

A Study on Effective Role of Technology in Improving Banking System in India

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ABSTRACT

The Banking atmosphere had become extremely modest in present world. In order to grow and survive in this dynamic environment, banks needs to understand the power of IT which can help them to improve and increase their service quality. With the advent of MNC or Foreign banks, and the introduction of various IT enabled services which is matching the pace of dynamic and competitive world, public and private sector banks have also adopted IT in their various services and introduced various windows of transactions using Information Technology to take full advantage of IT , to reduce the overall operational costs and to sustain in today's competitive world.

In this study, we analyzed the role of IT in Indian Banking system and its role in increasing the effective distribution of banking services. The Banking sector has emerged extremely competitive in today's era. Information technology is the driver of various financial applications familiarized by the Indian government intended for the development in financial Sector. It is so in order to endure & cultivate in this dynamic market, banks are upgrading with latest technology, which are professed as an 'Authorizing resource' that can help in grooming the learner and as a stretcher structure which answer swiftly to the dynamics of a rapid changing marketplace situation. It is observed as a cost saving tool & good interaction with the individuals and the with the organizations that are accompanying with the banking business. In most recent fifteen years Indians bank have put vigorously in IT area to offer various banking services such as Credit cards, Debit cards, Net banking, ATM (i.e. Automated Teller Machines), Mobile banking, and Point of Sale machines. RBI initiated in collaboration with major Indian bank, to use information technology to automate the financial transactions with two major schemes. These two are NEFT & RTGS (National Electronic Fund Transfer & Real Time Gross Settlement). Advancements in Computer innovation and Telecommunications System enabled keeping money segment to give electronic installment framework to monetary exchanges with mobiles, PDAs and tablets.

Keywords: Information Technology, Mobile banking, ATMs, Internet banking and E – banking.

INTRODUCTION:

Innovation and Data technology has invited / attracted many MNC's banks to India, in this way; it has opened new markets and opportunities where new financial products and more efficient & effective delivery channels can be introduced in banking industry. Banking system plays a vital and significant role in the growth of Indian Economy. With the utilization of innovation there have been an expansion in infiltration, profitability and proficiency. Use of Technology has expanded the cost viability as well as has helped in making small value transactions feasible for its customers. It plays a significant role in taking decisions, makes new markets, and enhances profitability and effectiveness. It has been seen that monetary markets have transformed into a buyer's business sectors in India.

Commercial Banking systems in India are currently turning into a one stop Super Market. The center is moving from "Mass banking" system to "Class banking" system with an account with lots of value added and tailor made banking and financial products. Technology and Innovation enables banks to articulate the branches into a business environment without hiring human resources for manual activities. The banks are running on the idea of 24 X 7 operation, easy to use banking services with the help of Tele Banking, ATMs, Web enabled Banking (Internet Banking), Mobile Banking and E - Banking. These Technology based innovative banking system are being utilized to attract large number of clients at lower operating cost and in most effective way. The beauty of such banking system is putting both the parties in win-win situation. Efficient and effective utilization of information Technology has a huge impact on development and advancement in Banking System.

Banking Sector framework plays a very important role in the Indian economy. It resembles a focal nerve to a country's economy as it takes into account the budgetary needs of credit in every one of the areas of the general public. The development and advancement in innovation has prompted a change in perspective in the whole banking system and its frameworks. Further the advancement of e-banking made an enormous change as far as satisfying clients' needs. The two overlay targets of current budget, is to be specific, demonetization and GST, simply rely upon digital banking. The present examination investigates the impact of technology innovation in banking sector among clients by surveying the pertinent writing from the previous investigations. An inside and out investigation on the effect of technology in banking system, uncovers the elements, for example, viability of information administration, value added services, level of learning and awareness, security, safety, quality of services, efficiency, and productivity.

E-banking is the novelty version of traditional banking, which integrates Web Technology to distribute various banking services and products. Information Technology has given new blood to the banking system and it is infusing new energy in the future of Indian banking system which will help them to offer new and modern products and customer services.

Indian Banking system is still to utilize the full potential of IT revolution. Banking industry is spine of Indian financial framework and it is challenged by many forces. One such force is upset of IT revolution. In this Globalized environment, IT support is critical for the fruitful working of the banking sector. Without IT and communication system we can't consider the success of banking in Indian economy. Information Technology refers to the procurement, handling, storage and dissemination of a wide range of data by utilizing computer and telecommunication technology. IT is an incorporated system for accomplishing certain key objectives. IT has a vital role to play for making an effective banking system in the development of Indian economy. In past one and a half decade, banks in India have put vigorously in the innovation, for example, Tele-banking, Mobile Banking, Internet banking, automated teller machines (ATMs), debit and credit cards, smart cards, customer relationship administration (CRM) software, digital payment system and data warehousing and data mining solutions, to get improved services for customers and the quick handling of banking operations. Substantial investment in IT have been made by the banks in the desire for improvements in their overall performance, but it entirely depends upon the way IT will be deployed to extract the maximum potential of Information technology.

