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Recent Trends of Technological Innovations in Indian Banking Industry

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ABSTRACT: *The banking sector in India has seen a number of technological developments since 2005. Customer service has become the basis for corporate advantage these days. Modern technology is essential for most banks to provide the quality services to customers. Therefore, banks in India have begun to take an innovative approach towards banking with the objective of creating more value for customers in the banks. Today we have electronic payment system along with currency notes. India's financial sector is moving towards a scenario, where it can have new instruments along with liquidity and safety. Arrival of card, introduction of Electronic Clearing Service (ECS) in late 1990's , introduction of Electronic Funds Transfer, Real Time Gross Settlement (RTGS), introduction of National Electronic Funds Transfer(NEFT), mobile banking, internet banking are the various innovations in banking. This paper examines the progress of new innovations in banking sector industry.*

KEYWORDS: Indian Banking, Innovative Banking, Financial Innovations, Technological innovations, RTGS/NEFT

I. INTRODUCTION

Indian banking sector has been witnessing tremendous changes after the introduction of financial sector reforms in 1991. The commercial banks in India have shed their traditional functions now and have been innovating, improving and coming out with new types of customer services to cater to their emerging needs in a more efficient manner.This sector has undergone a huge transformation in the years since Independence. The rate of transformation was particularly high in the 1990s and 2000s, when a number of innovations changed the way banking was perceived.Since the beginning of 21st century, the banking sector in India put greater emphasis on technology and innovation. The revolution in the field of internet has brought in another product at all services of the bank customers in India to be known as *core banking solution or centeralised banking solution*. Under CBS, the customers of Banks are authorized to transact the banking business in any branch of a bank which is covered under centralized banking solution. This system allows a customer to withdraw the funds or make any other banking transaction from anywhere in the country from any branch having CBS facility. Banks have begun to use technology to provide better quality of services at greater speed. Information technology has made it convenient for customers to do their banking from geographically diverse places which earlier remain uncovered.

Presently, the Indian banking sector is sufficiently capitalized and well-regulated. There are 21 public sector banks, 22 private sector banks, 44 foreign banks, 56 regional rural banks, 1,574 urban cooperative banks and 93,913 rural cooperative banks. Central bank granted approval to 4 payments banks and 10 small finance banks in FY 2015-16. The future of Indian bank looks not only exciting but also transformative. India's banking sector could become the fifth largest banking sector in the world by 2020 and the third largest by 2025. In future, technology will make the engagement with banks more multi-dimensional continue to develop and expand banking services. Indian banks deployed technology based solutions to raise revenue, enhance customer experience, optimize cost structure and manage organization risk.

Technological innovation is key to survival of banks in contemporary banking environment. The importance of financial innovation is widely recognized. Numerous bankers and scholars, including Miller (1986) and Merton (1992), have shown the importance of innovative technologies, products and services in the financial arena. Innovative ideas are manifest in diverse industries and in different forms. Since the beginning stage of financial modernization, innovations have been playing major roles in curtailing financial exclusions and improving the ways banking services are rendered to people. Financial innovation is one of the commonly used banking terminologies. It has been used to describe any change in the scale, scope and delivery of financial services.Theliberalization, privatization and deregulation of financial service industry has resulted into increased competition with in investment banking which hasfurther led to increased emphasis on the ability to design new products, develop better process, and implement more effective solution for increasingly complex financial problems.

