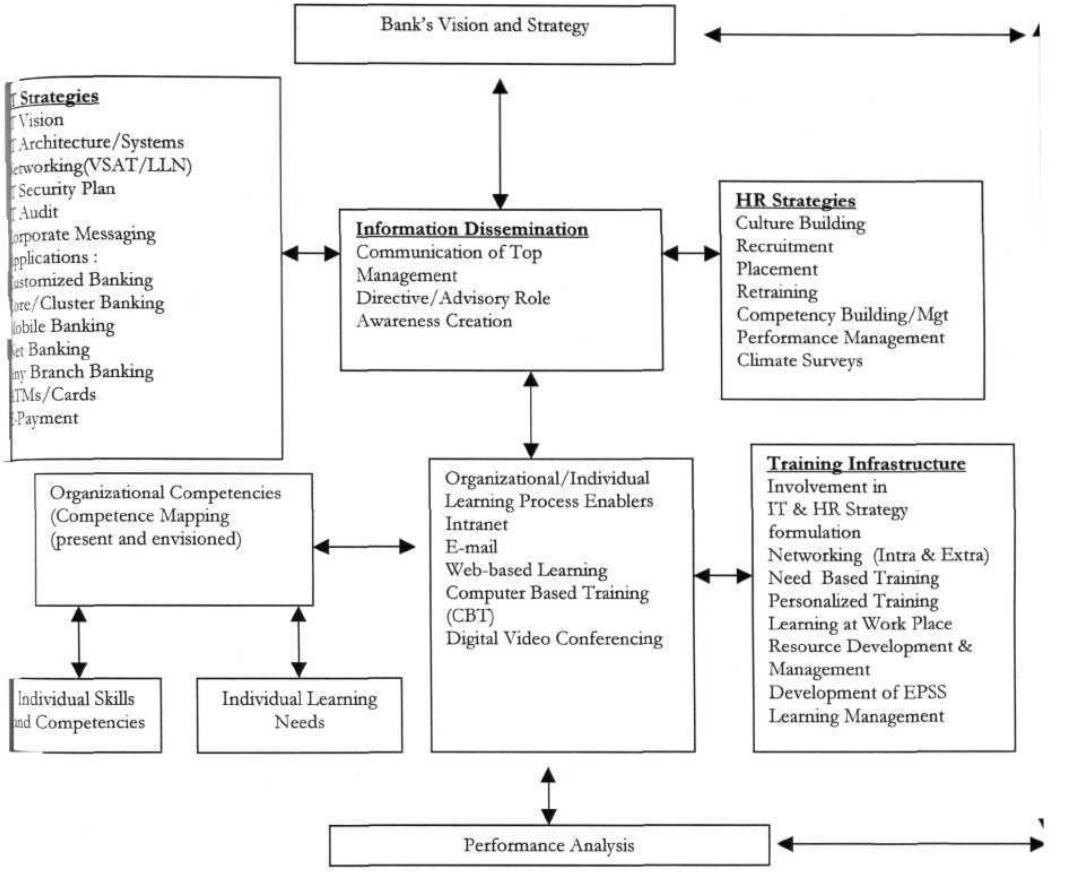
In this context it is also to note that the perception Return on Technology Investment (ROTI), is as under:

"The banks per se have been looking at return on investment of technology investment (ROTI) both in terms of tangible and intangible. On the intangible side we have the reduced manpower cost, Business per employee, faster pace of introduction of new products. On the intangible side we have facets side positive image of the bank, because of technological transmission, ability to comply with regulatory requirement through effective risk management systems, better house keeping, faster re-conciliation and reduce risk of frauds".

The correlation analysis along with the cluster analysis indicated above clearly proves the positive correlation between computerization of the banks and increase in average business per employee. Hence, it is imperative for the banks to embark upon IT adoption/upgradation both from the perspectives of commercial (profit) and competitive reasons. But to embark and sustain the IT adoption process in the banks, the banks will have to imperatively build on the learning processes should leverage around the IT infrastructure.

