CHAPTER- 8
SUMMARY OF FINDINGS, CONCLUSION AND SUGGESTIONS

8.1 Findings on Extent of E-banking Services in India
8.2 Findings on E-banking Impact on Service Quality
8.3 Findings Regarding the Comparative Service Quality Level of Public and Private Sector Banks
8.4 Findings on Impact of E-banking on Payment and Clearing System
8.5 Findings on Impact of E-banking on Operational Performance
8.6 Findings Regarding the Comparative Operational Performance of Public and Private Sector Banks.
8.7 Suggestions for the study
8.8 Direction for the Future Research

222
CHAPTER- VIII
SUMMARY OF FINDINGS, CONCLUSION AND SUGGESTIONS

The contours of banking business have been changing across the globe and the rippling effect of the same can be expressed in the Indian banking sector as well. The process of liberalization, privatization, globalization and deregulation has opened new vistas for banks to increase their revenues by diversifying into universal banking, investment banking, bank assurance, mortgage financing, depository services, securitization, personal banking etc. An inevitable result of globalization is that it increases the soundness of financial system as a whole and facilitates global competition. To survive in this competition the information and communication technology significantly contributed to the exponential growth and profit of financial institutions worldwide. Technology is the key to move towards providing integrated banking services to customers. Indian banks have been late starter in the adoption of technology for automation of processes and the integrated banking services. Further the banking sector reforms and introduction of e-banking has made very structural changes in service quality, managerial decisions, operational performance, profitability and productivity of the banks. There are various factors which have played vital role in the Indian banking sector for adoption of technology. Firstly, the economic reforms introduced by the government almost 15 years back which resulted in opening up of new vistas for banks outside the world. Government relaxed rules and regulations and simplified the processes for the FII to make investment in the banking and various sectors. This resulted in inflow of large funds in the economy thereby improving the economy as a whole and banking sector in particular. Due to this reason banks need to provide such services, which satisfy the urge of foreign investors. Secondly, as a part of reforms, Indian banking was opened for private sector by which old and new private sector came in to limelight. They give a big boost to technology and created a platform to use it for back side and front side operations. When they started adopting it, this put a tremendous pressure on the nationalized and public sector banks. Thirdly for the economic development of a country, infrastructure plays a vital role. In the last few years with the development of telecom sector, communication infrastructure, BPO’s; the entire country became a single hub for transmitting the information and the major cities got connected with each other, which helped in the reduction of total cost. This had directly helped banks; during the
same period banks were busy in connecting their branches with centralized database and core banking solution by offering anywhere, anytime services. Fourthly Indian software industry has also impacted the Indian banking sector. To provide excellent services to the customers, banks do need to have web based portals, wide area network (WAN), local area network, internet etc. and all these services are provided by the Software industry to Indian banking at reasonable prices and at the right time. E-banking is one of the emerging trends in the Indian banking and is playing a unique role in strengthening the banking sector and improving service quality. The banking sector in India has introduced E-banking in a phased manner. Foreign banks are the pioneers in e-banking, private banks introduced it in a big way and public sector banks are in the process of transformation from traditional banking to E-banking. E-banking impinges on operations of banking in a number of different ways. It has enabled the banks to handle the payments electronically and inter-bank settlement faster and in large volumes. There is increase in customer satisfaction level, reduction in cost of banking operations, increased productivity and as such there is a tremendous scope for Indian banks to enlarge their E-banking services which could enhance their competitiveness. Further, new technology has rapidly altered the traditional ways of doing banking business. Customers can view the accounts, get account statements, transfer funds, purchase drafts by just making a few key punches. Availability of ATMs and plastic cards, EFT, electronic clearing services, internet banking, mobile banking and phone banking; to a large extent avoid customers going to branch premises and has provided a wider range of services to the customers.

There is a degree of variation in the services provided by the banks with the emergence of E-banking services. So, it becomes necessary to study the nature, growth and extent of E-banking services and their impact on the operational performance and service quality. Despite the increasing importance of E-banking services, the research pertaining to e-banking in Indian context has been limited. So, the present study is a modest attempt to ascertain the changes taking place after e-banking, to evaluate the banks performance, and to know about customers’ perceptions regarding e-banking.

8.1 Findings on Extent of E-banking Services in India

This section examines the performance of electronic banking in terms of extent of electronic banking services offered during June 2008. Firstly, a comprehensive comparison of e-banking services offered by the banks has been calculated. Secondly, the ranking of e-banking has been calculated on the basis of extent of e-banking offered by the banks. A total of 48 e-banking services are considered for the purpose of making
a comparative analysis and ranking of electronic banks. The brief discussions of the results are as follows:

- The services are divided into four categories, i.e., internet banking, mobile banking, phone banking and ATM services. About internet banking services, the most common services offered by the banks are balance enquiry and statement and transaction history. All the banks are offering account balance and transaction history services to customers. As many as 97 per cent banks offer transfer fund online and facility of cheque book request.

- Among the other services most of the banks offer simple transaction of e-banking which includes ‘monthly bank account statement by e-mails’, ‘password changing’, ‘bill payment’, ‘online tax payments’, ‘customer correspondence’, and ‘demonstrations of I-banking’. These services are available on almost 70 per cent of the transactional websites of the banks. In order to encourage the customers as well as potential customers the facility should be provided by all the internet banks. Only 66 per cent banks offer demonstration of I- banking services to the customers.

- The banks also appear to be cautious in using the internet to acquire new customers as only 26 per cent of transactional banks offer ‘loans or deposits online’. The reason being the banks face difficulty of confirming the identity of new customers. Banks also lag behind in offering more advanced services e.g. ‘share trading’, ‘mobile top up’, ‘online loans’, ‘convert to EMI’.

- Public sector banks are lagging in number of services like ‘buy and sell mutual fund’ (16.6 per cent), ‘request of debit cards’ (16.6 per cent), ‘reissue and upgradation of ATM/ debit cards’ (22.2 per cent), ‘activate/ deactivate ATM/ debit cards’ (27.7 per cent), ‘demat holding’ (33.3 per cent), ‘loan details’ (33.3 per cent), ‘online loans’ (16.6 per cent) etc. In all these services the share of public sector banks is very less. In the case of all the phone banking and mobile banking services private sector banks are leading except in details of credit card balance which is (11.1 per cent) in the case of private sector and (14.8 per cent) in public sector. It is pertinent to note that not even a single bank of SBI group provided either phone banking or mobile banking services during the period under study. This shows that having the largest asset based structure in public sector banks, still the State Bank of India and its subsidiaries are not offering
phone and mobile banking services. The reason being that these banks are having
dlarge number of branches and the cost of IT is very high. Even if the banks
started adopting the e-banking services, the rate of adoption by all these
branches is very slow.