In this way there is a change in outlook from seller's market to buyers' market. So banks additionally change their approach from "Conventional Banking to Convenience Banking" and "Mass Banking to Class Banking". This will guarantee the development of IT in Indian banking Sector.

In the course of recent years the Indian banks have seen real changes in the operation of different financial players. The Govt. and the regulatory authorities have initiated step by step process, but still there a scope of improvement. The passage of foreign banks has exposed the various new international practices and systems. Integration of Technology have enhanced customer service, but there is always a scope of improvements. In general, the total impact of development in India since 1991 has been very promising. With the introduction of Technology and the introduction of competition, banks are in the race of turning into the best in the country.

The examination by Awasthi and Sharma (2001) uncovers that development in the area of information technology will change the meaning of banking system in India. Innovation in Technology has changed the way banks were operating earlier and introduced various service nodes in retail banking. The study also investigated the difficulties that banking institution faces and in accordance with regulatory obligations.

Janki (2002) broke down that how innovation is influencing the employees' productivity in the technology driven banking system. There is no question in believing that technology has changed the overall productivity and face of customer services. The emphasis on information technology will help in increasing new products, and managing risk management etc. The investigation presumed that the Technology is the main device to accomplish their objectives.

Rao, N. V. (2002) investigated the effect of new technology on banking industry. The use of technology is changing the manner in which the business is being run and open new avenues for doing cost – viable way of conducting banking sector.

Bhasin, T.M. (2001) examined the effect of IT on Financial sector. It has changed the monotonous and repeated procedures and systems, into simple single key system which has brought speed, precision and proficiency of leading business and empowering them to enter into new operations.

Sabnani, P. (2000) examined the significance of Global Banking in India. The improvements in IT and telecommunications system which is opening new dimensions of pooling various financial resources worldwide. He feels that Global Banking System will increase and flourish in Indian Market

Vageesh, N.S. (2000) profoundly valued the new private part banks which have embraced Information Technology in their banking systems. The private sector banks with the help of latest technology have introduced efficient e-banking system. Banks are emphasizing into Net-banking offering awesome convenience to the customers on one hand and thereby reducing transaction cost for the banks on the other hand.

Verma (2000) investigated the effect of IT on public banks and private banks and saw that IT is a risk for public banks whereas the competitive strength for private banks. Private banks are completely electronic and running on IT infrastructure and extending banking services on web, particularly ICICI Banks and HDFC Bank extremely dynamic on this front and focusing on Internet and online business to offer their customer completely new products over internet. Public sector banks need to work hard and try to incorporate latest IT tools to increase their overall productivity and efficiency.

Prabhakar Rao Ch. (2004) Indian banking in 2010 IBA Bulletin Special Subjects, (pp 170-173) in this study conversed about the innovative changes that observed in the financial sector around the world. He stated that network branches, ATMs, technology-based payment and clearing system, technology vision of RBI, floating rate of interest have changed the Indian banking sector. He concluded that brick and mortar bank branches will evaporate and customers will be able to operate their accounts through electronic devices such as mobile, computers, etc

Shapiro, C (2000) investigated the impacts of the internet on effectiveness and efficiency of banks. He highlighted the idea of transformation in banking industry. Indian Banks have constantly demonstrated certain level of flexibility to change and would turn themselves into versatile association by implementing CRM techniques, activities based on risk Mgmt. and asset- liability Mgmt., the required technological outlook to innovate and develop the human resources to meet the expected result and face the market challenges.

S Valli, Devasena Tenkasi & Taluk (January 2012) Banking system is the foundation of the economy and Information Technology (IT) thusly has turned into the foundation of banking exercises. Innovation, which was assuming a thoughtful part in banking, has gone to the vanguard with the regularly expanding tests and necessities. Be it customer advantage, trades, settlements, survey, displaying, esteeming or some other development in the Banks, IT accept an indispensable part not to complete the activity with high viability but instead moreover can make and meet the future necessities. The Banking Sector was early grasped the advancement and, in that way, set a case to substitute ventures they settled on robotization for taking full preferred standpoint in operational sufficiency.

OBJECTIVES OF THE STUDY:

In the present investigation it extensively speculated that the increased utilization of Information Technology has enhanced the knowledge capital and has made the banks to be more effective. This study is also to center around the part of modern technology and its effect on viability of banking and financial services of select banks. The objectives of the study are:

1. To investigate the patterns in nature and quantum of ICT being utilized in banking industry in India;
2. To understand the role of technology in improving banking services; and
3. To analyze the perceptions of customers towards effectiveness of banking services after computerization of banks.

RESEARCH METHODOLOGY:

For collecting the data, both primary and secondary sources were used and major portion of the study rely on primary data which was collected with the help of a structured questionnaire. Secondary data was also used from related books, journal and websites of the select banks included in this study. The present study aims at understanding the impact of Information Technology on Banks and attempts to measure the its effectiveness which has really increased the service quality for customers.