Technological and Financial innovation is the process through which finance managers with the help of expert services of IT engineers or intermediary institutions in financial markets add value to existing plain vanilla products. According to John Finnerty, "Financial Innovation involves the design, the development, and the implementation of innovative financial instruments and processes, and the formulation of creative solutions to problems in finance". The innovations in banking are as follows: ECS, RTGS, EFT, NEFT, ATM, Retail Banking, Debit & Credit cards, free advisory services, payments of utility bills, fund transfers, internet banking, telephone banking, mobile banking, selling insurance products, issue of free cheque books, travel cheques and so on. Banks are banking on technology, as they are looking for new ways not only to attract but also to retain the customers and gain competitive advantage over their competitors. The banks like other business organizations are deploying innovative sales techniques and advanced marketing tools to gain supremacy. The main driver of this change is changing customer needs and expectations. Customers in urban India no longer want to wait in long queues and spend hours in banking transactions. This change in customer attitude has gone hand in hand with the development of ATMs, Mobile phone and net banking along with availability of service right at the customer's doorstep. With the emergence of universal banking, banks aim to provide all banking product and service offering less than one roof and their endeavor is to be customer centric. While banks are striving to strengthen customer relationship and move towards 'relationship banking,' customers are increasingly moving away from the confines of traditional branch banking and seeking the convenience of remote electronic banking. Information technology and the communications networking systems have revolutionaries the working of banks and financial entities all over the world.

II. REVIEW OF LITERATURE

Numerous studies have been conducted in recent years which have highlighted the growth, role, importance and challenges in the field of financial innovations and technological developments. Some of these studies which are frequently quoted are briefly reviewed in this part of the paper. Bagozzi R.P.(1974) focuses people's attention on the actual exchange process by re-interacting the fundamental economic concept that an exchange occurs only when both parties perceive that they are receiving value. Using a multiform (cross-sectional) database, Srinivasan and Moorman show that firms that invest more inCRM activities and technology have greater customer satisfaction. Other proponents show that if the firm performance is measured in terms of retention and customer satisfaction, there is a greater retention and satisfactionlevels for firms that have good relational information process in place. *Uppal* notes that more than other industries, financial institutions rely on gathering, processing, analyzingand providing information in order to meet the needs of customers. Hence there is a need for banks to adopt anautomated information processing technology. Services include Automated teller machines ATM's, smart cardshome banking, tele-banking, internet banking core banking-centralized database, only one sever HUB MIS managementinformation system quick accurate decisions, electronic clearing service across cities, bulk payments.

Avasthi& Sharma (2000-01) have analyzed in their study that advances in technology are set to change the face of banking business. Technology has transformed the delivery channels by banks in retail banking. It has also impacted the markets of banks. The study also explored the challenges that banking industry and its regulator face.

B. Janki (2002) analyzed that how technology is affecting the employees' productivity. There is no doubt, in India particularly public sector banks will need to use technology to improve operating efficiency and customer services. The focus on technology will increase like never before to add value to customer services, develop new products, strengthen risk management etc. the study concludes that technology is the only tool to achieve their goals. *Arora(2003)* highlighted the significance of bank transformation. Technology has a definitive role in facilitating transactions in the banking sector and the impact of technology implementation has resulted in the introduction of new products and services by various banks in India.

Bodla, B. S. (2004) examined and measured the service quality provided by commercial banks (both public and private) in India using the SERVQUAL instrument. This study brought out that actual service delivery by both private and public sector in India falls short of the expectations of customers on a large majority of the elements of service quality. Nevertheless private sector banks have an edge over public sector banks in terms of quality of service being offered to customers.*Mittal, R.K. &Dhingra, S.(2007)* studied the role of technology in banking sector. They analyzed investment scenario in technology in Indian banks but this study was related to the time period before the Information Technology Act and at that time technology in Indian banks was very low. But both the researchers nicely presented their views.

Padhy, K.C. (2007) studied the impact of technology development in the banking system and he also highlights the future of banking sector. The core competencies will provide comparative advantages. The research paper of *Seema Malik (2014)* focuses on how the technology has transformed the face of banking in India. India's banking system has seen some major financial innovations in the past decades which lead to tremendous improvements in banking services and operations. The various innovations in banking and financial sector are ECS, RTGS, EFT, NEFT, ATM, Retail banking, Debit and Credit cards, free advisory services, online banking, mobile banking and many more value added products and services.