11. Culturally, though both the segments to place importance, value cultural aspects such as formality, control and transparency. However, in case of sharing of learning and knowledge, both the segments are yet to accord priority as in case of other values. This holds the key to creating and sustaining Technology enabled Learning Processes in banks.
12. The public sector banks have to improve in the areas of training their employees, before implementing new IT initiatives as compared to their private sector counter parts. This would not only engender support for better integration of IT into their business environment, but would also help in facilitating learning processes.
13. The usage of IT in employee empowerment through information dissemination is being implemented through multi-pronged approaches, to ensure better diffusion of learning content, across the length and breadth of organization. However, the public sector banks have to look beyond the introductory e-mail level, to advanced concepts such as intranets for EPSS, web based learning etc.,
14. The coordination between HR and IT departments in Learning Needs Identification (LNI) and Learning Delivery Channels (LDCs), in correlation with Service Delivery Channels.
15. The competency building plans, though in place, at all levels, but more emphasis is required at top management level, for ensuring strategic direction and better IT integration, especially in Public sector Banks.
16. There is need for competency building of general bankers in public sector bankers, both for narrowing the competency gaps and building techno savvy culture.
17. There is need for improving synergy between the performance management and learning systems in banks.
18. The Technology based Learning (INTRANET, E-learning etc,) has to be customized to the Learning Levels - Introductory, Advanced and Expert Levels. A self-assessment test can be made mandatory, based on which the level of Learning Access can be permitted.
19. The IT adoption/upgradation initiatives of the banks have positive correlation on the business performance and profitability of the banks. This emphasizes the need for facilitating learning environment through the IT infrastructure built by the banks.
20. Based on the Analysis and Findings of the Research Study, the following model is being suggested for Banks. The Banks use the model, both as a check list for self-analysis of the IT Implementation and modernization as well an indicator for the evolution of IT enabled Learning Processes in the bank.

Strategic Model for IT Enabled Organizational Learning processes



Details of the Model

The proposed strategic model is integrated and holistic.

The model is both descriptive as well normative and it can be used for assessment of the banks' procession in integrating the IT with Organizational Learning Processes in the following three stages:

Stage I:- Formulation/Existence of Strategic Vision/Road map for the Bank. It is imperative for the banks to draw up a Strategic Vision, after competitive analysis, taking into cognizance the existing resources and constraints.

Stage II:- At the stage the bank can evaluate the presence of well defined IT Strategies, HR Strategies and information dissemination exercises for motivation of employees and awareness building. There are three components in this stage:

a) IT Strategy :In this, the bank can evaluate the existence or plan for preparation of IT Vision/Architecture, Networking Architecture VSAT/LLN), Existence of Security Plan and awareness, periodical IT Audit to assess the robustness of the systems and procedures and their adherence by the employees.

The next step in this stage is building up of Corporate Messaging system, which can effectively handle the intra-bank communication requirements.

At the Applications Level, the bank examine in term of implementation of various levels of IT enabled Banking services for its customers:

8. Customized Banking
9. Core/Cluster Banking
10. Mobile Banking
11. Net Banking
12. Any Branch Banking
13. ATMs/Cards
14. E-Payment

b) HR **Strategies:** Traditionally the HR Approach of bank in the country has been that of reactive and more of personnel management and IR Approach. In the competitive scenario, when Human Resources are going to be the Co-key differentiates along with IT strategies, the banks have to adopt proactive HR Strategies of **Culture Building** along with reorienting their **Recruitment** to attract qualitative human resources, their **Placement, Retraining** the existing manpower through **Competency Building/Management** efforts and **Performance Management** for organizational excellence. More importantly, it is high time that HR departments in banks train themselves to treat the employees as internal customers and for assessment of satisfaction levels, they should

periodically undertake climatic surveys for feed back on their performance and also reorienting their HR strategies.

c) **Information Dissemination:** The key aspect in the model at stage II is information dissemination efforts of the top management with twin objectives of creating awareness to the IT and learning initiatives of the bank and also to motivate the employees at large.