• In phone banking services, 40 per cent banks provide ‘enquire your account
balance’ and 37.7 per cent banks offer ‘statement of account’ during the period
under study. These services are less offered by banks through phone banking
because this facility is available through ATM also and customers use ATM
frequently for withdrawal of cash. Therefore, instead of increasing the cost by
offering the services in two ways, banks are offering less services which are
already provided through other modes. Less services among phone banking are
‘request for fund transfer’ (20 per cent), ‘stop cheque payment instruction’ (22.2
per cent), ‘mobile banking registration’ (17.7 per cent) and ‘latest interest &
exchange rates’ (15.5 per cent). In mobile banking services 53.3 per cent, banks
provide ‘account balance & last three transaction services’. Services like ‘making
payment’ (11.1 per cent), ‘details of credit card balance’ (13.3 per cent), ‘loan
information’ (6.6 per cent), ‘Internet mobile’ (2.2 per cent) and ‘purchase and
redemption of mutual fund units’ (4.4 per cent) are offered to meager extent in
all the banks..

• ATM services are mainly comprised of four services. These services are
provided by all the banks. These services are 100 per cent offered by all the
banks, including ‘24 hour access to cash’, ‘transfer fund between accounts’,
‘view account balance’, ‘mini statement’ and ‘pin change option’.

• A wide divergence was found in different bank categories in offering e-
banking services between private and public sector banks. Private sector banks are leading
in ‘stop payment request’, ‘re-issue and upgrade of ATM/ debit card’, ‘demat
‘ticket booking’, ‘mobile top up’ and ‘share trading’. This shows that all advanced
services of internet banking are more offered by private sector banks. Moreover
private sector banks emphasized on business-oriented services where they can
charge certain amount of commission, interest and fees. Even in the private sector,
the share of new private sector banks is high. In phone banking and mobile banking
also the share of new private sector banks is high.
There are number of services where public sector banks are leading. These include ‘monthly banks account statement by e-mail’, ‘change password’, ‘ticket booking’, ‘share trading’, ‘online tax payment’, ‘customer correspondence’, and ‘demonstration of I-banking’. The research shows that as compared to private sector banks, public sector banks are offering more services for the social welfare of public rather than business-oriented and profit making. The service like tax payment increases the government revenue on one hand, and fulfils the corporate social responsibility on the other.

On the basis of extent of electronic banking services, it is found that ICICI Bank offers as high as 95.8 percent e-banking services, followed by HDFC Bank with 93.7 per cent of e-banking services. So, the top two positions of e-banking services are acquired by new private sector banks. Third position is acquired is by a public sector bank, viz. IDBI offering 75 percent of services. Fourth position is again acquired by a new private sector bank, viz. Kotak Mahindra offering 70.8 per cent of services. Fifth rank is shared by Punjab National Bank and Canara Bank offering 64.5 per cent of services. Sixth position is acquired by Bank of Maharashtra with 62.5 per cent services, seventh by Corporation Bank with 56.25 per cent and eighth rank is shared by three banks jointly with 48.00 per cent of each services, i.e., Federal Bank, Karnataka Bank and Axis bank. Out of these three banks, two banks are old private sector banks and one is a new private sector bank. Ninth position is jointly shared by Dena Bank and Indian Bank with 45.8 per cent services. Both are nationalized banks. Tenth rank is bagged by Union Bank of India with 41.67 per cent services which is a nationalized one. The analysis depicts that new private sector banks and nationalized banks have provided e-banking services. Old private sector banks and SBI banks are in the early stage of development and introduction of early e banking to their customers.

Onsite ATMs of the nationalized banks have shown a three-fold increase, these were it was merely 3205 in 2004-05 and increased to 8320 in 2007-08. There is a decline in the growth of these ATMs from 50 per cent in 2005-06 to 25 per cent to 2007-08. Offsite ATMs of nationalized banks have registered a growth of 54 percent in 2007-08. So, growth of onsite ATM of nationalized banks is more.

As far as SBI is concerned, the onsite ATMs’ have increased from 1500 to 4500 showing a three-fold increase. The growth rate increased tremendously increase from
14 per cent in 2005-06 to 105 per cent in 2006-07. But, it again, declined to 25 per cent in 2007-08. Due to the large asset base structure the SBI banks’ share of onsite ATMs is also high. Regarding the offsite ATMs the growth declined by -0.1 per cent in 2005-06 to -24 per cent in 2006-07. It was only in 2007-08 that this share increased to 38 per cent. So, growth of offsite ATMs shows a downward trend, while onsite ATMs show an upward trend.

- Old private sector banks provide limited of e-banking services. Their share of ATMs is also not so high. In the year 2006-07, there was a great decline in their share and it was merely 4 per cent. Similarly, offsite ATMs also declined from 11 per cent to 2 per cent.

- New private sector banks constitute the major role in providing electronic banking services. These banks have recorded 19 per cent growth in 2005-06, 39.00 per cent in 2006-07 and 22 per cent in 2007-08. But the offsite growth of these banks is maximum as suggested by the number of ATMs i.e., 5988 in 2007-08. There has been a growth of only 3 per cent in 2005-06, 30 per cent in 2006-07, and 18 per cent in 2007-08 in the number of ATMs. Nationalized banks are having the largest share of onsite ATMs while new private sector banks are having the greatest share of offsite ATMs.

- Foreign banks play a vital role in Indian banking sector but their number of onsite and offsite ATMs is very less, so their growth rate was as very low as 6 per cent in 2005 which increased to 8 per cent in 2007. Offsite growth was merely 7 per cent in 2008.

- Nationalized banks have the maximum number of branches, i.e., 37775 in 2007-08 and also the ATMs i.e., 13355. With an increase in the number of branches of these banks, the share of ATMs to branches has also been increasing. It was 14 per cent in 2004-05 and gradually increased up to 35 per cent over the study period.

- Banks in the SBI group State bank group are having equivalent share of ATMs to branches. The proportion of ATMs to number of branches is gradually increasing. It was 38.2 per cent in 2004-05 and increased to 55 percent in 2007-08. So, the share of ATMs constitutes half of the share of branches. It shows that the SBI group is not only focusing on its number of branches but ATM’s also.

