CHAPTER 5

DISCUSSION OF RESULTS
This chapter forms a foundation for discussion of theory and accompanying it with relevant literature in order to bring a fresh perspective for enhancing diffusion of technology for financial inclusion in Rural India under MGNREGS. The results are derived from primary data. The exploration was in sync with the theme of the research and primarily an extension of the quantitative data. This technique is used as an extension of quantitative technique which would help in formation of a strong foundation in explaining the reasons behind the found factors for enhancing financial inclusion in rural India. This chapter discusses the reasons from the perspective of the users of Smart Cards for enhancing financially inclusive sector in rural India with respect to MGNREGS. The qualitative reasons aim to discover and identify factors and relate them with the results of the existing researches in the past by eminent researchers.

The results discuss the relation between perceived ease of use, perceived usefulness and their effect on behavioral intention. The chapter also discusses in detail the relationship between behavioral intention and usage of smart card under MGNREGS for enhancing financial inclusion. The chapter discusses the effect of demographic factors like gender, age, occupation etc and also encompasses the stakeholder analysis. The stakeholder analysis help in giving a holistic overview of the challenges and highlight the set of common challenges which needs to be catered at the micro and the macro level. The chapter also details the challenges faced at every step which needs to be resolved step by step in order to cater to the increase in enhancement of financial inclusion in the rural areas through MGNREGS.

5.1. Identification of ICT related Barriers to Financial Inclusion with respect to MGNREGS

This part overviews the barriers identified from literature and restructures them to cover the financial, social, technical and organizational challenges faced by the stakeholders in order to deliver the services using a Smart Card. Studies indicate that the barriers can be classified into various categories and special care needs to be taken into consideration for each of them in order to link them together and suggest a collective solution for the problem of financial inclusion of the country. The results in this chapter also suggest that technology diffusion is a function of roles of each of the stakeholders and thus it is worthwhile to note that each of the barriers which
are a union of problems of various stakeholders needs to be resolved at each end (Ellis & Biggs, 2001; Yag et. al, 2015). It is also important to cater the needs of the end users and create a harmony amongst the various stakeholders in order to regulate the process of smart card diffusion at the ground level.

The list of barriers derived from the qualitative analysis from the discussion with the various stakeholders indicate that the difference in their approach is practical and more of application based which contradicts the theory given by Technology Acceptance Model. The results indicate that there exist a handful of barriers which are in close proximity to the technology acceptance model (Park et. al, 2012). In lieu of the same, the model can either be revised for a set up like this or for a technology like Smart Card especially for an audience which is engaged in a public policy program.

The degree of importance of factors needs to be accounted which is follows the model of Demiguc and Klapper(2012). The degree of importance would help to target the issues accordingly by the respective stakeholders. These challenges and barriers with respect to diffusion of technology adoption for financial inclusion under MGNREGS are presented and explained in the following sections.

### 5.1.1 Accessibility

The results from the data analysis support the fact that technology diffusion is very high if the technology is readily accessible and can be easily reached (Musa, 2006; Davis et. al, 1989; Tella & Saka, 2014). This acts as an advantage to the end user at any given point of time. The results from the discussion also points out that accessibility proves to be a barrier at places where transportation is a problem and it is also invariably related to the perception of the individuals which supports the results by Alkins et. al, (2014). It was also found out that accessibility is relative for villages and also relative with respect to the banks, post offices or business correspondents. The results reflected in present study show that accessibility has a positive and significant effect on perceived ease of use. Although, this is one of the prime barriers found out from the literature, the restriction was somehow restricted towards perceived ease of use only. The perception therefore has been a function of many variables out of which accessibility is a
prime one. It is also found out that accessibility indirectly is dependent on the output quality of the respondents.

5.1.2 Technological Self-efficacy

The understanding and use of technology is multi-faceted. The results show a positive and significant contribution towards the development of behavioral intention which supports the arguments by Mun & Hwang, 2003; Holden & Rada, 2011, Lamb et. al; 2014. The results show that the incorrect entries for KYC documents are closely related to “lack of technical support for Smart Cards”. Although there are limited studies which relates the two dimensions, but the relationship was established in this study (Ivatury and Mas, 2008). The discussion with Bank officials and MGNREGS officials indicate that the design of “Smart Card” and the information fed in it is collected from different sources. This result in uniformity in the data and therefore the users faced issues in technical support for “Smart cards”. The results collected from the fields indicate that the there is a discrepancy in the data of the workers. The workers enrolled in the scheme complained that they faced a lot of concerns while MGNREGS officials were offering Smart Cards which were linked to their bank/post office accounts as well (Kapoor, 2014; Das, 2013). The workers faced issues regarding mismatch of information on the card and the database in the banks. This eventually leads to the delay in the withdrawal of their wages. The issues were in close proximity to the results from Kapoor (2013) which studied the impact of innovative technology on financial inclusion aspect of the country. Studies have also shown that the difference in caused due to coordination and verification of KYC (Subbortina, 2009; Rachana, 2011; Planning Commission, 2012).

5.1.3 Output Quality

The current research deals with interaction of technology with humans. Just like the performance of any machine is measured by its efficiency thus, in the following research efficiency has been equated to Output Quality. The research attempts to understand the relationship between output quality and other variables. “Lack of ICT infrastructure” is one of
the primary barriers which is identified from the study. The respondents also believe that “Technology Acceptance Readiness” which was a factor derived from literature and had a relationship the key constructs “Perceived Ease of Use” and therefore affects the “Output Quality”. The respondents have pointed out problems related to availability of smart cards while enrolling for MGNREGS. The business correspondents also reported failure of internet connectivity in certain areas which makes it difficult to engage the customer into a transaction.