The paper of *Bodla and Neeraj(2015)* highlights the benefits and challenges of changing banking trends. Banks are investing heavily in adoption of these innovations.This paper brings out the growth of e-delivery channels across commercial banks in India. The commercial banks are divided into four broad groups-Nationalized banks, SBI and its Associates, New Private banks and Old Private banks. For the purpose of this study growth of e-delivery channels have been taken for a fifteen year duration ranging from 1998-99 to 2012-13.SPSS (version 20) is applied for statistical data analysis. The findings indicated that the growth of e-delivery found higher during post e-banking period in comparison to post e-banking period.*ShetAruna R.(2016)* studied the technological innovations in Indian Banking sector and found that post liberalization has spread new colors of growth in India. Banks have to adopt a holistic approach to fulfill the ever changing needs of customers and to grab a better market share. Development of sophisticated products with low cost technology is the key. The better the banks understands their customers, the more successful they will be meeting their needs.

The above mentioned reviews indicates that the commercial banks banking have started adoptingvarious innovative schemes for furtherance of their business and to attract and satisfy their customers. This has resulted into their sustainability and keep their customers intact and build brand image even in the competitive environment. Further, technology is one of the important segments where maximum stresses are provided for dissemination of innovative ideas and it is observed that major innovation took place in this field in recent years.

III. OBJECTIVE AND METHODOLOGY OF THE STUDY

This paper aims to examine the progress of various innovative instruments introduced by banks in recent years.To achieve this objective, secondary data has been used. The secondary sources include various websites of internet such as www.rbi.org,www.wikipedia.orgalongwith review of earlier studies on the subject. The data has been presented in the forms of charts and graphs.

IV.PRGRESS OF TECHNOLOGICAL INNOVATIONS IN BANKS

Automated Teller Machines (ATMs):ATMs are widely used electronic channels in banking. ATM which is a computer controlled device, is operated by plastic card with its special features at which the customers can

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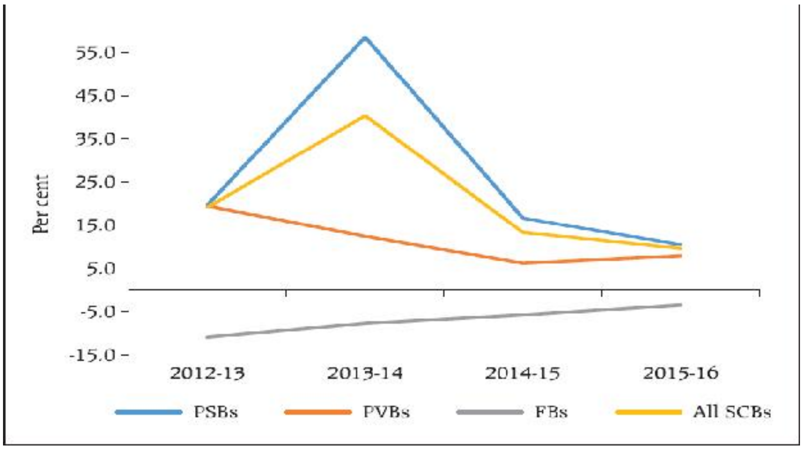
make withdrawals, check balance without involving any individuals. ATM can be interior (i.e., located in the branch premises) or exterior (located anywhere outside the branch premises).Chart-1 indicates that the geographic reach of ATMs has increased further as the number of ATMs installed increased to around 0.2 million as at end March 2016, an increase of 9.7 per cent over the previous year. PSBs maintained more than a 70 per cent share in the total number of ATMs. FBs, however, continued to post a decline in the number of ATMs.