- The number of branches of old private sector banks decreased rapidly during the period from 2004 to 2008. These were 4511 in 2004-05 and 4450 in 2007-08. But the
number of ATMs showed an upward trend increasing from 1241 to 2100. On the other hand, new private sector banks present a different position. They were having 1685 branches and 5612 ATMs in 2004-05, thus having a percentage share of 33.3 per cent. In 2007-08, number of ATMs increased to 9867; and the number branches were 3825 only. So, this is the sector where number of ATMs exceeds the number of branches as these banks offer wide range of electronic banking services to customers. In a nutshell new private sector banks followed by nationalized banks offer a variety of e-banking services to the customers through internet. As most of the banks in India have recently started to offer electronic banking services, so there is a lot of scope for these institutions to expand their e-banking services. Out of four main e-banking services, ATM services are offered by all the banks. All the banks under study offering these services. The research further provides that not even a single bank of SBI group provided either phone banking or mobile banking services during the period under study. This shows that despite having the largest asset base structure, State Bank of India and its subsidiaries are not yet offering phone and mobile banking services to their customers. The reason being that these banks with a vast number of branches find it difficult to meet; the cost of these IT services. Even if the banks start providing the e-banking services, the rate of adoption by all these branches is very slow. All advanced services of internet banking are more offered by private sector banks. Moreover private sector banks emphasized on business-oriented services where they can charge certain amount of commission, interest and fees from their customers.

8.2 Findings on E-banking Impact on Service Quality

To achieve the desired objective, SERVQUAL model was applied based upon 22 items of service quality but for the present study ten dimension model based upon 43 items. The study has been categorized in to two parts, profile analysis and statistical analysis. Profile analysis is related to the behavioral issues and study of demographic variables. This analysis was conducted by using mean scores, standard deviation and percentages. Statistical analysis was conducted using factor analysis, t-test, chi-square, cronbach alpha. Both parametric and non parametric tests were employed for data analysis. The main findings of the study are as follows.

- The result of the study reveals that 14.5 per cent of the respondents had maintained a relationship with the banks for less than 2 years, 26 per cent for a period of 1 but less
than 3 years. 15.8 per cent for a period of 3 but less than 5 years, 13.5 per cent for 5 to less than 7 years and 30 per cent for more than 7 years. These results show that there was relatively higher degree of stability of those customers who had maintained long term relationship with the banks.

- The findings of the study showed that there is a wide divergence of customers’ opinion regarding e-banking services. Ranking was done to judge the opinion of the customers. Weighted average score was calculated for ranking of services. It shows that e-banking provides convenient ways to manage services and finance (6.61) followed by detailed information in seconds (6.58), fastest mode of services (6.03), bring down the cost of banking (5.56), less risk and greater security (5.51), quick movement of funds (5.14), fastest internet access speed (4.95), anywhere, anytime banking (4.87), reduced wasting cost, increased flexibility and improved service (4.77) and easy to transact from office, house or while traveling (4.46). It can be observed that bank customer found it suitable to transact through electronic banking. Therefore improved services, easy to transact from anywhere and anytime are the main reasons due to which e-banking is adopted by the customers.

- The results of the study also reveals that all electronic banking services are not equally important for the customers, some services are very important while some are less important. The findings shows that cash withdrawal (8.49), Checking of account (6.56), Opening of account through online internet (6.33), transfer of funds (6.25), online information (6.24) and bill payment (5.75) are the important advantages availed through e-banking. Among the least important are online information (6.24), loan rates (4.38), e-shopping (4.32), import-export trade documents (3.67) and downloading of various forms (3.54) are the less important services for the customers. So the findings indicated that cash withdrawal through onsite and offsite ATM’s, anywhere, anytime banking, checking of account balance through phone and mobile banking are the major benefits creeped by e-banking for the customers.

- Principal Component analysis with varimax rotation was used on forty-three items of service quality. The Bartlett-test of sphericity was significant and the Kaiser-Meyer Olkin measure of sampling adequacy was larger than 0.5 which showed that the use of factor analysis was reliable. Further only those items were retained with factor loading greater than 0.5 and Eigen value greater than 1.0. SERVQUAL was used to judge the level of services provided through e-banking. The value of cronbach alpha
is also very high in all the dimensions of servqual. The value varies between 0.5 to 0.8 which shows that the data is reliable and there is good internal consistency.

- To study the relationship between electronic banking and customer satisfaction and to ascertain which aspects of e-banking have significant impact on satisfaction, factor analysis was conducted. The aim was to determine nine dimensions of service quality and their relative contribution in influencing the overall customer satisfaction. Further it has helped in data reduction and the aim is to select only those variables which can exactly influence the impact of electronic banking on service quality. The study indicated that reliability, responsiveness, communication, access, courtesy, communication, credibility, security, understanding and tangibility did reasonably well in predicting overall customer satisfaction regarding e-banking. However tangible has not significantly related to customer satisfaction. In addition; communication, credibility, responsiveness and competence exhibited the strongest association with overall service improving quality.

- An examination of factor analysis indicated that in access factor, ‘Convenience’ had the greatest influence on the satisfaction with 0.794 factor loading. It means that e-banking provides convenient location of service facility through the location of ATM or point of sale terminals. The extraction sum of square loadings represents 43 percent of the variance with 1.740 eighen value by statistically signifying the value of KMO and cronbach alpha by .507 and .556 respectively. The statement regarding e-banking service is accessible via internet banking, mobile banking, EFT, ECS, ATM having factor loading less than 0.5 i.e. 0.467, hence it is not considered for further calculation.

- The dimension that comprised the communication factor concerning ‘explaining the cost service’, ‘customer problem can be handled’, ‘trade off between service and cost’, ‘sophisticated information for well educated customers’ and ‘effective medium of promotion of various schemes’. Out of these 7 factors, 3 are extracted which are combination of five variables. In the first extraction ‘sophistication’ (.818) dominated among all other factor loadings. This shows that e-banking provides sophisticated information to well educated customers. Second component comprises two factors ie ‘cost’ and ‘handling’ with factor loading of 0.727 and 0.731 respectively .Third components is again total of two factors that is ‘update’ and ‘effectiveness’. These
five factors explaining 60 per cent of the variance in the total variables by statistically
signifying the KMO test and cronbach alpha with 0.520 and 0.780 respectively.

- As far as competence dimension is concerned, transfer through ‘e-banking is easier’,
‘provides more punctuality, transparency and accountability’, ‘faster as compared to
manual banking system’ and ‘trust factor’, since the value of initial communality is
less than 0.5 regarding fastness, hence not considered for further analysis. The other
3 variables represents 47 per cent of variance hence showing that e-banking has
improved the competence of the banks by providing the fair, clear and timely
services to customers.