Stage III:-

a) **Organizational Competencies:** In this level, the primary task is mapping the competencies of the organizations, in terms of existing and envisioned. Any learning process per se, has to goal oriented to be effective, more so in the organizational context. Indian Banks have to immediately map the competencies, keeping in view their banks focus areas and strategies. The competency mapping exercise helps in identification of the Learning Needs (LNI).

b) Organizational/Individual Learning Process Enablers: Learning Process needs continues support and sustenance, which can effectively be provided by IT Applications such as E-Mail, Intranet, Web-based Learning, Computer Based Training (CBT), Digital Video Conferencing etc. The usage of technology helps in provided the Learning Content to the employees in work place and provides scope for employee empowerment and also enables work place learning.

c) **Training Infrastructure:** Traditionally the training system in banks has been relegated to offline position and the systems was supposed to achieve Training targets, in term so the number of employees, as per the decision of the top management. The Line management too, end up sending sparable employees to the training programmes. This process over the years has made the training infrastructure more as expenditure. In the IT enabled learning scenarios, the training infrastructure should assume proactive stance and handle the following aspects:

- Involvement in IT & HR Strategy formulation Networking (Intra & Extra)
- Need Based Training through scientific training needs analysis and competency gaps.
- Personalized Training
- Learning at Work Place
- Resource Development & Management
- Development of EPSS
- Learning Management

Stage IV:-

Performance Analysis: The learning efforts will have relevance and credibility only if they translate into better productivity and profitability for the banks should undertake an annual performance analysis to identify the gaps **and** accordingly initiate remedial measure to improve the IT **and** Learning Integration.

Brief Summary

The Indian Economy, especially the Banking and Financial Sector, has been undergoing structural changes due to global alignment and a variety of factors, and more specifically die Information Technology is influencing this process of **transformation. The Indian** Banks are grappling with technology change phenomenon.

This doctoral research on " Role of Information Technology in Organizational Learning - Indian Banking Sector" was undertaken to study die technology adoption/upgradation processes in Indian Banks. But, to deal with the phenomenon, the traditional methods of learning are unable to meet the large scale and continuous competences upgradation requirements of employees.

It is in diis context that banks are having a fresh perspective at technology, not just as a business enabler but also supporting and facilitation of Organi2ational Learning processes.

The Chapter 1, "Organisational Learning & Information Technology", gives a bird's view of concepts pertinent to Organizational Learning, its necessity and relevance in the workplace context, its inter-relationship with various related concepts such as knowledge management, organizational IT requirements, virtual organizations, technology based training, categories of learning, role of technology in transformation of training to learning, performance & its relationship with learning, quality considerations etc. Finally, the chapter covers recent phenomenon such as web based learning, training for IT adaptation.

The *Chapter 2, "Banking & Technology Trends Overview",* begins with impacting developments in the banking sector, the transition phenomenon & various phases, sectoral analysis for various segments i.e. New Private Sector Banks, Old Private & Public Sector Banks, Comparative Performance Analysis of Indian Banks. In the Banking Technology area, die various trends & perspectives, Stages of IT application in banks, Strategic technology responses of RBI, Internet & Virtual banking, IT & competitive strategy, Security considerations, gives capsular glance of the transformation of Indian Banking, in its approach towards global alignment.

The Chapter 3 "Problem, Definition and Scope", reviews the research in the areas of organizational learning, information technology in organizational learning and Indian banking scenario. Based on the review, die scope of die research has been defined.

The Chapter 4 "Research Methodology and Data Collection", elucidates the research **methodology, sample** selections, strata and brief introduction to each of the banks included in the study.

The Chapter 5 "Data Analysis and Interpretation", analyses the data collected from the sample banks i.e. from IT as well as HR Chiefs in terms of various parameters.

In the next Chapter i.e. Chapter 6 'Correlator)! Analysis", an attempt was made to understand the extent of correlation between the responses of IT and HR Chiefs and its implications for the banks.

The Chapter 7 "Cross Validation Analysis", the research results of primary data has been cross validated with the secondary data from all the public **sector banks in terms of** correlation between the average business per employee and extent of computerization.

Finally in Chapter 8 "Findings of the Study and Suggestions", the findings of the study along with the suggestions in the form of strategic model for IT enabled organizational learning process has been presented.