The information has been taken from bank's financial and income expenses report. Secondary data were

gathered from the Reserve Bank of India: 'Write about Trend and Progress of Banking in India', 'Handbook of Statistics on Indian Economy', 'RBI Bulletin (month to month)', Annual Reports of various banks in India. Different web sources have been used to get data and information.

An Historical Review of information Technology in Indian Banking Sector:

The Indian banking sectors works under umbrella of Reserve Bank of India (RBI). RBI set up in 1935 to guarantee money related steadiness, to deal with the currency and to direct the monetary and the payment systems. In the mid 21st century, the banking sector of India is in the midst of technological innovation. Private and public banks have acknowledged the use of technology can give them iron hand to trim expenses, accomplish effectiveness in focused segment and PSBs have introduced VRS (Voluntary Retirement Scheme) to bring down the personnel costs.

Just to compete with MNC and Private Banks, PSBs need to ensure that they are all 'Commercially Oriented'. Indian PSBs ready to be transformed into a commercially viable banks, then they will have the reason to adopt the latest technology to compete with private banks. In any case, the RBI must play a advisory part to coordinate the PSBs to avoid the risk of diversification of the business portfolio and poor intrinsic control toward improved productivity. In the meantime the RBI must eliminate any imperatives that may come up while implementing and use of technology.

Indian public sector banks have some advantage over their competition and PSB's should introspect how they can use the power of technology to build their own unique strength and quality. Being slow adapters in the area of technology, PSBs are not saddled with inheritance systems, but with the use of technology, they can become the face of technological change. PSBs have an huge network throughout India and can use their branches to use technology to extract benefits from under-served market.

Recent IT Trends of Indian Banks:

Banking environment seems to be aggressive today. To survive in the changing market conditions, banks are going for the most recent technology advancement that can help them to respond to changing business environment. Today, IT has a significant role in maintaining good customer relations. Information Technology has helped in developing world class financial products and services.

Internet is has a vital contribution in the entire operations of banking institutions and serves as a base of offering various financial services. Customers can access the account summery, transfer funds and pay bills in pressing few keys. Advent of smart cards i.e., cards with microchip have added new dimensions in the technological advancement in banking sectors.

Most likely banking services have experienced extreme changes which resulted in the increased customer expectations from the banks. Information technology helps the banks to take pro-active approach by implementing security of transactions, robust Inter-bank connectivity with the help of network, moving towards NEFT and RTGS, use of MICR for cheque clearing system etc.

In India electronic banking and Internet banking is of ongoing root. Information Technology will get crucial shift in the fundamental functioning of banks. It would not just enable them to upgrade their internal functioning and also empower them to give better customer benefit. Technology will break all limits and boost cross border banking system. Introduction of ATMs has changed the profile of front office in banks. Customers are now no longer required to visit branches for their everyday banking transactions. like cash withdrawals, Cash Deposit, and balance enquiry etc.

E-Wallet/Digital Wallet:

Digital wallet is a software program designed to act as wallet. By utilizing a digital wallet, online buys should be possible effortlessly through PCs, tablets or cell phones. All in all, ledgers of individual clients are connected with their digital wallet. In a digital wallet framework, client certifications are safely put away and checked amid exchanges. Digital wallets are utilized for online buys as well as for validation of the client. A digital wallet can store finish client data including accreditations, exchange history and individual points of interest. Digital wallets can likewise be utilized as a part of mix with other versatile installment frameworks.

Working of Digital Wallet:

Digital wallets are virtual capacity vault, which can be utilized to pay at the partaking areas with a solitary touch, and in this manner to some degree kills the 2-FA. (Two factor verification). As a client, when you stack cash in your wallet, you are confiding in the wallet supplier with your cash as the cash is charged from your record and you never again have control over it. The cash that is appeared on your portable is only a computerized portrayal. Presently going to its working, I'll reply according to my comprehension up till now

and welcome all recommendations to it. Thus, as I prior said Digital wallet cash is only an advanced portrayal, the genuine cash is with the specialist co-op. The wallet specialist co-op has one financial balance and record compose framework which keeps all record of the wallet holder and the relating sum in it. In this way, when you exchange, say 500 INR to your wallet, the cash is charged from your record and credited to specialist organizations' devoted financial balance and the record is refreshed. Same will occur with all clients. Presently, let's take the situation when there is cash exchange between the wallets, say, exchanges 100 INR from his record to B's wallet. Presently since, they both are utilizing same the wallet, there is no real exchange of cash, rather the record is refreshed with a charge from A's record and credit to B's record, with no real cash exchange. When you exchange cash from the wallet to financial balance, the bank will charge from specialist organizations' record and credit to yours, can be through ACH or IMPS.