Chart 1: Growth in the number of ATMs

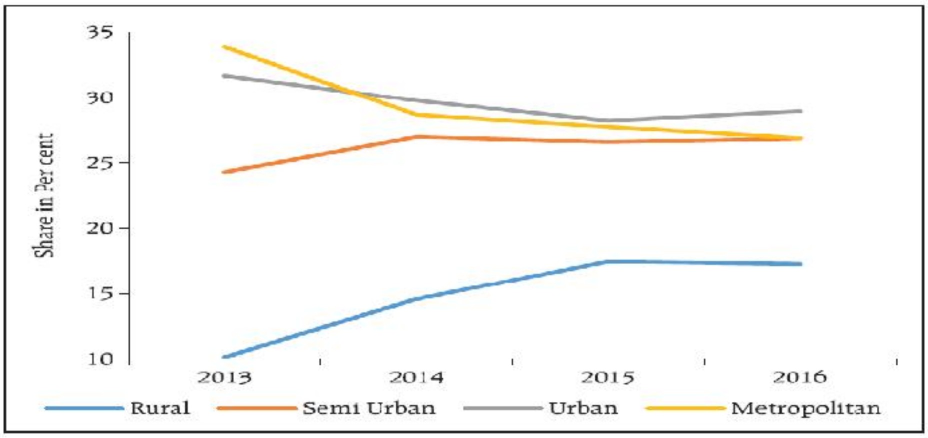


Source: Report on Trend and Progress of Banking in India 2015-16

Distribution of ATMs: Chart-2 shows that the Regional distribution of ATMs became more balanced with the share of metropolitan, urban and semi-urban centres in total installed ATMs varying between 26.0 per cent and 29.0 per cent. However, metropolitan centres witnessed a marginal decline in the share of ATMs to 26.9 per cent in March 2016 from 27.7 per cent during the previous year. Semi-urban and urban centres registered a marginal increase in their share of ATMs.

Regarding share of off-site ATMs chart 3 shows that more than 60 per cent of the PVB and FB ATMs are off-site ATMs which are set up on a standalone basis and not on the premises of a bank's branches. However, in case of PSBs the share of off-site ATMs is less than 45 per cent. During 2015-16, the share of off-site ATMs in total ATMs declined in every bank-group. Given that the Reserve Bank has allowed banks to offer all their products and services through the ATM channel, a decline in the share of off-site ATMs is a disquieting development.

Chart 2.: Geographical distribution of ATMs



Source: Report on Trend and Progress of Banking in India 2015-16

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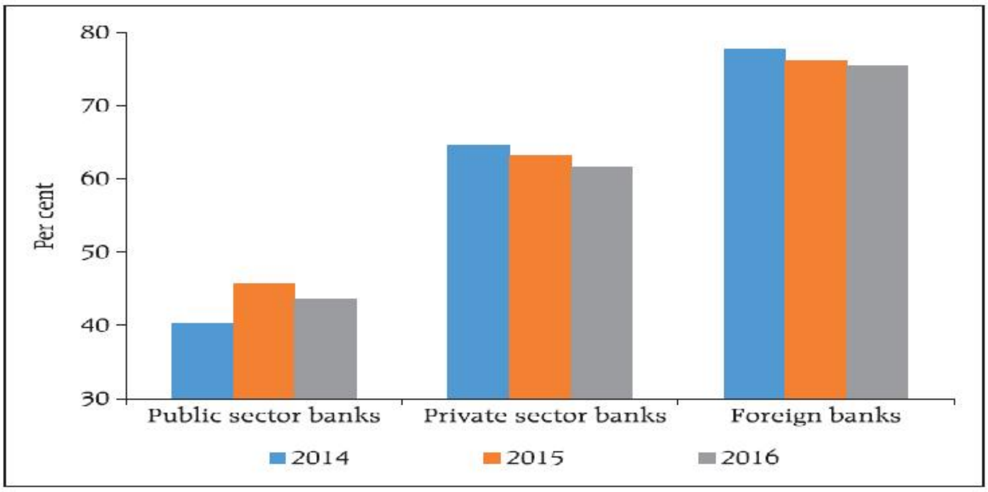
Chart 3: Share of off-site ATMs

