



Information Communication Technology on Banks Performance: Competitive advantages and Cost Leadership

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Abstract: Adoption of ICT concepts, techniques, policies and implementation strategies in the banking industry has become a subject of prime importance and a matter of concern to all banks. This has indeed become a prerequisite for local and global competitiveness for banks. ICT has directly influenced the managers' decision making, planning, and selection of products and services to be offered in the banking sector. This has changed the way banks managed their corporate relationships worldwide and the variety of innovative techniques available to enhance the speed and quality of service rendering. The world turns into a global village through ICT and India being a part of it, necessitates to advise and educate the existing upcoming financial institutions and banks on the importance of investing in ICT infrastructure. The researcher recommends that banks be advised on how much investment in ICT can boost their productivity. Bank managers need to be sensitized on the importance of this work. The researcher recommends that banks aim to invest in the latest ICT assets including hardware, software and connectivity. This will boost efficiency, speed and accuracy in delivery of their services. The researcher further recommends that banks and other financial institutions aim to train all their personnel on ICT skills. This will boost their ICT skills and enhance productivity. It will also contribute to the employees selling the brand image of the banks. The researcher further recommends employment of skilled ICT personnel into the financial institutions so to enhance their ICT personnel capacity.

Keywords: ICT adoption, Competitive advantage, ERP technology, Strategy, Performance of Public and Private sector banks.

1. INTRODUCTION

The growing competition and dynamic consumer requirement and wants in this competitive business world, banking institutions needed to use competitive strategies in order to gain competitive edge. Introduction of new technologies, globalization, changing consumer needs have led to changes in organizational business practices. The advancement in ICT in the banking industry has played a vital role in improving service delivery standards of banks.

ICT integration in the system has become a driving force for competitive financial institutions in the market.

The objective of this study was to investigate how the public sector banks were striving to achieve competitive advantage through technology in India. The major objectives of this study were to determine the competitive strategies adopted by public sector banks through ICT implementation. This study used descriptive research design to determine how the Indian banks achieved competitive advantage through technology, taking a selected sample of public sector and public sector banks. The descriptive study method was found appropriate because it explored and described the relationship between variables in their natural setting without manipulating them. This study relied mostly on primary data that was collected using interview mode with open-ended questions. Interviewing was considered a suitable method of qualitative due to its ability to generate honest opinion and genuine conversation between the interviewer and participants.

The data collected was qualitative in nature and hence the main method that was used to analyse data was content analysis. Content analysis helped to capture the in-depth opinions of the respondents and thus facilitates accurate decision making with regard to the problem under investigation. The analysed data was presented qualitatively based on the respondents' in-depth analysis and gauging of the respondents' arguments, opinions, and ideas with regard to achieving competitiveness through technology by banks in India.

Finally this study concluded that, to gain competitive advantage in the dynamic business environment, the banks should adopt ICT strategies so as to minimize costs and maximize profits. The study recommended that innovation should be a culture of the top level management that should be supported through employee empowerment and continuous research.

1.1. ICT: Strategies

ICT recognises the increasing significance of communication technology to access the Internet, send emails to individuals and institutions as well as video conferences.

Stretching ICT capabilities has been the basis on which banks have sought to create new services to their customers. ICT, therefore, enhances banks competence, thereby influencing the managers' decision making, planning and product and services selection, which are to be offered in the banks. ICT enables applications and services which provide direct strategic advantage to banks. Top management allocates resources to implement competitive strategies that will attract and retain customers. New product development using new technologies and delivery of quality service will promote customer loyalty and long term relationships and thus mutual trust between the bank and customers. The Key Points in this study leads:

1. To study the impact of ICT on banks performance in India.
2. To determine the extent of competitive strategies adopted by public and private sector banks in India through application of ICT.
3. To determine the effectiveness of the ICT as a competitive strategy in public and private sector banks in India.
4. To suggest effective measures to improve ICT application and making it help in the banks turnaround strategies.

1.2. Hypothesis

H_0 – There is a negative relationship between ICT factors in banking performance and cost leadership

H_1 – There is a positive relationship between ICT factors in banking performance and cost leadership

2. RESEARCH METHODOLOGY

The descriptive research process is adopted, which has helped in collecting data in order to answer questions with regard to the current status of the attributes of study that is taken up.. In this study, the design used to answer questions pertaining to ICT adoption as a competitive strategy adopted by Public sector banks in India is Descriptive Research design. This design is used to determine the extent of competitive advantage achieved through technology among commercial banks taking a case study of public and private sector banks.