BHIM (Bharat Interface for Money):

BHIM is an application that gives you a chance to make straightforward, simple and brisk exchanges utilizing "Unified Payments Interface" (UPI). You can make money transfer to anybody on UPI, utilizing their UPI ID or examining their QR with the BHIM application. With BHIM app, cash can be transferred from an UPI ID. BHIM is created by National Payments Corporation of India (NPCI), in light of the Unified Payment Interface (UPI). The application is an outcome of digital India Initiative where every single Indian bank worked over the real time payment. It is available on all leading mobile operating systems.

FUTURE TECHNOLOGIES IN BANKING SECTOR:

Block chain & Distributed Ledger Technology:

Block-chain technology is gaining momentum over the globe. Block-Chain is a place to store any data and information in a linear container called "Block". Anybody can access the data stored in block-chain and verify the data freely and safely. The data and information stored can be a token of "value or "crypto money". The blockchain process uses encryption process of value transfer that no authority or any third part or hacker can alter or tamper the stored value.

The blockchain exchanges specialist virtual system and empowers its hubs to consistently and successively record exchanges on an open "block," making a one of a kind "chain". Each progressive block contains a "hash" (a one of a kind unique finger impression) of the past code; in this manner, cryptography (by means of hash codes) is utilized to secure verification of the source. Technology of Cryptography with blockchain guarantees that there is never a duplicate recording of a similar exchange of value. In such manner Digital banking will elevate every one of these activities to lessen the utilization of electronic payments. Banks ought to have a technique and plan to set up this unique technology in place.

Blockchain utilizes a 'distributed ledger' design under which all users who participated as 'hubs' in the system had a copy of the whole record. It will help them to have complete access and visibility of all transactions at all time. Any updates to the substance of the record could occur by agreement of members and any new updation would be as a scrambled new block in a current 'chain' of all such previous blocks.

Artificial Intelligence & Cognitive opportunities:

Cognitive analytics or Artificial Intelligence is the new way of developing information and helps in taking various complex decision making. AI is inspired by the human brain, which process inputs and helps in initiating required actions, draws conclusion and helps in learning by various good and bad experiences, in the same way AI helps in bridging the gap between the helpful intention of big data and reality of decision making. With the beginning of AI, customers and users would now be able to get swift, customized services. AI processes the unstructured information (industry reports, budgetary news) using deep text , picture/video and concludes the next course of action.

Automation by using OCR and machine learning abilities may be valuable in various office tasks, performing rigorous and rule based tasks. For instance, using a technique which can understand and extract the functional information from OCR scan using natural language processing technology while opening bank account and KYC verification.

Providing personalized and customized products and services are major competitive factors within banking sectors and all efforts have been given to develop new services using AI. There are many cases of organizations adopting new applications in close to personal financial management (PFM) which enable buyers to make smart decisions, manage their funds and make cost effective investment.

FINDINGS:

Today Information Technology (IT) not just encourages automation of systems and data handling, it also adds value to the whole Banking Business. The key test is to proactively react than be receptive to change. Banks are currently anticipating that outsourced service firms to proactively detect business needs and changes as opposed to be advised to change. While the rise of information communication systems, it is a boon for business provided it is integrated with both structured and unstructured data, so that right type of information and personalized services can be given. Banks are implementing modern analytical systems to provide customized and personalized services to the customers.

A Bank that imparts well can detect and adopt changes faster. Cloud-Computing is a technology being examined critically to influence banking process. IT service providers have come up with innovating functional modules which can be accessed over the web and opened lots of opportunities and cost effective solutions for all. It is appropriate for Indian Banks to think about early selection and implementation to the cloud. As Bankers concentrate more on the core banking process and business, these being energizing situation for technocrats, they ought to choose business core solution and deployment of future banking technology.

This study depends on focused discussions with Banks in NCR spread over the Public, Private and MNC bank portions alongside a definite poll. We have covered 280 delegates from banks.

IT initiatives in Banking Sector:

Fig.1: IT initiatives in Banking Sector, Source: KPMG Report, Banking on Technology - India

	Core Banking	CRM	IAM	Business Intelligence	Self Service Kiosk	GRC	Internet Banking	Mobile Banking	Financial Inclusion
Banks									
Public	H	L	L	L	L	M	H	M	H
Private	H	H	H	M	H	H	H	H	H
MNC	H	H	H	H	H	H	H	H	L
	H	Implemented / In process		M	Immediate Future		L	Near Future / Not Planned	

Most banks out of private, public and MNC's have already implemented core banking s and ledger automation system in their day to day operations. Activities, for example, web based banking, Kiosks, Mobile banking are either in progress or will be implemented in near future. Various activities in the areas of financial inclusions are as of now in progress in Public and Private Banks, but in MNC banks have arranged them in a multi-year process management. Various initiative with regards to Governance-Risk-Compliance and Identity and Access Management arrangements are in progress in MNC and Private Banks. Public Banks are actually executing them at any rate following one year Business Intelligence and examination activities are arranged by Public Banks and in an a multi-year window by Private Banks.

