CHAPTER – 3
RESEARCH METHODOLOGY
3.1 RESEARCH PROBLEM

The present research problem is to study “Consumer Perception and Satisfaction towards Mobile Number Portability in Rural Rajasthan”

Background of the Topic

Mobile Number Portability (MNP) allows the Mobile service subscribers to hold their current mobile number when they move from one Service Provider to another Service Provider within a same authorized administration area. This move is regardless of the mobile technology or from one cellular mobile technology to another of the same access provider, in a licensed service area. In other words, the Mobile Service Subscriber can switch from one operator to other. Using Mobile Number Portability, you can change the operator without having to change your number. So if you are using a mobile number 9829012345 for and are using the service from some operator (say Reliance) and you want to switch over to another operator (say BSNL), then you will not have the need to change the number. So when Mobile Number Portability in India came to effect, you got the ease of having the same number while using any operator's service you want. Mobile Number Portability in India offers you the flexibility to select the operator whose network and the features you like without having to think 100 times about informing the change in your mobile number to your hundreds of friends and contacts. And now we have Mobile Number Portability facility within states also, in India.
The principle motivation behind this study is to understand the consumers’ behavior towards the choice of changing their existing service provider and the systems used by the telecom companies to pull the customers towards themselves and to retain their existing customers. The regulatory bodies like Department of Telecommunications (DOT) and Telecom Regulatory Authority of India (TRAI) have encouraged the cell phone users to unreservedly roam among desirable services by retaining their existing mobile numbers and also to avail different technologies like 2G, 3G, 4G, CDMA and GSM or post-paid and pre-paid. MNP has brought many new prospects in the telecom sectors which for sure are going to exaggerate the competition in market to pull each other’s customers and retain their existing customers. This has led to end the monopoly of several big players in the telecom sector and has leveraged to ascertain the best possible services to the common mobile users in the nation. This competition has developed into the better services provided by the telecom operators as well as introduction of newer advancements like 4G services, etc. to pull in the customers.

Telecom operators today are doing lot of research to comprehend the value added service necessity of the customer. Different mobile applications have been launched with the accessibility of advanced mobile phones. The costs of these phones are most sensibly priced with competition at its peak. Consumers today are happy as they can customize their phone using various applications available at no expense or at little costs. Not just the cell phone but MNP has made the customer a Boss, permitting him to safeguard his mobile number along with his own preferred kind of mobile.
Telecom industry being a capital intensive business needs gigantic capital consistency for its advancement and spread. It involves immense expenses towards maintaining and developing of network infrastructure. However, the government has realized the blow of expense on moderate growth of telecom sector and permitted various operators to share infrastructure. The various telecom service providers are partnering to minimize the duplication of cost and attempt, bringing about major financial and operational savings, thus leading to better savings. This is in support of the operators and the customers as the some of the benefit of cost is passed on to customer’s pot also. Every month, on an average of 12 million subscribers are getting added to the subscriber base. To sustain this growth, operators need to increase their backend infrastructure. With the bid of 4G spectrum, the necessity for more sites to support the launch of new products and services by operators has added pressure on the current base.

In addition to this, there is enormous probability for the industry to capture untouched rural market lying with future business plausibility. To tap the rural market of India, which is spread over a gigantic geographical area, operators need vast capital to invest in the building-up of the network. Hence, infrastructure partnering is the only way out to build operations in rural market without a lot of speculations.

Allowing infrastructure partnering is a reasonable example of how the Government policies can change the entire scenario of how an industry operates and grows and how it profits the eventual consumers. This judgment has assumed a fundamental role in such a remarkable growth of telecom industry in India. It is also
likely that to maximize the benefits of 3G and 4G services, government should allow spectrum sharing so that these services would be obtainable in every one of the circles with slightest expenses.

Nonetheless, whether the market is overwhelmed or not or whether the mobile operator is handing out freebies or not, the Indian consumer is not timid to move away from his home network in search of greener pastures with other network operators. Whether it is for a better network coverage or better tariffs and SMS rates or simply for high-speed internet, mobile number portability has come as an advantage to mobile subscribers in India and they are appreciating it.