The customers perceive that the business correspondents are unwilling to do a transaction, while the real scenario is lack of infrastructure of ICT which is responsible for the same. The issue of ICT was also reported by MGNREGS officials who need biometric scanners at the work site. The concern was raised especially in Srinagar, Ajmer where the workers were not paid as the records indicate that there was no work done. The machines were then replaced with immediate effect, but the workers were not paid for their work which led to a steep dip in the interest and trust levels. The results therefore indicate the effect of lack of ICT infrastructure on the level of trust of the individuals. It is also important to understand that the degree of trust is also a continuous function of the degree of uninterrupted services provided by the service provider (Kesharwani and Bisht, 2012). The results also found a causal relationship between the infrastructure and the perceived ease of use and accessibility. The users of Smart cards narrated incidences where the post offices were not able to give those cash and the reasons given to them was “computer” or “internet” not working. The rural setup of the infrastructure with respect to hardware and software has always been a concern and the results are almost replicated in this study as well (Rao, 2008; Sharp et. al, 2002). The field results also indicate that in the absence of basic infrastructure the users were skeptical on trusting these financial bodies to save their money. This leads to immediate withdrawal of the money from the financial system as it might result in a fraud due to lack of infrastructural failure. Handful of studies indicates that technology and its limitation as a factor for a fraud especially in the rural areas (Green and Choi, 1997; Sharma and Panigrahi, 2013).

The results also majorly pointed out a problem corresponding to “High turnaround time for resolving of issues and distribution of Smart cards”. The maintenance of grievance register was not appropriately done in most of the villages located in different blocks. The challenge was not restricted towards existence of a register like that, but towards the time taken to follow up
regarding a problem. The turnaround time for disbursement of smart card and resolving technical issues for it was even discussed by officials of MGNREGS. The officials also hinted that there is a cell for grievance management but the efficiency of the people working in it is not good. The discussion also indicated that there was a lack of symmetry in terms of offering of technology providers (Sarbavidya and Karforma, 2012; Singh et. al, 2015). This also led to change in the management of issues raised by the end users. Although the end products offered by the technology providers were same, the output of quality was not the same. The difference in quality led to variation in the quality of services as well (Manoj, 2010). It was also found in Kenkri that the service provider of PoS machine did not have enough manpower to resolve the issues arising in the machines. This has led to a dip in the interest of the end users to rely on the technology and a general belief is non usage of smart cards for financial transactions. Such incidences have lowered down the expectations of the workers on the banks and the financial systems and they believe that earlier versions of the job cards were better (Ahuja et. al, 2011; Manoj, 2010).

The issues were also related to connectivity issues in the rural areas as PoS works on the mobile networks and transactions happen using an internet connection. This concern was also rated as one of the very high concerns by the stakeholders especially Business Correspondents and bank managers. The integration of debit card with Job cards into a Smart Card is a modified version of the RFID technology with extra information fed in by the banks and MGNREGS. The concerns raised by the business correspondents with respect to poor internet connectivity and mobile networks lead to cancellation of transactions or delay in the transactions. Cases have also been discussed across different villages regarding the money being deducted from the account without generating a slip of confirmation at the PoS (Malhotra and Singh, 2007; Gupta, 2008). This has lead to disinterest amongst the users of Smart Cards in the rural areas. The concerns coincides with the earlier studies done by Kumar and Gulati (2014) where network concerns was found to be a primary reason for low level of online transactions. The results also support the study by Ravikumar and Maran(2013) which proves the rate of diffusion of ATM cards and m-banking for financial inclusion is proportional to the sum of teledensity of the network in a region. Although networks concerns are not high in urban areas but this is a grey area in rural regions.
5.1.4 Response Time

The results found out that people can have a better experience with technology if the response time is quick. Further, the turnaround time taken should be as low as possible. Thus, the willingness and degree of usage is dependent on Response Time (Edmunds et. al, 2012; Yang et. al, 2012). “Lack of connectivity of telecom and internet” was also considered a vital challenge in the rural areas. The discussion with the Sarpanch gave a different set of ideas with respect to the same. The Sarpanch of Bhinai and Massoda took special initiatives to enhance the outreach of telecom networks and the results were positively skewed in these cases and users had hardly faced any problem in making a transaction. While, others were not proactive in handling the concern of telecom networks as according to them, it was not their responsibility. The banks and post offices on the other hand pointed that they were able to continuously provide support to the customers. The manufacturers of the hand held devices pointed out that they did not design any special instrument for catering the need of the customers. The tender of manufacturing the hand held device was different for different blocks of Ajmer which lacked the uniformity as well.

The quality of the hand held devices were not of supreme quality as the tenders needed the requirements to be settled in a bare minimum cost (Wyche and Murphy, 2013). The connectivity therefore is not only the concern from the telecom’s end, but also from the end of the receiver. Earlier studies have not pointed out reasons from the perspective of the telecom companies which have resulted in low rural teledensity (Kpodar and Andrianavo, 2011; Merritt, 2011). The results from collected from the government officials also confirms that the tenders are more of cost based rather than purpose based which distinguishes the quality of the output (Zilber, 1964; Kochhar, 2009).

