

A Customer-Perspective of the Differences in the Effectiveness of Information Technology (IT) Driven Services among the Major Groups of Banks in India

M. Chandrasekhar & Rajendra M. Sonar

*Dean, M S Ramaiah Institute of Management & Associate Professor, Shailesh J. Mehta School of Management,
Indian Institute of Technology, Mumbai*

Abstract

The impact of a bank's investments in Information Technology (IT) can be in terms of efficiency or effectiveness. While there have been attempts by banks in India to quantify to an extent the efficiency benefits accruing from IT, there is insufficient evidence of their attention to IT effectiveness. The purpose of this paper is to address this gap, by examining the effectiveness of IT from the perspective of customers. Towards this end, an inter se comparison of the scenario among the major groups of banks is attempted. Responses of 429 customers from across India are collected on 21 dimensions of IT-driven services. Analysis reveals that new private sector banks score much higher on IT effectiveness than two of their industry counterparts, viz. Public Sector banks and State Bank group banks. Service dimensions requiring improvement in each group too have come to light. IT effectiveness measurements such as those discussed in this paper help banks gain a better understanding of customer satisfaction, leading to more informed decisions.

Key Words: Banks, customer perspective, India, information technology effectiveness & service quality measurement.

1.0 Introduction

India's banking operations are dominated by 20 nationalised banks (referred to, in this paper as Public Sector Undertaking (PSU) banks), State Bank of India (India's largest bank) together with 5 of its associate banks called the SBI Group and, 7 new private sector banks. The new private sector banks are popularly known as the 'new generation' banks, owing to their

emergence post-1994, in the era of liberalized economy and financial sector reforms. The composition of these sectors/groups of banks is given in the **Appendix**.

In tune with the global trends, these banks have been investing heavily in technology infrastructure, solutions and manpower. The avowed purpose of such investments in IT assets is to reap the benefits such as (1) better access to clients and markets; (2) enhanced

reach of products and services; (3) improved customer service; (4) increased productivity, profitability and competitive advantage; and (5) improved internal/external communications.

However, it is a widely held opinion in India that IT interventions have thus far benefited the banks (themselves) more than the customers they are supposed to serve. It is perceived that IT in banks contributes only internally, in terms of improved house-keeping, reduced manual processes, increased reliability of operations, reduced paper work (like accounting and book keeping), reduced correspondence between branches and controlling offices, improved audit and regulatory compliance and overcoming of staff shortages. That the focus of Indian banks has been more on benefits of IT accruing to the customers inside the organization (employees) than to the customers outside is also evident from the performance monitoring metrics that banks have been adopting, such as: (i) IT expenses as a percentage of non-interest (or operating) expenses; (ii) IT investments per employee; (iii) Branches and business computerized in absolute and percentage terms; (iv) Business and profit per branch; and, (v) Business and profit per employee. Thus, there is absence of metrics that measure the benefits or service-quality that automation is supposed to bring to the bank customers. Service quality, for example, could be measured in terms of enhanced satisfaction levels (quality, convenience and speed), personalized service, lower transaction costs and the like.

Therefore, it is to be argued that while measurement of IT benefits in terms of the efficiency metrics

(demonstrating the optimality of outputs vs. inputs in quantifiable terms) is important for banks, it is equally crucial for them to measure the effectiveness of IT (how well technology is serving the needs of key stakeholders like customers). In fact, the effectiveness of usage of a system impacts the efficiency of its processes. Thus, measurement of IT effectiveness through dimensions such as transaction cycle-time, service-quality and customer-satisfaction is critical for the sustenance and growth of banks.

In essence, the benefits of IT should flow not only to internal users (employees) but also to external users (customers). On their part, banks have been generally expressing difficulty in the measurement of intangible benefits of IT (such as customer satisfaction) by advancing arguments of the following nature:

- Identifying the correlation between IT investments and their subsequent qualitative benefits (as cause-effect relationships) is difficult.
- It is difficult to translate the intrinsic benefits and expected “soft” impacts of IT, in terms of “hard” monetary value.
- There are no proper appraisal techniques to measure qualitative outcomes of IT.

On the other hand, it is a fact that even in the current environment of high computerization, key business parameters of banks have been showing considerable difference. A glimpse of such variation, represented bank-group wise from the data in the “Report on Trend and Progress in Indian Banking 2010-11” of the Reserve Bank of India, is presented in **Table 1**.

Table 1 : Group-wise performance of Indian banks on key business parameters

Parameter	PSU Banks		SBI Group		New Private Sector Banks	
	2009-10	2010-11	2009-10	2010-11	2009-10	2010-11
Return on Assets	1.00	1.03	0.91	0.79	1.38	1.51
Return on Equity	18.30	18.20	15.92	14.11	11.87	13.62
Cost of Funds	5.37	4.93	5.32	4.80	4.42	4.27
Return on Funds	8.46	8.50	8.10	8.21	8.40	8.44
Spread	3.09	3.57	2.78	3.41	3.99	4.17

Source: RBI's Report on Trend and Progress in Indian Banking; 2010-11

Given the high penetration, pervasiveness and conspicuous role of IT in the business activities and operational aspects of a bank's functioning today, it is reasonable to ascribe such variation in the business performance to differences in the deployment, use and effectiveness of IT. One might thus infer that not all banks are able to take full advantage of new technologies in achieving their objectives.

It is therefore being argued that while quantitative output-oriented measures in banks might indicate the extent to which IT is contributing to productivity and profitability, it is equally important for banks to have qualitative outcome-oriented measures that provide better insights into customer service. Thus, it is imperative in today's context for banks to understand the customers' pulse i.e. what attributes of IT-driven services are important to customers and to what extent (i.e. how successfully) banks are able to deliver on those expectations. This would indicate the extent to which banks are realizing business value, by exploiting the power and capabilities of IT.

2.0 Literature Review

Research studies reveal that IT measurement in banks from customers' perspective is an increasingly important and deeply felt necessity because managers need a better understanding of the impact of IT on business and organizational performance. Such understanding can help a bank utilize resources better and improve its position vis-à-vis its competitors. Failure in developing such understanding may lead to adverse consequences such as inappropriate resource allocation and/or competitive disadvantage.

The research studies primarily deal with three important dimensions viz. (i) service quality of banking services; (ii) quality of IT-enabled customer services and (iii) application of the Importance-Performance Analysis technique to the banking sector. Salient aspects of these dimensions are highlighted below:

2.1 Service quality of banking services

Highlighting the need to make a radical shift in the management and measurement of success by service organizations, Heskett, Jones, Loveman, Sasser and Schlesinger (1994) posit that customers need to be put at the forefront. They describe a 'service-profit chain' in terms of relationship between profitability and customer

loyalty. They argue that profit and revenue growth are spurred by customer loyalty, which is an outcome of customer satisfaction. In turn, the value of services as perceived by the customers is the determinant of their levels of satisfaction. Hence the need to design and deliver services to meet the targeted customer needs. It is therefore vital for organizations, particularly those in the services sector like banks, to measure and monitor external service value too, as perceived by customers.