IT Performance Measurement and Process Improvement:

It is important for banks to examine and measure the IT performance and see how to continuously improve the IT delivery through its various banking services. It was good to see that over all segments of Banks; IT execution was estimated utilizing measurements that were until now thought about the area of business, for example, client acquisition, increase in overall deposits, decrease in the complaints regarding various banking services, increased use of alternate banking channels and decrease in the footfall in physical banks environment. It is also good to see there is an increase focus on various project management techniques to see and implement various IT compliance norms while operating in IT world to align banking process with global banking systems.

IT Performance Improvement Programs:

Most of the respondents have characterized IT performance measurements, and have been observing these quarterly and following the same over a time of no less than a year. In any case, just 40 percent have been estimating IT performance in the course of two years. This reflects the new adoption in IT performance

initiatives. We hope to see elevated focus on such projects, bringing about expanded spending to help such activities. Expenses might be brought about under the heads, for example, tools for performance measurement, reviews to evaluate consistence and viability of IT performance activities and personnel to deal with these projects.

Fig.2: Periodicity of Measuring Performance initiative Source: KPMG Report, Banking On Technology - India

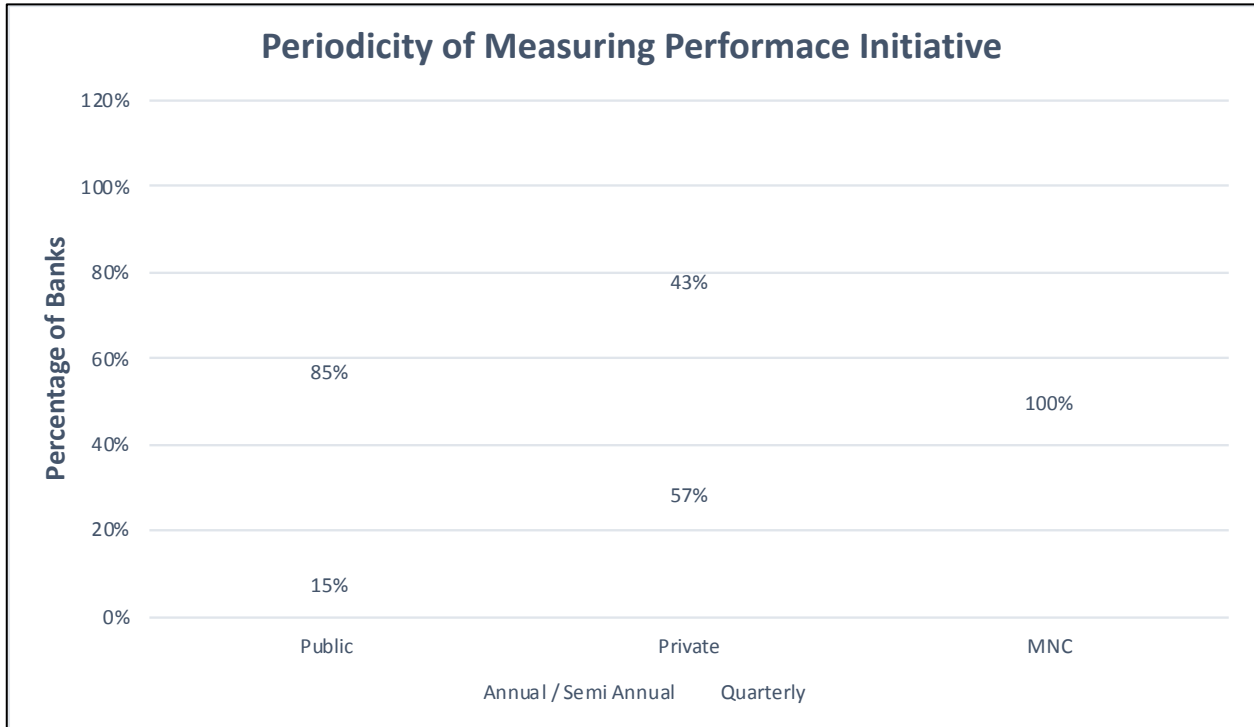
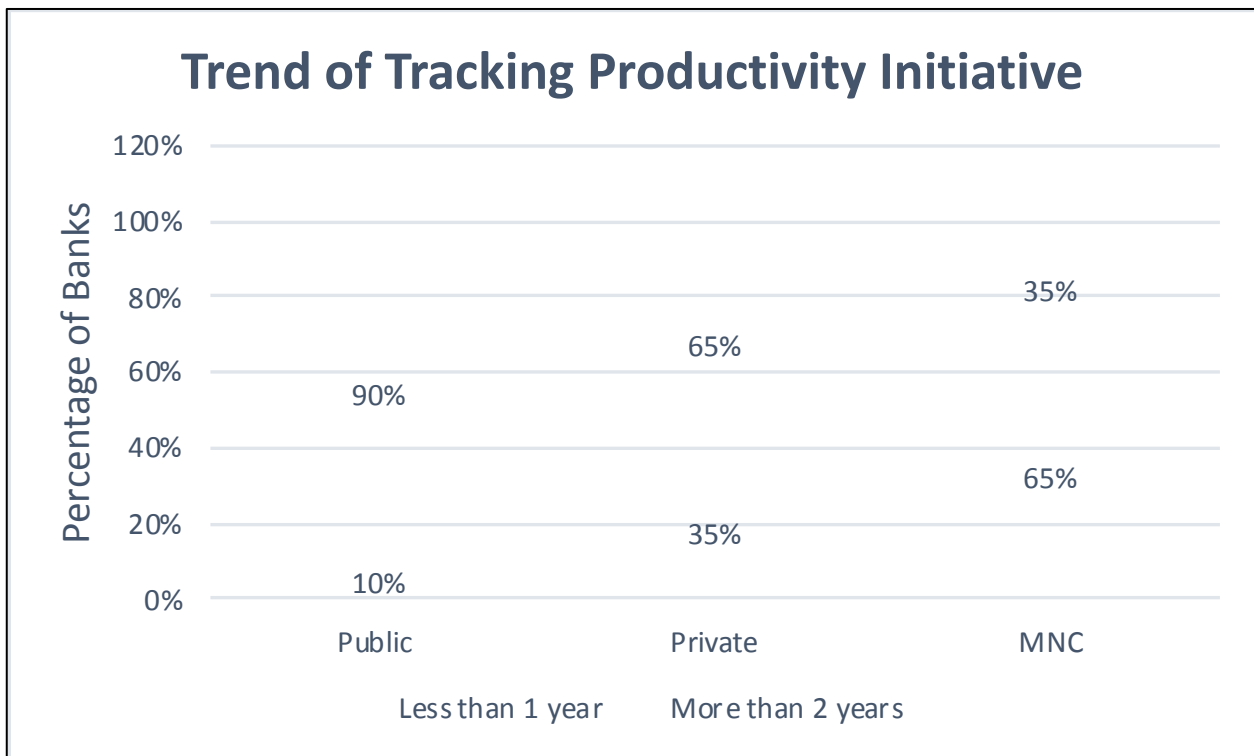