“Incorrect entry of KYC documents” is a resultant of devices used to collect the primary information about the workers. Complain from the MGNREGS workers included discussions around the fact that the switching from basic job cards to smart cards incurred a lot of issues. The switch took a lot of time as facilities like Aadhaar card need to be integrated and other subsidies as well. This resulted in submission of “Know Your Customer” details again which was not available with a lot of workers. The bank account and post office accounts opened by the workers needs to have updation of their KYC details again and most of the accounts were then
opened without submitting all the relevant documents. The updation in the technology lead to an increase in the number of workers who need to arrange the relevant identity proof and documents to access using Smart cards. This lead to a decrease in the number of workers owning Smart cards and therefore the benefits availed by them. Moreover, it was also found out that the photograph and the details printed on the cards were incorrect which lead to a further delay in using the cards. Some cases in Bhinai block were reported which indicated that fingerprints were not matching the records of the customers and therefore withdrawal of money was delayed due to incorrect matching of the details. The results were similar to the previous results pointed out by Rachna (2011). The results also indicated a similar concern raised by Agrawal (2008) which pointed out that the degree of concern is high in the rural areas and especially for the government agencies. The private sector on the other hand had a less degree of challenge faced in terms of handling the databases of the customers. Thus, the research results indicate a continuous pace of the results wherein the public sector banks, post offices and government agencies are responsible for developing a conducive atmosphere for enhancing the financial inclusion in the country. Earlier studies have derived incorrect KYC documentation as one of the key barriers in development of trust and thereby leading to a decrease in the level of participation of the customers. This makes the pace of financial inclusion sluggish.

5.1.5 Terminology clarity

The results found out those users who were more exposed to smart cards intended to have more clarity. The clarity was also high for those who were closely linked to interactions with business correspondents. The results reflect the affect of terminology clarity with perceived ease of use which is evident and supported by previous researches in this area as well. Terminology clarity has a positive and a significant role in developing and evolving the perception of the users and thereby changing the behavioral intention of the users towards smart cards. The intention of use smart cards for women seemed a bit low and the relationship was not significant between terminology clarity and output quality for women as they tend to forget the terms too often.


5.1.6 Trust

The results indicate that trust has an equal role to play towards perceived ease of use and perceived usefulness which is an unlikely result when compared to previous literature. The results also reflect that in rural areas where the end users have not been exposed to technology and banking services, the challenge is to create sync between the two for acceptance of a technology. Often, this stirs a sense of apprehension, as the unfamiliar technology would have a direct impact on the earnings of the user. (Venkatesh & Davis, 2000). As a result of the above, trust becomes an important factor in the study. “Lack of user trust on Smart Card Technology” is also classified as an important barrier by the stakeholders. The smart card users justified that their saving habits in a bank or a post office was not developed because the incidences in the past highlighted the interaction of human with machines and the blame was largely on the technology. Focused group discussion also reveals that network issues were a concern pointed out by the business correspondents as well. The compatibility of the hand held device was based on internet connectivity. Most of the villages have an outreach of telecom networks but a handful of them still have a limitation in the variety of networks and therefore the usage of hand held device becomes a challenge (Parikh, 2006; Singh et. al, 2010; Wyche and Murphy, 2013).

5.1.7 Lack of Awareness

The concerns raised by the stakeholders primarily indicate “Lack of Awareness” as one of the primary concerns which has made the rate of diffusion sluggish. The users employed under the scheme of MGNREGS indicate that they were not aware of the uses and benefits of “Smart Card”. Most of them were confused between the existing “Job Card”, “ATM Card” and “Smart Card” which was also found out by Poorna et. al, 2015; Das et. al, 2012; Afridi and Iversen, 2014; Patidar and Gupta, 2012. They could not differentiate between the three types of cards. The belief of the users towards the new technology was that it helps reduce tedious process while making a transaction. The users experienced problems in understanding the features of “Smart Card” after they were launched (Patidar and Gupta, 2012). The general review of most of the focus group discussions was that none of the stakeholders encouraged a sense of
awareness about the technology. The concern was also raised towards informing the users about the grievance issues of the card. The users brought into light the fact that the initial days of the launch of the card lead to a lot of issues related to transactions, security, availability of the business correspondent etc. but they were not addressed by either MGNREGS officials or bank officials.

The level of awareness was found to be pretty low in terms of addressing or raising a concern regarding non-functioning or malfunctioning of the card. It was also noted that the officials of MGNREGS poorly maintained a register to record the issues of the individuals. The concerns were not resolved in a stipulated time period and although the officials say the concerns were to be resolved in a time period of 15 days, there was no such proper proof of the same apart from a few studies (Khera, 2011; Bhatti, 2012). The user who lodged a complaint against the functioning of the card was not given any token number or unique tracking number where he could track the issue. The field notes and discussion with the Gram Panchayat also supported the fact the as the workers were involved with two primary stakeholders- banks and MGNREGS, Gram Panchayat had no/limited role in making the audience aware about the advantages.

