

Infrastructure and its Impact on Digitalization Process- A review

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Abstract

The present paper is an attempt to understand the infrastructure and its impact on digitalization. This will help to undertake an empirical research related to digital transactions. In this regard the data collected is through secondary sources. The various variables identified through review will definitely help researchers do undertake research in different context, different research universe and with different respondents.

KEYWORDS- Infrastructure, digital transactions, ICT and Banking

Sharma (2011) The author discussed the impact of information technology on rural development. The paper also examines various ongoing projects meant for betterment of rural people. But there exists lack of transparency about government projects and initiatives. People of the rural sectors are also less involved with these projects. It is most important to create the awareness first and then implement the projects. But this is not the only issue which is hampering the technology led growth in the rural areas. The main issue is related to infrastructure. If we need to implement ICT projects, there is a need to create adequate supply of electricity, there is a need to create proper communication set up and many more. Unless and until these things are not developed these projects will not able to see the day lights.

Tripathi et al (2012) The authors discussed the role of ICT in creating supply chain infrastructure to sell village products in various prospective market. It is being seen that most of the villagers try to sell the products to local moneylenders and intermediaries. The process ultimately creates huge loss to the farmers. The normal practice is that moneylenders purchase the products at a lower price and sell those products at a higher price. The supply chain management system is not easy to create. It needs the support of communication system and good road infrastructure. But both the things are lacking in the rural areas. Most of the private players are developing their own supply chain management system just to tap the rural market potential. The government may go for PPP model to create the infrastructure facilities to bring the gap between urban and rural sector.

Bhuvana et al. (2016) The authors focused on role of information technology in implementing financial inclusion programme. The system is surely helpful to provide subsidized benefits to rural poor. The authors are identified three broad factors to determine the role of ICT in financial inclusion. These are individual factor, environmental factor and technological factor. The success of financial inclusion through ICT broadly depends on various sub parameters which may have a direct or indirect effect. These individual factors should be judged in a combined manner so that an overall impact may be generated. The positive impact should be judged in

accordance with the benefits sought. There is a perceived risk always associated with any kind of online financial transaction. The risk should be reduced so that consumers should get enough confidence. Creation of IT infrastructure is not an easy task, it needs proper manpower to implement, proper manpower to maintain. The most important aspect is finance which most of the government is unable to do. So, there is a need to build an well equipped system which may become helpful for all the stakeholders.

Ojong etal (2014) The authors examined the cash less economic system that may be implemented with the help of ICT. The growing nature of business needs proper implementation of ICT in a phased manner. The system should be unique in nature and it should bring desired outcome. The nature of the problem should be addressed properly. The government of various developing and underdeveloped countries should understand the basic benefits behind providing ICT benefit. But only creation of setup will not be sufficient. Along with it, there should be a linkage which needs proper attention. The basic idea is that it is not possible to develop the entire infrastructure by the government only. The role of other private sectors that have active interest in rural market may come forward. The joint collaboration may prove to be effective from the point of view of each and every stakeholder.

Chauhan (2012) The author discussed the role of IT in agricultural development and agricultural management education. With the help of IT application, normal farmers can access information to improve the productivity. It may help to provide information about agri input, modern age agricultural productivity and most importantly it can provide education to willing farmers who are ready to adopt new agricultural norms. The new concept may help to improve the productive activities. On the other hand e learning education system may help the villagers of all community to participate in it. Better knowledge is always helpful. There exists various area of specialization, viz. agro input, crop production technologies, agro processing, market support, agro finance and management of agro business. These are highly specialize areas where sufficient knowledge on relevant filed ultimately help the farmers. But creation of formal education system through which the delivery can be implemented is an area of concern. Formal education system will not able to do justice with these sorts of learning. It has to be more informative and practical oriented. Existing education infrastructure needs realignment in terms knowledge system and value addition.