- Credibility dimension demonstrates 5 factors comprising ‘reputation’,
‘trustworthy’, ‘ability’, ‘reliability’ and ‘network’ services of e-banking. With the
help of principal component analysis and rotated component matrix converged two
iterations. First component extracted ‘reputation’ and ‘trustworthy’ with 0.772 and
0.823 factor loading which are closer to one. This extraction provided that customers
considers e-banking services as reliable source of banking which has enhanced the
reputation of the bank on the one side and trust of the respondents on the other and in
the second component their is only one factor extracted with 0.828 factor loading
that ensures ‘ability’ to fulfill the requirement of every customer.

- The results indicated that factors corresponding to reliability comprised 3 factors
with factor loading of 0.776, 0.722 and .615 for ‘accuracy’, ‘correct’ and ‘timely
information’, these factors comprising 50 per cent of the variance and principal
component extracted one component with the combination of two factors having high
factor loading of accuracy and correct. It proves that e-banking helps in keeping the
records correctly and provides accuracy in transactions.

- As regard the responsiveness, the dimension found to be highly significance with the
KMO value of 0.666 and cronbach alpha with value of 0.679. The results indicated
that ‘development’, ‘quality’, ‘quick and fast’ did reasonably well in predicting
customer satisfaction in this dimension and out of these four, three factors are having
loading more than 0.7 and closer to 1 representing 51 per cent of the total variance
with only one initial eighen value of 2.051. It signifies that by improving the quality
of customer service, e-banking has contributed for the development of new economy
of India. Further response of service through e-banking is very prompt and quick as
availability of service is faster in e-banking as compare to manual banking. So this
dimension proved that e-banking is not only important for the customer satisfaction but also play important role in the development of economy by cost reduction, fast transfer of funds, greater transparency and accountability.

- As far as the **security** dimension is concerned, it is a combination of four sub-dimensions namely ‘safety’, ‘confidence’, ‘security’ and ‘privacy’ but only one factor ‘confidence’ is having high factor loading of 0.752. As e-banking is mainly operated through password be it internet banking or ATM. Password facilitates confidentiality to all transaction, however all customers do not think that privacy can be maintained because sometimes queues are found in the ATM terminals which clashes with the privacy issue but to great extent password facility provides immense help to the customers in maintaining secrecy of their money and transactions.

- The results of the study investigated the **tangibility** dimension of e-banking which included ‘advanced computer / IT services’ to serve the client, ‘modern looking equipment’, ‘physical representation of services’, ‘reduction in the no. of queues’ and ‘more physical facilities’ to the customers. But all these factors are not equally important. The statement of physical representation having factor loading with 0.467, hence not included in further extraction. In this dimension modern looking equipment (0.749) and hours (0.706) signifies higher impact on tangibility of service hence e-banking services are more facilitative.

- As regarding the **understanding** dimension, six sub dimensions are studied. Rotated component matrix with Kaiser normalization extracted two components which are combination of three variables. The results indicated that ‘need’ (0.693) and ‘assurance’ (0.718) are the main factors signifying the customers in this dimension. In the second component ‘relations’ (0.852) is likely to have an important and positive effect on customer satisfaction. These dimension recommended that as the websites of the banks are designed according to the need of the customers, so it ensures timely and required information to the customer. Further it helps in better customer relationship, attracting and retaining them. So e-banking services are more suitable to the customers and helpful in customer relationship management.

### 8.3 Findings Regarding the Comparative Service Quality Level of the Public Sector and the Private Sector Banks.

- The research examined the comparative analysis of services between public and private sector banks. The dimension of servqual is divided into nine parts comprising
access, communication, competence, credibility, responsiveness, reliability security, tangibility and understanding. T-test was applied to calculate the mean differences between public and private sector banks. In the access dimension, there is a significant gap in two services while in other two there is no such difference. In case of online purchase of goods and services, private sector is having 4.02 mean score and public sector with 3.87 where the p-value is significant at 5 percent level. This shows both public and private sector customers agree but private sector customers seem to be higher beneficiary of online services of their respective banks. Other statistical difference is in the reduction of waiting time to receive the service. Here public (4.02) and private (3.72) sector services are different and public sector banks are helpful in reduction of waiting time to receive the services. This difference could be due to better time management, efficient employees and installation of more number of ATMs. Whereas in case of internet, mobile, ECS, EFT services there is no such significant difference found.

- Factor analysis results in communication dimension shows that customer perception in public and private is almost same in all statements except in two statements with mean score of 3.61 and 3.86 and 3.60 & 3.90 respectively. As e-banking assures that customer problem can be handled but private sector customers are more agreed upon it. Second statistical difference is significant in e-banking as effective medium of promotion of various schemes. This shows that websites of private sector banks are more customer friendly where they can come to know about the various schemes launched by the banks. In both these areas public sector do need to have improvement. Regarding the competence dimension, both the sectors are giving the same service in this regard. Both the sector’s services are trusted by the young generation, no hindrance in transfer of fund. In both the sectors the e-banking services are more punctual, transparent and accountable. Although there is no statistical difference found in two sectors but public sector (3.92) is more trusted by the young generation than private sector (3.82). As far as the transfer of funds are concerned private sector banks (4.09) are offering it a better way than the public sector banks (4.03).

- The research further investigates the comparison of difference between the public and private sector in the credibility dimension. The results indicated the gap between two sectors in four out of five statements representing ‘trustworthiness’, ‘ability to
fulfill the requirement’, ‘degree of reliability’ and ‘unlimited network approach’ for customers. All the four statements are significant at 5 per cent level of significance and the mean score of private sector customers is high in all statements. Customers are disagreeing with public sector banks on the ground that their all requirements are fulfilled with the low mean score. In the reliability dimension again there is no statistical difference between two sectors. The dimension comprises of ‘accuracy in billing’, ‘keeping online records’ and ‘performing the services’ at designated time with mean score of 3.80, 3.88 and 3.62 in private sector respectively and 3.71, 3.85 and 3.75 for public sector. It is observed that if public sector banks intend to enhance their service quality than they must improve the service quality in those dimensions where the score is either too low than private sector or customers are not satisfied with the services being provided.