Therefore the current Research is framed on the objective to conduct the research on the study of “Consumer Perception and Satisfaction towards Mobile Number Portability in Rural Rajasthan”

3.2 REVIEW OF LITERATURE

The study of written works has its vitality as it helps the researcher in drawing conclusion about populace from which the sample is drawn.

Before going into the true phase of the research, it is desired to study the entire expositive expression incorporating exploration discoveries identified with variables in the study being driven.

The key reason for the audit of related studies and composing in advance is the association and foundation of the exploration and to give the support for transformation of the speculation. By auditing the written works, the researcher can
abstain from multiplying generally secured discoveries. It helps the researcher in making issues definite, researchable and genuine.

The survey of related studies and evaluating reports of the pertinent investigates, articles, examination modified works, distributed diaries and encyclopedias helps the researcher’s requirements to secure upgraded data about what has been thought and found in a specific region. The specialist draws most extreme profits from the past examinations, utilizes the past discoveries, takes various insights from the past and characterizes a format for future inquiries.

Mobile Number Portability (MNP)

**Buehler & Haucap (2004)**

analyzed the consequences of introducing mobile number portability (MNP). They found that MNP leads to abolishment of switching costs, and hence is good thing for customers. As telephone numbers no longer identify networks, MNP may result in consumer ignorance. They also discussed role of termination charges on customer bills.

**Shi, Chiang, & Rhee (2006)** explained wireless number portability (WNP) (MNP in present context) as a telecommunication regulatory policy that requires cellular phone service providers to allow customers who switch service subscriptions to retain their original phone numbers. They found that MNP leads to lowering of the switching cost for a consumer. Thus, the aim of the policy is to have fair competition with level playing ground for smaller service providers. They found the policy may result in market concentration due to the discriminatory pricing scheme for the calls connected across two networks. Consumers who subscribes to an operator with larger subscriber base would stand to gain. By lowering the barrier
of switching, WNP/MNP creates a market condition conducive for a larger network to gain market share. The study was done in Hong Kong where WNP was adopted in March 1999.

Telephone numbers, specifically which are ported do not identify the network it belongs to, though the difference is small in terms of call pricing i.e. the calls terminating within same network are lower priced as compared to calls terminating in different network. This has a negative net effect on the surplus of mobile customers (Kisioglu & Topcu, 2011). Though it is technologically possible there is no consensus among the operators to identify the network in India. In general large operators are against it because they tend to lose on discriminatory termination charges.

*Buehler, Dewenter, & Haucap (2006)* also examined the causes and effects of mobile number portability and provided a survey of its implementation in Europe. Competitive effects, costs of introducing MNP and charges were examined. Differences in the porting process influence the use of MNP across countries.

MNP in India has been launched after lot of delay. Regulators did quite a bit of brainstorming on price caps and speed of porting. There was no consensus on porting charges with certain operators wanting them quite high as per their communications with TRAI. The regulators stuck on charges which were low and in time period which was reasonable (internationally time periods can be very low), the major impediment was removed as to facilitate the portability.

Though there is vast difference between demographic scenario in India and USA, certain studies need to be referred to. In one such study which *(Dong Hee,
conducted on a sample of 684 mobile subscribers in the USA, focused on subscribers' perceptions and behaviours on MNP. The number portability was made mandatory to wireless carriers as FCC believed it to be positive for customer benefits through increased competition in the industry. Subscribers perceived switching barrier to be high in this research, discouraging subscribers from porting. Operators developed new subscriber lock-in strategies that made subscribers stay with them. While there are costs despite MNP that subscribers get burdened with while number porting e.g. recharge is non-transferable (in India). MNP is upheld by subscribers' burden and not carriers or regulators. The findings imply that MNP has affected industries more than subscribers.