Parasuraman, Zeithaml and Berry (1988) in their widely acknowledged and cited work have attempted measuring the consumer perceptions of service quality through five attributes, viz. (i) Availability of tangible facilities; (ii) Reliability of service; (iii) Responsiveness by employees; (iv) Assurance as borne out of the knowledge and courtesy of employees as well as their ability to inspire trust and confidence; and, (v) Empathy as reflected in the individualized attention provided.

Avkiran (1999) highlighted in a study of branch-banking that customer-service-quality is an indispensable competitive strategy. In his assessment construct, he drew upon an instrument with seventeen dimensions of service quality.

Krishnaveni and Prabha (2006) in their evaluation of service quality perception of banking services by corporate customers used Competence, Convenience, Customer-orientation, Promptness of service, Modernization and Communication and, concluded that the level of satisfaction of customers on the modernization factor is not very high.

Similarly, Vannirajan (2006) in a comparative study of banks from the public, private and cooperative sectors from thirteen blocks of Madurai district in the south Indian province of Tamil Nadu, used Empathy, Responsiveness, Non-traditional services, Reliability, Assurance and Tangibles as determinants of quality and concluded that services and service-quality offered by banks need a review, suggesting the need for more innovative and value-added offerings.

2.2 Quality of IT-enabled customer services

Parsons, Gotlieb and Denny (1993) stressed in their research on the importance of studying the effects of IT on customer satisfaction.

Echoing the views of several researchers, Lederer and Mirani (1995) documented the anticipated

benefits of IT. Among the advantages they compiled, those connected with the customers' perspective are identified in **Table 2**.

Table 2 : Organizational impact of IT

IT Benefit	
1.	Save money by reducing travel costs
2.	Save money by reducing communication costs
3.	Enable faster retrieval or delivery of information or reports
4.	Present information in a more concise manner or better format
5.	Increase the flexibility of information requests
6.	Enable easier access to information
7.	Improve the accuracy or reliability of Information
8.	Increase the volume of information output
9.	Provide greater data or software security
10.	Speed-up transactions or shorten product cycles
11.	Enable the organization to respond more quickly to change
12.	Change the way the organization conducts business
13.	Improve customer relations
14.	Provide new products or services to customers
15.	Provide better products or services to customers
16.	Enhance competitiveness or create strategic advantage
17.	Enable the organization to catch up with competitors
18.	Align well with stated organizational goals
19.	Enhance the credibility and prestige of the organization

In a similar vein, from a study on the effects of IT on Nigerian banks, Ehikhamenor (2003) too documented the benefits of IT implementation, based on 238 responses from banks. From this instrument too, the advantages concerning customers could be extracted, as in **Table 3**.

Table 3 : Benefits of IT implementation

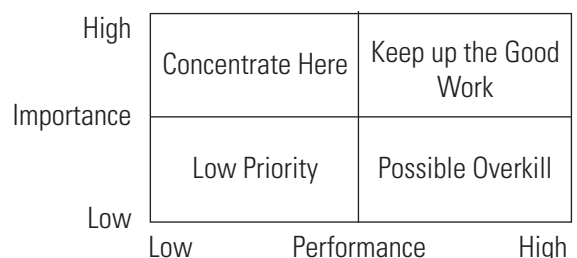
IT Benefit	
1.	Timeliness in service delivery
2.	Innovativeness in products and services
3.	Increased responsiveness
4.	Better customer service and satisfaction
5.	Simplicity in operations and transactions
6.	Accuracy in data and records manipulation
7.	Prevention of fraud
8.	Reduced paper work
9.	Improved organizational image

Rexha (2005) studied the impact of Internet banking service quality on business customers and used a total of twelve qualitative items, with two items each under six dimensions, namely: Helpline support, Convenience, Security, Efficiency, Cost effectiveness and Customized services.

2.3 The 'Importance-Performance Analysis' construct for service-quality measurement

Martilla and James (1977) highlight that customer satisfaction is a function of customer expectations on a set of service-related attributes and the judgment of customers on the performance by the service-provider in those attributes. Accordingly, the authors came out with a simple, yet elegant and meaningful Importance-Performance technique, using which, the mean importance and performance results can be graphically portrayed on a two dimensional grid. The four quadrants in the grid provide useful insights into each of the attributes chosen, as depicted in **Figure 1**.

Figure 1 : Importance- Performance Analysis Grid



Source: Martilla and James (1977)

Attributes appearing in each of the quadrants are described as follows:

- 'Concentrate here': Attribute is considered as very important (by customers) but its performance (by service organizations) is not satisfactory.
- 'Keep up the good work': Attribute is considered very important and, its performance is also considered satisfactory.
- 'Low priority': Attribute performance is not considered satisfactory, and it is also not perceived as important.
- 'Possible overkill': Attribute performance (by service organizations) is considered satisfactory, but it is not perceived as important (by customers).

Martilla and James (1977) also highlight the issues that need to be addressed for a meaningful application of this technique. The first issue is the determination of the attributes to be measured. They suggest the use of qualitative research techniques such as focus groups and unstructured personal interviews to identify the potentially important factors. The second issue is the isolation of the importance measures and the performance measures, while collecting data. They opine that if both are measured together, a bias will be introduced, rendering the exercise invalid.

Ortinou, Bush, Bush and Twible (1989), Ennew, Reed and Binks (1993) and Joseph, McClure and Joseph (1999) too adopted this approach in service quality measurement.

Ennew *et al.* (1993) focused on developing a measurement construct for attribute quality. The authors are of the view that given the qualitative nature of the attributes, application of ordinal rankings of 'importance vis-à-vis performance' as opposed to cardinal scales of measurement, is acceptable as a research methodology. They suggest that by a sample survey, ordinal data be collected on the following parameters: (i) expectations of customers on a range of service attributes; and (ii) perception of customers on the quality of availability of such attributes. Thus, for each customer, a vector of ordinal values would be obtained on what the customer wants and what he/

she gets. By applying a simple set of ordinal weights to the cross-tabulation of such survey-results, an index could be worked out indicating the extent to which expectations and perceived performance are matched.

Hemmasi and Strong (1994) recast the Importance-Performance grid by drawing the axes based on the overall importance and performance means rather than basing them on the mid-point of the scale. This is aimed at making the grid as a useful tool for strategy development, improving clarity on the factors that are critical for resource allocation.

Research studies using the Importance-Performance measurement technique have been conducted in a number of industries including food, housing and education (Martilla and James, 1977; Joseph *et al.* 1999).

Remenyi (1996) used a method similar to the Importance-Performance technique to evaluate the performance of IT function of a business school. With a set of 25 attributes and a four-point scale, he attempted an analysis of the effectiveness of computer network system, as perceived by the users.

2.4 Application of the Importance-Performance Analysis technique to the banking sector

Ennew *et al.* (1993) applied Importance-Performance technique to the banking industry. They identified service quality as a key factor in building competitive advantage. Accordingly, they attempted an analysis of the quality of services rendered by select banks in the UK to small firms. They used eleven dimensions of service quality, viz. Knowledge of business, Knowledge of industry, Knowledge of market, Giving helpful advice, Range of services offered, Competitiveness of interest rates, Competitiveness of charges, Speed of decisions, Customized financial services, Advantage of dealing with only one bank staffer, and, Ease of access to loan officer. Respondents were asked to rank each of the said service-characteristics on a scale of 1 to 5, reflecting firstly, the relative importance they attach to each of the characteristics and secondly, the perceived quality of provision of each of those services.

