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E-Age Technology–New Face of Indian Banking Industry: Emerging Challenges and New Potentials

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Abstract: The present paper analyzes the performance of major banks in terms of productivity and profitability in the pre and post e-banking period. Under the regime of banking sector reforms, IT Act of 1999 gave new dimensions to the Indian banking sector. IT has created transformation in banking structure, business process, work culture and human resource development. It has affected the productivity, profitability and efficiency of the banks to a large extent. The paper concludes that performance of all the banks under study is much better in post-e-banking period and further foreign banks are at the top position, whereas the performance of the public sector banks is comparatively very poor. The paper suggests some measures to tackle the challenges faced by the banks particularly public sector banks. At the end, paper suggests how public sector banks can convert the emerging challenges into opportunities.

Keywords: *Information Technology, Productivity, Profitability, Efficiency, E-Banking Challenges, Opportunity*

1. Introduction

In the beginning of 90's, there were so many deficiencies were prevailing in the Indian economy, particularly in the financial sector and also in the banking sector. The major deficiencies prevailing at the time of early 90's were productivity and efficiency of the system has suffered, its profitability has been eroded, several public sector banks and financial institutions have become weak financially, some public sector banks have been incurring losses year after year, their customer service was poor, their work technology was outdated and they were unable to meet the challenges of a competitive environment. Keeping in mind all the above said distortions in the economic, financial and banking sectors, the government of India and the RBI thought it was necessary to introduce reforms in the financial and baking sector also, so as to promote rapid economic growth and development with stability through the process of globalization, liberalization and privatization in the financial system so that the financial system becomes more competitive and gets integrated with the world economy through internationalizations of financial markets in the world. In the present paper researcher is interested to investigate the performance of selected banks in pre and post IT era and wish to suggest some strategies to enhance the low performance in banks in e-age.

Narasimham Committee Recommendations for Banking Sector Reforms

The government of India, under the chairmanship of Sh. M. Narasimham, an Ex-Governor of RBI, appointed the Narasimham Committee-I (NC-I) in April 1991. The committee examined all the aspects relating to the structural organization, functions and procedures of financial system and submitted its report on November 16, 1991. The NC-I had proposed wide ranging reforms for improving the financial viability of the banks, increasing their autonomy from government directions, restructuring unviable banks, allowing a greater entry of the private sector in banking, liberalizing the capital market, further improving the operational flexibility and competition among the financial institutions and setting up of proper supervisory system.

First Phase of Banking Sector Reforms (1991): A number of reform initiations have been taken to improve or minimize the distortions impinging upon the efficient and profitable functioning of banks, especially reduction in SLR & CRR, transparent guidelines or norms for entry and exit of private sector banks, public sector banks allowed to direct access to capital markets, deregulation of interest rates, branch licensing policy has been liberalized, setting up of Debt Recovery Tribunals, asset classification and provisioning, income recognition and Asset Reconstruction Fund (ARF). These and other measures that have been taken would help the highly regulated and directed banking system to transform itself into one characterized by openness, competition, prudential and supervisory discipline.

Second Phase of Banking Sector Reforms (1998): The recommendations of the NC-I in 1991 provided the blueprint for the first generation reforms of the financial sector. The period 1992-97 witnessed the laying of foundations for reforms in the banking system. Cataclysmic changes were taking place in the world economy, coinciding with the movement towards global integration of financial services. Against such backdrop, the committee NC-II, appointed for the said purpose generated its report in 1998, provided the roadmap for the second-generation reform process. The NC-II with Mr. M. Narasimham as the chairman was constituted on December 26, 1997 to review the banking sector reforms since 1991 and to suggest measures of further strengthening the banking sector of India. The NC-II examined the second-generation of reforms in terms of three broad interrelated issues:

(i) action that should be taken to strengthen the foundation of the banking system
(ii) strengthening procedures, upgrading technology and HRD and
(iii) structural changes in the system

These cover the aspects of banking policy, institutional, supervisory and legislative documents. The major recommendations of the committee were strengthening banking system, systems and methods of banking, structural issues, integration of financial markets, rural and small scale industrial credit and regulation and supervision.

Information Technology and Bank Transformation

The second banking sector reforms gave much importance to the modernization and technology up gradation. The IT Act, 1999 started the speedy process of e-banking.

E-Banking: Delivery of bank's services to a customer at his office or home by using electronic technology can be termed as e-banking. The quality, range and price of these e-services decide a bank's competitive position in the industry. The virtual financial services can be largely categorized as follows:

Automated Teller Machines:
- Cash withdrawals
- Details of most recent balance of account
- Mini-statement
- Statement ordering facility
- Deposit facility
- Payments to third parties

EFTPoS: EFTPoS card used to initiate transactions:
- Authorization and transaction capture processes take place electronically.
- Transaction confirmed manually.
- Funds not debited electronically.

Remote Banking Services:
- Balance enquiry
- Statement ordering
- Funds transfer (payment) to third parties
- Funds transfer between customer's different accounts
- Order traveler's cheques and other financial instruments.

Services Not Available Through Remote Banking:
- Cash withdrawal
- Cash/ cherub deposit
- Sale of the more complex types of financial services such as life insurance mortgages and (pensions).

Smart Cards:

(i) Stored value cards

(ii) As a replacement for all types of magnetic stripes cards like ATM Cards, Debit/Credit Cards, Charge Cards etc.

- One smart card to carry out all these functions
- One smart card can contain the functionality of several different types of cards issued by different banks while running different types of networks.
- Smart card a truly powerful financial token, giving user access
- STM
- Debit facility
- Charge facilities
- Credit facilities
- Electronic purse facilities at national and international level.