Appendix - 1 ; Questionnaire for IT Chiefs

This questionnaire is aimed at collecting data for doctoral research on the topic *"Role of Information Technology in Organisational'Learning -A study on Indian Banking Sector"* under the guidance of Dr. V. P. Gulati, Director, IDRBT from University of Hyderabad (UoH). The study aims at understanding the role and impact of Information Technology in creation/facilitation of learning environment in Indian Banks. Indian Banking is undergoing competitive metamorphosis in the digital era, where the pace of Organizational learning is the only differentiating factor which can provide sustainable competitive advantage to banks, impacting performance and employee productivity.

This questionnaire is customized and aimed at IT Chiefs, who are playing a decisive role in strategy formulation and implementation in banks. The identity of the respondents would be kept confidential while their responses would help fine-tuning the thought process of the research, which ultimately aims to address the contemporary and all-pervasive challenge of managing organizational learning with Information Technology:

SI. No	Issue/ Aspect/Policy & Details
1.	Name of the Bank
2.	Name of the IT Chief
3.	Does your bank have an IT Policy/Strategy and the Roadmap for effective implementation? Yes/No If yes please explain in brief
4.	Time horizon of planning - 3 years/5 years Others (please specify)
5.	Indicate budgetary outlay (in crores) for IT upgradation during the last five years (Scale: 1 - <25 crores, 2 — <50 crores, 3 - <75 crores, *A — IS* crores & above) ^ 2001 - 2002 1 2 3 4 ^ 2000-2001 1 2 3 4 ^ 1999-2000 1 2 3 4
6.	Budgetary outlay (in crores) for the current fiscal year (2002 — 2003)

Sl. No	Issue/ Aspect/Policy & Details
7.	Purpose of deployment of IT (Priority Scale: 1 - Low, 2 - Medium, 3 - High) ^ > Operational support 1 2 3 ^ Business process support 1 2 3 ^ > Management support 1 2 3 " ^ Strategic support 1 2 3 ^ > Innovation support 1 2 3
8.	Which of the following statements best describes the bank's level of IT adaptation ^> Introductory level (PC based/standalone) *> Learning level (LAN/WAN) ^> Application implementation level *> Expert level (Centralized/ distributed solution)
9.	Did the bank reengineer business processes before IT implementation? Yes/No If Yes, please explain in brief
10.	Did the bank conduct Information Orientation (IO) Survey for employees? Yes/No If yes please explain in brief
11.	Information behaviors and values define use of IT (Priority Scale: 1 — Low, 2 — Medium, 3 -High) '*> Integrity 1 2 3 *> Formality 1 2 3 '*> Control 1 2 3 ^ Transparency 1 2 3 ^ Sharing 1 2 3 ^ > Pro-activeness 1 2 3
12.	Did the bank deploy any method to study the effect of IT adaptation on business performance? Yes/No If YES please explain in brief If NO. are you planning in near future
13.	Did the bank conduct Information Systems Audit to ensure that the information system safeguards assets, maintain data integrity and fulfills the organization goals effectively and also consumes resources efficiently? Yes/No If YES please explain in brief If NO. are you planning in near future
14.	Indicate the recent/proposed IT initiatives of your bank

Sl. No	Issue/ Aspect/Policy & Details		
		Existing	Proposed
	^> Net Banking ^ Any branch banking ^> ATMs/ATM Network ^ e-CRM *^> Business Intelligence solutions ^ Centralized banking software solutions ^> Integration of bank's corporate network with INFINET ^> Mobile Banking ^> Core Banking Solution (Others please specify)		
15.	Indicate the methods or steps initiated by the bank before implementing IT initiatives *^> Creating Awareness among employees ^ Training the employees of IT and other departments in required skills and competences ^ Training of new recruitees *^> Inform the stake holders through wider publicity ^> Discuss the issue in the customer service meeting ^> Discuss with employee associations/ representatives (Others please specify)		
16.	Envisaged role for IT in empowerment of employee through information dissemination (Scale: 1 — Occasionally, 2 - Frequently, 3 - Regularly) ^> E-mail 1 2 3 Q> IT Newsletter 1 2 3 ^ Intranet (Bank's portal for employees) 1 2 3 ^ Internet/Web-based learning (Centralized at HO) 1 2 3 ^> On-line bulletins 1 2 3 ^> CBT for specific software products/ functional areas (FX, Credit) etc. 1 2 3 ^ Presentations/lectures/training courses by professionals with inputs from IT (training courses from external Institutions) 1 2 3 Q> Chat 1 2 3 ^> Bulletin Board 1 2 3		