Fig.3: Trend of tracking productivity initiative, Source: KPMG Report, Banking on Technology - India



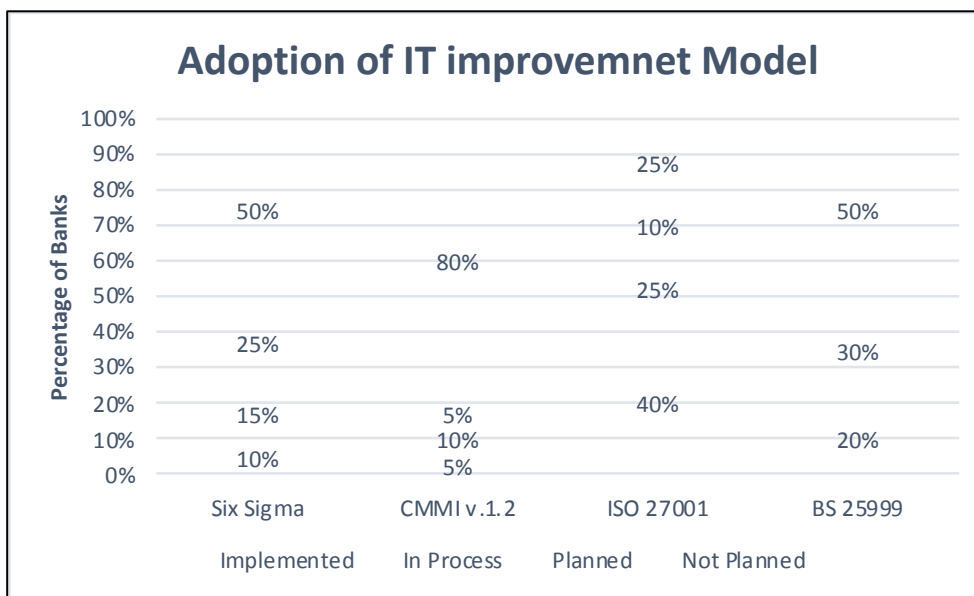
Process Improvement Models & Assessment of IT performance:

ISO 27001 is by all accounts the most effectively accepted and adopted standard over the banking sectors. It

focuses on data security perspectives in banking sector and within the nation. A huge portion of the private segment banks, are currently receiving process change activities in accordance with Six Sigma for upgrading operational efficiencies.

Public sector banks have not implemented six sigma practices, but both Public and Private sector banks are eager to adopt various performance standards, for example, BS 25999, to improve their business continuity skills in their process. However, MNC banks don't appear to see any benefits by adopting BS25999 standards, given their developed BCM capacities. Interesting insight have been recorded while implementing CMMi model. While MNC banks have officially implemented and shown their keen interest in adopting such model, PSBs have not shown this as a focus area. This certify the hypothesis that MNC are using in-house functional modules whereas public sector banks thinking to outsource software bundles and don't want to involve in in-house software development.