This study is based mostly on primary data sources and secondary data that were collected using interview guide with open-ended questions. Public sector banks top level managers, middle level and lower level employees were the respondents for the study.

The data has been collected from respondents by the use of interview mode as the main instrument of data collection. Interviewing was considered as the relevant method for qualitative research approach, as it will effectively generate honest opinion emerging from the genuine dialogue with the participants.

Sample: The study was conducted with a selected sample of 5 banks each from among public and private sector banks. Public sector banks selected are SBI, PNB, CBI, BOI and Andhra bank, whereas the Private sector banks are ICICI, HDFC, Axis bank, IDBI and ING Vysya bank.

3. NEED FOR THE STUDY

This research study is expected to bring value to the government and RBI, as they would understand how financial institutions use competitive strategies to gain competitive edge in the context of intense competition and globalization, influence from local and foreign financial institutions and how they achieve their sustainability. The government and RBI would be in a position to formulate policies aimed at improving banks' productivity and safeguarding their interests using efficient technologies and quality checks.

The development partners namely Government and RBI, who are usually interested in helping the financial institutions to prosper, will have a better understanding of a wide variety of factors that help to improve their prosperity and hence their sustainability. Scholars and researchers who would like to carry out further more studies on competitive strategies used by Commercial Banks to compete in the global market and may take this as a guide, as this forms a basis upon which further research on these issues may be based.

The economy of the country is on the verge of a metamorphosis, with several policy initiatives are at the implementation stage. Favorable business sentiment, enhanced consumer confidence and well controlled price rise may likely prop-up India's economic growth. Enhanced sanction of expenditure for infrastructure, faster implementation and execution of the projects and carrying on with the reforms are expected to provide fillip to the economic growth. Owing to all these factors Indian banking industry is poised for robust growth as there would be a lot of demand from the growing business for bank credit.

Also, with the innovations in the field of technology, banks have made foray into mobile banking and internet banking services Banks are giving lot of importance on providing newer services to their customers through up-gradation of their technical infrastructure, so as to satisfy the customer's high expectations and by this way accomplishing the banks competitive advantage.

Indian banks are adequately capitalized and well regulated by the Central Bank of the country. The economic and financial environment of the country is superior, when compared to any other economy. The Risk rating studies in Credit risk, Market risk and Liquidity risk suggest that Indian banks are more resilient compared to their foreign counterparts and have withstood the Global Financial crises and slow downs(US Sub-prime crisis, European slow down etc.) effectively.

The Indian banking system is a hybrid system of Public and Private sector banks and foreign banks. Apart from Commercial banks, the system consists of Co-operative banks, urban banks and Regional Rural Banks. RBI has recently issued licenses for starting of payments banks and Small Finance Banks. Public-sector banks have nearly 80% share in total banking business, with the balance 20% business shared by private and foreign banks. Banks are providing mobile banking to their customers. Mobile banking volumes are growing at a very faster pace. As per data from the RBI in December 2015 the volume of mobile banking business has increased four times year-on-year and jumped by 46 per cent over the previous month to Rs 49,029 crores (US\$ 7.34 billion). As per a estimate by Standard & Poor's the credit growth in India's banking sector would improve to 11-13 per cent in FY17 from less than 10 per cent in the second half of CY14.

According to Porter (1985) competitive strategy is the search for a favourable competitive position in the industry and aims at establishing a profitable and sustainable position against forces that determine the industry competition. Cost Leadership and Differentiation are two such strategies.

4. COST LEADERSHIP STRATEGIES

A firm pursuing a cost-leadership strategy tries to gain a competitive advantage basically by reducing its economic costs below that of the other firms. If cost leadership strategies are implemented by many firms or if no firm faces a cost disadvantage in imitating a cost-leadership strategy, then being a cost leader does not derive a sustained competitive advantage for the firm. Hence, the ability of a cost-leadership firm to sustain a competitive strategy to generate and retain the sustained competitive advantage depends on the strategy being rare and costly to imitate and implement. Implementation of ICT and technology in banks will help to achieve the goal of cost leadership internationally.

5. DIFFERENTIATION STRATEGY

Differentiation is a business strategy wherein firms attempt to gain competitive advantage by enhancing the perceived value of their products or services relative to the perceived value of other firms' products or services.