One area where Indian Telecom industry has it different from the global perspective is that subscriber who gets locked in via handsets tied to plan is a very small segment. Number alone is the major obstacle towards churn. There are little other hidden costs.

Shin & Kim (2008) investigated switching barriers under the mobile number portability (MNP) in the U.S. mobile market. In USA’s context Customer satisfactions, switching barriers, and demographics significantly affect subscribers' intent to switch with lower switching costs and increased competition among providers.

Mobile number portability in India has viably ended the switching cost related with loss of business or social contacts. Hence areas like service quality, customer satisfaction and related factors would come to the force deciding the need to churn.
Shi, Zhou, & Liu (2010) reviewed the implementation of mobile number portability (MNP) in global context. The authors found that influencing factors of users' switching intention in China has an analogous situation with Korea having same MNP policy. The results of this research showed that customer satisfaction and switching costs have significant effects on users' porting conduct.

Mukherjee, D. & Chatterjee M (2013) studied to comprehend the satisfaction level of the customers through technology advancement. Business process reengineering actually plays role of a weapon in Indian telecommunication sector. This study reveals customer’s need for fast cycle capability and competitiveness of the system. It also talks about the satisfaction level of customer as per current system. It further emphasizes need for strategic planning and IT enabled reengineering business process to upgrade fulfillment level of the customers.

Dhage, A. & Prasad, A.K.N (2013) discusses about the enormous costs involved in telecom services towards setting up and maintaining the networks as high execution risks in installing the active electronic components. The policy of government of India to allow the various telecom service providers to share their infrastructures has led to unprecedented growth in the sector. The various telecom service providers are becoming partners to minimize the duplication of cost and effort, bringing about significant financial and operational saving, and thus better edges.

Permitting infrastructures sharing to telecom operators is a live example of how the Government policies can change the complete scenario of how an industry operates and prospers and how it advantages the end shoppers.
Yadav, R. K. & Dabhade N. (2013)\textsuperscript{54} discusses the Mobile Number Portability (MNP) as a great opportunity which can increase acquisition and to a greater extent encourage healthy competition among telephone operators but the process, functionality, subsequent administration and maintenance is a complex one, involving the careful planning and balancing of factors such as cost, convenience, simplicity, speed, reliability, heterogeneous integration and robustness. Mobile number portability is now a crucial issue for mobile service providers. The most challenging job for the present day is that to hold existing mobile customers.

Reddy, M.V.K. & Prasad S.R., (2013)\textsuperscript{55} studied about the requirement for Mobile Number Portability (MNP) in increasing number of countries. In India, the process has already been initiated and accepted widely. The customers are now free to switch to desired operator without changing their numbers. The number portability gives freedom to subscriber to choose best service provider. This paper also discusses the different types of mobile number portability and their function.

Lee, H.S, (2013)\textsuperscript{56} uncovers that service quality and how customer satisfaction positively affects customer loyalty. In addition, service quality positively influences customer satisfaction. Hence, customers with high perceived service quality and satisfaction also have strong loyalty. Furthermore, the study verifies the fact that moderating variables positively influence the relationships among the aforementioned factors. Among customers with a high level of perceived value, the effect of service quality on customer satisfaction increases. In addition, when customers’ perception of reasonable price increases, the impact of service quality on customer satisfaction increments too.
Jindal, N (2013) studied to comprehend the satisfaction level of the customers through technology advancement. Business process reengineering actually plays role of a weapon in Indian telecommunication sector. This study reveals customer’s need for fast cycle capability and competitiveness of the system. It also talks about the satisfaction level of customer as per current system. It further emphasizes need for strategic planning and IT enabled reengineering business process to improve satisfaction level of the customers.

Damodaran, S., (2013) talks about the experience of the mobile telecom sector in India in terms of its business organization. There is a high level of outsourcing of activities, including those such as network management, which would usually be included within the core competence of mobile telecom companies. The outsourcing strategies were pioneered by Bharti Airtel. This has resulted in impressive cost funds.