Fig.4: Adoption of IT improvement Model, Source: KPMG Report, Banking on Technology - India



'Cost per employee' is being estimated in most foreign banks and has been effectively been analyzed in public & private Banks. The can be achieved if the core transaction system have been well integrated into the business. Almost all the Banks appear to have effectively finished the roll out of core banking system, and subsequently, they all are ready to set up this next generation performance. As expected, all private and public banks are measuring IT costs as level of income, where MNC banks are ahead with both. Only Private Banks have set up components for continuous assessment of measuring the metrics, for example, hardware uptime, production defects and network uptime.

Fig.5: Assessment of IT Performance- Public Banks Source: KPMG Report, Banking on Technology - India

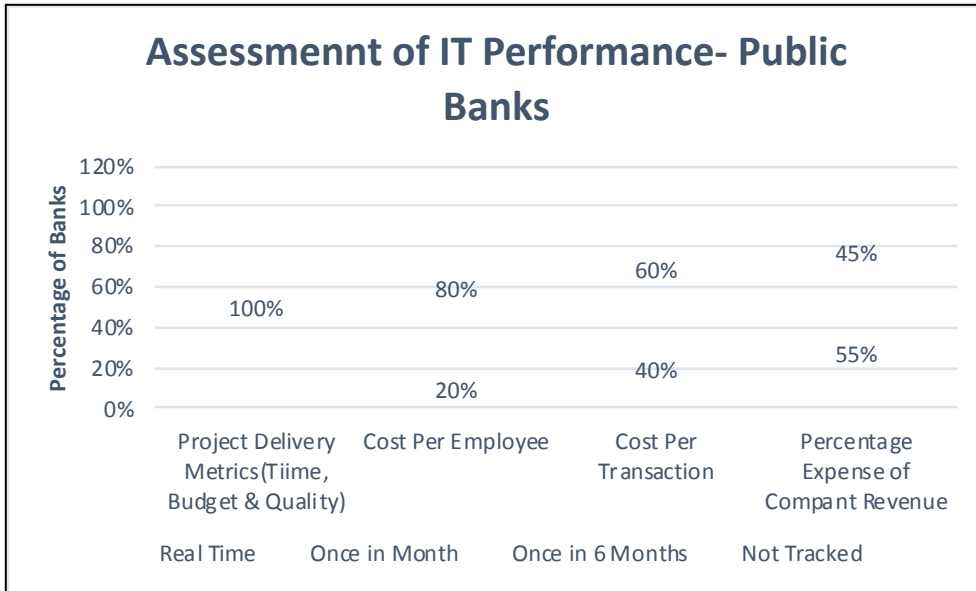


Fig.6: Assessment of IT performance –Private Banks Source: KPMG Report, Banking on Technology - India