Internet Banking: The latest wave in IT is Internet banking. It is becoming more obvious that the Internet has unleashed a revolution that is affecting every sphere of life. Internet is an interconnection of computer communication networks spanning the entire globe, crossing all geographical boundaries. Touching lifestyles in every sphere the Net has redefined methods of communication, work, study, education interaction, health, trade and commerce. The Net is changing everything, from the way we conduct commerce, to the way we distribute information. Being an interactive two-way medium, the Net, through innumerable websites, enables participation by individual in B2B and B2C commerce, visits to shopping malls, books-stores, entertainment sides, and so on cyberspace.

Bank Transformation

1. The term transformation in Indian Banking Industry relates to intermediately stage when the industry is passing from the earlier social banking era to the newly conceived technology based customer - centric and competitive banking. The activities of banks have grown in multi-directional as well as in multi-dimensional manners.
2. During transformation, all known parameters of the earlier regime continuously change.
3. The current transformation process in the Indian Banking has many aspects. They pertain to:
   (i) Capital Restructuring
   (ii) Financial Re-engineering
   (iii) Information Technology
   (iv) Human Resource Development

This paper is divided into six sections. After a brief introduction second section reviews some related studies. Third section describes objectives, hypothesis, and database and research methodology. The fourth section describes the process and contents of bank transformation. The fifth section analyzes the performance of the selected banks whereas sixth section discusses general challenges faced by the banks and available opportunities. Last part concludes the paper. The present paper analyzes the impact of IT on the transformation of banks during the second phase of banking sector reforms. The specific objectives of the paper are:

- To study the process and contents of bank transformation in the regime of post-second banking sector reforms.
- To analyze the comparative performance of public sector banks, new private sector banks and foreign banks in pre and post e-banking period.
- To study the challenges and opportunities for the banking industry particularly to the public sector banks.

2. Review Of Literature

Arora (2003) highlighted the significance of bank transformation. Technology has a definitive role in facilitating transactions in the banking sector and the impact of technology implementation has resulted in the introduction of new products and services by various banks in India. Bakshi (2003) said that good governance is of interest not only to an individual bank but also to the society in which it operates-the basic objectives being protection of depositors and safeguarding the integrity and soundness of the system. Bhattacharya (1997) has found PSBs with the highest efficiency among the three categories of bank groups as foreign and private sector banks have much lower efficiencies. However PSBs started showing a decline in efficiency after 1987, private banks witnessed no change and foreign banks disclosed sharp rise in efficiency. Das (1999) concluded that while there is a welcome increase in emphasis on non- interest income, banks have tended to show risk-averse behavior by opting for risk- free investments over risky loans.

Das (2003) concluded that during 2000-01, Corporation Bank emerged as the topmost bank followed by Andhra Bank and OBC whereas in business performance. During 2000-01, the listed banks ranked higher than the unlisted ones. Garg (1994) studied that Indian scheduled commercial banks have achieved remarkable progress in last two decades under study, particularly in branch expansion in rural areas, deposits mobilization and credit deployment to priority sector and small borrowers but their profits have not kept pace their growth and hence, their share in profits have come down, whereas foreign banks with a much smaller geographical spread and resources base, earn almost as much by way of profits as the 20 nationalized banks put together. There is a lot of difference in the pattern of advances and investments and even lending rates of Indian and foreign banks. Jalan (2003) rightly expressed his view in the Bank Economists' Conference (2003) a forward-looking approach to our long-term vision must focus on building human resources in a continuous cycle of competency and development. Kohli (2001) this article has given some evidence to indicate that no banks can weak or potential weak all of a sudden. There is a gradual deterioration in the position of loan default and profitability.

Mohan (2003) expressed his views regarding the transformation in Indian Banking that if Indian Banks are to compete globally, the time is opportune for them to institute sound and robust risk management practices. Padamasai (2000) studied that productivity and profitability of five big banks increased throughout the post-reforms period in terms of selected ratios of each parameter, but on account of efficiency, the performance of the top five banks is very dismissal as inefficiency has increased during the study period. He suggested that if the government sells its share in the profit making banks, it would be able to bail out the weak banks. Ram (2002) said that business is being completely reinvented because transaction costs are much lower on the Internet than in traditional channels. The banks are rapidly shifting their business functions & customers relationships on to the Web. Sarkar and Das (1997) find PSBs comparing poorly with the other two categories. However, they caution that no firm inference can be derived from a comparison done for a single year. Satyamurty (1994) clarified the concepts of profits, profitability & productivity applicable to the banking industry organized by the bank managements that the pressure on the profitability is more due to the factors beyond their control.

Singh & Kumar (2006) analyzed that deposits is a major determinant of spread followed by borrowings and labor. The study again concluded that average technical and allocative efficiency are the highest in foreign banks while of PSBs is although lower than FBs but much better than private sector banks. Singla & Arora (2005) studied the comparative performance of Canara Bank and Indian Bank that both the banks have improved their financial performance during the study period where Canara Bank has an upper hand in growth of deposit, advances and average working funds. In case of productivity it is rising in both the banks but remained much higher in Canara Bank. Swamy (2001) concludes that in many respects NPSBs are much better than PSBs, even they are better than foreign sector banks. Sandhu (2003) the paper analysis the impact of IT and particularly e-delivery channels on the performance of Indian banking system. The paper also highlights that ATM is a major e-delivery channels, which is used mostly in the metropolitan and urban cities. The paper concludes that those banks, which are using e-delivery channels, they are providing better services than the other banks.