The results of the survey convey that on the service-demand (i.e. expectation) front, the elements of Speed

of decision, Competitive charges and Interest rates attracted relatively high values of importance, while Range of services, Advice and Knowledge related characteristics attracted less importance. On the service-supply (i.e. perceived performance) front, the main failings are in the characteristics relating to Knowledge and Competitive rates. In terms of the gaps between expectation and performance too, the same dimensions viz. those pertaining to Knowledge and Charges stand out as deficient.

Further, the study attempts an *inter se* comparison of service-performance among banks, by grouping the sampled banks into five major categories such as Scottish banks, Barclays, Lloyds, Midland and National Westminster. It emerges from the comparison that there are striking similarities on the attainment front for all the dimensions among the English banks. Also, Scottish banks outperformed the English banks on all dimensions, except on the three characteristics of Tailoring of Finance, Dealing with only one bank staffer and, Easy access to loans officer. On these three dimensions however, the service quality offered by all the banks, both English and Scottish, is found to be similar. Thus the authors highlighted the areas of concern to each of the bank groups.

Joseph *et al.* (1999) too used the Importance-Performance technique to measure the impact of technology on service quality in the banking sector. They used a total of 25 dimensions under 6 major attributes, viz. Convenience/accuracy, Feedback/complaint management, Efficiency, Queue management, Accessibility and Customization. The results of the survey conducted on the electronic banking customers of Melbourne, Australia revealed that banking institutions need to improve their customer-perceived service-quality. Portrayed on an Importance-Performance grid, the scores convey that only on two of the five attributes (Convenience/accuracy and Efficiency) banks emerge as winners, adequately meeting the high performance-expectation of customers. On the attribute of Accessibility, which is rated highly on importance by customers, banks are found to be under-performing. On the other hand, on the attribute of Queue management, considered as relatively insignificant by customers, banks

are found to be over-performing. Two of the attributes – Feedback/complaint management and Customization – emerge as low on importance as well as on perceived performance, evidencing that these are low priority items for banks as well as customers. If banks are serious on reaping tangible benefits from these services, firstly there should be substantial value-addition to these offerings resulting in their increased importance to customers. Secondly, banks should match such increased importance with commensurate improvements in performance, paving the way for better satisfaction among the customers for the said service-offerings. Thus, from an analysis of the gap-scores and display on an Importance-Performance grid, areas of improvement in electronic banking services could be identified.

The findings cited above establish that Importance-Performance Analysis is a useful technique for evaluating the qualitative aspects of service delivery in banking. By using this method, banks could identify the potential problem areas, recognize the attributes that are important to their customers and ensure that the performance on those attributes is satisfactory.

3.0 Research Methodology

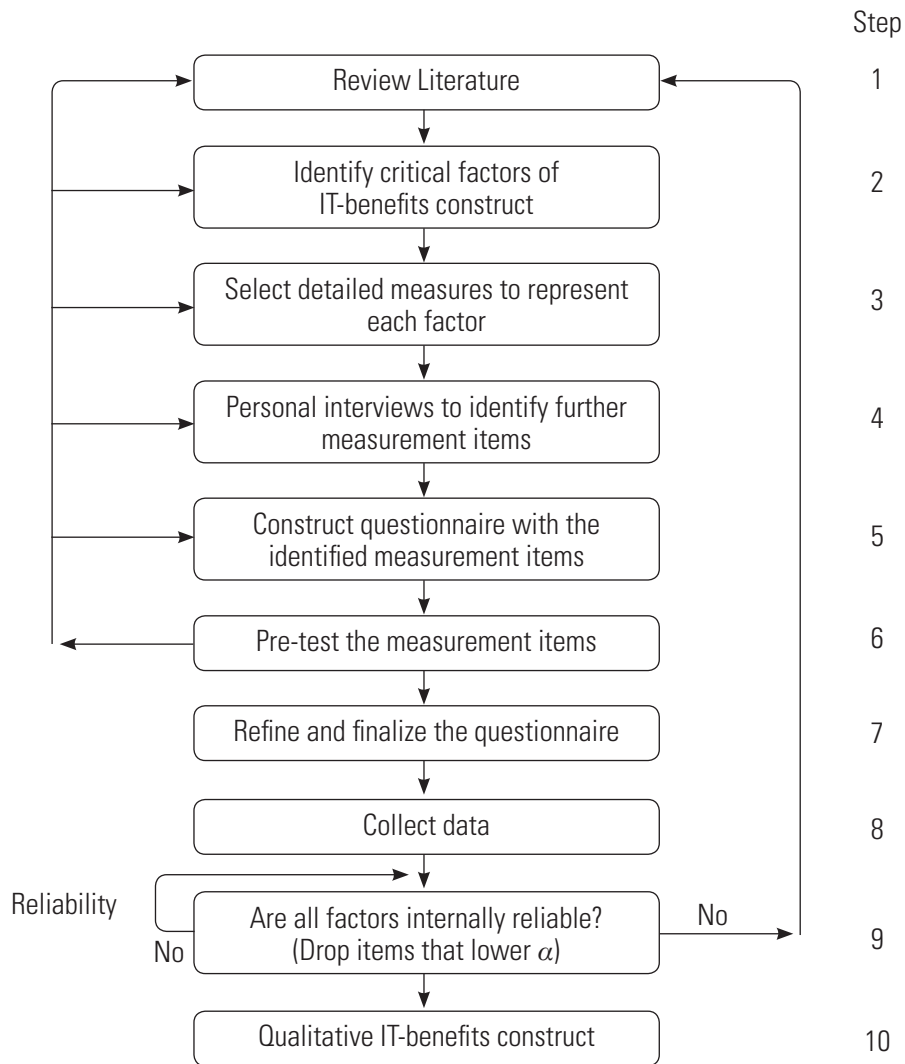
The framework (**Figure-2**) used for the design and development of the Importance-Performance service-quality measurement construct in this research study draws upon the work of Deng and Dart (1994).

Firstly, using the inputs from banks and previously researched customer-satisfaction factors, a set of representative items (attributes) is evolved. Later, the attributes are reviewed by representatives of banks and a set of independent experts. This is followed by a review carried out by a set of bank-customers who are users of IT-enabled services of various banks. This process led to the appropriateness of each item being established. The chosen dimensions are then finally refined by a team of domain experts from the academia, leading to elimination and/or re-classification of certain attributes. This improved the clarity of the dimensions considerably.

Consistent with the literature (Ennew, *et al.*, 1993; Deng and Dart, 1994, Joseph, *et al.* 1999; Rexha, 2005),

¹ "Attainment" being reckoned as the extent of fulfilment of gap between the service-supply (performance) scores and service-demand (importance) scores

Figure 2 : Framework for designing and developing the IT benefits measurement construct



Source: (Adapted from) Deng and Dart (1994)

a Likert type adjectival scale was designed, to help the survey-responders indicate the extent to which they consider an attribute important and the degree to which they are satisfied with the performance of their bank on that attribute.

This resulted in 3 service quality factors, and a total of 21 measurement-attributes. These attributes, together with the rating scales, are then incorporated into a questionnaire for use as survey-instrument. The factors and attribute dimensions finalized are in **Table 4**.