- The results in responsiveness dimension also shows significant difference in two out of four statements. Customers in both sectors agree that ‘e-banking is necessary for the development of new economy of India’ and ‘regarding the service response through e-banking’ with 4.02 and 3.71 mean score of public sector and 3.92 and 3.71 for private sector. Public sector bank customers are more satisfied with the improvement of quality service with 4.03 mean score and private sector banks customers with the availability of service being faster in e-banking as compared to manual banking with 4.12 mean score. As regards the tangibility dimension, the results indicated that in two out of six statements both sector banks are statistically different. These two statements are ‘modern looking equipment’ and ‘more physical facilities’ to customers with 4.06 and 3.60 mean score of public and 3.79 and 3.86 of private sector. But public sector banks are providing more modern looking equipment to its customers whereas private sector banks are providing more physical facilities to customers. Other statements comprising of ‘physical representation of service through plastic card’, ‘credit and debit card’, ‘reduction in the number of queues’, ‘e-banking provides 24 hours, 365 days service to customers’ with mean score of 3.96, 3.90, 4.05 of public sector and 4.08, 3.77 and 3.93 of private sector banks in which out of three, in two services public sector banks are having high mean score. As far as the understanding dimension is concerned, private sector banks are having low mean score than the public sector customers. For this the bank manager has to ensure that the employees are properly trained so that they provide
individualized attention to customers to make e-banking services more to customers friendly and they should also make efforts that customers feel safe and secure with their e-banking transactions with the bank. Further website of the bank should be designed according to the need of the customers.

- The results of the study indicated that there is a significant difference in the customers opinion regarding different e-banking services. Although both sectors are providing good services to their customers but out of 11 services, statistical difference was found in four e-banking services that were in ‘credit card facility’, ‘bill payment services’, ‘inter-connectivity of ATM’s’ and ‘request facility’. In all these four services mean scores of public sector banks are high. However internet banking, phone banking and debit card services of private sector banks are good with mean scores of 3.81, 3.35 and 3.83. However it should be noted that the services are either average or good but not very good. So both the banks should improve internet, phone, mobile, ATM, EFT, credit and debit cards services to improve the overall quality of e-banking.

- It was found that 70(35 per cent) of private sector and 55 (27 per cent) of public sector came to know about e-banking through advertisement, 27 (13.5 per cent) of private and 49(24 per cent) of public came to know through manager, through websites 31(15.5 per cent) in private and 34(16.9 per cent) in public sector. So the knowledge about e-banking services is highest through the advertisement of banks and lowest through the mobile banking services in both public sector and private sector banks. The knowledge through managers, websites, email and other customers comprises a very small proportion. Further in private sector 127 (63.5 per cent) and 104 (51.4 per cent) in public sector encounters problems in using e-banking services. Whereas 64(32 per cent) in private and 90(44 per cent) in public sector lodged a complaint. This shows that problems are high in private sector but filing the complaint, the public sector customers are more aware and fast. As regard the nature of problem in private sector 3.5 per cent encountered it due to server down, 8.5 per cent due to untrained personnel, 19.5 due to ATM working, 25 per cent for the ignorance of customer themselves, 25 per cent for availability of cash and 7 per cent due to delay of services. However in the public sector the situation is slightly different, here the customers encounters the problem due server down (12.43 per cent), ATM not working properly (18.40 per cent), location of onsite and offsite
ATM (12.43 per cent). The results showed that the respondents who had encountered problem with the bank had filed the complaint against their banks. To conclude, once the problem exists no matter how it is resolved it will influence the customer switching to another bank.

8.4 Findings on Impact of E-banking on Payment and Clearing System

- There has been a tremendous growth of electronic payment system from 2003-04 to 2008-09. Regarding ECS (cr) volume wise the growth was 97.3 per cent in 2004-05 and followed a downward trend and in 2008-09 its growth was only 12.79. So although the volume of ECS is increasing, but growth is less. ECS (dr) was higher in 2005-06 i.e. 135 per cent. Whereas ECS (cr) was minimum i.e 10.39 per cent in 2005-06. Regarding electronic fund transfer services their was a tremendous growth in 2004-05 that is 211.23 per cent but further decline to 20.32 per cent in 2005-06 and increased to 55.72 per cent in 2006-07, 178.79 in 2007-08. Credit cards services were very much prevalent in Indian banking sector. But their growth was not as much comparative to other modes of payments. It was 29.24 per cent in 2004-05, 20.51 per cent in 2005-06 declined to 8.61 per cent in 2006-07 and further increased to 34.60 in 2007-08. Debit cards services from the beginning followed an upward trend from 2004-05 to 2007-08 by 9.99 per cent, 10.00 per cent, 31.71 per cent, 46.74 per cent respectively but again declined to 44.55 per cent. So to promote the safe, secure, sound and efficient payment system, the Reserve bank has taken several initiatives to promote and develop the electronic payment system in the form of ECS, EFT, debit cards and credit cards. The growth volume of e-payment system has provided the faster collection of bills to the companies, better cash flow management, eliminates to go designated banks by the customers.

- Value wise ECS transactions were having 157 per cent growth in 2006-07. The growth of increase in value was higher than volume transaction. Growth was also maximum in 2005-06 that is 344.55 per cent. Volume and value both wise the growth was maximum in 2005-06 in ECS dr. However in ECS cr the growth was maximum in 2006-07. As regarding the EFT their was a tremendous growth in 2004-05 i.e 218.84 but immediately decline to 12.246 in 2005-06 as in this time period the clearing services was maximum. Value transactions shows substantial increase in debit cards. It increased from 26.27 per cent to 67 per cent in 2007-08. The increase in value was not as much comparison to volume transactions. However growth shows
an increasing trend from just 10 per cent to 53 per cent but a further decline to 48.12 per cent. So overall there was an increase of more than 50 per cent in five years. As regards credit cards decreased from 45.42 in 2004-05 to 31.92 in 2005-06 and further decline to 22.05 in 2006-07 than followed an upward trend to 40.19 in 2007-08. So there was a wide fluctuation in value wise growth trend of credit cards.

- RTGS services were offered by 1000 plus banks and 20,000 branches based on banks declaration of participating branches and the services were available for wholesale and retail customers during the period under study. Customer remittance and inter-bank remittance was nil in 2003-04 but then increased to 41.46 lakh in 2007-08 and 112.34 lakh in 2008-09. It must be noted that only transactions having minimum threshold of 1000000 routed through this channel and below it is routed through NEFT. Clearing between one bank to other also increased by 0.001 per cent, 3.92 per cent, 10.54 per cent, 13.94 per cent, 16.94 per cent, 21.32 per cent from 2003-04 to 2008-09. Various reasons are held responsible for increase in this settlement system. RTGS is very much prevalent for inter and intra bank settlement among different banks of Indian banking sector for various reasons. Firstly RTGS facilitates continuous settlement of payment on an individual order basis without netting debit and credit across the books of RBI. Secondly it is good source for improving non-interest income. Thirdly it has provided a source of additional revenue by services extended to customers through RTGS. Since the funds are transferred through electronic system, a lot of backend work and manpower involved in such work can be utilized for other productive purpose.