Shapiro (2000) studied the affects of cyberspace on efficiency and productivity of banks. He also analyzed the nature of bank transformation. Trivedi (2003) has rightly said that Indian Banks have always proved beyond doubt their adaptability to change and it would be possible for them to mould themselves into agile and resilient organizations by adopting fine-tuned CRM strategies, operations based on asset-liability and risk management systems, the required technological capabilities and developing human resources to meet the challenges of the paradigm shift. Vittal (2001) concluded that overall profitability of banks has been under constant strains during the study period except 1974-70 and downfall is experienced between1970-1974. Because in India, IT is in infant stage and very less comprehensive studies are conducted. Some articles or research papers are appeared in different journals. The review of literature on various aspects of bank transformation concludes that transformation is taking place and IT is playing vital role in bringing this transformation and it is need of the hour to manage this transformation with IT.

Hypotheses

- The performance of all the banks under study is significantly better in post-e-banking period than pre-e-banking period.
- The performance of foreign banks is significantly better than new private sector banks and public sector banks.
- The performance of new private sector banks is significantly better than public sector banks.

3. Research Methodology

The present paper is concerned with the Indian banking industry. Total nine banks have been selected on the basis of their market share in business in 2003-04, three banks from each bank group i.e. public sector banks, new private sector banks and foreign banks.

Public Sector Banks

1. State Bank of India (SBI)
2. Bank of Baroda (BOB)
3. Canara Bank (CB)

New Private Sector Banks

1. HDFC Bank
2. ICICI Bank
3. UTI Bank

Foreign Banks

1. Citibank
2. Standard Charted Bank (SCB)
3. The Hongkong and Shanghai Banking Corporation (HSBC)

To compare the performance of selected banks in pre and post e-banking period, ratio analysis method is used.

The following ratios are analyzed to examine the performance of the selected banks.

Labor Productivity Ratios

a. Deposits per Employee
b. Credits per Employee
c. Business per Employee

Branch Productivity Ratios

a. Deposits per Branch
b. Credits per Branch
c. Business per Branch

Profitability Ratios

a. Spread as Percentage of Working Funds
b. Burden as Percentage of Working Funds
c. Net Profit as Percentage of Working Funds

The universe for the study is Indian banking industry. The study is concerned with the second-post banking reforms period i.e. 1998-99 to 2003-04. The time period is further divided into two parts i.e. pre-e-banking period (1998-2001) and post-e-banking period (2001-04). Before the IT Act, there was very limited computerization and there were no e-delivery channels and that is why we are considering this period as pre-e-banking period (1998-2001). After the IT Act, almost all the banks less or more, started to use e-delivery channels that is why we are considering this period as post/e-banking period (2001-2004).

Database

1. Performance Highlights of Banks (Various Issues) from 1998 to 2004, Indian Banking Association, Mumbai.
2. IBA, Bulletin

4. Results And Discussion

Labor Productivity

(a) Public Sector Banks: Labor productivity brings in light employee's capacity to produce. Table 1 shows that the productivity in terms of business per employee of all the three public sector banks is increasing in all the years.

Table 1: Labor Productivity of Public Sector Banks (Rs. In Lacs)

Years	SBI			BOB			CB		
	D/E	C/E	BUS/E	D/E	C/E	BUS/E	D/E	C/E	BUS/E
(A) Pre – E-Banking Period									
1998-99	0.71	0.35	1.06	0.97	0.46	1.43	0.76	0.55	1.11
1999-2000	0.84	0.42	1.26	0.97	0.52	1.49	0.87	0.43	1.30
2000-01	1.13	0.53	1.66	1.09	0.59	1.68	1.22	0.58	1.80
Average	0.89	0.43	1.32	1.01	0.52	1.53	0.95	0.45	1.40
S.D.	0.22	0.02	0.31	0.02	0.02	0.13	0.24	0.12	0.36
C.V. (%)	24.72	4.65	23.48	1.98	3.85	8.50	25.26	26.67	25.71
(B) Partially – E-Banking Period									
2001-02	1.29	0.58	1.87	1.59	0.87	2.46	1.34	0.69	2.03
2002-03	1.42	0.66	2.08	1.65	0.88	2.53	1.52	0.85	2.37
2003-04	1.54	0.74	2.30	1.83	0.89	2.72	1.81	1.00	2.81
Average	1.42	0.66	2.08	1.69	0.88	2.57	1.56	0.85	2.40
S.D.	0.13	0.02	0.22	0.12	0.02	0.13	0.24	0.16	0.39
C.V. (%)	9.15	3.03	10.58	7.10	2.27	5.06	15.38	18.82	16.25

Source: Performance Highlights, Various Issues, 1998-2004, IBA, Mumbai

It shows that productivity is increased almost double time in all the three banks during partially e-banking period i.e. 2001-04 as compared to that in pre-e-banking period i.e. 1998-2001, whereas variations in terms of co-efficient of variations are maximum in pre-e-banking period. From all the three public sector banks, Bank of Baroda shows the highest productivity in both the durations i.e. Rs.1.53 lakhs during 1998-2001 and Rs.2.57 lakhs during 2001-04 as compared to that of other two banks.

(b) New Private Sector Banks: From Table 2, we conclude that all the three new private sector banks show increase in their productivity in e-banking period from pre-e-banking period except UTI Bank, which shows decrease in its productivity. Variations are maximum in pre-e-banking period in all the selected banks. Although, productivity of UTI Bank is decreased, even it shows the highest labor productivity in both the durations i.e. Rs.11.41 lakhs during 1998-2001 and Rs.9.79 lakhs during 2001-04 whereas ICICI Bank is following UTI Bank with labor productivity of Rs.7.83 lakhs and Rs.9.53 lakhs respectively during both the durations.