Formulation of differentiation strategy recognizes that this is a strategy for making a firm's products or service more competitive in such a competitive market. This involves making a product slightly different from other similar products, by varying certain features. Various studies have shown that such attributes will make consumers to perceive it to have properties they like, which make it unique compared to the rival products or services.

Through the introduction of ICT new avenues of banking like Internet banking, mobile banking electronic banking kiosks has improved banking efficiency in bringing services close to the customers. ICT is at the centre of electronic banking system in the world financial system and Indian banking industry is not an exception as it plays a critical role in the Indian banking scenario.

6. ICT AND BUSINESS PERFORMANCE

ICT integration in the banking system has resulted in improved performance of banks. ICT integration in customer service delivery enabled commercial banks in minimizing costs of operation leading to maximization of profits. Business Performance is a combination of financial and non-financial success of any company. Every business should evolve a system for measurement of the performance vis-a-vis the set goals. An ideal performance measurement system helps businesses to periodically set business goals and providing feedback to managers on progress towards achievement of the goals. The time horizon for these goals can typically be about a year or less for short-term goals or span several years for long-term goals.

The study examines the impact of information communication technology on the performance of public and Private sector banks in India by considering the following variables:

6.1. Dependent Variables

The Dependent Variables such as Return on Investment (ROI), Credit deposit ratio (CD ratio), Asset liability management (ALM), Diversified lending (DL), Innovative banking products (IBP) were considered to assess the impact of ICT on the performance of public and Private sector banks in India with reference to the following independent/ Expletory Variables *i.e.*

6.2. Independent Variables

1. MIS and Decision Making (MDM)
2. Deposit Mobilization (DM)
3. Employee Productivity (EP)
4. Financial Reporting (FR)
5. Cost of Management (COM)
6. Managerial Efficiency (ME)
7. Net Profit Margin (NPM)
8. Fund Based Business Income (FBBI)
9. Non Fund Based Income (NFBI)
10. Project Management (PM)

$$\begin{aligned} \text{ICT Bank Performance} = & \alpha_i + \beta_{1i} \text{MDM}_{it} + \beta_{2i} \text{DM} + \beta_{3i} \text{EP} + \beta_4 \text{FR} + \beta_{5i} \text{COM} \\ & + \beta_{6i} \text{ME} + \beta_{7i} \text{NPM} + \beta_{8i} \text{FBBI} + \beta_{9i} \text{NFBI} \\ & + \beta_{10i} \text{PM} + \varepsilon_{it} \end{aligned}$$

7. ICT AND COMPETITIVE ADVANTAGE

The main purpose is to accelerate the competitiveness of the businesses in particular and sustainable Indian economy as a whole. The government is committed to improve access to the internet, telecommunication and an increase Information Technology literacy, to develop strategies to improve access to ICT by decreasing cost of internet to business, reducing the cost of communication, management and transaction of data, ensuring the availability of a minimum supply of ICT infrastructure and Electricity especially in the remote and rural areas with a special emphasis to the servicing of the small and medium enterprises

Information and Communication Technology played a pivotal role in businesses' operations including, saving of input costs, general cost saving, greater flexibility and marked improvement of quality of the products. Networking and communication has greatly helped in the banks, as the banks use these technologies to facilitate employee communication and reduction in co-ordination cost. It also enhances the employee productivity in banks as well as other firms, as monitoring can be done through technological devices. For instance, the number of staff required in the in the back office work are reduced and this has helped in using those excess staff for marketing, quality control and other purposes.

Table 1
ICT impact on public sector banks in India: Descriptive statistics of the dependent and explanatory variables