Hosseini, S.Y. & Zadeh, M.B (2013) talks about measuring mobile telecommunication service quality in Iran. A multidimensional measurement model has been proposed based on an extensive literature review and then, to assess the model validity, convergent and discriminated validity have been established based on the survey data gathered from 363 of Iranian mobile phone subscribers. Findings of this study showed that customers form their service quality perceptions based on their evaluations of seven primary dimensions including: network quality, value-added service, pricing plans, employee competency, billing system, customer services, and service convenience.
**Prasad, A.K.N. & Ningzhen, R (2013)** in this article talks about the impact of many service providers on the Average Revenue Per User (ARPU). The fierce competition has reduced the attractiveness of the industry. When faced with the challenge of falling ARPU, MoU, and increasing costs, service operators' profit margin is driven down. It also emphasizes that decrease in competition may increase the telecom service price for consumers.

**Begum, A. & Ali, M.T (2013)** in this paper discusses about various prepaid techniques, challenges and counter measures in prepaid mobile communication system. The worldwide mobile communication market is exploding and 50 percent of subscribers are expected to use prepaid billing. Prepaid services are driving mobile communication into emerging markets such as South America, Eastern Europe, Asia, Africa and Gulf Countries. Prepaid phone service requires a user to make payment before calling. It is quite common to get prepaid SIM cards on every major Network.

**Deoskar, A. (2013)** endeavors to research the basic reason and mindset of consumer while purchasing a cell phone handset and its service. The researcher has surveyed 145 cell phone consumers from Pune and Pimpri-Chinchwad area. The result indicates that the price, appearance and user friendliness were considered as the prime factor while purchasing a handset, and cost, quality of service and network connectivity were considered as the most influential factor in terms of service provider choice.

**Muruganandam, D. & Gopalakrishnan, S. (2013)** in the study brings out subscribers preference of Mobile Number Portability (MNP) in Coimbatore city.
The main objective of this study is to know the subscriber inclination and major influencing factor for preferring a particular operator. As per the study, most of the respondents are not aware about the MNP process. Also it says that the major reason for dissatisfaction is poor network scope in the city.

This paper examines the impact of Mobile Number Portability (MNP) on European market price, competition and consumer welfare. MNP allows consumers to keep their phone number when they change carrier. Accordingly, MNP facilitates competition by reducing consumer's switching costs. Most European countries introduced MNP in the early 2000s, which provides an opportunity to study the relationship between switching costs and price. MNP in Europe has been mandated by the European Commission and arrived in each country as an exogenous shock.

_Das, D. (2012)_ in the present study provides an observational exploration based on survey method. A handset of reputed brand, smart appearance and with advanced value added features, pleasurable ability and usability; is the choice of consumers in between 20-30 years in age-group, females in gender-group, graduates/post-graduates in level of education-group, students/service holders in occupational-group, urban residents in geographical-area group and with annual family pay between Rs.1-3 Lacs.

_Thomas, C. (2013)_ has written about mental and emotional impacts of usage of smart phones on user’s psychological behavior in India. The major changes in customer psychological behavior have been brought by the growth of smart phones usage with its high-speed Internet technology. Smart phone brings changes in attitudes towards the traditional mass media and satisfaction. This paper tries to
investigate what types of psychological and emotional impact were developed in India due to usage of smart phones with high speed Internet environment.

_Schiffman, L.G. Kanuk, L.L. & Ramesh Kumar, S. (2010)_\(^6\) has centered on the examination and application of consumer behaviour to the planning, development and implementation of marketing strategies. It also captures the impact of new media on consumer behaviour and on marketers’ ability to learn more about customers’ purchases and target them more precisely.

_Green, N. & Haddon, L. (2009)_\(^6\) talks about the cell phone achievement as a global presence faster than any other form of information and communication technology. The relationship between public and private space, how we view time and space, how we rely on and negotiate social networks – all are increasingly centered on this small piece of technology.