The instrument was broadly divided in three sections. Section-1 captured the demographic data and the name of the bank that the respondent dealt with the most. Section-2 captured the “Importance” scores on the 21 dimensions. Section-3 captured the “Performance” scores on the same 21 dimensions. Further, consistent with the recommendations in the literature, the questions (attributes/dimensions) pertaining to the 3 service quality factors are randomly spread out in the questionnaire, to reduce the possibility of stereotyped responses by the target groups.

Table 4 : IT-enabled service quality factors and measurement attributes

Factor / Attribute Description	Attribute No.
Factor: Convenience of Service	
Saving time while banking	1
Saving of travel/conveyance expenses while banking	2
Flexibility to do banking at any place of one's choice, i.e. from anywhere in India/abroad	3
Flexibility to do banking at any time of one's choice, i.e. round-the-clock banking	4
Getting a consolidated summary of all banking activities on one's computer	9
Getting banking services at a low cost	11
Convenience of buying goods and paying for services, without having to physically visit the respective places	12
Ability to extend banking facilities to one's family members too, without the need for them to have a bank account	13
Having up-to-date information on a variety of banking products and services	15
Factor: Efficiency of Service	
Having up-to-date access to one's bank account	5
Getting an alert on one's mobile phone and/or e-mail whenever a banking activity takes place on one's account	6
Getting banking services with fairness and consistency without any dependence on the bank staff	10
Getting accurate and dependable banking services	16
Ability to do one's banking activities safely and securely	17
Ability to do one's banking activities with privacy and confidentiality	18
Getting quick complaint resolution and grievance redress	20
Factor: Customized Service	
Having close contact and maintaining continuous interaction with one's bank	7
Getting individualized attention while banking	8
Having a wide choice of banking products and services	14
Having an exciting banking experience through the various loyalty schemes of the bank	19
Having a strong and long-term relationship with the bank	21
Notes:	
i. Importance ratings are obtained on a 5-point scale of "Not at all Important(1)", "Important to Some Extent(2)", "Important(3)", "Very Important(4)" and "Extremely Important(5)".	
ii. Performance ratings are obtained on a 5-point scale of "Not at all(1)", "Below Average(2)", "Average(3)", "Above Average(4)" and "To a Great Extent(5)".	

An example of one of the dimensions, as contained in the "Importance" and "Performance" sections of the questionnaire respectively, is as given below:

- How important is it, to save time while banking? Please tick (√).

Not at all Important	Important to some extent	Important	Very Important	Extremely Important
----------------------	--------------------------	-----------	----------------	---------------------

- To what extent does your bank help you save time while banking? Please tick (√)

Not at all	Below Average	Average	Above Average	To a great extent
------------	---------------	---------	---------------	-------------------

Questions for the remaining 20 dimensions were similarly framed. Two additional questions were part of the instrument, to collect the overall impression of the customers on the bank they deal with, as follows:

- What is your overall opinion of the extent of automation / computerization of the services of your bank / branch? Please tick (√).

Poor	Below Average	Average	Above Average	To a great extent
------	---------------	---------	---------------	-------------------

- What is your over all opinion of the degree to which you are enjoying the benefits of IT from your bank? Please tick (√).

Not at all	Below Average	Average	Above Average	To a great extent
------------	---------------	---------	---------------	-------------------

4.0 Results and Discussion

The instrument containing the 21 dimensions of service quality was then administered to a total of 600 target customers. While collecting data, it was ensured that the respondents to the questionnaire are from across India. It was also ensured that they represented a diverse group of bank customers, viz. students, self-employed, private sector, public sector and government sector employees. Out of a total of 441 responses received, 12 were rejected as they were invalid, incomplete or pertained to banks that are not part of the study (e.g. old private sector banks). This left a set of 429 (72%) usable responses.

Sampling Adequacy:

This set can be considered as adequately representing the target population, going by the sample sizes in the previous studies that used the Importance-Performance Analysis technique, as given in **Table 5**.

Data analysis was carried out using Microsoft Excel version 2003 (Microsoft Office 2003) and SPSS version 12 for Windows.

4.1 Testing data reliability

Prior to carrying out the Importance-Performance analysis, reliability measurement was taken up. As

Table 5 : Customer response rate in previous studies

Researchers	No. of users targeted	No. of usable responses	% of usable responses
Martilla and James (1977)	634	284	45%
Deng and Dart (1994)	500	248	50%
Joseph, et al. (1999)	440	300	68%
Rexha (2005)	230	146	63%

discussed and used widely in literature (Parasuraman *et al.*, 1988; Deng and Dart, 1994; Joseph, *et al.* 1999; Rexha, 2005), the internal consistency method was used for assessing the reliability of the empirical measurements. Accordingly, the popular and accepted measure of internal consistency, Cronbach Alpha, was computed. Towards this end, as detailed in literature (Parasuraman *et al.*, 1988), for each item (dimension) of the instrument, a difference score ('DS') was defined and computed as:

$$\text{DS} = \text{Performance Score or Rating} - \text{Importance Score or Rating}$$

Cronbach Alpha was then computed for the Difference Scores. The results of the reliability analysis carried out as above, are presented in **Table 6**.

A reliability coefficient (Cronbach Alpha) of 0.70 or higher is considered as acceptable and hence, it was concluded that:

- No dimension-item need be dropped or assigned to a factor different from the one present in the instrument
- No (further) scale purification is necessary
- All factors have high internal consistency

Consequently, the responses and results were analyzed.

4.2 Demographic characteristics of respondents

As a first step, the demographic characteristics of the respondents were noted, as in **Table 7**.

This data reveal that there is a reasonably good distribution of respondents among different age groups and vocations. Female respondents constituted 19% of the final sample.

4.3 Analysis of customer responses on IT service benefits: Bank-group wise

Thereafter, bank-group wise mean values of Importance-Performance ratings are computed and tabulated, in **Table 8**.

Table 6 : Cronbach Alpha values of service quality dimension scores

Factor	Original number of items (dimensions) under the Factor	Cronbach Alpha (N=429)	No. of items (dimensions) deleted
Convenience	9	0.838	–
Efficiency	7	0.790	–
Customized Service	5	0.775	–

Table 7 : Demographic profile of respondents (Total: 429)

Gender	No. of respondents	Percentage
Male	348	81
Female	081	19
Vocation		
Public/Govt. Sector Employees	290	67
Private Sector Employees	063	15
Others (Students / Self-employed)	076	18
Age		
21-30 Years	081	19
31-40 Years	087	20
41-50 Years	166	39
51 Years & Above	095	22