As the services offered by “Smart Card” were unique and there was no competition for the same, there exists a monopolistic market which would then make the service provider the most powerful person. The end users had no other option but to use “Smart Card” technology and its services to ensure their wages for the work they do. Awareness therefore, forms the key step in making the base for efficient and flawless disbursement of wages and linking subsidies to the bank/post office accounts. Previous researches have also focused on the fact that awareness is the most important enabler for diffusion of a new technology especially in a scenario where the audience in not highly literate (Kumar, 2014; Sharma et. al, 2014; Mansoor et. al, 2012). A handful of people were curious to know about the features of the card and took efforts to discuss it with the MGNREGS officials and banks/business correspondents’. Awareness is a ongoing activity which needs to be done on the right manner keeping in mind the kind of audience, their level of understanding and most important their willingness to use a particular technology (Simon et. al, 2015). Studies have also indicated that degree of awareness also depends on the geography of the region, mental ability of the respondents and the level of familiarity of the users with respect to similar kind of technologies (Adhikari and Bhatia, 2010; Gupta and Ahmad,
There was some training sessions conducted for women adopters of “Smart Card” by Aganwadi in most of the villages.

Results also indicate that Awareness camps were organized by NGO in some areas of Silora and Bhinai but the duration of the same was limited. It was also noticed that the content delivered in the awareness camps were focused primarily on usage of banks and towards saving habits and not towards usage of technology to integrate their savings and thereby contribute to financial inclusion. The banks on the other hand also conducted some training, but those were limited to their customers. The broad theme was more towards savings as before which minimized the effect of usage of “Smart Cards”. In some villages in Srinagar, it was found out that the BC’s and employees of Post Offices were unaware about the complete facilities offered by a Smart Card. It is therefore important to understand the reasons behind the lagging nature of awareness campaigns (Gupta and Ahmad, 2014).

An exploratory field analysis for finding out reasons indicated that government agencies and technology providers do not outsource this activity to an agency. A similar problem is being discussed by a lot of other researches (Odendaal, 2003; Archer et. al, 1998; Neu et. al, 2006; Boyer and Ponce, 2012). The interrogation with MGNREGS officials resulted in finding out results which pointed that MGNREGS has no such directives in the scheme to make the audience aware of the change in technology. This weakens the argument made by Raabe et. al (2012) which indicates that MGNREGS is uplifting the financial and economic status of the country and contributing towards solving the problem of financial inclusion.

Another challenge which evolved from the discussion is with respect to the benefits of “Smart Cards”. The group discussion with the participants focused on the fact that the benefits of the technology were not discussed. The users were not aware of the subsidies incorporated with the “Smart Cards”. The respondents from Silora and Masooda discussed that they were not even informed with respect to the facilities and the subsidies like linkages with Adhaar card, incentives on manure and fertilizers etc. This also weakens the argument made by Ambasta (2012) which included the refinement of knowledge through advancement of technology. Technology on one hand is increasing the ease in accessing information but the limitation still lies with the fact that the methodology of awareness is limited to a section of people. Research also supports the argument that knowledge transfer is slow and sluggish for people with less or
limited educational background (Borah and Bordoloi, 2014; Farooquee, 2013; Ahuja et. al, 2011). A similar relation is seen in the present study as well. The villages where the employees under the scheme of MGNREGS were low in the level of literacy had a high value of the incomplete information given towards features of Smart cards.

5.2 Discussion on relationship between variables

The results also pointed out some other concerns which were minor in nature but are of high importance when compared with studies done in the past. Also, the combined effect of these minor variables may be a bottleneck in the progressive rate of diffusion of Smart Cards and indirectly affecting the financial inclusion of the country. Studies by Chopra and Sherry (2014) indicate that minor concerns if neglected at an early age might lead to a problem in the long run especially if we are dealing with problems in rural areas. This section gives a brief overview of the behavior of internal and external factors on Behavioral Intention towards usage of Smart Card under MGNREGS for financial inclusion.

5.2.1 Effect of Profile variables

This section studies the relationship of demographic variables like gender, age and occupation on the behavioral intention of users and rate of adoption of smart cards.

- **Effect of Gender**

  Gender is a major concern which restricts the growth of smart card usage. The results distinguish the rate of adoption of Smart Cards for financial transactions made by men and women. The results support that women use Smart Cards more than men for making financial transactions than men which support the study conducted by Chopra and Sherry (2014). Exploratory analysis of present study gives us a clear idea about the engagement of women in self-help groups and the dealing with money intensively than men which is one of the reasons. The intention to save is also on the mentality of women than for men and therefore the results indicate a skewed picture of women using Smart Card more than men.
It was found out that financial transactions are handled by the females counterparts in the family as they tend to work primarily under the scheme of MGNREGS while their male counterparts either work in the fields or move out of villages to earn more money. This invariably makes females proactive and comparatively more knowledgeable in terms of financial transactions. This supports the argument made by Holmes et. al (2011) which focused on gender inclusiveness and financial inclusion in rural geographies. The argument can also be supported by the fact that MGNREGS has a policy to include minimum one-third of the female workers under the scheme. This slowly makes a value proposition for the females to learn about financial transactions and if trained, they might be better trained and well equipped with knowledge and awareness of technology and contribute towards financial inclusion (Shah, 2012; Sugapriyam and Prakasam, 2015; Bhatia et. al, 2012).

Although, some of the challenges faced by women explored in the study are concerns of Business correspondents being males which was also pointed by study by Pellissery and Jalan (2011). This limited set of interaction if done by the females restricts them to do transactions during the daylight. The cultural barriers therefore act as a speed breaker in the progress of the rate of diffusion of technology and financial inclusion as well.