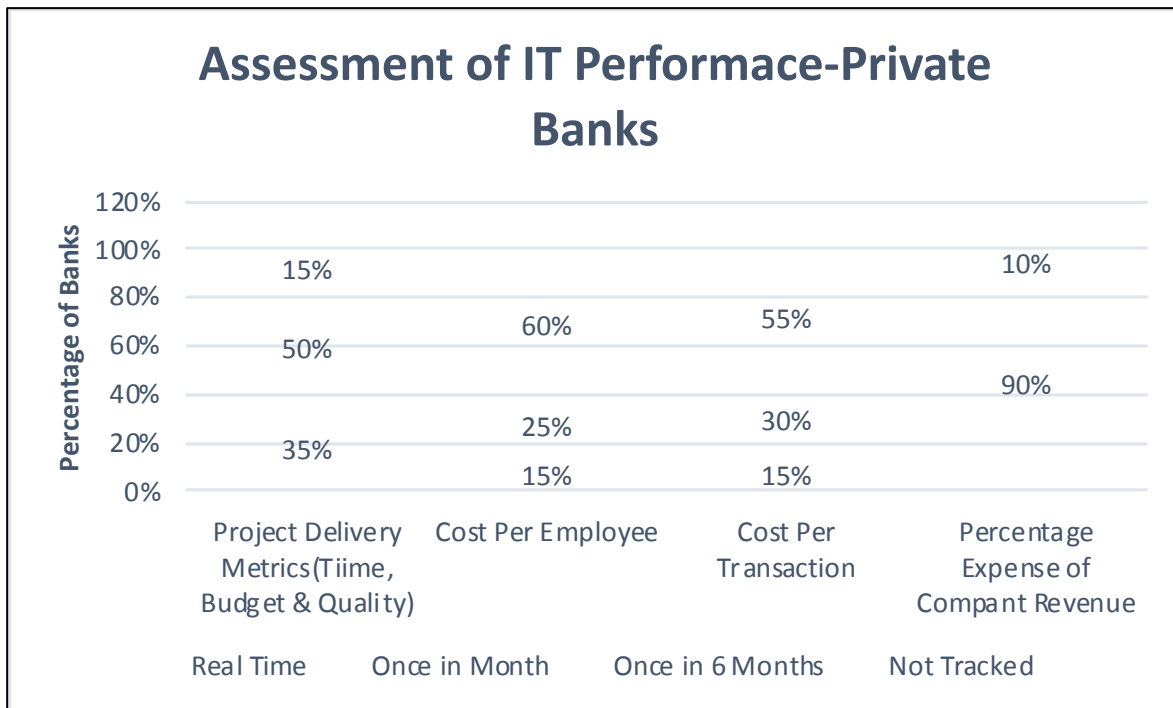
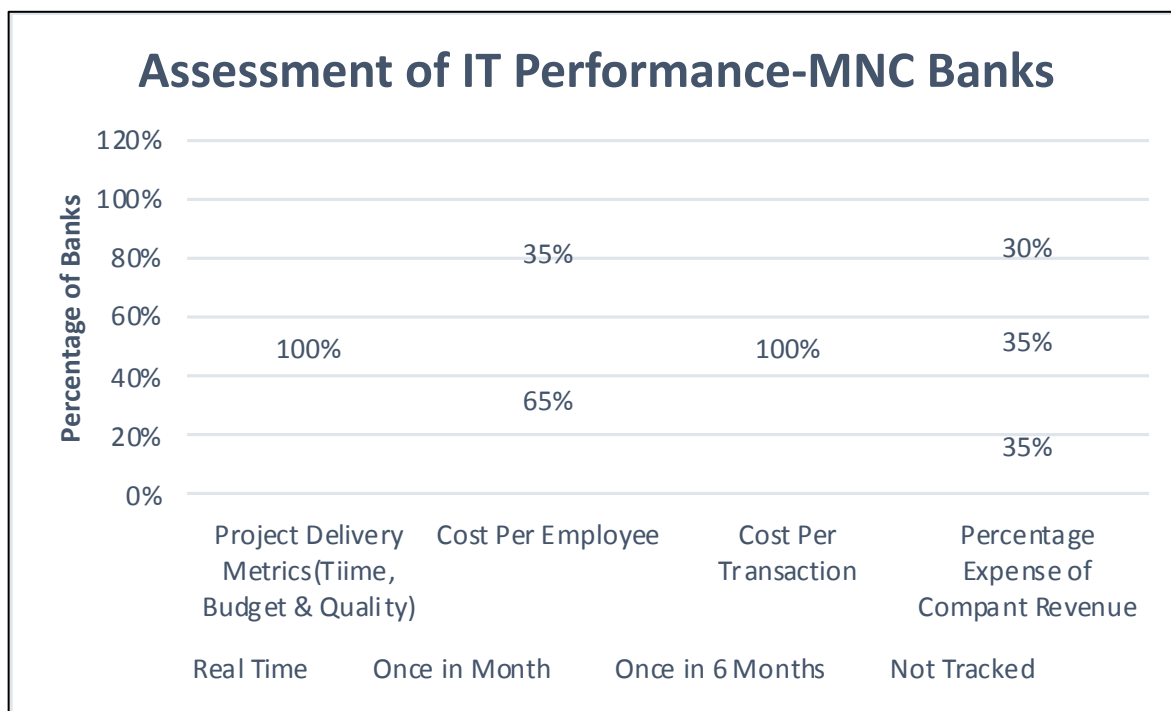


Fig. 7: Assessment of IT performance-MNC Banks, Source: KPMG Report, Banking on Technology – India



CONCLUSION:

IT industry (i.e. Information technology industry) has no uncertainty it differentiate saving money. In today era saving money is re-imagined & re-built through the utilization of Information Technology and it guarantee that the fate of managing an account will offer more complex administrations to clients with the steady item and process advancements. Along these lines, there is an example move from merchant's market to purchaser's market. In this way, banks additionally change the approach from "Ordinary Banking to Suitability Banking" and "Mass banking to Class Banking". In this way, banks are presently more focus on offering some incentive included the customer services. In any case, IT can be completely helpful just on the off chance that they empower to meet the prerequisites in the present condition. It is moreover need to keep up security and backup of data.

The role of Information Technology is most essential in the present situation. Indian banking system is one of the fast developing industry. Over the past years, banks depicted an extraordinary change by the introduction of latest technological solutions. The establishments of ATM network, increased use of Internet and Mobile phones and telecommunication technology have brought revolution in the various banking services delivered by the banks. Banks understood that the technology can assist them in achieving effective competitive position. Currently, banks are still creating awareness about the use of Mobile- banking, E-Banking, Debit and Credit Cards, Home and personal Loans, to guarantee demonetization in the nation, which will make the financial system transparent.

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