Table 2: Labor Productivity of New Private Sector Banks

Years	HDFC Bank			ICICI Bank			UTI Bank		
	D/E	C/E	BUS/E	D/E	C/E	BUS/E	D/E	C/E	BUS/E
(A) Pre – E-Banking Period									
1998-99	2.96	1.42	4.38	6.83	2.37	9.20	5.84	4.17	10.01
1999-2000	4.21	1.73	5.94	7.34	2.72	9.06	7.74	4.75	12.49
2000-01	4.24	1.69	5.93	3.65	1.57	5.22	7.67	4.07	11.74
Average	3.80	1.61	5.42	5.94	2.22	7.83	7.08	4.33	11.41
S.D.	0.73	0.17	0.90	2.00	0.59	2.26	1.08	0.37	1.27
C.V. (%)	19.21	10.56	16.61	33.67	26.58	28.86	15.25	8.55	11.13
(B) E-Banking Period									
2001-02	4.72	1.82	6.54	4.15	6.09	10.24	7.14	3.11	10.25
2002-03	4.67	2.45	7.12	4.17	4.61	8.78	7.26	3.07	10.33
2003-04	5.36	3.13	8.49	5.00	4.56	9.56	6.08	2.72	8.80
Average	4.92	2.47	7.38	4.44	5.09	9.53	6.83	2.97	9.79
S.D.	0.38	0.66	1.00	0.49	0.87	0.73	0.65	0.21	0.86
C.V. (%)	7.72	26.72	13.55	11.04	17.09	7.66	9.52	7.07	8.78

(c) Foreign Banks: Table 3 shows that labor productivity is increased in all the selected foreign banks in all the years under study and variations are maximum in pre-e-banking period. It shows increase almost of Rs.2-3 lakhs during the e-banking period as compared to that during pre-e-banking period. It is the highest in Citibank i.e. Rs.12.70 lakhs during 1998-2001 and Rs.17.32 lakhs during 2001-04 with the major difference from the other banks whereas SCB shows Rs.8.05 lakhs and HSBC Rs.6.86 lakhs during 2001-04, which is far behind the productivity of Citibank.

Table 3: Labor Productivity of Foreign Banks (Rs. In Lacs)

Years	Citibank			Standard Charted Bank			HSBC		
	D/E	C/E	BUS/E	D/E	C/E	BUS/E	D/E	C/E	BUS/E
(A) Pre – E-Banking Period									
1998-99	6.14	3.26	9.40	2.01	1.27	3.28	2.35	1.03	3.38
1999-2000	7.80	5.06	12.86	3.09	2.66	5.75	3.15	1.60	4.75
2000-01	9.52	6.32	15.84	3.08	3.14	6.22	3.28	2.06	5.34
Average	7.82	4.80	12.70	2.73	2.36	5.08	2.93	1.56	4.49
S.D.	1.69	1.54	3.22	0.62	0.97	1.58	0.50	0.52	1.11
C.V. (%)	21.61	32.08	25.35	22.71	41.10	31.10	17.06	33.33	22.49
(B) E-Banking Period									
2001-02	10.37	7.74	18.11	3.38	4.22	7.60	3.68	2.34	6.02
2002-03	10.99	7.82	18.81	4.90	3.55	8.45	3.83	2.46	6.29
2003-04	8.61	6.42	15.03	4.47	3.62	8.09	5.20	3.08	8.28
Average	9.99	7.33	17.32	4.25	3.80	8.05	4.24	2.62	6.86
S.D.	1.23	0.79	2.01	0.78	0.37	0.43	0.84	0.40	1.23
C.V. (%)	12.31	10.78	11.61	18.35	9.74	5.34	19.81	15.27	17.93

Branch Productivity:

(a) Public Sector Banks: Table 4 highlights the branch productivity of SBI, Bank of Baroda & Canara Bank, which depicts the capacity of a branch to produce. Branch productivity is also more in partially e-banking period in all the banks as compared to pre-e-banking period, whereas variations are maximum in pre-e-banking period in all the banks under study. It is the highest in SBI i.e. Rs.33.29 cr. during 1998-2001 and Rs.47.93 cr. during 2001-04 and Canara Bank is following the SBI with Rs.47.01 cr. business per branch during 2001-04 where Bank of Baroda shows Rs.37.65 cr. productivity ratio.

Table 4: Branch Productivity of Public Sector Banks (Rs. In Lacs)

Years	SBI			BOB			CB		
	D/B	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**
				(A) Pre – E-Banking Period					
1998-99	18.82	9.17	27.99	17.34	8.20	25.54	17.64	8.21	25.85
1999-2000	21.77	10.85	32.61	19.35	9.20	28.54	20.03	9.82	29.85
2000-01	26.75	12.51	39.26	20.26	10.27	30.53	24.53	11.57	36.13
Average	22.45	10.84	33.29	18.98	9.22	98.20	20.74	9.87	30.61
S.D.	4.01	1.67	5.67	1.49	1.04	2.51	3.51	1.68	5.18
C.V. (%)	17.86	15.41	17.03	7.85	11.28	8.90	16.92	17.02	16.92
				(B) Partially – E-Banking Period					
2001-02	29.78	13.30	43.08	23.07	12.57	35.64	26.58	13.75	40.33
2002-03	32.76	15.24	48.00	24.13	12.84	36.97	29.74	16.70	46.44
2003-04	35.25	17.47	52.72	27.11	13.22	40.33	34.97	19.29	54.26
Average	32.60	15.34	47.93	24.77	12.88	37.65	30.43	16.58	47.01
S.D.	2.74	2.09	4.82	2.09	0.33	2.42	4.24	2.77	6.98
C.V. (%)	8.40	13.62	10.06	8.44	2.56	6.43	13.93	16.71	14.85