Chavan (2013) The paper focuses on the role of information technology in emerging economies. The banking services have seen lot of changes and these changes were brought for the betterment of the customers. There is a problem of reach, if we see the expansion of banking sector; it failed to cover the needy segment of the society. Though, the traditional banking system is being replaced by online banking system, the gap remains to understand the new age banking system. Because e – banking system does not depend on the technology aspect only, it has a direct link with the sub sectors like electricity, mobile connectivity, internet penetration etc. The growth of these sub sectors are at nascent stage in most parts of the country. Apart from electricity, mobile connectivity and internet connectivity are far from where it should be. As a result of the same, the cross sections of the people are still not able to get the desired services meant for them. So, there is a need to develop the infrastructure

Rachna etal (2013) The authors highlighted on various mechanism through which online banking services can be developed and delivered. The mechanisms are important to develop a complete set of infrastructure. Facilitates, such as ATMs, debit card, credit card, net banking, and mobile banking etc., are acting as a backbone of online banking facility to deliver the services. The need of the hour is to make these services user friendly and there should be sufficient service delivery point. Only issuing debit card won't work unless and until there are sufficient number of ATMs to withdraw or deposit cash. This effort will not give any positive outcome.

Srivastava (2012) The author judged the possible impact of mobile banking services for successful implementation of financial inclusion programmes. Most of the unbanked areas are suffering from lack of reach and lack of awareness. The virtual banking system which may be provided with the help of mobile banking services may be implemented for the potential benefits of rural poor. The study was conducted by the author in two phases. In phase one, the author tried to find out the awareness about mobile banking services and in phase two the author tried to understand the possible contribution that the mobile banking facility may bring for successful implementation of financial inclusion programme. The result shows that the awareness level is significantly low about mobile banking services and its nature of operations. Moreover, reach of mobile services along with good internet connectivity is a problem. In some of the villages, though the facilities are there but, there exist lack of manpower from service providers' side, who can guide the people. If the facility is meant for a specific group of people then it should be taken into consideration that the group has less information about the technology. So, it is necessary to develop the training programme especially for the target customers.

Dhillon (2014) The author give importance on the usage of mobile banking as a solution for financial inclusion programme. Financial inclusion is a dream project of Government of India, where the objective is to provide financial services to each and every individual. The major problem that the people of rural India are facing related to inadequate expansion of organized financial services. The traditional banking services may not able to cater to wide and diversified need of the rural people. The sector needs special attention both in terms of type of products that are being offered as well as delivery mechanism. The government tried to improve the rural financing by establishing Regional Rural Banks (RRBs). But the banks failed to penetrate among the target customers due to its complex system. This also proves that the traditional banking system won't work atleast in rural areas. But, a new banking concept with the help of mobile phone is technically not feasible unless and until its real worth is being able to understand by the people living in the rural areas. On the other hand, the success of this type of banking system is entirely depends on the infrastructure provided by the third parties, viz the mobile service providers. If there service is not upto the mark, the new system may failed to work. The failure of a new system may affect the trust of the customers. So, adequate precautions should be taken before implementing the project even on a pilot basis. But, if the project is implemented properly then it will surely give a boost to financial inclusion programme.

John (2013) The author has highlighted some interesting facts about mobile banking system which may be the first step towards digitalization process. The author mentioned that nearly 18% of total banking penetration is in rural India. Not only that if we want to see the penetration of mobile connectivity, nearly 30% of the India's

new mobile phone connection is registered in rural areas yet nearly 200 million mobile phone owners do not have bank account. So, there exists a gap between availing banking services and mobile connectivity. The biggest advantage is that the customers are using the services but the same service is not linked with the banking services. There may be various reasons, but the essence of the story is that the market is ready what it all needs is a big push from all the stakeholders so that the digitalization process may get a momentum.

Gupta et al (2013) The authors identified and investigate the factors which affect the implementation of mobile banking and its impact among the customers. The mobile banking has various divisions. Most of the time it is a common belief that without internet mobile banking has no usage. But here the authors highlighted the small part of mobile banking i.e. sms banking as well. The objective is to provide smooth services to each and every customer. It may have various obstacles. Some may be related to psychological barriers that the customers are having and some may be related to technological barriers. Both the barriers are important to address. Psychological barriers can be removed by creating adequate promotional activities. But technological barrier is in the hand of service providers. It is important to see that the technology must be user friendly as well for smooth implementation of the system.