- To know the impact of e-banking on payment and clearing system the opinion of customers are also taken into account. The second part of customers questionnaire comprising the statements on impact of e-banking on payment system comprising ten different statements. The results of the study indicated electronic banking has benefited or affected the customer’s services through e-payment as it helps in large volume of business data and remittances and faster delivery of banking services which is acceptable to wide range of customers. Mean and standard deviation of all the dimensions of e-payment was calculated. The highest mean score was found for ‘e-payment growing at much faster speed than paper based instruments’ followed by the ‘cost involved in payment system’. Customers also agree that ‘e-payment handles a large volume of their payments’ and provides them ‘faster delivery of banking
services’. So the respondents are agreeing with all the benefits facilitated by the e-payment system.

- The results of the study indicated that all the statements cannot justify the electronic banking impact on payment and clearing system. So to reduce the data for further analysis factor analysis was used and to know that which statements are having more relevant and depicting the clear picture of the e-banking impact on payment and clearing system. The KMO measure of sampling adequacy and Bartlett’s test of sphericity was used to check the reliability and validity of data. The value of KMO is greater than 0.5 hence all the factors are not considered equally important for the study. Further Bartlett’s test of sphericity shows the significance at .000 level. With the help of principal component analysis varimax with kaiser normalization, four components are extracted. First component is the combination of ‘volume’ and ‘fast delivery’. As E-payment has reduced the large volume of transactions through online settlement of funds and fast delivery of funds through RTGS. Second component is the combination of ‘risk reduction’ and ‘convenience’. Third component is the having two variables namely ‘frauds’ and ‘cost’. It helps in reduction of the cost as well as control over the fraudulent activities. Fourth component is having only one factor that is ‘affordable’ which provided that fees of e-banking services can easily to be paid off by all the customers.

- Level of awareness among the present banking customers also play an important role in deciding that whether today’s technology will reach the success of height or not. 34 per cent people are satisfied with their current level of awareness, this shows that still level of awareness is less than 50 per cent in the banking segment. 48.8 per cent are somewhat satisfied with their current awareness level and needs further enhancement in their knowledge. 8.8 per cent can’t say anything about it. 5.3 per cent are somewhat unsatisfied and 3.3 per cent are very unsatisfied with their current awareness. These are those customers which are either uneducated or people of rural segment. To increase the level of awareness more and more training programmes should be organized.

- The results of the study indicated that customers are having long run association with their banks. 26.3 per cent customers are having account more than five years, 24.5 per cent having this account for 2-4 years, 21.3 per cent are having their linkage with bank from past 1-2 years. 18.5 per cent are having account from 6-12 months and
only 9 per cent are having relation with the bank from last 6 months. This analysis shows that customers are more familiar and satisfied with electronic banking that is why they are linked with their bank for the past years. As regard the quality of service, 37.5 per cent respondents strongly agreed that the e-banking has improved the quality of service. 38.3 per cent respondents agreed on this statement. 20 per cent are neutral on it, 3.5 per cent disagree while only 0.8 per cent strongly disagree with it. This shows that large proportion of the customers agreed that internet banking, mobile banking, ATMs has certainly improved the quality of service.

8.5 Findings on Impact of E-banking on Operational Performance

- The study brings out the impact of e-banking on operational performance of the banks, workload on employees as well as on their performance and productivity. To know this impact both positive as well as negative statements are taken into account. A large number of employees believe that e-banking with quick working techniques, more clarity about objectives, minimum cost enhancement in their knowledge about the work has resulted in improving the productivity of banks. However, employees do not agree with increase in number of hours. There is a very little increase in working hours of their jobs. The employees further observed that it has reduced the processing time of the transactions as no manual work for entering and processing the data is required. The thinking platform of employees and their decision-making power has also improved to a large extent. So, as far as the workload of employees is concerned, it has been reduced to division of work and less processing time.

- The study reveals that there is a change in personal development and relations after adoption of e-banking. Employees perceive that environment after introduction of e-banking has improved a lot. Secondly, it has helped to provide prompt increased service to the customers. The relations between employees and customers have further improved. The problems faced by the customers are redressed quickly. It means despite of less interaction with customers directly, due to speedy solving of problems and quick responses to their answers, relations are improving day by day. Employees are satisfied with the current HR policies of the bank. Their knowledge is continuously upgraded. So we draw the inferences that personal relation between the employees, with the customers has been good and service providing has also been increased due to fastest mode of e-banking.
• For the comparison of e-banking with traditional banking, out of four options i.e far better, better, same, poor. No one agreed that e-banking is poor than traditional banking. However 48 per cent of employees believe that e-banking is better than traditional banking. While 9 per cent believe that bit is same. So majority believe that it has improved the way of service.

• In the study it was found that their is reduction of work in the banking activities after e-banking. Time taken in making draft is somehow decreased. Further the time taken in transaction now has been decreased gradually as online transaction consume less time than manual transactions. However complexity in the transaction is stable which is neither increased nor decreased. As far as the availability of staff at counter is concerned, it has also been decreased as customers need not to visit their branches regularly and can transact through internet banking. So staff requirement at counter has been reduced. Banking hours are somehow stable. The knowledge of staff about bank products has been increased. The analysis of this table shows that as far as processing time of transactions after e-banking is concerned, their is a reduction in it. As the transactions are handled through computerized data based system, so manually work has been reduced to a large extent.

• Most employees believe that the matters regarding the problems of customer could be handled easily and fastly. Security concern is also been sorted out, employees can now make online FD’s, large amount of fund transfer through Real time gross settlement and electronic fund transfer. Employees also perceive that electronic banking has made their survival in banking sector very easy and to a large extent, their working has become easy. Further they feel that up to large extent their has been a reduction in their monotonous of work as they perceive that working through e-banking is fast and interesting. There is no fear of job losses among employees. Interaction with the people has not been reduced. In fact customers become closer to banks and their staff through fast information processing, speedy recovery of funds and early grievances of their problems.

• The study also reveals the factors that influenced bank most to adopt electronic banking. Firstly the bank employees perceive that it is the globalization in the banking industry which influence the bank more. Secondly it is the guidelines of RBI to pressurerize the bank to adopt e-banking. Thirdly it is competition from other banks which forced banks to adopt e-banking. Fourthly it is the requirement from the customer side as they want better products and services in the banking sector. Second last is own willingness of the bank, it means
banks are least interested by their own to adopt e-banking and cost effectiveness is at last of ranking. So it’s not the cost efficiency and reduction but the globalization and competition and RBI instruction to follow e-banking.