Sl. No	Issue/ Aspect/Policy & Details
17.	How does the IT department coordinate with HR department in identifying IT related learning requirements of the employees through, V Annual Performance evaluation of employees (performance vis-à-vis competence/ learning need) ^> Feed-back from the employees ^ CEO/ED meetings with Zonal/Regional Heads S> Regional Heads meeting with Branch Managers ^ Branch Managers concerned in coordination with IT /CPPD dept ^ Branch Managers concerned in consultation with HR dept. ^> Random selection or opportunity to every employee ^> Post training deployment/ assessment
18.	Did the bank recently implement/modify Performance Management Systems such as 360 degrees appraisal, if so, please give details.
19.	Management areas where IT departments coordinates with HR department ^ Recruitment ^ Staff regulations ^ Promotion ^ Training ^> Performance evaluation
20.	Learning Initiatives aimed at IT knowledge upgradation/competency building of employees at various levels (Scale: 1 - Envisaged, 2 - 25% trained approx., 3 - between 25 - 50%, 4 - between 50 - 100%) ~~*Top Management*~~ % Information security management 1 2 3 4 ^ Business continuity and disaster recovery plan 1 2 3 4 ^> Management concerns of information audit 1 2 3 4 ~~*Middle Management*~~ \ IT initiatives in the bank 1 2 3 4 ^ Network management 1 2 3 4 ^ Systems integration 1 2 3 4 ^> Security administration 1 2 3 4 *Junior Management* ^ Operational aspects 1 2 3 4 ^ LAN administration 1 2 3 4 ^ System administration 1 2 3 4 ^ Database administration 1 2 3 4

Sl. No	Issue/ Aspect/Policy & Details
21.	Does the bank benchmark itself against the industry standards in terms of IT absorption/ implementation? Yes/No If YES, pi give the details If NO, are you planning in near future.
22.	Was any approach adopted towards Management of IT Systems vis-à-vis Organizational Performance? Yes/No If Yes pi give the details If NO, are you planning in near future.
23.	Communication of top management (CEO/MD) with employees through (Scale: 1 — Rarely Preferred, 2 — Frequently, 3 - Best Preferred) ^ Email 1 2 3 ^ Intranet 1 2 3 ^ By visiting selected regions/ branches etc. 1 2 3 Frequency, ^ Once in a month ^ Quarterly ^ Annually Other please specify:
24.	Integration of IT with Training system ^ Web-based learning (through centralized solution at corporate level) ^> Learning through accessing web sites. ^ Intranet for delivering training modules on specified areas ^ Tie-up with other organizations (Management Schools/IT Institutions etc.) for on-line learning by employees
25.	Other initiatives aimed at improving the overall Effectiveness of IT (please specify)
26.	Any odier Information you would like to share?

Appendix - II: Questionnaire for Hft Chiefs

This questionnaire is aimed at collecting data for doctoral research on the topic *"Role of Information Technology in Organisational Learning - A study on Indian Banking Sector"* under the guidance of Dr.V.P.Gulati, Director, IDRBT from University of Hyderabad (UH). The study aims **at** understanding the role and impact of Information Technology in creation/facilitation of learning environment in Indian Banks. Indian Banking is undergoing competitive metamorphosis in the digital era, where the pace of Organizational learning is the only differentiating factor which **can** provide sustainable competitive advantage to banks, impacting performance and employee productivity.

This questionnaire is customized and aimed at HR Chiefs, who are playing a key role in strategy formulation and implementation in banks. The identity of the respondents would be kept confidential while their responses would help fine-tuning the thought process of die research, which ultimately aims to address the contemporary and all-pervasive challenge of managing organizational learning with Information Technology:

Sl. No	**Issue/Aspect/Policy & Details**
1.	Name of the Bank
2.	Name of the HR Chief
3.	Indicate the HR Policies/Strategies towards promoting the learning environment
4.	Time horizon of plan/strategy - 3 years/5 years (Others please specify)
5.	Special Recruitment policy for IT professionals: Yes/NO. If Yes, PI explain.