Ndlovu et al (2013) The authors highlighted the technology led growth that the financial service providers are trying to implement in Zimbabwe. The banking products meant for the rural poor are able to reduce the number of financially excluded people. Technology adaptation is a new thing and it helps to bring down unnecessary costs associated with distribution of services. It also helps to reduce the travelling time of service receivers due to distant location of organized bank branches. The rural people do not have to spend much time for banking transaction and in this way they are able to save the man hour. The system also become helpful for most of the small business enterprises as small credit or small value transaction becomes more viable. The small value transaction through mobile services may attract new business activities as it helps to make the business process simpler.

Bhosale (2015) The author discussed about the Indian banking industry. If we look at the Indian banking sector, it has seen many changes starting from pre independence era. During British period the banking industry mostly in the hands of private players and they often target wealthy sections of the society for business transactions. Over the period the industry has seen lots of modifications in terms of rules and regulations. Though, the bank nationalization took place to help the country and the people belong to the country to get the desired benefit of banking services but the much needed growth has not been achieved. Lack of vision about the rural market may be the primary reason for this. Technology surely has an added advantage but penetration of technology also depends greatly on the availability and simplicity of usage. Care should be taken in these two aspects.

Kaur et al (2015) The authors focuses on the recent trend of e – commerce business and its direct impact on online banking facilities. E – Commerce business first started in the metro cities because of wide reach and coverage of mobile and internet connectivity. Today the scenario is changed and India has become the most sought after destination in terms of market size and growth. But like any other business, the market participants also realized the hidden and untapped market is lying in the rural

areas. The slow but steady growth of consumer demand in the rural and semi urban areas are enough to attract the dominant players to enter in the market with full effort. But the e – commerce market transaction has a specific system which the buyers have to follow. The awareness about online payment through net banking or mobile banking, using of mobile apps for specific e – commerce companies etc. is needed. There is a gap exist in this segment. If the market grows then it will benefit the buyers as they will get product at competitive rate. But market coverage mostly depends on development of adequate infrastructure. If the linkage is not able to develop then it will failed to give the desired result.

Jayabal etal (2016) The authors discussed the challenges and opportunities of rural entrepreneurs. Any rural economy is based on agricultural sector and agriculture itself depends on monsoon. So, earnings from agriculture and agri – business activities are highly abnormal. The trend also discourages small time producers to invest in rural business activities. There is a need to tap the business potential not only in the agricultural sector, but non agricultural sector as well. It is important to identify the diversified business opportunities so that the people who are interested in it may get the idea about it. The process has some other hurdles as well. Lack of knowledge about market demand, market size, nature of the market, financial availability, technical expertise, technology adaptation etc. are some of the factors which may create problem for the business enterprises. If it is not possible to do the business single handedly, it can be done jointly as well. The business through Self Help Group (SHGs) can be pushed. Overall, business should get adequate support from each and every stakeholder for the smooth running of business venture.

Asthana (2014) The author discussed the progress of Indian economy. Before liberalization of the Indian economy, it was literally working in a close environment. The strong regulatory control, deregulation of various business policies, introduction of entrepreneurial campaign and technology led growth are some of the initiatives which helped the country over the time period and the fruits of the growth can be seen in various sectors. But even the economy grows; access to finance still remains a concern. Rural poor, still remains outside the formal banking system are suffering a lot in the hands of local money lenders. Neither they are able to access loan for various productive purposes nor are they able to get the government benefits. Government is trying to reduce the corruption by transferring the benefits directly in the accounts of beneficiaries. Various technological innovations helped to implement the system effective. But, the last mile linkage is not happening which somehow delaying the process.