- **Effect of Age**

The study measures the effect of age on rate of diffusion of Smart Card under MGNREGS. The results indicate that young people tend to have a habit of saving more and using Smart Card technology for undertaking financial transactions as compared to older people. Older people were found to technologically challenges and had a low willingness to learn and adapt towards new technology. The results also reflect that as age increases, the tendency of adoption of Smart Cards for financial transactions also reduces. The results also shows that the elder people withdraw the entire money at once they receive it and barely keep any balance in the account, which saves them to use Smart cards multiple times for undertaking financial transactions. An exploratory study found out that the habit towards not saving in banks and less exposed to technology in their early age makes them behave in such a manner.
• **Effect of Duration of Work under MGNREGS**

The discussion was also steered in a direction by relating the tenure of work by an individual under MGNREGS and their knowledge and awareness about various changes made by the government in terms of disbursement of wages and linkages of technology and banking sector. De Neve and Carswell (2011) indicated a positive correlation between average days of work in a calendar year and level of awareness in Tamil Nadu. A similar relationship although not studied, might be interesting to strategize the awareness activities. A similar study was conducted by Das et. al (2012) which measured the level of variations between the average number of transactions made by an individual using technologies and the saving behavior. This study if extended can lead to results which might be interesting as Smart Cards are its early phases of launch.

The results with MGNREGS officials also intrigued a different angle of thought. The level of contribution towards the financial inclusion is dependent on past history of their interaction with the financial system. The MGNREGS officials pointed out that the tendency of people who already had bank/post office accounts or were indulged in microfinance schemes etc. tend to be more questionable when compared to others. Although, such a correlation was not studied earlier by any of the study based on MGNREGS, the study would have a strong validation if supported by relevant data.

5.2.2 **Effect of External Agents on Variables**

• **Effect of Role of MGNREGS Officials**

This section of the analysis is a spotlight on the issues and concerns raised by the officials of MGNREGS. The viewpoint of the problems with respect to them gives an overview of perception of the government employees. Chaarlas and Velmurugan (2012) refer to the concerns raised by government officials inclined towards a much more biased approach. On a parallel note, Pellissery and Jalan (2011) believe that government officials pose a picture of the real India as they are workforces for policy makers. The clash of ideas makes this discussion an important one. The discussion results from the fields hint issues related to lack of education and willingness to learn and adopt new technologies. The MGNREGS officials also believe that the workers do
not posses their basic identity which is why switching from a contemporary technology to an advanced one will be a concern. Past experiences about launch and success of technologies under MGNREGS have concentrated on challenges like awareness which even the MGNREGS officials agree upon (Chaarlas and Velumurgan, 2012; Nair et. al., 2013; Manoj, 2010; Prasher, 2014; Jhamb, 2014). The concerns were also towards inculcating a sense of saving money in the banks and regularity in transactions. Prasher (2014) proved a causal relationship between level of trust of workers on MGNREGS officials and rate of diffusion on a technology in Andhra Pradesh. It was also clear that even though the officials genuinely wants to help the workers with respect to their participation in the financial sector, the degree of trust which has been lost due to past activities cannot be regained quickly. The MGNREGS officials also believe that banks need to get in sync with the customer and their mindset in order to deal with them and understand their mentality towards saving patterns. According the officials, MGNREGS is offering jobs and wages in lieu of it and that according to them is what the basic idea of the scheme is.

- **Effect of Role of Bank officials and Business Correspondents**

The next segments of stakeholders which are actively are involved in the process of enhancing financial inclusion is a bank employee in coordination with business correspondents. Banks have always been an integral part of the financial system and integration of banks with public policy programs have been an area of interest by a lot of studies (Gupta and Ahmad, 2014; Gandhi, 2013; Mas et. al., 2012; Arora, 2015). This sub section covers a holistic viewpoint of various bank managers, employees and business correspondents towards the challenges faced by them to successfully deploy technology and services from their end. The process of disbursement of wages is done either through a bank or post office. The regular inclusion of new workers regularly keeps adding to the burden on the existing infrastructure of the bank branch. The branch also faces crunch in terms of human resource to handle the accounts of extra MGNREGS workers most of which become dormant. The rate of sustainability of these accounts is on an average 12-18 month (Gandhi, 2013). Beyond this time, these accounts act as Non performing assets (NPA) and therefore a liability for the banks. The concern is also towards the issue of “Smart Card” which is a technological service offered by the bank in sync with Ministry of Rural Development. The launch of these cards ideally would have reduced the work load on the officials of bank, but to the surprise the work load has increased multiple folds. The issue, loss
and renew of cards due to incorrect information incurs cost which is at times not given by the users. As the job cards are linked with ATM cards, the issues need to be resolved at the level of banks as well. The discussion with the bank managers indicate a primitive thought which the users are following. The concerns are also towards the frauds happened due to lack of technical stability and network concerns. The past have a high impact on the mentality of users towards banking sector. Previous researchers have also affirmed that the healing time taken by the rural respondents against a fraud is comparatively higher than for an urban user (Cox and Kousser, 1981; Ginneken, 2003; Ledgerwood and Wilson, 2013). Thus, launching a similar technology would have apprehensions in the minds of users.

5.3 Empirical Analysis

This sections aims to elaborate and explain the results derived from the framework used and aims at discussing the objective of “Developing a conceptual framework with the variables to enhance the diffusion of Smart Card for financial inclusion under MGNREGS”. This section studies the relationship of dependent variables and independent variables with proper justifications from the field interviews and focused group discussions. This section also imbibes relationship between qualitative and quantitative studies and integrates the horizontal and vertical parameters for the two aspects thereby aiming at a holistic idea of the research.