SI. No	Issue/Aspect/Policy & Details
6.	Indicate the retention strategy to prevent IT professional's attrition ^ Fast track career "^ Special compensation packages ^ Challenging assignments (with learning) ^> Avenues for knowledge/skills upgradation V Flexible/autonomous work environment
7.	Strategies/plans to narrow competency gap between IT professionals and other employees. ^> Planned approach for IT skills upgradation (core competency building) ^ Recruitment of general bankers with advanced IT skills ^> Voluntary Retirement Scheme (Others, pi. specify)
8.	Details of employee strength (in figures/percentage) ^> Executives/Officers ^> Other Staff
9.	Strength of IT professionals ^ Junior Level ^> Senior Level
10.	Age profile of employees of your bank (in figures/percentage) ^ 20-30 yrs. ^> 30-40 yrs. ^ 40-50 yrs. Q> 50-60 yrs.
11.	Did your bank recently implement any of the following organizational restructuring exercises? ^> Merger of regions/zones ^ Elimination of tiers in hierarchy (i.e. removing of regional/zonal system) ^> Creation of strategic business units Q> Creation of Profit centers *1> Reporting hierarchy (corporate/head office) (Others, if any please specify)

Sl. No	Issue/Aspect/Policy & Details
12.	Reasons for restructuring (PI. rate on the Scale: 1 - Low priority, 2 - Medium priority, 3 - High priority) ^ Flexibility of operations 1 2 3 ^ Better customer service 1 2 3 ^> Increasing profitability 1 2 3 *k> Technology adaptation 1 2 3 ^ Resources reallocation 1 2 3 (Any other reasons, pi. specify)
13.	Indicating the rating for predominant ethics and values (PI. rate on the Scale: 1 - Low, 2 - Medium, 3 - High) ^ Commitment and dedication 1 2 3 ^> Honesty and integrity 1 2 3 ^> Success at any cost 1 2 3 ^ Ethical performance 1 2 3 ^> Individual learning 1 2 3 ^> Collective/shared learning 1 2 3 ^> Transparency 1 2 3
14.	Recent/Proposed HR initiatives (Scale: 1 — Proposed, 2 — Implemented) ^> Performance Management System 1 2 ^ Electronic Performance Support System (EPSS) 1 2 ^> Assessment Centre 1 2 ^> Competency Mapping 1 2 '^> Competency Building 1 2 ^ Succession Planning 1 2 ^> Career Planning 1 2 ^ Organization Climate Survey 1 2 ^ Process Reengineering 1 2 •^ Total Quality Certification 1 2 ^ Web Based Learning 1 2 % Cost to the Company Approach (CTC) 1 2 (Others please specify)

Sl. No	Issue/Aspect/Policy & Details
15.	Strategies and steps initiated before implementing HR strategies ^ Creating Awareness among employees % Training the employees in required skills and competences ^> Training of new recruitees ^ Inform the stake holders through wider publicity ^> Discuss the issue in the customer service meeting % Discuss with employee associations/ representatives (Others please specify)
16.	Role envisaged for IT in employee empowerment **(Pl. rate** on the scale 1 — Rarely, 2 — Frequently, 3 - Regularly, 4 — Compulsorily) Information Dissemination/ e-learning through: '*> E-mail 1 2 3 4 <*> Intranet 1 2 3 4 ^ Internet/Web-based learning (Centralized at HO) 1 2 3 4 ^ On-line bulletins 1 2 3 4 *h> CBT for specific software products/ functional areas (FX, Credit) etc. 1 2 3 4 ^ Presentations/lectures/training courses by professionals with inputs from IT (IDRBT training courses) 1 2 3 4
17.	Does the bank have a stated policy aimed at Organizational Learning? Yes/No If YES, please explain If NO, are you planning in near future
18.	Indicate the training budget during the last thre years (Scale: 1 - <25 crores, 2 - <50 crores, 3 - <75 crores, 4-75 crores & above) '*> 2001 - 2002 1 2 3 4 <*> 2000-2001 1 2 3 4 '*> 1999-2000 1 2 3 4
19.	Training budget (in crores) for the current year (2002 — 2003)