Satpathy (2014) The author worked on a project to increase the awareness about Immediate Payment System (IMPS). The project was conducted in Nuapada district of Odisha. NPCI provides a service called Immediate Payment Service (IMPS) which offers instant, 24X7, interbank electronic fund transfer mobile and other channels (internet or ATM). Today, there are 59 Banks integrated to this service and IMPS is considered to be one of latest technologies in a/c to a/c remittance and mobile payment space, which is enabled across almost all Public Sector and Private Sector Banks. The report suggests that only creating payment infrastructure will not be sufficient. Proper awareness about financial literacy programme and usage of the system should be implemented first. NPCI is trying to provide maximum benefits of various financial products so that it may motivate the rural consumers to come forward and start using the services.

Srinivasan et al (2015) The authors described the role and nature of payment bank system. The traditional banking concept is already there but the term payment bank is relatively new and it has a different purpose. The normal banking system has its own constraints which may be handled by the payment banking system. The banks can take a small deposit of Rs.1 lakh maximum and liable to pay interest on that amount, other than this the bank may give loans, issue credit cards, debit cards and other value added services just like normal banks are offering. The objective is to achieve the financial inclusion. The existing set of branch network may not be sufficient to reach a wider area. Not only that non conventional banking system model is totally different from the traditional banking system and they are taking this as their sole business opportunity. If we look at the potential customer base, it is significantly high to attract the private players as well. In this way the government may able to bring investment to develop rural infrastructure.

Ahmed (2014) The author discussed the productivity of Meghalaya Rural Bank. Rural banks were established to develop a strong network of organized financial services which were being ignored previously. The concept was adopted exclusively for the rural consumers only. The products were also designed so as to meet the specific requirement of the rural consumers. But somehow the system could not work due to mismanagement of the operations. No effort was made for smooth and profitable functioning of the business. Productivity is an issue. The banks have lots of eligible staffs but they are not competitive enough to deal with the nature and volume of business.

Rajvanshi (2016) The author concluded that sustainable rural development is the way to create wealth and employment opportunities. There is a consistent problem of rural urban migration which leads to non availability human resources. Migration is a problem in most part of rural India. People tend to move from one place to other due to better job opportunities. There is a need to create rural infrastructure which may be able to absorb the people who else opted out for jobs in other places. But creating rural infrastructure is not an easy task; the technology should match the rural requirement. There is a possibility to invest and generate job opportunities in the rural areas in various sectors. It can be done in the farm sector or it can be done in the non farm sector as well. But technology adaptation should be the primary focus to fulfill the dream of creating rural infrastructure.

Sujatha et al (2014) The paper concentrates on rural non farm sector. Traditionally rural sector entirely depends on the agricultural sector alone and most of the incomes generating resources are coming from farm sectors only. But business opportunities are comparatively better in nonfarm sectors. The participation of private players in the non farm sector in an organized manner may prove to be remaining very vital. The improvement in technology and productive activities helps to produce quality product. The skill development is another area which may help to improve the performance of non – farm sector. Both the government as well as private players may take an active role in designing and implementing adequate training measures for the rural poor. These initiatives basically help them in the long run. It also helps to improve the income of the rural poor significantly. This is to be noted that people are going to save only when they have excess amount of money in their hand. If sufficient earning opportunity can be created then it may induce the savings. This chain of events should be developed for the overall prosperity of rural areas.

Rai et al (2012) The authors analysed the role of science and technology for development of rural areas. The technology helped to improve the income generating opportunities without affecting the environment. The authors identified 10 areas where technology led growth are possible. The areas are agriculture, energy, water, housing, biotechnology, information technology, space technology, technology transfer, women empowerment and employment. These are the core areas where employment opportunities may be created. The area specific development potential should be identified and adequate arrangements should be made so as to bring equitable growth for each and every individual.

Kushalakshi et al (2012) The authors discussed the importance of rural entrepreneurship to bring prosperity in the rural economy. Traditionally rural economy was based on agriculture and the rural infrastructure development was also related to agricultural sector only. In this process, most of the policy makers ignored other sectors which have a potential to grow. It may create dual impact on the lives of the rural poor. It may help to motivate people to stay in their own places. Thus, it may be able to reduce the rural to urban labour migration. But creation of business opportunities needs the help of other sectors as well. One of the important sectors which may play an influential role is financial sector. Unless and until financial sector is not able to grow, any other sector may not be able to grow due to lack of funding activities. The government subsidies if any may also help through direct benefit transfer mechanism. Thus, rural entrepreneurship programme is surely an important strategy to inculcate growth and prosperity among the rural poor.