(b) New Private Sector Banks: Table 5 shows the branch productivity of new private sector banks. It is examined that branch productivity is more in e-banking period as compared to pre-e-banking period in case of HDFC Bank i.e. Rs.148.39 cr. during 2001-04 that comes up from Rs.102.42 cr. during 1998-2001, where ICICI Bank shows increase from Rs.127.22 cr. to Rs.242.03 cr. almost double, but UTI Bank shows decrease in its branch productivity from Rs.166.32 cr. to Rs.164.21 cr. during the pre-e-banking and e-banking period respectively. Overall, branch productivity is the highest in case of UTI Bank during 1998-2001 i.e. Rs.166.32 cr. but during 2001-04 ICICI Bank leads to other banks with Rs.242.03 cr. with an excellent growth in its productivity.

Table 5: Branch Productivity of New Private Sector Banks (Rs. In Lacs)

Years	HDFC Bank			ICICI Bank			UTI Bank		
	D/B	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**
				(A) Pre – E-Banking Period					
1998-99	51.16	24.58	75.74	110.42	38.36	148.78	86.89	62.00	148.89
1999-2000	75.93	31.19	107.12	121.79	45.15	166.94	116.73	71.57	188.30
2000-01	88.99	35.40	124.39	46.14	19.81	65.95	105.72	56.06	161.78
Average	72.03	30.39	102.42	92.78	34.44	127.22	103.11	63.21	166.32
S.D.	19.21	5.45	24.66	40.79	13.12	53.84	15.09	7.82	20.09
C.V. (%)	26.67	17.93	24.08	43.96	38.10	42.32	14.63	12.39	12.08
				(B) E-Banking Period					
2001-02	103.23	39.85	143.08	89.62	131.38	221.00	110.69	48.22	158.91
2002-03	96.87	50.89	147.76	108.00	119.46	227.46	121.18	51.29	172.47
2003-04	97.46	56.88	154.34	145.22	132.40	277.62	111.46	49.80	161.26
Average	99.19	49.21	148.39	114.28	127.75	242.03	114.44	49.77	164.21
S.D.	3.51	8.64	5.66	28.33	7.19	30.99	5.85	1.54	7.25
C.V. (%)	3.54	17.56	3.81	24.79	5.63	12.80	5.11	3.09	4.42

(c) Foreign Banks: From Table 6, it is examined that branch productivity shows fluctuations in all the three foreign banks in all the years but in case of Citibank it is decreased from Rs.1631.34 cr. during 1998-2001 to Rs.1396.22 cr. during 2001-04 with 12.82 pc fluctuations in terms of co-efficient of variations.

Table 6: Branch Productivity of Foreign Banks (Rs. In Lacs)

Years	Citibank			Standard Charted Bank			HSBC		
	D/B	C/B	BUS/B	D/B	C/B	BUS/B	D/B	C/B	BUS/B
(A) Pre – E-Banking Period									
1998-99	1179.63	626.63	1806.26	223.04	140.88	363.92	255.44	111.80	367.24
1999-2000	927.55	601.82	1529.37	278.69	239.94	518.55	336.73	170.58	507.31
2000-01	936.73	621.67	1558.40	267.79	273.68	541.47	355.68	223.03	578.75
Average	1014.64	616.71	1631.34	256.48	218.17	476.31	315.95	168.48	484.43
S.D.	142.96	13.13	152.18	29.46	69.03	93.71	53.25	55.66	107.51
C.V. (%)	14.09	2.13	9.33	11.49	31.64	19.67	16.85	33.04	22.21
(B) E-Banking Period									
2001-02	846.78	632.50	1479.28	402.44	501.83	904.27	411.37	261.20	672.57
2002-03	887.1	631.45	1518.55	276.97	200.34	477.31	387.94	248.55	636.49
2003-04	682.2	508.63	1190.83	302.26	244.73	546.99	451.92	267.44	719.36
Average	805.36	590.86	1396.22	327.22	315.63	642.88	417.08	259.06	676.14
S.D.	108.55	71.22	178.95	66.36	162.77	229.03	32.37	9.62	41.55
C.V. (%)	13.48	12.05	12.82	20.28	51.57	35.63	7.76	3.71	6.15

SCB shows increase from Rs.476.31 cr. to Rs.642.88 cr., where HSBC also shows increase from Rs.484.43 cr. to Rs.676.14 cr. from 1998-2001 to 2001-04 respectively. Overall, it is the highest in both the durations in Citibank i.e. Rs.1396.22 cr. in 2001-04 even it shows decrease in its productivity, both the other banks followed this bank.

Overall, at the end it can be concluded that labor productivity and branch productivity is better, showing excellent growth during the e-banking period as compare to pre-e-banking period. New electronic techniques are used to attract more and more customers especially; e-channels are used to meet the increasing expectations of the customer. On the other hand, labor and branch productivity is the highest in all the foreign banks with Citibank at the top position, new private sector banks are following foreign banks even in case of ICICI Bank & UTI Bank, and labor productivity is more as compared to that of SCB & HSBC. Public sector banks are far behind the foreign banks and new private sector banks with large extent of difference, which cannot be ignored, mainly due to their pre-electronic work culture.

Profitability

(a) Public Sector Banks: Table 7 shows that profitability of public sector banks i.e. SBI, Bank of Baroda & Canara Bank is decreasing during 1998-2001 i.e. pre-e-banking period.