Sl. No	Issue/Aspect/Policy & Details
20.	Focus areas of training system (pi. rate the priority in scale 1 - Low, 2 - Medium, 3 - High, 4 — Competitive Necessity) ^> Retail Banking 1 2 3 4 ^> Corporate Banking 1 2 3 4 ^ Credit 1 2 3 4 ^> Information Technology 1 2 3 4 ^ Treasury 1 2 3 4 **> Forex 1 2 3 4 ^> Marketing 1 2 3 4 ^> Cash Management Services 1 2 3 4 (Others please specify)
21.	Employees trained in the last three years (in figures/percentage) ^> 2001 - 2002 ^ 2000-2001 ^> 1999-2000
22.	Employees trained in each of the following areas (in figures/percentage) ^> Retail Banking ^ Corporate Banking ^> Credit ^ Information Technology Q> Treasury ^ Forex ^> Marketing ^ Cash Management Services
23.	Sources for training (Scale: 1 - upto 20%, 2 - between 20 - 40%, 3 - between 40 - 60%, 4 -between 60-100%) ^ In-house 1 2 3 4 ^ Outsourced 1 2 3 4 ^> External 1 2 3 4
24.	Training infrastructure ^> Corporate Training College - Yes/No ^ No. of Staff Training Centres: o Regional O Zonal ^ No. of Internal Faculty/Resource Persons

Sl. No	Issue/Aspect/Policy & Details
25.	Employees proposed to be trained during the current year (2002 - 2003)
26.	Process for identification of learning requirements at bank level through, ^> Competency Mapping for **Organization** through survey method Ÿ Strategic vision (Others please specify)
27.	Process for identifying the learning requirements of the employees through, ^ Annual Performance evaluation of employees (performance vis-à-vis competence/ learning need) ^> Feed-back from the employees ^> CEO/ED meetings with Zonal/Regional Heads ^ Regional Heads meeting with Branch Managers ^ Branch Managers concerned in coordination with IT /CPPD dept ^ Branch Managers concerned in consultation with HR dept. ^> Random selection ^> Opportunity to every employee (Others please specify)
28.	Does the bank have an integrated approach towards Performance Management System and Learning Process? Yes/No If YES, pi give the details If NO, are you planning in near future
29.	Methodology for performance assessment of employee in post learning scenario ^ Performance measurement/evaluation ^ Competency assessment ^ Skills Rating
30.	Envisaged role for HR Dept of bank in identifying Organizational learning requirements? Q> Competency Mapping for organization ^ Performance Management through though training needs assessment/evaluation in coordination with Branch/Regional Managers (Others, please specify)
31.	Role of Training System in facilitating learning environment in bank? ^ Competency Development plan preparation in coordination with HR Dept and line managers ^ Performance Management of employees by providing training solutions on/off the job ^> Conducting

Sl. No	Issue/Aspect/Policy & Details
32.	Learning outlook of the employees (Scale: 1 - Some, 2 - Few, 3 - Majority) ^ Assisted learning 1 2 3 ^ Reactive learning 1 2 3 ^ Self learning 1 2 3 ^ Compulsory learning 1 2 3 (Others please specify)
33.	Interaction of IT with Training system (Scale: 1 — Envisaged, 2 — used by some employees, 3 — used by most of the employees, 4 — Fully integrated with work processes) ^ Web-based learning (through centralized solution at corporate level) 1 2 3 4 ^> Learning through accessing web sites 1 2 3 4 ^ Intranet for delivering training modules on specified areas 1 2 3 4 ^ Tie-up with other organizations (Management Schools/IT Institutions etc.,) for on-line learning by employees 1 2 3 4
34.	Scope for employees to share their knowledge/Learning widi others? Yes/No If yes, through, ^ Email ^> Posting on Intranet tutorials ^ Sharing with training program participants in Training college (If others, please specify)
35.	Is there any learning index vis-à-vis competency requirements? Yes/No If yes, through ^ Bank-wide survey ^ Consolidation of performance measurement and learning needs/competencies of the employees (Odiers pi. specify)
36.	Other initiatives, if any aimed at improving the overall learning of bank/ use of IT in Learning facilitation? Please specify.
37.	Any other Information you would like to share?

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