**Customer Churn**

In a fundamental research on pricing, _(Morris & Joyce, 1988)_\(^3\) examined the nature and significance of demand elasticity as a factor when setting industrial prices. They investigated perceptions of marketing managers regarding the customer awareness levels and price sensitivities. As per study, sensitivity to price is fundamental however by and large it is disregarded by organizations.

_Keaveney & Parthasarathy (2001)_\(^2\) found that there is unprecedented development in Internet users worldwide which is resulting in exponential growth in the online services industry. Customer churn i.e. switching behaviour in service industry segments customers between continuers and switchers. Behavioural,
attitudinal and demographic (income and education) factors are constructs which determine the segments a service has a place with.

In an inconsequential study to telecom, (Gao, 2005) found out attributes of trust by studying factors influencing user trust in online games. Factor analysis lead them to conclude that user trust can be built through paying attention to building brand recognition, enhancing usability and appeal, as well as providing assurance within the interaction.

A path breaking research by (Ruta, Nauck, & Azvine, 2006) has shown that “in telecom industry high installation and marketing costs make it between six to ten times more expensive to acquire a new customer than it is to retain the existing one”. One of major goals hence for telecom industry is prediction and prevention of customer churn. They emphasized that it is not just classifying customers into churners or non-churners but also taking into account the timing of churn event as pre-requisite for churn management.

According to (Hung, Yen, & Wang, 2006), Taiwan deregulated its wireless telecommunication services in 1997. Churn management i.e. mobile operators wanting to retain subscribers via satisfying their needs under resource constraints becomes a key priority. This can be dealt via churn prediction. Empirical evidence from data mining techniques was used to assign a ‘propensity-to-churn’ score periodically to all subscribers of a mobile operator. The results indicated good models based on decision tree and neural network techniques by using customer demographics, billing information, contract/service status, call detail records, and service change log.
Gopal & Meher (2008)\textsuperscript{13} considered customer churn to be a core issue in telecommunication customer relationship management (CRM). Predictions of churn for retention strategies require customer tenure as a major ingredient. Study found that tenure prediction - survival analysis can be done via ordinal regression.

Kazienko, Bródka, & Ruta (2009)\textsuperscript{18} reiterated that mobile subscribers “implicitly create an interactive social network of individuals, which both depend on and influence each other through various complex social relationships grown on friendship, shared interests, locality, etc”. Customer churn and acquisition was examined from social neighborhood effects dimension. The basic assumption made was that a value loss or gain of a subscriber addition or loss stretches out past the income stream.

Polo & Sesé (2009)\textsuperscript{34} found that customer switching costs have emerged as one of the fundamental drivers of customer retention in Ireland. The study investigated the determinants of switching costs remains in terms of marketing variables i.e. price, advertising, and relationship characteristics. It was found on using a hierarchical Bayes approach that by using price and advertising corporate were able to create switching barriers for customers. This research pointed out the pivotal role played by competitors’ promoting activities in influencing the switching costs.

According to (Liao & Chueh, 2011)\textsuperscript{26}, customers tend to change telecommunications service providers for better price plans. The study is directed at finding marketing activities directed at proactively encountering churn. Fuzzy data
mining methods were used to control the rate of customer turnover and find fitting policies customized for various customer groups.

*Keaveney (1995)*\(^{19}\) established that customer switching behaviour damages market share and profitability of service firms. Researching a critical incident among more than 500 service customers, the authors identified more than 800 critical behaviours of corporates that made customers leave the services. Customers' reasons for defection were classified into eight general classifications, differing from demographic to attitudinal.

*Swait & Sweeney (2000)*\(^{44}\) found that worth has been broadly portrayed by retailers as a major determinant in consumers' store selection and product purchase decisions. Observing the impact of consumers' perceived value on the attitude to purchase and resulting behaviour they found consumers’ value orientation i.e., their predisposition towards quality and price actually affects their choice behaviour in-store. The buying of products from a specific retailer is associated with the consumer's demographics. This analysis was based on a survey of over 1000 shoppers actively searching for an electrical appliance in different retail locations.