Table 7: Profitability of Public Sector Banks (Percent)

Years	SBI			BOB			CB		
	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs
(A) Pre– E-Banking Period									
1998-99	2.73	2.26	0.47	3.01	2.20	0.81	3.17	2.70	0.47
1999-2000	2.65	1.86	0.79	2.85	1.99	0.86	2.64	2.21	0.43
2000-01	2.66	2.15	0.51	3.06	2.62	0.44	2.83	2.40	0.43
Average	2.70	2.09	0.59	2.97	2.27	0.70	2.88	2.44	0.44
S.D.	0.02	0.21	0.17	0.11	0.32	0.23	0.27	0.25	0.02
C.V. (%)	0.74	10.05	28.81	3.70	14.10	32.86	9.38	10.25	4.55
(B) Partially – E-Banking Period									
2001-02	2.61	1.91	0.70	2.65	1.88	0.77	2.52	1.50	1.02
2002-03	2.65	1.83	0.82	2.75	1.74	1.01	2.76	1.52	1.24
2003-04	2.74	1.84	0.90	3.02	1.89	1.13	2.69	1.35	1.34
Average	2.67	1.86	0.81	2.81	1.84	0.97	2.66	1.46	1.20
S.D.	0.02	0.02	0.10	0.19	0.02	0.18	0.12	0.02	0.16
C.V. (%)	0.75	1.08	12.35	6.76	1.09	18.56	4.51	1.37	13.33

But it shows increasing trend in the partially e-banking period i.e. 2001-04, resulting more profitability in partially e-banking period as compared to that in pre-e-banking period. But profitability of Canara Bank is increased almost three times, it shows the highest profitability during 2001-04 i.e. 1.20 pc, even it is the least during 1998-2001 i.e. 0.44 pc, one reason is decrease in its burden, where Bank of Baroda shows the highest 0.70 pc during 1998-2001 following Canara Bank with 0.97 pc profitability ratio in 2001-04. Overall, Canara Bank shows much better profits having positive impact of technology.

(b) New Private Sector Banks: From Table 8, it is concluded that profitability of all the three new private sector banks shows fluctuating trend, it is more in e-banking period in ICICI Bank & UTI Bank but lesser in case of HDFC Bank as compared to the profitability during pre-e-banking period. Profitability variations are the highest during pre-e-banking period. Profitability of HDFC Bank is decreased during e-banking period i.e. from 1.42 pc to 1.24 pc mainly due to decrease in spread which is further witnessed by falling interest income, but even shows the highest profitability as compared to ICICI Bank i.e. 0.90 pc and UTI Bank i.e. 1.02 pc during 2001-04. Overall, it shows good profitability during 2001-04 in all the banks as compared to that in 1998-2001 indulging with more fluctuations.

Table 8: Profitability of New Private Sector Banks (Percent)

Years	HDFC Bank			ICICI Bank			UTI Bank		
	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs
(A) Pre – E-Banking Period									
1998-99	3.38	1.49	1.89	1.69	0.79	0.90	1.84	1.05	0.79
1999-2000	2.61	1.59	1.02	1.54	0.67	0.87	1.35	0.60	0.75
2000-01	3.23	1.89	1.34	2.05	1.23	0.82	0.92	0.12	0.80
Average	3.07	1.66	1.42	1.76	0.90	0.86	1.37	0.59	0.78
S.D.	0.41	0.21	0.44	0.26	0.29	0.02	0.46	0.47	0.02
C.V. (%)	13.36	12.65	30.99	14.77	32.22	2.33	33.58	79.66	2.56
(B) E-Banking Period									
2001-02	2.64	1.40	1.24	0.57	0.32	0.25	1.38	0.45	0.93
2002-03	2.70	1.43	1.27	1.33	0.20	1.13	1.65	0.67	0.98
2003-04	3.16	1.96	1.20	1.50	0.19	1.31	2.34	1.19	1.15
Average	2.83	1.60	1.24	1.13	0.24	0.90	1.79	0.77	1.02
S.D.	0.28	0.32	0.02	0.50	0.02	0.57	0.50	0.38	0.12
C.V. (%)	9.89	20.00	1.61	44.25	8.33	63.33	27.93	49.35	11.76

(c) Foreign Banks: Table 9 shows that profitability of all the three foreign banks in all the years under study, shows fluctuating trend but with tremendous increase in their profitability during e-banking period. Profitability of all the three banks is more during 2001-04 as compared to that during 1998-2001. Fluctuations are maximum during pre-e-banking period in Citibank but these are the highest during 2001-04 in case of other banks. Profitability of SCB is the highest during 1998-2001 i.e. 1.84 pc and during 2001-04 i.e. 2.22 pc followed by Citibank with 1.37 pc and 1.66 pc profitability respectively during both time periods. Overall, profitability of all the foreign banks is increased mainly due to their check on burden.

Table 9: Profitability of Foreign Banks (Percent)

Years	Citibank			Standard Charted Bank			HSBC		
	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs
(A) Pre – E-Banking Period									
1998-99	3.44	2.52	0.92	3.57	1.50	2.07	2.69	2.10	0.59
1999-2000	4.56	2.77	1.79	4.24	2.22	2.02	2.75	1.78	0.97
2000-01	3.78	2.39	1.39	3.59	2.15	1.44	2.79	1.60	1.19
Average	3.93	2.56	1.37	3.80	1.96	1.84	2.74	1.83	0.92
S.D.	0.57	0.19	0.44	0.38	0.40	0.35	0.02	0.25	0.30
C.V. (%)	14.50	7.42	32.12	10.00	20.41	19.02	0.73	13.66	32.61

				(B) E-Banking Period					
2001-02	3.75	2.24	1.51	3.51	1.49	2.02	2.62	1.75	0.87
2002-03	3.76	2.21	1.55	3.87	0.96	2.91	2.88	2.16	0.72
2003-04	4.58	2.65	1.93	4.23	2.49	1.74	2.73	1.18	1.55
Average	4.03	2.37	1.66	3.88	1.65	2.22	2.74	1.70	1.05
S.D.	0.48	0.25	0.23	0.34	0.78	0.61	0.13	0.49	0.44
C.V. (%)	11.91	10.55	13.86	8.76	47.27	27.48	4.74	28.82	41.90

It can be concluded that profitability of foreign banks is the highest with SCB at the top position, where new private sector banks are following foreign banks, initiated to fill this gap but profitability of public sector banks is far behind the profitability of foreign banks and new private sector banks. Even then all the three bank groups show increase in their profitability during e-banking period.