Table 8 : Mean importance-performance ratings, bank-group wise

Attribute Number & Description		Importance Rating (Means)			Performance Rating (Means)		
		PSU Banks	New Pvt. Sector	SBI Group	PSU Banks	New Pvt. Sector	SBI Group
Factor: Convenience							
1	Saving time while banking	3.94	4.32	4.20	3.31	4.02	3.46
2	Saving of travel/conveyance expenses while banking	3.76	4.07	4.10	2.98	3.74	3.40
3	Flexibility to do banking at any place of one's choice, i.e. from anywhere in India/abroad	4.07	4.28	4.33	3.27	4.09	3.69
4	Flexibility to do banking at any time of one's choice, i.e. round-the-clock banking	3.94	4.27	4.21	3.17	4.09	3.39
9	Getting a consolidated summary of all banking activities on one's computer	3.50	3.93	3.65	2.40	3.74	2.66
11	Getting banking services at a low cost	3.99	4.10	4.22	3.23	3.46	3.32
12	Convenience of buying goods and paying for services, without having to physically visit the respective places	3.29	3.48	3.31	2.66	3.53	2.74
13	Ability to extend banking facilities to one's family members too, without the need for them to have a bank account	3.30	3.46	3.32	2.45	3.16	2.39
15	Having up-to-date information on a variety of banking products and services	3.29	3.49	3.50	2.77	3.57	2.82
Factor: Efficiency							
5	Having up-to-date access to one's bank account	4.03	4.06	4.10	3.52	4.01	3.55
6	Getting an alert on one's mobile phone and/or e-mail whenever a banking activity takes place on one's account	3.65	3.90	3.55	2.13	3.53	2.00
10	Getting banking services with fairness and consistency without any dependence on the bank staff	3.81	4.05	4.04	2.90	3.81	3.10
16	Getting accurate and dependable banking services	3.97	4.11	4.22	3.48	3.84	3.50
17	Ability to do one's banking activities safely and securely	4.52	4.53	4.65	3.79	4.10	3.76
18	Ability to do one's banking activities with privacy and confidentiality	4.54	4.51	4.58	3.84	4.06	3.74
20	Getting quick complaint resolution and grievance redress	4.11	4.25	4.31	3.23	3.48	2.97
Factor: Customized Service							
7	Having close contact and maintaining continuous interaction with one's bank	3.40	3.37	3.25	2.72	3.32	2.70
8	Getting individualized attention while banking	3.50	3.70	3.58	2.82	3.44	2.80
14	Having a wide choice of banking products and services	3.48	3.59	3.54	2.86	3.52	2.91
19	Having an exciting banking experience through the various loyalty schemes of the bank	3.30	3.38	3.47	2.80	3.33	2.81
21	Having a strong and long-term relationship with the bank	3.98	3.97	3.98	3.12	3.47	3.10
Notes:							
i. Importance Rating means are obtained from a 5-point scale of "Not all Important(1)", "Important to Some Extent(2)", "Important(3)", "Very Important(4)" and "Extremely Important(5)"							
ii. Performance Rating means are obtained from a 5-point scale of "Not at all(1)", "Below Average(2)", "Average(3)", "Above Average(4)" and "To a Great Extent(5)".							

Bank group wise Performance-Importance gaps too are computed and tabulated, in **Table 9**.

Table 9 : Performance-Importance gaps, bank-group wise

No.	Attribute Description	Gaps (Means)		
		PSU Banks	New Pvt. Sector	SBI Group
Factor: Convenience				
1	Saving time while banking	-0.63	-0.30	-0.74
2	Saving of travel/conveyance expenses while banking	-0.78	-0.33	-0.70
3	Flexibility to do banking at any place of one's choice, i.e. from anywhere in India/abroad	-0.80	-0.19	-0.64
4	Flexibility to do banking at any time of one's choice, i.e. round-the-clock banking	-0.77	-0.18	-0.82
9	Getting a consolidated summary of all banking activities on one's computer	-1.10	-0.19	-0.99
11	Getting banking services at a low cost	-0.76	-0.64	-0.90
12	Convenience of buying goods and paying for services, without having to physically visit the respective places	-0.63	0.05	-0.57
13	Ability to extend banking facilities to one's family members too, without the need for them to have a bank account	-0.85	-0.30	-0.93
15	Having up-to-date information on a variety of banking products and services	-0.52	0.08	-0.68
Factor: Efficiency				
5	Having up-to-date access to one's bank account	-0.51	-0.05	-0.55
6	Getting an alert on one's mobile phone and/or e-mail whenever a banking activity takes place on one's account	-1.52	-0.37	-1.55
10	Getting banking services with fairness and consistency without any dependence on the bank staff	-0.91	-0.24	-0.94
16	Getting accurate and dependable banking services	-0.49	-0.27	-0.72
17	Ability to do one's banking activities safely and securely	-0.73	-0.43	-0.89
18	Ability to do one's banking activities with privacy and confidentiality	-0.70	-0.45	-0.84
20	Getting quick complaint resolution and grievance redress	-0.88	-0.77	-1.34
Factor: Customized Service				
7	Having close contact and maintaining continuous interaction with one's bank	-0.68	-0.05	-0.55
8	Getting individualized attention while banking	-0.68	-0.26	-0.78
14	Having a wide choice of banking products and services	-0.62	-0.07	-0.63
19	Having an exciting banking experience through the various loyalty schemes of the bank	-0.50	-0.05	-0.66
21	Having a strong and long-term relationship with the bank	-0.86	-0.50	-0.88
Notes:				
i. Importance Rating means obtained from a 5-point scale of "Not all Important(1)", "Important to Some Extent(2)", "Important(3)", "Very Important(4)" and "Extremely Important(5)"				
ii. Performance Rating means are obtained from a 5-point scale of "Not at all(1)", "Below Average(2)", "Average(3)", "Above Average(4)" and "To a Great Extent(5)".				
iii. Gaps obtained as: [(ii) – (i)]				

Arising from these tabulations, a summary of the highest and lowest ratings accorded, is presented in **Table 10**.

As regards the highest ratings accorded, it is noted that the attributes of safety, security, privacy and confidentiality in banking transactions stand out tall across the banks on both Importance and Performance ratings. This is a very healthy state of affairs, both from the perspective of banks and customers. In this age of increasing cyber crimes and frauds, it is heartening that security of electronic transactions figure high on the agenda of both banks and customers. Of course, the gap between the Performance and Importance scores indicates the extent of improvement that banks would do well to bridge,

on these dimensions. However, as regards the lowest ratings, perceptions on the Importance and Performance dimensions have been different among the bank groups. While low performance on transaction alerts via e-mail and short messaging service (SMS) is the lowest rated attribute for both PSU and SBI group banks, extension and perseverance of banking relationships appear to be a casualty for new private sector banks. There is thus considerable scope for improvement on these dimensions.

As regards the overall perceptions on the extent of automation and the degree to which customers of banks are enjoying the IT-enabled services, the picture that emerged is as in **Table 11**.