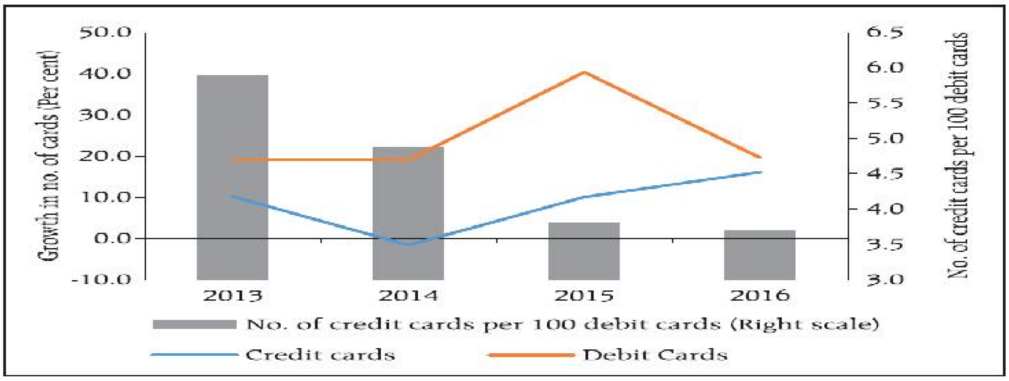


Source: Report on Trend and Progress of Banking in India 2015-16

"White label ATMswhich are owned and operated by non-bank entities, their number in 2015-16 has increased significantly to 12,962 from 7,881 during the previous year. This spurt in WLAs can be attributed to the entry of new players in the banking space such as payments banks and small finance banks which are collaborating with WLA operators rather than having their own ATMs to minimise costs.

Debit and credit cards: Debit card is a plastic card which provides an alternative payment method to cash when making purchases. Functionally, it can be called an electronic check, as the funds are withdrawn directly from either the bank account or from the remaining balance on the card.A credit card is part of a system of payments named after the small plastic card issued to users of the system. It is a card entitling its holder to buy goods and services based on the holder's promise to pay for these goods and services. The issuer of the card grants a line of credit to the consumer (or the user) from which the user can borrow money for payment to a merchant or as a cash advance to the user.Chart 4 shows that thegrowth in the number of outstanding debitcards decelerated sharply to 19.6 per cent in 2015-16from 40.3 per cent in the previous year. During 2014-15, the spurt in debit card growth was attributed tothe Pradhan Mantri Jan DhanYojana (PMJDY) underwhich every account holder under the scheme wasissued a RuPay debit card. As the growth in accountopening under PMJDY decelerated, this resultedin a decline in the growth of debit card issuances.However, credit cards registered increased growthof 16.1 per cent during the year as against 10.1 percent during 2014-15. The next chart(5) indicates bank group-wise,PSBs maintained a strong lead in issuance of debitcards with a share of 82.8 per cent. On the other hand, PVBs had a dominant position in credit cardissuances with a share of 60.1 per cent.