The research developed a framework to integrate the dependent and dependent variables. The framework broadly represented an idea with perceived ease of use and perceived usefulness impacting behavioral intention and eventually usage of Smart Cards to enhance financial inclusion in Rural India. The developed framework was an extension of Technology Acceptance model with a fresh perspective of variables to understand the dynamics of financial inclusion through acceptance of “Smart Cards” under MGNREGS. The following section discusses the employed variables and their relationship with other variables to understand the linkages between the results and the existing theories from the literature review.
The measurement of acceptance of any technology is related and calculated keeping in mind the level of usage and the diversity of usage with respect to their target audience and variety of its use. Therefore, level of usage is one of the most important indicators which have been identified from the existing literature. The derived framework for the existing research gives a clear indication about the same. The results confirm the hypothesis that there is a positive effect of adoption of smart card and level of financial inclusion of the country.

Self-reported usage measures have often been used in ICT research to operationalise system usage, particularly when objective usage metrics are not available. With regard to the TAM research predicting new ICT acceptance, usage is often measured by Behavioral Intention (BI) (Mathieson, 2001). Thus, this research considered ‘intention to use’ as the dependent variable, rather than actual use, for the reason that in the original TAM, PU and PEOU were postulated to have a direct relationship with BI but not with actual use. This is also consistent with the findings of a number of previous research studies (Davis, 1991; Gefen and Straub, 2000; Jarvenpaa et. al., 2000; Shih, 2004). The framework proposed in this study helped to explain the overall relationships among the predictor variables and the outcome variable i.e. behavioral intention to use of Smart Card for financial inclusion.

The results reflect that a total 45.7 per cent of the variance in the Behavioral Intention to use was explained by predicting variables i.e. “Perceived Ease of Use” and “Perceived Usefulness”. The results reflect that there is almost an equal percentage of share of contribution between the two predictors thereby making both of them strong and important variables which affects Behavioral Intention. Among these direct predictors of Behavioral Intention, Perceived Usefulness was found most significant determinant when compared to Perceived Ease of Use. However, it is also found that there are four variables which affect Perceived Usefulness. While the final framework dropped two variables i.e. “Accessibility” and “Terminology Clarity” thereby sticking to only two variables affecting “Perceived Ease of Use”. The next section presents a detailed discussion about results of hypothesis and hypothesized relations.
5.3.1 Relationship between Perceived usefulness and behavioral intention to use

The results found out that perceived ease of use and behavioral intention were found to be positively and statistically significantly related. This suggested existence of a positive effect of the usefulness beliefs on the behavioral intention to use a smart card technology. As such, this relationship was accepted. This hypothesized relationship was drawn from the original technology acceptance model (as described in chapter 1). As implied in the TAM, PU was found to have a significant direct effect on the intended usage behavior. The results of this research are consistent with the TAM findings and with those of prior research. Several researchers have provided empirical evidence of a significant effect of the PU on the IS acceptance and usage (Davis, 1989; Pikkarainen et. al., 2004; Wang et. al., 2003; Chan and Lu, 2004).

The positive linkage between perceived usefulness and behavioral intention reflects that perception of the users play a vital role in explaining the behavioral of the users of a technology. The sub hypothesis also explains that the smart card technology is useful hence it is more likely to be accepted. These results further suggested that users’ positive beliefs about usefulness are a driving force for the acceptance of smart card technology. In summary, the result of this hypothesized relationship are in agreement with the prior research indicating that the usefulness plays an important function in determining and shaping the behavioral intent of users to perform smart card transactions.

5.3.2 relation between Perceived ease of use and behavioral intention

The results suggest that perceived ease of use singularly affect the behavioral intention of users to use Smart card technology. The relationship also explains that there is no transitivity in the relationship. In other words, the relation between perceived ease of use is not dependent on perceived usefulness and therefore, it results completely makes two variables linked to each other. This hypothesized relation was drawn from TAM model, as applied by (Davis et. al., 1989) and other research studies regarding the technology acceptance (Adams et. al., 1992; Davis et. al., 1989; Igbaria et. al., 1997; Lee et. al., 2001). Although, these research studies
empirically identified the presence of significant relationship between the ease of use and the usefulness belief constructs but the present study did not found a similar relationship.

The most likely explanation for this inconsistent result between the PEOU and PU may lie in the nature of the target system being investigated. It should be noted that previous TAM studies have mainly been conducted with office automation tools such as Word, Excel, and so on (e.g., Davis, 1989; Davis et. al., 1989; Igbaria et. al., 1997; Lee et. al., 2001; Taylor and Todd, 1995; Mathieson, 1991). Compared to office automation tools, smart card technology is more complex in nature as it involves monetary transactions. The target audience is also less exposed to such kind of technology which is one of the primary reasons of perceived ease of use affecting behavioural intention independently and not via perceived usefulness. The smart card transaction may require users’ complete confidence in the privacy and confidentiality of online security. Therefore, it can reasonably be concluded that a user’s assessment of the usefulness of a smart card technology cannot be influenced solely by the ease of use of these systems. Nevertheless, while studying acceptance of technology by physicians, Hu et. al., (1999) also found no significant relationship between ease of use and usefulness beliefs.