Table 10 : Service quality dimensions with highest and lowest ratings

Bank Group	Factor	Attribute with highest rating	Attribute with lowest rating
Public Sector Banks	Importance	Ability to do one's banking activities with privacy and confidentiality (No. 18)	Convenience of buying goods and paying for services, without having to physically visit the respective places (No. 12); Having up-to-date information on a variety of banking products and services (No. 15)
	Performance	Ability to do one's banking activities with privacy and confidentiality (No. 18)	Getting an alert on one's mobile phone and/or e-mail whenever a banking activity takes place on one's account (No. 6)
SBI Group	Importance	Ability to do one's banking activities safely and securely (No. 17)	Having close contact and maintaining continuous interaction with one's bank (No. 7)
	Performance	Ability to do one's banking activities safely and securely (No. 17)	Getting an alert on one's mobile phone and/or e-mail whenever a banking activity takes place on one's account (No. 6)
New Private Sector Banks	Importance	Ability to do one's banking activities safely and securely (No. 17)	Having close contact and maintaining continuous interaction with one's bank (No. 7)
	Performance	Ability to do one's banking activities safely and securely (No. 17)	Ability to extend banking facilities to one's family members too, without the need for them to have a bank account (No. 13)

Table 11 : Customer perceptions on extent of computerization and accrual of IT-enabled service benefits, bank-group wise

Bank Group	No of respondents	Perceived extent of automation (Mean Value)	Degree to which IT benefits are being enjoyed by customers (Mean Value)
Public Sector Banks	124	3.5565	3.2177
State Bank Group	224	3.7277	3.3393
New Private Sector Banks	081	4.1728	3.9012
Total	429		

Note: Opinion was collected on a 5-point scale of "Poor/Not at all(1)", "Below Average(2)", "Average(3)", "Above Average(4)" and "To a great extent(5)".

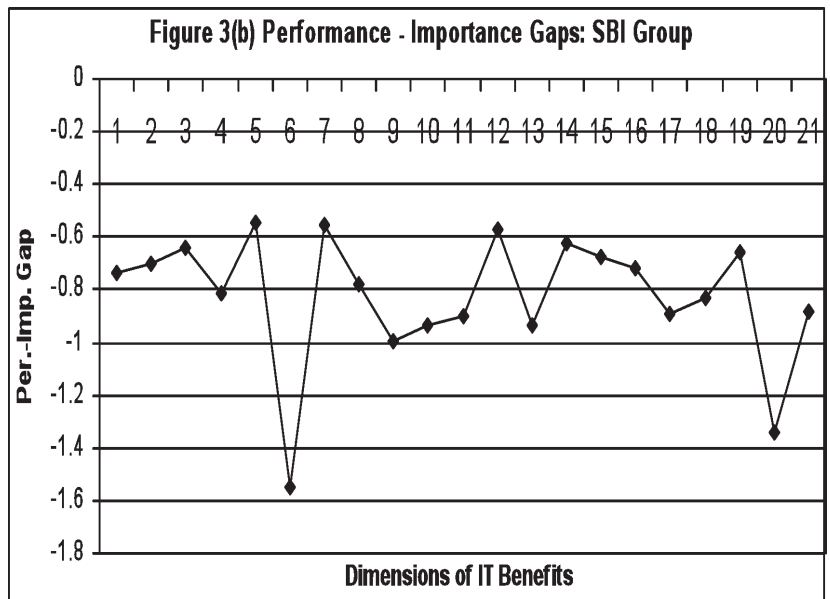
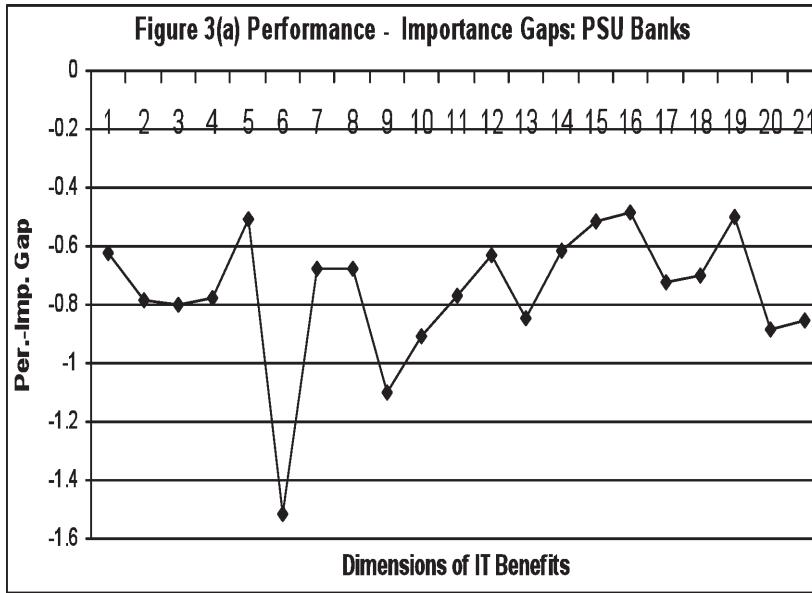
It can be said that the results echo the widely prevalent feeling that the new private sector banks are the most computerized, followed by the State Bank group, with the rear being brought up by the public sector banks.

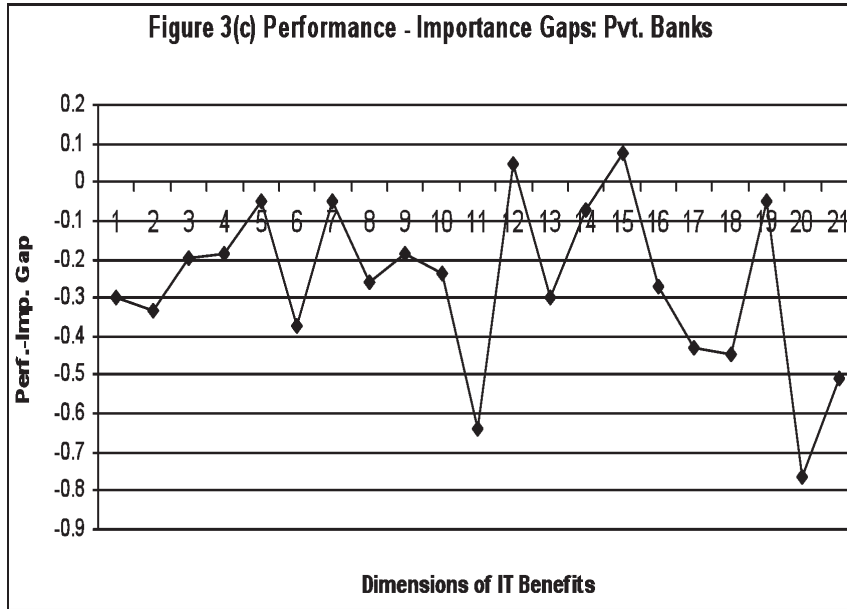
As regards customers enjoying the IT-enabled service benefits too, private sector banks emerge a clear winner followed by those of State Bank group, with public sector banks requiring the most catching up.

4.4 Gap analysis of benefits of IT: Bank-group wise

Bank-group wise Performance-Importance gaps are then plotted in **Figures 3(a), 3(b) and 3(c)**.

It is evident from the plots that the largest gap for PSU banks and the SBI group is on the dimension of alerts on mobile phones and e-mail. This has been discussed earlier and is to be expected, owing to a very low performance rating.





On account of their meteoric growth, it is not entirely unexpected that new private sector banks have the largest gap to bridge, in customer complaint resolution and grievance redress. These banks therefore, need to shore up their internal systems and mechanisms of spotting and removing errors and problems in customer transactions in good time, if dissatisfaction and complaints are not to persist. Otherwise, it is likely that the disgruntled customers would be constrained to shift to other banks.

It is worthy of highlighting that on two dimensions, viz. facilitation of e-commerce and providing up-to-date information on a variety of banking products and services, new private sector banks are found to be in fact performing better (marginally though) vis-à-vis the importance that customers attach to those attributes.