- The research shows that electronic banking offers number of modes for payment. It provides fastest and effective mode of payment to the customers anywhere, anytime. In different modes of payment, ATM is the fastest and easiest mode suitable to customers. Because the customers can withdraw the money from ATM anytime, anywhere. Debit cards and credit cards also play a vital role in making payments. Further electronic fund transfer and real time gross settlement system play an important part in inter-bank fund transfer. So ATM is the fastest mode followed by debit cards, EFT, RTGS, ECS cr, credit cards and lastly EDI.

- The study also suggested the methods to improve the services of electronic banking. Though every bank is making the best efforts to provide e-banking services, still there is a need to improvement. Most of employees feel that their should be staff training and education to tackle the complex e-banking. Secondly employees want that their grievances should be taken up properly. So that they can work in a cool atmosphere. Thirdly rules should be simplified, it means any complexity in e-banking should either be reduced or should be clarified. Fourthly they want that their should be up to date infrastructure in bank to cope with fast going technology modes and last rank is given to reduction in complexity of software. So we can say that complexity does not causes much problem but employees perceive education and training as most important one, so banks should make efforts to provide the same to employees.

- Maan Whitney test is conducted to compare the rank of two statements between the factors that influenced bank most to adopt e-banking and suggestion to improve e-banking services in bank. This test helps to prove that both the sample were taken from the same population. Both questions are divided into two groups. Group 1: For factors influenced the bank more to adopt e-banking and Group 2: For suggestions to improve e-banking. It was assumed that both are taken from the same sample. Z value was calculated to prove the hypothesis. The value of Z is less than 1.96 so it is significant at 5 per cent level that is 0.320 by accepting the assumption that both ranks are taken from the same sample of population. Box and whisker plot by group was used to define the minimum and maximum of rank score in two groups. Group A is having range from 291 to 402 and group B from 275 to 436. So the minimum and maximum range are more in Group B.
The research reveals that implementation of centralized banking solution has emerged as one of the most cutting edge factor among the sweeping modernization taking place in the banking sector. The most important aspect of e-banking is core banking solution. Large number of employees agree that e-banking facilitates launching of new products, the reason being large number of customer possess different modes of e-banking through tele-banking, internet –banking, phone banking and can fulfill their requirement relating to online shopping, e-ticket booking, demat holding, interest rate updates, share trading, buying and selling of mutual fund etc. The latest information about all these are regularly upgraded through different modes of e-banking. Customers through online fund transfer can transact through any branch of the bank. Besides customer service point of view, implementation of CBS further enables the bank of a reliable centralized data repository, which has facilitated modern technology tools like data ware housing and data mining for business intelligence and analysis. Employees also perceive that CBS has facilitated reliable decision support and executive information systems which would be available on real time basis. However CBS has put a pressure on branches settled in highly industrial areas. But the agreement of employees on major statements proves that CBS provided the multi channel environment by interconnecting all branches of bank with each other and by providing complete and reliable services round the clock.

The results shows that EDI helped in converting totally computerized based data interchange without any manual work involved in it. It has facilitated the reduction in processing time. Employees agree with the statement that EDI reduced inventory holding as the data regarding customers could be kept in soft copy form. So no file keeping record is required. Employees also agree on the term that it has reduced the mailing cost as any information regarding banking products and services customers can be accessed through websites of the bank and banks can also inform regarding any query through their mailing address. Employees give a strong recommendation regarding this statement as this is the most desirable benefit of e-banking that every transaction is processed through technological modes, so no calculation is done by employees manually. Last but not least it enables paperless transactions. No data record keeping in the form of papers, files is required. Every information is stored in computers and data is recorded in form of PDF, excel and word files and these all modes are paperless.

RTGS is primarily for online real times inter bank payment and settlement of large funds. In RTGS processing is on real time basis. It is a settlement where payment instructions are
processed through the day but inter bank settlement takes place only afterwards at the end of the day. Employees give their agreement say that funds are immediately transferred without exposing themselves to risk. Because a lag between the time at which information is made available to receiving banks and the time at which settlement takes place may have important risk implications in large fund transfer systems. Employees also give their agreement related to transaction by transaction settlement and risk elimination due to elimination of time lag between the statements. Further credit is immediately transferred with reduction in settlement risks and in a secured manner.

**8.6 Findings Regarding the Comparative Operational Performance of Public and Private Sector Banks**

- The study made a comparative analysis to measure the operational performance between public and private sector banks. T-test was applied to calculate the difference between different variables and the scope of further improvement through their mean values. Regarding the impact of E-banking on workload of employees, there is no statistical difference in any of the statement between two sectors. However the mean score of private sector bank is higher than the public sector in five out of eight statements. As far as the personal development of employees and knowledge enhancement is concerned, again, no significant difference was found in any dimension. Employees of both the sectors perceive that e-banking has upgraded their knowledge, relationships and promptness in providing the service. Regarding HR policies, environment, training to employees, relationship and guidance to customers, public sector employees are more satisfied according to their mean score.

- A difference between public and private sector banks with regards to processing of transactions has been studied. Statistical difference was found in four out of seven statements. As regard the knowledge of staff about bank products, private sector banks are highly satisfied with it and perceive that e-banking has reduced the availability of staff at counter.

- The results for convenience and security dimension show a significant difference in three out of seven statements. Private sector employees perceive that e-banking services are easy to use and has also reduced the monotony. Public sector banks has high mean score with regard to reduction of risk. Regarding the job losses and interaction with the people, trust and privacy, their seems to be no difference.
As regards the core banking solution is concerned, The difference was significant at 5% level in the dimension facilitating the centralized data base and public sector employees seems to have more agreed upon it. The difference was significant in one variable of electronic data interchange that is ‘e-banking has ensured paperless transaction’ and private sector banks employees are strongly agreed upon it. The employees in public sector also feel that it has reduced the reliability on human assets as every single and small activity is done through computer based terminals.

As on 30 April 2008, more than 44000 bank branches are RTGS enabled primarily for large value settlements. The minimum amount to be remitted through RTGS is Rs. 1 lakh and there is no upper ceiling for RTGS transactions. Both the sectors are performing well in this service according to the employees’ perception and have improved the operational performance of the bank on the large scale. The statistical difference was significant only in one statement related to the immediate credit and transparent pricing. Private sector banks are having greater transparency in the pricing as well as settlement and transfer of credit in the transactions.

8.7 Suggestions for the study

The public sector banks must improve its service quality in terms of communication, responsiveness, reliability and understanding. If the private sector intends to improve its service quality level, it must improve its service quality in terms of access, credibility, tangibility, security and competence where there is significant gap between two sectors and mean score of public sector in all these dimensions are high.