As far as the direct relationship between the perceptions of ease of use and the behavioral intent towards smart card technology use is concerned, the parameter estimate results were found statistically significant. Consequently, this hypothesized relationship was accepted. This hypothesis was drawn from TAM and as explained in the chapter one, the TAM posits that PEOU was important factor that affects the behavioral intention towards the acceptance of new information systems (Davis et. al., 1989; Mathieson, 1991). Previous published research studies have empirically shown the existence of a positive correlation between the beliefs of ease of use and the system usage of the new information systems (Mathieson, 1991; Adams et. al., 1992; Igbaria et. al., 1997; Davis, 1989) and the online banking systems (Alsajjan and Dennis, 2010; Wang et. al., 2003; Pikkarainen et. al., 2004). Consistent with the empirical findings of prior research, this study confirmed presence of a significant impact of the PEOU on BI to use a smart card technology. This study therefore provided empirical evidence to support the earlier findings that the perceived ease of use was a significant predictor of the intention to use the smart card technology.
As mentioned earlier, hypothesized relationships related to the beliefs about ease of use and the usefulness and their effect on the BI towards use smart card technology were drawn from the TAM model (Davis, 1989). The findings of this study suggested that the effect of the PU on the BI was stronger than the effect of the PEOU on the BI. This suggests that the PU is a strong determinant of the BI than the PEOU. These results are in agreement with earlier studies (Venkatesh et. al., 2003; Gefen et. al., 2003; Davis, 1989; Venkatesh and Davis, 2000; Igbaria et. al., 1997; Mathieson, 1991). This finding implies that positive beliefs about the usefulness of smart card technology would contribute more towards the acceptance of these systems compared to the ease of use perception. Nevertheless, the users’ intention to use smart card depends on both the perceived usefulness and the perceived ease of use.

5.3.3 Discussion of relation between Trust, perceived usefulness and Perceived ease of use

The results were found that trust has an effect on both perceived ease of use and perceived usefulness. The results indicated that trust was a strong predictor of both PU and PEOU to use. This implies that if there is an increase in trust it would influence users’ intention to perform smart card transactions. It was also found out that trust uniformly affects the both the perception variables and therefore, it denotes that it is important to build trust of the users. The exploratory analysis also indicate that developing trust is a slow process but once developed, it can affect the perception of the users which increases the behavioral intention towards a technology. This will bring a positive change in the rate of use of that particular technology.

These findings are in accordance with the findings of previous research studies, which suggest a pressing need for trust in ecommerce (Gefen, 2000; Gefen et. al., 2003) and internet banking (Alsajjan and Dennis, 2010; Yousafzai, 2005). This finding also validates the inclusion of trust in the TAM model by Gefen et. al., (2003). Moreover, this finding demonstrates that those users who have higher levels of the trust are likely to have a more positive belief of usefulness in using smart card technology.

These results indicate that the trust has a strong positive and significant influence on the behavioral intention towards smart card technology by impacting the behavioral intention through “perceived ease of use” and “perceived usefulness”, implying that if there is increase in
the trust it would positively influence user’s intention towards acceptance of smart card technology. The literature identifies trust as a major predictor of the BI to use the online commerce (Gefen and Straub 2000; Doney and Canon 1997; Gefen et. al., 2003). Moreover, the trust is an essential factor in explaining smart card technology adoption and acceptance because uncertainty is present in any technology-driven environment (Gefen et. al., 2003). Conclusively, the results of this research are in conformity with previous studies (Doney and Canon 1997; Gefen and Straub 2000; Gefen et. al., 2003).

In brief, findings of this research study suggested that users’ positive beliefs of trust significantly affect their perceptions towards smart card technology acceptance. The banks or MGNREGS should organise motivational sessions and educate users about the potential threats about security and privacy issues, and provide them solutions for how to avoid such threats. This would help banks to reinforce users’ trust in the banks or MGNREGS and the smart card technology. In addition, banks can help build users’ trust by offering undertaking that they will indemnify the monetary losses incurred by an unauthorised access. This would boost users’ confidence in banks and online transaction channels and it would subsequently speed up the rate of acceptance of smart card technology. On the other hand, there appears to be a role here for designers and developers by developing systems that provide potential users a secure service to perform an online transaction.

5.3.4 Discussion of relation between Technological self-efficacy, perceived usefulness, and perceived ease of use

The results found out that Technological self-efficacy (TSE) has a positive effect on PU and PEOU. The parameter estimate results for hypothesized relationship demonstrated statistical significant, which indicated that TSE was an influential factor affecting beliefs about usefulness of smart card technology. These findings are in agreement with the proposed hypothesized relationship, which implies that the increase in technological self-efficacy would exert an influence on users’ beliefs of usefulness towards BI towards acceptance and use of a smart card technology. Previous research has empirically examined the effect of computer self-efficacy on expectations about outcome (Compeau and Higgins, 1995; Compeau et. al., 1999) and perceived usefulness (Chau, 2001). From a technology acceptance perspective, it can be said that perceived
usefulness reflects a user’s beliefs or expectations about an outcome (Chau, 2001). The findings of this research study partially validate the findings of Igbaria and Iivari (1995), who identified that computer-related self-efficacy, has a strong indirect effect on perceived usefulness rather than direct. However, this research study found that the TSE was a direct determinant of PU. This finding was consistent with the findings of research conducted by Ong et. al., (2004) and Ong and Lai (2006). Previous research has empirically proved the existence of a positive association between computer-related self-efficacy and ease of use perceptions toward intended use (Igbaria and Iivari, 1995; Venkatesh and Davis, 1996; Ong et. al., 2004). In agreement with the empirical findings of prior research studies, TSE was found to have a significant effect on PEOU beliefs in this study. Moreover, this study has provided empirical evidence to support the fact that TSE is a significant predictor of PEOU. Although TSE significantly determined both PU and PEOU, the influence of TSE on PEOU was greater than that on the usefulness beliefs of smart card technology.