4.5 IT benefits grid: Pointers for action by banks

The Importance and Performance ratings (mean values) of all the 21 items are then plotted on the Importance-Performance Grid, individually for each of the banking groups – viz. public sector, SBI group and new private sector, in **Figures 4(a), 4(b) and 4(c)** respectively.

Figure 4(a) Mean Performance–Importance Rating Grid, PSU Banks

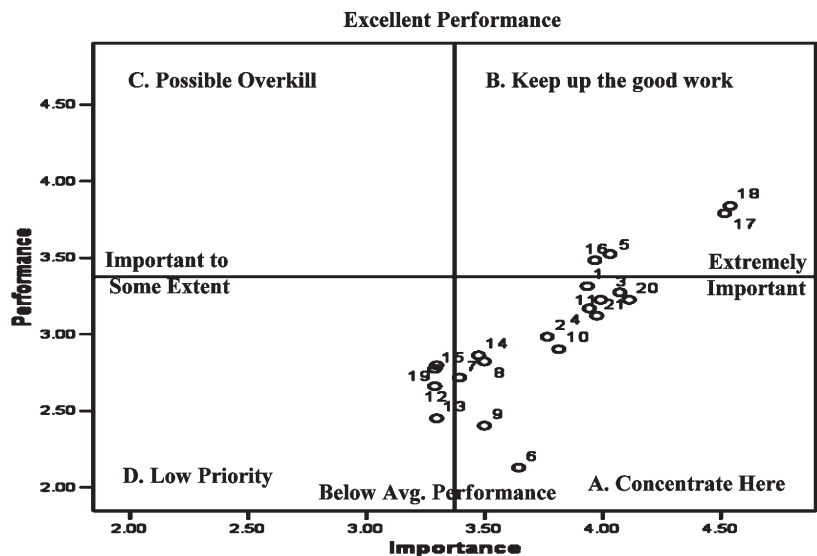


Table 12 presents the summarised results for PSU banks, from the Importance Performance Grid.

This data suggests that PSU banks are doing well (“Keep up the good work”) only on 4 attributes, with as many as 13 attributes requiring their attention (“Concentrate here”), as the performance is perceived to be below the expectation of their customers. Similarly on 4 attributes, PSU banks need to introspect (“Low priority”). Banks need to explore the possibility of educating the customers on the benefits of these services to make them appreciate and use the said facilities more.

Similarly, **Table 13** presents the summarised results for SBI group banks, from the Importance Performance Grid.

From this data, it comes out that SBI group banks too are doing well (“Keep up the Good Work”) only on 5 attributes. As many as 12 attributes require their focused attention or catching up (“Concentrate here”),

where performance is falling below the expectation of their customers. On 4 attributes (“Low priority”) the SBI group requires to put in efforts to make the customers appreciate the benefits of the specific IT services.

It can be observed that PSU and SBI group banks have a lot of common dimensions to concentrate on, such as: Saving the time as well as commuting needs of customers while banking, Flexibility of providing any-time banking services (e.g. ATMs), Providing timely alerts on banking transactions, Offering individualized attention, Providing electronic consolidated account statements, Ensuring consistent services without dependence on (specific) bank staff, Pricing of services, Offering a wider choice of products and services, Quick compliant resolution and Facilitating a stronger bonding with the bank.

Finally, analysis of new private sector banks reveals that they are performing much better than their counterparts in the industry, as is evident from **Table 14**.

Table 12 : Importance-Performance picture for PSU banks

Grid Quadrants	Serial Numbers of the Attributes in the Questionnaire	No. of Attributes in the Quadrant
Keep up the Good Work	5,16,17,18	4
Concentrate Here	1,2,3,4,6,7,8,9,10,11,14,20,21	13
Possible Overkill	—	-
Low Priority	12,13,15,19	4

Table 13 : Importance-Performance picture for SBI group banks

Grid Quadrants	Serial Numbers of the Attributes in the Questionnaire	No. of Attributes in the Quadrant
Keep up the Good Work	3,5,16,17,18	5
Concentrate Here	1,2,4,6,8,9,10,11,14,15,20,21	12
Possible Overkill	—	-
Low Priority	7,12,13,19	4

Table 14 : Importance-Performance picture for new private sector banks

Grid Quadrants	Serial Numbers of the Attributes in the Questionnaire	No. of Attributes in the Quadrant
Keep up the Good Work	1,2,3,4,5,6,9,10,14,16,17,18	12
Concentrate Here	8,11,20,21	4
Possible Overkill	12,15	2
Low Priority	7,13,19	3

Results suggest that new private sector banks are doing well (“Keep up the Good Work”) on as many as 12 attributes, with only 4 attributes requiring their focused attention (“Concentrate here”). On 3 attributes (“Low priority”) and 2 attributes (“Possible overkill”) respectively, these banks need to increase the value proposition to their customers and/or go slow on those specific initiatives, as applicable.

Most of the attributes on which the new private banks are perceived to be doing well indeed exemplify the true benefits of IT-enabled banking. Hence, it should go to the credit of these banks that they are performing well on the said dimensions, in tune with the preferences of their customers. Thus, it can be said that new private sector banks in India are reading the pulse of the customers well, much better than their peers in the industry. Dimensions they need to concentrate on emerge as: Providing individualized attention, Pricing of services, Quick complaint resolution and Fostering a stronger bonding with the bank.

To summarize, the relative performance of the three categories of banks on the Importance-Performance grid emerged is as in **Table 15**.

These findings reveal that for PSU and SBI group banks, the level of customer-satisfaction on the computerization front is not high. The nature of services and the service quality offered by banks on those services need a critical review, for more innovative and value-added offerings. These observations agree with the results published by Krishnaveni and Prabha (2006) and Vannirajan (2006).

That better IT effectiveness might be having a favourable effect on the business mix of new private sector banks can perhaps be inferred from the data available in the

Reserve Bank of India’s Reports on Trend and Progress of Banking in India (2002-03 to 2008-09), as presented in **Table 16**.

Quite clearly, while the share in business (in percentage terms) of new private sector banks is on a constant growth path, the figures for PSU and SBI groups are on a decline. Going by the high penetration of IT in banking services and the high performance scores of the new private sector banks on many of the electronic service dimensions perceived important by the customers, one cannot but infer that IT must be playing a key contributory role in such healthy growth.

5.0 Conclusions and directions for future research

For a true reflection of IT impact, it is imperative for banks to assess the benefits accruing not only from efficiency, but also from the effectiveness of technology investments and initiatives. Towards this end, ascertaining the perceptions of customers on the quality of services powered by IT would provide valuable insights. It is very rare if not seldom that Indian banks engage in customer-satisfaction surveys.