Testing of Hypotheses

- The performance of all the banks is significantly better in e-banking period than pre-e-banking period.
- The performance of foreign banks is significantly better than new private sector banks and also from the public sector banks.
- Similarly, the performance of new private sector banks is significantly better than public sector banks

5. Challenges of E-Banking – Particularly for the Public Sector Banks

Psychological

- Conservative
- Hesitation
- Frustration due to lack of technical knowledge

Technological

- Less awareness regarding technology
- Insufficient technology
- Lack of proper infrastructure for the installation of e-delivery channels
- Poor network
- Flaws in design, implementation and monitoring bank's information system

Socio-Economic

- Cost factor
- Vast rural branch network
- Concept of social banking
- Lack of CRM
- Low profitability

Problem of Security in E-Banking

- Loss of data due to technical defaults
- Lack of security measures

Lack of Strong Trust Environment

Slowness in Adoption of Net by the 40+age Group

6. Opportunities

Although a lot of reforms have been made in public sector banks, still there is a need to modify the policies of public sector banks. At present they are facing many internal and external challenges, which are hindering their performance, but these banks can convert these challenges into opportunities with care and some modifications. With globalization and changes in the technology, financial markets, world over have become closely integrated. Customers can access their accounts anywhere and banks' customer base is also spread across the world. Deregulation and liberalization has opened up new opportunities for banks but at the same time the pressure of competition have led to narrowing spreads, shrinking margins, consolidation and restructuring.

Increasingly, banks are focusing on core competencies, synchronizing strengths and shedding activities that are not remunerative. The winds of change sweeping across global markets will impact India also, and the Indian financial sector is set to see tremendous transformation in the coming millennium. The face of banking is set to change as banks adopt technology to reduce costs, widen product range for customer convenience and to manage risks. Greater market access to foreign banks, post-WTO will increase competition and as we move towards full capital account convertibility, banks will need to be equipped to handle large and sensitive volatile-capital flows.

Competition*:* Due to LPG banks are facing a severe competition. To stay ahead in the race, therefore, banks will have to leverage technology for innovative product development including developing sophisticated financial products. While some banks have taken lead in developing new tech-savvy products to beat the competition, also the public sector banks in particular will have to speed up their efforts in this area.

Greater customer-Orientation: Greater customer-orientation is the only way to retain customer loyalty and stay ahead of competition. In a market-driven strategy of development, consumer preference is paramount. Gone are the days when customers used to come to the doors of the banks and now banks are required to chase the customers. Thus, only banks that are customer-centric and extremely focused on the needs of their clients will succeed and there is need to change the mindset of banks at all levels on this issue. Public sector banks in particular need to bring about total customer-orientation not only in their products/services but their policies and strategies should also be customer-focused. In fact, they must realize that customer is the only profit center and all others are overheads. Identification of profitable customers, understanding their needs and preferences, improving the delivery systems and reducing the transaction costs for them should become important strategic issues for banks, if they want to survive in the fiercely competitive environment. Enhancing the customer base, cross selling of products/services and strengthening the customer relationship management will be the most important aspect.

Technology: In the deregulated environment, managing a wide range of products on shrinking margins in a fiercely competitive environment and offering top class customer services will create new challenges. In this context, technology will be the key to reduce transaction cost, offering customized products and managing risks. Growing consumer acceptance of e-channels is compelling banks to provide Internet-banking facilities and increasingly, customers are demanding fast, convenient and glitch-free banking services. However, as banks expand into virtual banking, they will need to pay greater attention to foolproof security arrangements and systems to safeguard against frauds. Supervision and audit of e-banking will have to be strengthened and vigilance against hackers stepped up. Our public sector banks are lagging behind in technology when we compare them with their counterparts. There is a need for vision, strategy, planning and coordination at all levels of the organization.

New Credit Assessment Skills: So far the focus of attention in the Indian banking industry has largely been extending finance to agriculture and manufacturing sectors covering small, medium and large industries. But now banks should capture service class also. Through IT, banks therefore, have to sharpen their credit assessment skills and lay more emphasis in providing finance to the wide range of activities in the services sector.

Management of NPAs*:* the level of NPAs in the Indian banking industry is a greater concern and thus urgent cleaning up of banks balance that has become a crucial issue. NPAs will have to be reduced drastically and adequate provisioning for bad and doubtful debts will have to be made. There is a need to have long-term solutions for overcoming this challenge. The internal control systems, risk management systems and systems of catch early warning signals for timely detection of NPAs have to be strengthened by banks. In addition, the role of legal reforms in bringing down the level of NPAs is crucial for speedy settlement of disputes and realization of banks' dues. Also, strengthening the Debt Recovery Tribunals and empowering banks to enforce their change without court intervention will result in expedition recovery of bad debts.