In short, this research study suggested that users’ positive judgments and confidence of their abilities to use the internet technology in general would favourably influence their perceptions of the PU and the PEOU. This finding indicates that the technological self-efficacy would increase users’ beliefs, which would subsequently affect the intention to use. The designers and developers of smart card technology have to make sure that they must develop systems, which are easy to use and perceived to be useful. The IT team of MGNREGA should organise technology training sessions and awareness seminars to enhance general technological self efficacy and boost confidence of the potential users of the systems as people who demonstrated higher technological self efficacy are more readily prepared to perform online transactions. By doing so, they (i.e. bank management/MGNREGA and IT teams) will be able to increase the users’ acceptance of smart card technology.

5.3.5 Discussion of relation between Accessibility and perceived ease of use

The results in this research found that accessibility will have a positive effect on perceived ease of use beliefs toward the smart card technology acceptance. This result is in agreement with the findings of previous research (Karahanna and Straub, 1999). As mentioned
earlier, the research model in this study proposed that accessibility would have an effect on the PEOU which, in turn, would exert a positive impact on the BI to use smart card technology. This study has therefore provided the empirical evidence to support the proposition that accessibility affects users’ beliefs on the ease of use of smart card technology. Thus, it can safely be concluded, that the more accessible smart card technology, so less effort is required to use it, which would subsequently help increase its acceptance by potential users.

5.3.6 Discussion of relation between Terminology clarity and perceived ease of use

In this research study, the theoretical model hypothesised that ‘terminology clarity would have a significant positive effect on the perceptions of perceived ease of use. The parameter estimate results for this relationship demonstrated that it was statistically significant. This relationship was therefore supported. The results reveal that although there is positive relationship between the two variables, there is a challenge faced by MGNREGS as the diffusion of smart cards was not explained step by step to the users. The results might have been positive and significant because of the assumption that Smart cards will have similar terminologies as Debit card and some of them would be similar to Job cards in MGNREGS. The assumption although may be true for some cases, but not uniformly.

The results also reflect that perceived ease of use is a function of terminology clarity. The exploratory study confirms that the terminologies are usually jargons used by business correspondents and the users are usually remembering the same as a result of repeated usage. Prior research had empirically proved the existence of a positive association between the terminology clarity and ease of use perceptions toward the intended use (Hong et. al., 2002). It is noteworthy that study by Hong et. al., (2002) examined factors affecting smart card adoption and their study empirically provided support for a strong effect of the terminology clarity on ease of use perceptions. Consistent with the empirical findings of earlier research, significant effect of the terminology clarity on perceived ease of use beliefs was also confirmed in this study. These findings suggest that users who find improved terminology clarity are likely to have more positive ease of use beliefs towards the smart card technology acceptance and use. In other words, it can be said that terminology clarity would help users to use smart cards with ease.
Therefore, it can rationally be concluded that user’s assessment of the beliefs about the ease of use of smart card technology is influenced by the terminology clarity.

### 5.3.7 Discussion of relation between Output quality and perceived usefulness

Output quality in this research study was found to have a negative effect on the perceived usefulness. Study suggested that output quality does not have a significant effect on users’ beliefs of perceived usefulness, which may imply that users do not relate output quality with usefulness with regard to smart card technology. Although previous studies have asserted a significant relationship between OQ and PU (Davis et. al., 1992), the results of the present research suggest that OQ was not a significant determinant of PU which, in turn, does not significantly influence users’ intentions towards acceptance of an smart card technology through PU. One plausible explanation for inconsistent results centring on the relationship between OQ and PU may be that the respondents may not have had sufficient experience (i.e., performing complex transactions) with the smart card technology. Jasperson et. al. (2005) argued that experience with using information systems to perform a variety of tasks could enhance understanding of the system characteristics, which subsequently could assist the user’s view regarding its overall usefulness. Thus, it can reasonably be suggested that the actual contact with smart card technology may possibly assist users in formulating their beliefs about the system’s characteristics (output quality), which, in turn, will support users in their task performance.

### 5.3.8 Discussion of relation between Response time and perceived usefulness

In this research, the response time was found to have a negative effect on the perceived usefulness. This finding may imply that Response Time does not increase usefulness beliefs towards an intention to use the smart card technology. Response time is concerned with the perception of how quickly, consistently and reasonably the smart card technology responds to an individual’s requests, and this perception is related to the attributes of ICT generally (Wixom and Todd, 2005). Nelson et. al. (2005) argued that IS characteristics need to be assessed in the context of the individual’s task or work environment. As the present research study was
conducted voluntarily, a possible explanation for this inconsistent relationship between the RT and PU may be due to respondents’ infrequent (or total lack of) interaction with smart card technology. It can therefore be reasonably argued that frequent interaction with smart card technology might help users to formulate beliefs about the system’s characteristics, which, in turn, will assist users in their task performance.

This chapter discusses the results derived from primary data collected from field from the respondents and supports the results with theories developed by early researches. The chapter also poses results and projects the variation in responses based on external and internal factors. The chapter also gives perspectives of various stakeholders and explains the reasons which are responsible for relationship between the variables under the influence or presence of stakeholders. It also discusses in detail the results of the hypothesis and hypothesized relationships which the study intends to check after developing the theoretical framework. The chapter gives a holistic viewpoint of the results derived from the analysis and links in with the similar literature thereby focusing on similarity or dissimilarity between the results in present study and past.