This study brings to light, the customer-perspective of the differences in the effectiveness of IT-driven services among the three major bank-groups of India. Importance-Performance Analysis, the service-quality-measurement construct used, provided a simple, yet effective approach to measure the satisfaction levels of customers of the said bank-groups. It could thus be ascertained as to which bank-groups are measuring up to the expectations of their customers, implying that they are ‘on target’ in customer service and need to keep up their good work. Dimensions that need further attention and concentration of efforts because of perceived low performance have also been highlighted,

Table 15 : Importance-Performance picture for banks, group wise

Grid Quadrants	Public Sector	SBI Group	New Pvt. Sector
	Total Number of Attributes in the Quadrant		
Concentrate Here	13	12	4
Keep up the Good Work	4	5	12
Possible Overkill	–	–	2
Low Priority	4	4	3

Table 16 : Trends in the percentage share of liabilities and assets, bank-group wise

PSU Banks				
	Assets	Deposits	Advances	Investments
2002-03	46.5	50.8	48.6	46.5
2003-04	46.7	50.3	47.7	47.1
2004-05	45.2	49.8	45.5	46.0
2005-06	44.3	48.7	45.0	44.3
2006-07	44.2	48.8	45.2	44.9
2007-08	43.5	48.4	45.3	42.7
2008-09	44.2	49.1	47.2	41.7
SBI Group				
2002-03	29.1	28.8	25.6	32.2
2003-04	27.8	27.6	25.5	30.8
2004-05	26.6	27.5	24.7	30.0
2005-06	24.8	25.1	24.5	25.9
2006-07	23.3	23.5	24.3	22.3
2007-08	23.4	23.3	24.0	22.4
2008-09	24.4	24.8	24.6	24.7
New Private Sector Banks				
2002-03	11.3	8.5	12.1	9.7
2003-04	12.5	10.3	13.3	11.0
2004-05	12.5	10.8	13.3	11.0
2005-06	15.1	13.8	15.2	15.6
2006-07	16.9	15.3	16.2	18.0
2007-08	17.2	15.3	16.4	19.1
2008-09	15.2	13.2	14.9	16.2

Source: RBI's Reports on Trend and Progress of Banking in India: 2002-03 - 2008-09

bank-group wise. Finally, insights could be gained into service dimensions that warrant improved value proposition by the bank-groups, so that performance on those offerings is not perceived by customers as 'low-priority' or 'over kill'.

There is thus a need for individual banks and bank groups to constantly acquire new capabilities and techniques to evaluate IT effectiveness. Knowledge of the nature and extent of contribution of IT to customer satisfaction is valuable for a reality check on IT impact and for exploring avenues for improvement. In other words, banks would do well to review on an ongoing basis, whether their IT interventions are indeed fetching them the envisaged benefits. Towards this end, exploration

of tighter linkage of newer performance measures to service quality would be in order. Similarly, linking service effectiveness with profitability measures holds promise in research. Another subject of research-interest would be to study customer perceptions differentiated by demographic characteristics such as gender, age, educational background and occupation. Thus, the impacts of IT on productivity, service-quality, customer satisfaction and profitability continue to arouse the interest of researchers.

References

Avkiran, N. K. (1999) 'An application reference for data envelopment analysis in branch banking: helping the

- novice researcher', *International Journal of Bank Marketing*, 17/5, pp. 206-220
- Deng, Shengliang and Dart, Jack (1994) 'Measuring market orientation: A multi-factor, multi-item approach', *Journal of Marketing Management*, Vol.10, pp. 725-742
- Ehikhamenor, Fabian A. (2003) 'Information Technology in Nigerian banks: The limits of expectations', *Information Technology for Development*, Vol.10, pp.13-24
- Ennew, Christine T., Reed, G. V. and Binks, M. R. (1993) 'Importance-Performance Analysis and the Measurement of Service Quality', *European Journal of Marketing*, Vol. 27, No. 2, 1993, pp. 59-70
- Hemmasi, Masoud and Strong, Kelly C. (1994) 'Measuring Service Quality for Strategic Planning', *Journal of Applied Business Research*, Vol.10, Issue 4, pp.24-35
- Heskett, James L.; Jones, Thomas O.; Loveman, Gary W.; Sasser, Jr., Earl. W. and Schlesinger, Leonard A (1994) 'Putting the Service-Profit Chain to Work', *Harvard Business Review*, March-April 1994, pp. 164-170
- Joseph, Mathew; McClure, Cindy and Joseph, Beatriz (1999) 'Service quality in the banking sector: the impact of technology on service delivery', *International Journal of Bank Marketing*, 17/4, pp. 182-191
- Krishnaveni, R and Prabha, Divya (2006) 'Service quality perception of banking service with reference to banking customers', *ACRM Journal of Business and Management Research*, No. 2, pp. 45-49
- Lederer, A. and Mirani, R. (1995) 'Anticipating the benefits of proposed Information Systems', *Journal of Information Technology*, Vol.10, pp 159-169
- Martilla, John A. and James, John C. (1977) 'Importance-Performance Analysis', *Journal of Marketing*, Vol. 41, January, pp.77-79
- Ortinou, D., Bush, A., Bush, R. and Twible, J. (1989) 'The Use of Importance-Performance Analysis for Improving the Quality of Marketing Education: Interpreting Faculty-Course Evaluations', *Journal of Marketing Education*, Summer 89, Vol. 11, Issue 2, pp.78-86
- Parasuraman, A.; Zeithaml, Valarie A. and Berry, Leonard L. (1988) 'SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality', *Journal of Retailing*, Volume 64, No.1, pp.12-40
- Parsons, Darrekk; Gotlieb, Calvin C. and Denny, Michael. (1993) 'Productivity and Computers in Canadian Banking', *Journal of Productivity Analysis*, Jun.1993, Vol. 4 Issue ½, p95-113
- Reports on Trend and Progress of Banking in India, 2002-03 to 2010-11, *Reserve Bank of India*, <http://www.rbi.org.in>
- Remenyi, Dan (1996) 'A holistic approach to IT function evaluation', *Investing in Information Systems: Evaluation and Management*, Ed. Leslie Willcocks, Chapman and Hall
- Rexha, Nexhmi (2005) 'The impact of internet banking service quality on business customer commitment', *Paper presented at ANZMAC Conference on Services Marketing*, 2005
- Vannirajan (2006) 'Impact of service quality on customer satisfaction in banking – A comparative study', *ACRM Journal of Business and Management Research*, No. 2, pp. 50-54

APPENDIX

The Public Sector Undertaking (PSU) bank group comprises:	
1	Allahabad Bank
2	Andhra Bank
3	Bank of Baroda
4	Bank of India
5	Bank of Maharashtra
6	Canara Bank
7	Central Bank of India
8	Corporation Bank
9	Dena Bank
10	Indian Bank
11	Indian Overseas Bank
12	Oriental Bank of Commerce
13	Punjab & Sind Bank
14	Punjab National Bank
15	Syndicate Bank
16	UCO Bank
17	Union Bank of India
18	United Bank of India
19	Vijaya Bank
20	IDBI Bank Ltd.
The State Bank of India group comprises:	
20	State Bank of Bikaner & Jaipur
21	State Bank of Hyderabad
22	State Bank of India
23	State Bank of Mysore
24	State Bank of Patiala
25	State Bank of Travancore
The New Private Sector Banks group comprises:	
28	Axis Bank Ltd. (originally UTI Bank Ltd.)
29	Development Credit Bank Ltd.
30	HDFC Bank
31	ICICI Bank
32	IndusInd Bank Ltd.
33	Kotak Mahindra Bank Ltd.
34	Yes Bank Ltd.