Chart 4: Trends in debit and credit cards



Source: Report on Trend and Progress of Banking in India 2015-16

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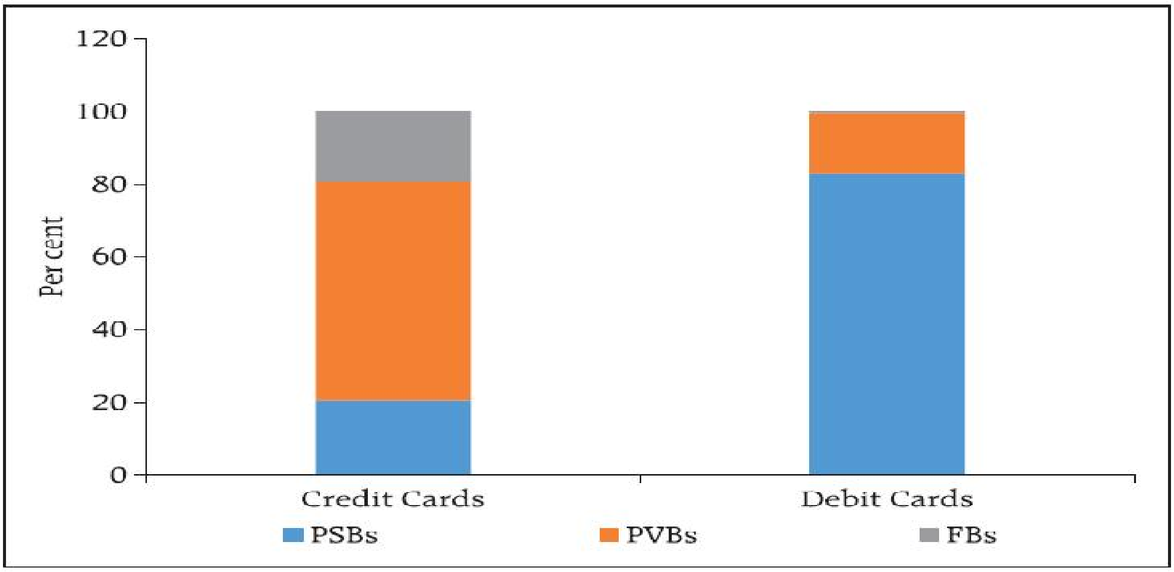
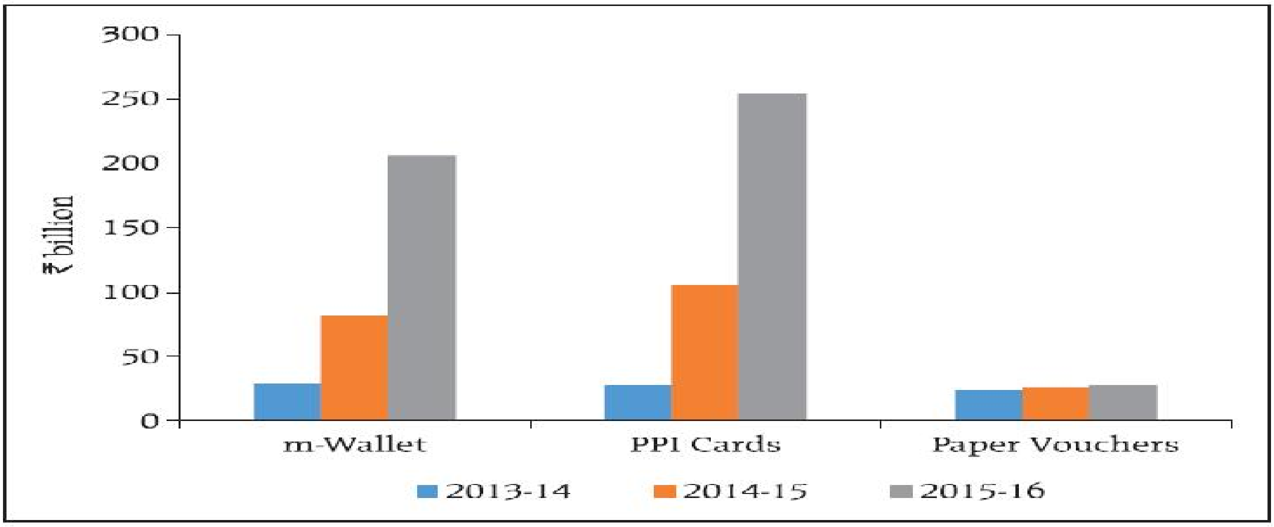
Chart 5 : Share of bank-groups in credit/debit cards



Source: Report on Trend and Progress of Banking in India 2015-16

Prepaid payment instruments: It is clearly obvious from chart-6 that due to greater use of prepaid paymentinstruments (PPIs) for purchase of goods and servicesand for fund transfers, the value of transactions bythese instruments has increased considerably inrecent years. Among the prepaid instruments, PPIcards (which include mobile prepaid instruments,gift cards, social benefit cards, foreign travel cardsand corporate cards) remained the most popularmode followed by mobile-wallets. During 2015-16,the value of transactions through PPI cards andmobile-wallets increased significantly to `254 billionand `206 billion respectively, against `105 billionand `82 billion respectively in the previous year.