Ranade et al (2015) The authors investigated the impact of information technology on the lives of rural poor. The sector has witnessed various initiatives for the betterment of the rural lives. Green revolution, industrial developments are some of the initiatives in this regard. But to achieve long term sustainability a big push is required. Only technology led growth may bring the desired changes. But the technology should be developed exclusively for the rural sector. Technologies which are part and parcel of urban set up may not be able to create equal impact in the rural areas. And it is relevant for each and every sector. So, there is a need to adapt technology exclusively for the rural sector.

Sharma (2016) Financial sector plays an important role in the economic development of a country. A strong and healthy banking system is an important requirement for economic growth. Indian banking industry, today is observing an IT revolution. A combination of regulatory and competitive reasons has led to increasing importance of total banking automation in the Indian Banking Industry. Information Technology has basically been used under two different avenues in Banking. One is Communication and Connectivity and other is Business Process Reengineering. Information technology enables sophisticated product development, better market infrastructure, implementation of reliable techniques for control of risks and helps the financial intermediaries to reach geographically distant and diversified markets. The shift towards internet banking is fuelled by the changing dynamics in India. By 2020 the average age of India will be 29 years and this young consumer base is internet savvy and wants real time online information. Indian banks therefore need to aspire high and move toward implementing a world class internet banking capability. The objective of the present paper is to examine and analyze the progress made by Internet Banking in India. The study is secondary based and analytical in nature.

Agrawal et al (2013) The authors discussed the challenges ahead due to technological innovations in the banking sector. The authors also analysed the changing nature of business of Indian banking sector. The customer centric business decision was a recent phenomenon for Indian banks and this has surely added positive image for the banks. Though, the customer centric approach was seen its momentum during liberalization of financial sector. After the introduction of private sector banking operations, the nature of business was seen a drastic change. The more number of services were added to improve the business opportunities. Technology adaptation is one such way to provide a better service. This has another angle as well. The policy is able to reduce the cost of operations as well. The reduced cost may help the banks to offer more services at a reduced cost. In the rural areas, this is very crucial as rural people love to get a organized financial services at a lesser cost as compared to unorganized financial resources which is significantly higher.

Shukla (2016) The author discussed the concept of smart village for the betterment of the rural people. The concept of smart village was introduced very recently where people are suppose to get all the value added facilities along with new age technology to deal with various services. Previously the concept was restricted to urban areas only because of the typical mind set towards rural villages. Later on the myths towards villages are slowly changing and as a result of the same the concept of smart villages are started playing an important role. The major driver of smart village concept mainly revolves around technology. The technology should play an important role for the betterment and development of the rural villages. The access to technology may help the rural poor to improve their productive activities. Simultaneously it will also able to help the people to access to new age banking and financial services. If the project is able to improve the standard of living then it may become a role model and the same concept may be implemented in other parts of the country as well.

Milovanovic (2014) The paper mainly focuses on the role of information technology in improving the agricultural productivity. The agro industry is growing at a faster rate and the same needs periodic improvement both in terms of productivity and marketing of the products that are being produced. It can be seen that the agricultural sector has the potential but only having potential will not going to increase the income generating opportunities. There is a need to improve the scenario. Information technology should be use for productive purposes as well as for marketing of resources. If both the things are not aligned properly then it won't able to bring justice to the system.

Chatterjee et al (2015) The authors mainly highlights on the issue that how far information technology may create developmental impact on the rural economy. The paper argues that the ICT led infrastructure will help the farmers to get more useful information's about productive activities and market conditions. It may be used to improve the skills of the workforce engage in various productive activities. Moreover, the farmers may be in a position to see the market price of the products that they are producing. This will definitely help to improve the bargaining power of them. Directly or indirectly the process may help to increase the income of the rural people. The increased income will help to bring organized financial sectors to provide value added services to the same group of who were previously been ignored.