	Mean	Median	Std. Dev	Skewness	Probability	Sum	Sum Sq.Dev	Observations
Dependent Variables								
ROI	0.011258	0.022000	0.012935	-1.495321	0.000000	3.946000	0.059862	200
CD Ratio	0.112541	0.059200	0.155935	-1.617531	0.000000	40.456000	8.559714	200
ALM	0.010526	0.116000	0.032152	-1.521462	0.000000	4.325698	7.325895	200
DL	0.121532	0.009000	0.365890	0.256321	0.000000	35.365892	6.325892	200
IBP	0.006982	0.032500	0.452012	-1.025892	0.000000	26.325687	0.325802	200
Independent Variables								
MDM	0.193048	0.009822	0.396587	3.515458	0.000000	0.254785	54.70732	200
DM	0.074402	0.070002	0.041785	9.820203	0.000000	-1203.698	0.678965	200
EP	0.107286	0.667258	0.052448	4.109524	0.000000	7.691352	1.102036	200
FR	0.002833	0.683025	0.005486	4.800321	0.000000	132.3680	0.007268	200
COM	0.795482	0.039420	3.647953	17.44460	0.000000	344.1542	4626.245	200
ME	0.374568	67.57800	0.563289	6.214785	0.000000	1.000010	102.5418	200
NPM	0.021478	5.991360	0.028612	14.242568	0.000000	37.84712	0.258754	200
FBBI	0.021547	0.521478	0.236589	-0.125478	0.000000	26.32587	0.258741	200
NFBI	0.214552	0.258874	-5.021458	-0.254782	0.000000	68.25478	245.9562	200
PM	-3.415698	-3.386594	0.835911	-0.015340	0.012178	-1206.178	245.9590	200

8. DATA ANALYSIS

The following Table 1 reveals that a positive kind of relationship between dependent and independent variables. These statistical analyses proved that there is significant impact of ICT on banks performance.

Table 2 shows that coefficient and *t* – values of ICT impact on public sector banks in India during the period 2005-06 to 2015-16. ICT impact on public sector banks in India: Return on Investment (ROI) related variables were tested. The results indicates that there is a good positive relation of all independent variables such as MIS and Decision Making (MDM), Financial Reporting (FR), Cost of Management (COM), Managerial Efficiency (ME), Net Profit Margin (NPM), Fund Based Business Income (FBBI), Non Fund Based Income (NFBI), Project Management (PM) with that dependent Return on Investment (ROI) of public sector banks performance in the stated periods. Further the variables like deposit mobilization and for employee productivity showed a negative correlation with return on investment of public sector banks. Therefore the null hypotheses were rejected.

Table 2
ICT impact on public sector banks in India: Return on Investment (ROI)

<i>Variables</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Probability</i>	
MDM	0.0414258	0.003689	4.088314	0.3258	
DM	-0.003258	0.001587	-1.769852	0.3691	
EP	-0.325896	0.001357	-1.254782	0.7851	
FR	0.147856	0.014526	3.214785	0.3698	
COM	0.375486	0.123658	1.689572	0.9852	R ² = 0.254781
ME	2.985478	0.235615	0.265871	0.1458	F = 4.068742
NPM	-0.254784	0.225698	2.036589	0.2365	Prob (F-sta.) = 0.002578
FBBI	0.002548	0.009215	0.897456	0.3254	
NFBI	0.025478	0.007071	0.879412	0.2547	
PM	0.325412	0.000128	2.365874	0.0442	

Table 3
ICT impact on public sector banks in India: Credit deposit ratio (CD Ratio)

<i>Variables</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Probability</i>	
MDM	0.4152287	0.235894	3.021458	0.7856	
DM	-0.037856	0.987456	1.852698	0.9852	
EP	-0.261654	0.325874	1.021488	0.2589	
FR	0.325874	0.358741	1.727896	0.3587	R ² = 0.321479
COM	10.56987	6.325874	1.869658	0.3589	F = 2.751478
ME	0.000021	0.325698	1.727932	0.1547	Prob(F-sta.) = 0.005897
NPM	-0.006551	0.147856	0.145879	0.9685	
FBBI	-0.018523	0.369874	-0.255469	0.7584	
NFBI	0.021482	0.214785	-0.258746	0.3562	
PM	0.023647	0.002214	3.021155	0.2145	

Table 3 presents that coefficient and *t* – values of ICT impact on public sector banks in India during the period 2005-06 to 2015-16. ICT impact on public sector banks in India: Credit deposit ratio (CD Ratio) related variables were tested. The results indicates that there is a good positive relation of all independent variables such as MIS and Decision Making (MDM), Financial Reporting (FR), Deposit Mobilization (DM), Employee Productivity (EP), Cost of Management (COM), Managerial Efficiency (ME), Net Profit Margin (NPM), Project Management (PM) with that dependent Credit deposit ratio (CD Ratio) of public sector banks performance in the stated periods. Further the variables like deposit mobilization and for employee productivity showed a negative correlation with return on investment of public sector banks. Therefore the null hypothesis was rejected.