Chart 6: Progress of prepaid instruments (value)



Source: Report on Trend and Progress of Banking in India 2015-16

Internet Banking: Internet banking is a service provided by banks so that people can find out information about their bank account, pay bills etc using the Internet. Internet Banking allows you to conduct bank transactions online, instead of finding a bank and interacting with a teller. In a broad sense, it is the use of electronic means to transfer funds directly from one account to another, rather than by cheque or cash.

RTGS: Real Time Gross Settlement (RTGS) is an electronic form of fund transfer where the transmission takes place on a real time basis. Here the words 'Real Time' refers to the process of instructions that are executed at the time they are received, rather than at some later time. On the other hand "Gross Settlement" means the settlement of funds transfer instructions occurs individually (on an instruction by instruction basis). The settlement of funds actually takes place in the books of RBI and thus the payments are considered as final and irrevocable. The attraction of RTGS is that the payee banks and their customers receive funds with certainty and finality during the same day enabling them to use the funds immediately without exposing themselves to risk. RTGS system, do not create credit risk for the receiving participant because they settle the each payment individually, as soon as it is accepted, liquidity risks remains, as well as the possibility of the risks being shifted outside the system.

NEFT: National Electronic Funds Transfer (NEFT) is an Indian system of electronic transfer of money from one bank or bank branch to another. Under NEFT, individuals, firms and corporates can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the Scheme. The funds under NEFT can be transferred by individuals, firms or corporates maintaining accounts with a bank branch. Even individuals not having a bank account can deposit cash at the NEFT-enabled branches with instructions to transfer funds using NEFT. However, such cash remittances will be restricted to a maximum of Rs.50, 000/- per transaction. Such walk-in-customers have to furnish full details including complete address, telephone number, etc. NEFT, thus, also help in transfer of funds even without having a bank account. This is a simple, secure, safe, fastest and cost effective way to transfer funds especially for Retail remittances. However, maximum amount per transaction is limited to Rs.50, 000/- for cash-based remittances and remittances to Nepal.

Electronic Clearing Service (ECS) : Electronic Clearing Service is a retail payment system that can be used to make bulk payments/receipts of a similar nature especially where each individual payment is of a repetitive nature and of relatively smaller amount. This facility is meant for companies and government departments to make/receive large volumes of payments rather than for funds transfers by individuals.

V. Conclusion

This paper indicates that the banking sector has improved manifolds in terms of Technology such as internet banking, use of credit and debit cards, payments through NEFT, RTGs and so on. The number of ATMs has doubled over the past few years, with more than 100,000 in the country at present (70 per cent in urban areas). They are estimated to further double by 2016, with over 50 per cent expected to be set up in small towns. Also, the scope for mobile and internet banking is big. At the start of 2013, only 2 per cent of banking payments went through the electronic system in the country. Today, mobility and customer convenience are viewed as the primary factors of growth and banks are continuously exploring new technology, with terms such as mobile solutions and cloud computing being used with greater regularity. However, Indian banking industry faced the numerous challenges such as increasing competition, pressure on spreads, and systemic changes to align with international standards have necessitated a re-evaluation of strategies and processes in order to remain competitive in this dynamic environment. Banks have to adopt a holistic approach to fulfill the ever changing needs of customers and to grab a better market share. Development of sophisticated products with low cost technology is the key. This calls for in- depth analysis of customer needs the market and competitor trends. This analysis plays a very important role in devising new strategies, products and services. Due care will have to be made while embracing technology and transforming traditional touch points to electronic ones, so that human touch with customers is also not lost. In the end, it can be rightly said that productivity and efficiency will be the watch words in the banking industry in the years ahead. Strategizing organizational effectiveness and operational efficiency will govern the survival and growth of profits; besides bringing changes in the mindset of the employees, which is imperative with the changing times.

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