The study suggested that if the public sector banks want to increase their service quality level as compared to the private sector, it should enhance level of services in the dimensions like ‘online purchase of goods and services’, reduction in e-payment cost’, ‘up to date information’, ‘sophisticated information to well educated customers’, ‘To provide various effective modes for promotional schemes’, ‘interaction with the customers’, ‘more accuracy in billing’, ‘financial security’ and ‘privacy in transactions’. To improve in these areas the public sector banks should invest large amount in the training the employees to provide up to date and sophisticated information to customers. All modern facilities should be provided to customers and banks should also invest large amount on the web-page designing to provide up to date information. The banks should provide internet and ATM
password to the customers in such way that the financial security of the transaction can be retained and their loyalty and trust can be increased.

- The research suggested that if private sector banks want to increase the service quality it should enhance level of services in ‘punctuality, transparency and accountability’, quality of customers service’, ‘safety and confidentiality of transaction’, ‘No. of queues in bank branches’, ‘24 hours services to the customers’, ‘individualized attention to customers’, ‘necessary information to customers’, ‘learns the specific requirement of customers’. To improve in these areas private sector banks firstly should increase the no. of bank branches to reduce the rush in the customers. Furthermore online and offline ATMs should be installed by the banks and to provide individualized attention the banks should focus on web sites so that the customers can get all information from their without any hesitation. Further the language of website should be clear and easy to understand. Required information should be given on the main page rather than further links. To increase the usage of e-payment modes banks should reduce the fees charged on clearing and inter bank fund transfer services.

- E-products reached a level of 50 per cent by volume and 95 per cent by value of aggregate payment system transaction in country by end of March 2009 and the period under study. But the e-payment system requires some changes in order to increase the effectiveness in the functioning of e-payment. In retail payment system although there are multiple systems and options like ECS debit, ECS Credit, EFT & NEFT. But their contribution to overall payment system has not been quite high. So initiative should be taken to increase the share of all the modes of payment system.

- MICR was introduced in India in era of 1950’s but it took 50 years to adopt it properly. If other system of e-payment will also grow at such a low pace than the growth of e-payment system will be very less. So to improve the usage of e-payment system, their should be strong legal framework and convenience factors that can expand the business of e-payment. The banks should expand the core banking solutions, clearing services, facility of debit and credit cards to rural branches of the banks also. Today the vision for an electronic payment system in India should be that wherever the physical cheques can get processed, electronic fund transfer will also reach. If such thinking will be developed by every bank for e-payment expansion than it could be substantially increased.
• EFT/NEFT should also be used for bill payments like mobile bills, telephone bills, electricity bills as millions of customer required such kind of services. Further it should also cover the LIC policies premium and payment. MICR code with branch, bank, location is familiar to millions of account holders in the country but shifting to IFSC code (Internally used within the system) from MICR code is quite difficult for the customers to understand so still IFSC code gain the popularity both code must co-exist.

• ECS is available only on 43 locations – 15 RBI locations and other non-RBI locations. If NEFT and RTGS can be offered at 700+ locations, then there is no reason to restrict ECS. So all e-payment modes should be equally available in all bank branches in India. As Real Time gross settlement system is for large and wholesale value payments, NEFT for retail and small value payments. It should take steps to merge ECS and EFT and call NEFT so as to provide all the debit and credit cards facility under NEFT so as to remove the confusion among the customers in understanding different modes of payment

• As the use of Internet is increasing day by day so the internet banking is also rapidly followed by the customers. To make e-payment services more adaptable among the customers banks should provide more services through internet banking for query as well as for transaction purpose. To increase the popularity of e-payment among customers. RBI should stop physical cheque clearance beyond a certain amount—say INR 5 lakhs or INR 10 lakhs. So transactions that are conveniently go through electronic channels should be priced higher for paper based clearing

• The major reason of slow pace adoption of electronic mode of fund transfer particularly in the retail segment is lack of education particularly on the part of bank staff. There are several branches in the state which are not even aware of national electronic fund transfer system. So banks need to increase the degree of awareness at the level of branch staff. The other major problem is the lack of customer education and awareness about the features and benefits of e-payment. So there should be arrangement of systematic educational campaign for the clients to educate them.

• Although the share of e-payment products is improving in the overall retail segment, the share of PSB in this area is very low. It is very necessary to make these products available across all bank branches. E-Payment system is not only speedier but also more environment friendly as it reduced the reliance on paper required for affecting
payments. Banks should do whatever they can to facilitate and encourage the current electronic payment instruments and systems that can correlate to the movement of financial services and funds from one sector to another. Governments and banking regulators should thoroughly explore the new risks and security challenges that electronic payment instruments and systems create and try to reduce these risks at greater extent.

- ATM’s are the fastest mode of payment and employees feel this as the basic requirement behind adoption of e-banking from customer point of view. So the banks in both sectors should increase the number of onsite and offsite ATMs. With regard to further improvement in e-banking employees perceive that their should be proper training programmes organized for the employees. Rules should be simplified and upto date infrastructure should be provided. Employees also want that their should be greater trust in staff. If any software is introduced, it should be properly discussed so that complexity be reduced. In order to facilitate the use of e-banking services bank managers who are responsible for framing the policies, should make systematic efforts in exploiting e-banking opportunities with continuous education and with proper flow of information management.

- The banks should emphasize more on popularizing internet usage by customers which results into improvement in customer satisfaction and also cost reduction.

8.8 Direction for the Future Research

The present study has made an attempt to judge the impact of e-banking on operational performance of public and private sector banks, to assess the comparative service quality of e-banking in public and private sector banks, to analyze the impact of e-banking on payment and clearing system. There still remains a viable prospect for future research.

1. The service quality of Indian banking sector has been assessed only in the state of Punjab. So service quality could be studied for all other states of India.

2. The present research focused only on comparative performance of public and private sector banks. Future research can be done to analyze the performance of foreign banks also as they are the early adopters of e-banking.

3. The present study has assessed the operational performance of the banks on the basis of employees opinion and the e-banking impact on their working conditions in terms of core banking solution, real time gross settlement system, electronic data interchange. However to study the operational performance return on asset, return on
equity, comparison between electronic and non electronic banks can also be the area for research under this aspect.

4. SERVQUAL AND SERVPERF constitute two major service quality measurement scales. But for the present study, the dimensions are based upon servqual and the statements are analyzed according SERVPERF. A consensus, however, continues to elude till date as to which one is superior. Research can be done in future to analyze the service quality by using both models and compare the results of both models in the Indian banking sector.

5. The study has been focused only on the performance and service quality aspect of e-banking. The impact of e-banking on profitability has been ignored which can give a good platform for future research.

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