Table 4
ICT impact on public sector banks in India: Asset liability management (ALM)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Probability</i>	
MDM	0.021478	0.002145	3.925871	0.9512	
DM	-0.012547	0.014785	-6.321458	0.3258	
EP	0.025874	0.325871	0.496521	0.2365	
FR	0.036589	0.365891	1.625894	0.8541	
COM	0.258963	0.014785	2.001456	0.7856	R ² = 0.758412
ME	0.214587	0.201478	-0.258964	0.9854	F = 2.23658
NPM	-1.025478	2.035874	0.869547	0.1458	Prob (F-sta) = 0.00000
FBBI	0.021458	0.001025	2.897425	0.3589	
NFBI	0.000987	0.032559	1.025478	0.2547	
PM	0.002547	0.000885	2.032547	0.3258	

The ICT impact public and private sector banks significant by observing the R²= 0.758412 and F = 2.23658 values. Therefore the banks should consider the relevant positive factors to improve banks performance and asset liability management.

Table 5
ICT impact on public sector banks in India: Diversify lending (DL)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Probability</i>	
MDM	-0.325478	0.025478	0.325687	0.3256	
DM	-0.325896	0.014526	0.201458	0.2145	
EP	0.254789	0.752368	0.256314	0.3698	
FR	2.275896	0.236589	0.214785	01458	
COM	0.423698	0.175489	0.014785	0.9854	R ² = 0.785695
ME	4.336895	2.732547	0.175896	0.3578	F = 2.523698
NPM	-0.000382	0.000125	2.301445	0.1596	Prob (F-sta) = 0.001596
FBBI	0.044019	0.032541	0.125415	02541	
NFBI	2.442426	1.235896	0.325685	0.9874	
PM	0.181815	0.014785	0.982245	0.3258	

Table 5 indicates that all the selected variables had influenced by way of improving diversified lending since R²= 0.785695 and F = 2.523698 highly correlated during the study period.

TABLE 6
ICT impact on public sector banks in India: Innovative banking products (IBP)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Probability</i>	
MDM	0.078214	0.214789	3.025478	0.3214	
DM	0.011485	0.325874	1.325874	0.4569	
EP	0.325489	0.325499	1.025478	0.9658	
FR	0.001458	0.452874	1.320145	0.8745	
COM	0.325874	0.541478	1.325887	0.3258	R ² = 0.758412
ME	1.365214	0.325896	-1.236587	0.1478	F = 3.214238
NPM	-0.235887	0.214546	-1.258746	0.7896	Prob (F-sta) = 0.003258
FBBI	-0.249874	0.007758	-1.025471	0.3254	
NFBI	-0.325874	0.020547	2.3214587	0.3698	
PM	0.002145	0.003258	3.2547896	0.1254	

Table 6 shows that all the selected variables had strongly impacted by ICT impact on public sector banks in India related to Innovative banking products (IBP).

9. OBSERVATIONS/RECOMMENDATIONS

After in-depth interviews with respondents, majority of the respondents clearly indicated that ICT integration in the system had quite a number of benefits. Most of the respondents said that the benefits of ICT integration in the system were; minimal costs of operation, improved customer service delivery, minimal paper work, improved time management among employees, minimal stress among workers and increased market share. Some of them indicated that had helped the bank to minimize costs of operation and maximize profits.

Adoption of ICT practices in the banking industry is crucial for every organization in the competitive business environment. In order to get competitive edge in the ever changing business environment, banks should be active in developing ICT strategies and reduce costs thus maximization of profitability. To accomplish the goals like best business performance, reducing input cost and operational costs, business sustainability and gaining competitive edge in the market place, financial institutions should extensively use technology in their systems for enhancing the efficiency and effectiveness in the global market.

ICT adoption by commercial banks in India would help systems expand its market share and customer base, which facilitates the bank's growth strategy. ICT adoption affects the bank's growth prospects, by enhancing its customer base and extending its product range and new product development can become easy through adoption of ICT and e-banking.

ICT adoption helps banks to improve customer relationships as the time spent by customers in banking transactions is drastically reduced. Also marketing can be drastically improved by usage of customer information by the bank's marketing personnel. Adoption of ICT also helps in innovation of customized products and personalized products. Online 24-hour connectivity provided to customers greatly reduces the manpower costs to the banks, as the customer himself carries out his banking transactions.

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