New Basel Capital Accord: The new Basel Accord to modify the existing capital adequacy framework is currently under discussion. Under the revised capital adequacy framework, banks will have to provide for market risk and operational risk besides credit risk. Against the background of government decisions to reduce its shareholding in nationalized banks to 33 pc, maintaining the required level of capital adequacy by the banks could come under strain. Strong banks will be able to access the capital markets for raising additional equity, but weak banks could face sever problems. But in any case, there will be tremendous pressure on banks to improve their financial performance if they have to attract additional capital. Profitability will thus have to be improved so that higher dividends are paid to shareholders, capital market perception about public sector banks changes and there is a positive impact on the valuation of shares so that the shares of public sector banks fetch attractive market prices.

WTO and Indian Banking Industry: As WTO provisions came into force, countries including India have to provide greater market access to other countries by eliminating Quantitative Restrictions (QR), regarding tariff barriers and liberalizing the market for financial services. The impact of these developments on various sectors of the Indian economy would be critical. The banks will have to keep themselves updated on sector specific developments taking place in the world, particularly in countries that are India's major trading partners and advise their corporate clients to help them to prepare for competition with multinational companies.

Corporate Governance: Deregulation and self-regulation go hand-in-hand. RBI has also asked banks to set up specialized committees like Risk Management Committee, Audit Committee, Compensation Committee, Narasimham Committee etc., to ensure the uppermost standards of corporate governance and development of best practices. A good fiscal management and clear-cut policies affecting various sectors of the economy, can promote corporate governance. The public sector banks, new private sector banks & foreign banks should ensure corporate governance in all the activities and to win the heart of shareholders.

Issue of HRM: Training, development and retaining talented and committed staff is a major emerging challenge before the public sector banks. Today, our employee performance review systems are neither objective nor transparent. They do not differentiate high performers, risk takers and innovators lot from amongst the total staff. Time has come to measure the value of human capital and take urgent steps to ensure it to its optimum level.

Lack of Risk Management: Today, instead of banks managing the risk, risk is managing the banks. A clear understanding of the risk-return profile of each activity of the bank is crucial to ensure the soundness and solvency of the organization. Skill up gradation and preparing a cadre for the risk organization is a major challenge for public sector banks particularly in the wake of high labor turnover.

Lack of Actionable Planning: Lack of planning or ineffective planning is very relevant to public sector banks. Though all the banks have established elaborate performance budgeting system and created MIS, it does not meet the management's present requirements. Basically, the entire planning process is still deposit and credit oriented that too, without any cost and yield linkages. To tackle this challenge an actionable strategic plans which are systematically broken-up into annual plans and performance is strictly reviewed in terms of the targets and accountability is fixed for non-performances.

Non- Accountability: In case of public sector banks, there is non-accountability of profits. No one is responsible. Every bank should fix the responsibility and good performer employees should be honored.

Public Perception: In the ultimate analysis it is the public perception that will decide the future of public sector banks. The perception of customers regarding public sector banks is very poor. Public sector banks should improve their perception by all means to remain competitive in the market.

Customers Expectations: In the era of e-banking and severe competition, the expectations of the bank customers have increased. Due to this banks should offer a broad range of deposits, investment and credit products through diverse distribution channels including upgraded branches, ATMs, telephone and Internet. For this banks should:

- Become more customer centric, offering a wide range of products through multiple delivery channels
- Become proficient in managing assets and liabilities according to risk and return
- Pay greater attention to profitability including cost-reduction and increasing fee-based income.

All these changes require vision, determination and extensive communication across all levels in the organization so that the vision and mission of the banks is communicated and understood down the line and receiver unqualified support.

Mergers and Acquisitions: Today 'size' has become an important issue in financial market world over. Merger on commercial considerations and strategic mergers are the order of the day. One of the possible ways to remain in competition would be mergers and acquisitions. The privately/foreign banks have already set in the trend. We can say that a constructive and serious measure should be initiated for:

- better and cheaper access to basic infrastructure requirements such as power, telecommunications i.e. VSAT, leased lines etc.
- creation of customers' awareness and education for technology adoption are imperative.
- The IT, Act 2000 should be implemented in totality to handle legal issues.
- Converting branches into boutiques catering to the requirements of clients and re-engineering the functions of branch banking using technology and delivery channels.
- Setting up an e-banking group to provide grid principles for risk management of e-banking activities.

7. Conclusion

The paper concludes that transformation is taking place almost in all categories of the banks. This transformation will helpful to cope with new economic and financial policies of the banks. IT is playing a crucial role to create the drastic changes in the banking industry particularly in the new private sector and foreign banks. The private banks take a big share of cake; our public sector banks are still lagging behind regarding the various financial parameters. The immense opportunities are also available for the public sector banks if they change/modify and adopt new policies to combat the different recent challenges. It can be concluded that mere introduction of IT alone will no be sufficient to bring necessary performance improvement and to get the competitive edge. Intelligent people are required to use such intelligent tools. Thus, even though IT management is a challenge flow in future banking scenario, marketing not technology is going to be the challenge.

The areas of future research are: Issues and solutions in implementing Corporate Governance in banking, reforming capital structure, aspects to be covered are:

  - Disinvestments of PSBs
  - Raising capital from the market
  - Foreign direct investment (FDI)
- An appropriate banking model for India:
  - Universal banking Vs. Narrow banking
  - Adopting international best practices i.e. Basel – II

Re-engineering Operations

- Marketing of financial services: Product, Process and Pricing
- Retail Banking
- Risk Management including regulatory and environmental risks
- Legal challenges

Harnessing Facilitators

- Technology
  - Issues in identification and cost-benefit analysis of appropriate technology – Case Studies
  - Disaster Recovery Management
- Human Resource Development
  - Preparing for the cultural transformation
  - Knowledge management

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