Boateng (2012) The author discussed the potential of information technology to bring socio economic development of the rural poor. ICTs have contributed immensely to improve communications, deepen decentralization, and attract Micro and Small Enterprises (MSEs). ICTs have also contributed in automation of Rural Banks, networking, information sharing and the provision of ICT enhanced distance learning in the rural areas of Ghana. These are the initiatives which may help the rural poor to improve the livelihood. But there are certain issues which may affect the growth of the ICT. One of the major obstacles is electricity supply. Unless and until it won't be sorted out, the plan to implement ICT for the betterment of the rural poor will remain a distance dream.

Suresh etal (2015) The authors conducted a t test to judge the impact of various online payment system newly introduced by RBI in collaboration with various banks. The situation has seen lots of changes as compared to previous occasions. The benefits like RTGS, NEFT, and card transfer eventually make the entire payment system more transparent and smooth. The user friendly system and real time payment system eventually help to make the transactions more secured and timely. Any business decisions do not have to wait for lack of finance. Today access to finance is instance and people are using virtual financial system to conduct any kind of financial transactions. This surely helps to make the process easier. It is also able to save the time of doing physical transactions from bank branches. Less visit to bank branches basically help to reduce the operational cost of the banks.

Usman etal (2012) The authors discussed the impact of information technology on agricultural development in Oluyole local government area of Nigeria. The paper mentioned that finance and infrastructure development is must for the growth of the agricultural sector. Similarly adequate investment is required in developing ICT for the better productive activities in the same sector. The developments in IT infrastructure not only help to create better service for the rural farmers, it will also help to develop an integrated system where other benefits of government may be distributed. Most of the developing and underdeveloped countries are having the potential to build an IT based infrastructure but the amount of initial investment may be an issue. There is an opportunity in the rural areas as well. Any country can't grow without the growth of both the sectors. So, it is high time to be with the rural people and develop the required infrastructure. If possible the government may take the help of private players as well.

Annual Report, DeitY, GOI (2015) The Department of Electronics and Information Technology, Government of India, has started initiatives to make the digitalization process more simple and user friendly. The country is now moving towards a Digital solution where each and every citizen should get the benefits of Digital India as offered by the government. It is well understood that most of the people are not aware about the movement as the concept was new. But some amount of force mechanism should be implemented otherwise the general tendency are not in favour of the concept. One of the main thrust areas is to go for PPP model which may make the rural sector more attractive. Digitalization, of the entire system thus, may able to bring growth for primary, tertiary as well as secondary sectors.

JM Financial Report (2016) The report analyse the growing demand of Rupay card among the prospective users. The Pradhan Mantri Jan Dhan Yojana (PMJDY) has made the card more acceptable. The pushes from the public and private sector banks

as well as the acceptance of the cards by the merchants help the growth of the cards. The card payment has seen tremendous growth in India. The report suggests that over 95% of the total transactions are made through cash payment, card payment has huge opportunity. Though the penetration of card payment is slow, with the digitalization process the economy has seen a surge in usage of cards. There is a darker side of the system as well which should be addressed properly. The major problems which the semi urban or rural areas are facing are related to shortages of infrastructure support. These cards can't run on its own unless and until there is a mechanism for the same. The card needs an ATM machine to withdraw money from the respective bank accounts; the card needs terminal machine for making any kind of payment in any retail outlet, but the availability of the same is not there in most of the cases. These are the some drawbacks which needs significant improvement.

Concluding Observation

The present paper opens up the debate that digital payment system or creation of cashless system is no doubt a better option for any economy but the system has its own problems and one of the major problems is related to infrastructure are Lack of penetration of bank branches is a threat to digitalization process, Lack of penetration of mobile services may affect the digitalization process, Lack of penetration of internet based services may affect the digitalization process, Banks failed to provide adequate training to use the services due to shortages of manpower, Lack of ATMs to use the banking services is a problem for digitalization process, Lack of electricity supply may affect the digitalization process, High cost of mobile or internet usage is a problem, Poor local content and unavailability of instructional manuals in local languages is a major challenge for digitalization process.

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