*Nguyen & Leblanc (2001)*\(^{32}\) contented that in the present competitive environment, corporate reputation and corporate image can exhibit a strong influence on customer loyalty toward the firm. Data was collected from three service industries including 171 clients of a major long-distance company towards exploring the nature of the relationship between corporate reputation and corporate image and their impact on the customers' retention. The study found that the higher customer loyalty follows positive perceptions of corporate reputation and corporate image.
Gerpott, Rams, & Schindler (2001)\textsuperscript{12} in their study found that customer retention, customer loyalty, and customer satisfaction were set as objectives by telecommunication network operators in German market. Data from a sample of 684 subscribers resulted in revealing that customer retention, customer loyalty, and customer satisfaction could be treated as causally inter-linked constructs. Customer satisfaction had a significant impact on customer loyalty which had an impact on customer's decision making regarding his stay with mobile cellular network operator. Price sensitivity's perceptions combined with mobile number portability between various cellular operators were identified as supply-related variables with the noteworthy effects on customer retention, while customer care had no noteworthy impact on customer retention.

Kim & Yoon (2004)\textsuperscript{21} used a binomial logit model to find the determinants of subscriber churn and customer loyalty in the Korean mobile telephony market. Level of satisfaction, call quality, tariff level, handsets, brand image, income, and tenure were determinants influencing the switching behaviour. Good call quality and brand image made customers brand evangelists. Study also found "spuriously loyal" customers who were staying with present provider just on account of switching costs.

Pura (2005)\textsuperscript{35} analyzed the direct effect of perceived value dimensions (monetary, convenience, social, emotional, conditional and epistemic value) on attitudinal and behavioural components of loyalty and commitment. The study emphasized the role played by spontaneity and situational needs, which many times
overpowered monetary value. Marketing tactics could use the context, convenience or emotional value in telecom.

*Malthouse & Blattberg (2005)*\(^{29}\) investigated into relationship marketing in service industry context. Assuming that firms profitability rests on higher revenue providing customers and hence there is need to invest disproportionate marketing resources in them. This strongly depends upon classification on basis of future profitability of customers. They examined the costs of misclassification and accuracy of predictions. They found that methods were not fool proof to judge future value of customers on historical revenue basis.

*Ranganathan, Seo, & Babad (2006)*\(^{36}\) found that subscriber churn had become a critical issue for telecom operators. Studying customers with no contractual obligations they studied demographics correlation with their switching behaviour, based on data on over 30,000 mobile users. This data mining exercise resulted in discovering significant associations between mobile users and their service usage, service bundling and their switching behaviour. Age and gender were also seen impacting the subscriber churn.

*Aydin, Zer, & Khan (2006)*\(^{2}\) found that both academics and practitioners agree to the strategic role played by cost of customer switching. Towards their effort to conceptualize and measure customer switching costs, they used different sub-constructs of customer switching and analyzed relationships among them with customer loyalty, customer satisfaction and trust. They found statistically significant relationships among variables and sub constructs of switching costs.
Turel, Serenko, & Bontis (2007) argued that mobile value-added services (VAS), such as short messaging services (SMS) or other pay-per-use services, should not be ignored. Perceived value of VAS and SMS was found to be determinants of behavioural intentions. Technology adoption was discovered to be driven by price along with value trade-offs of social, emotional and quality factors.

Yi, Sanguansintukul, & Lursinsap (2008) deliberated on treatment of the customer in order to earn his loyalty. They underlined relationship management as an issue in the wireless industry. They reiterated that measurement and management of customer lifetime value (CLV)’s plays a critical role in retaining the right customer in telecommunication industry.

Turel & Serenko (2012) outlined the role played by customer satisfaction and loyalty as factors with respect to mobile telecommunications services. User satisfaction and loyalty were found to be significant for all mobile stakeholders. A general standard measure of satisfaction with mobile services was adapted from the American Customer Satisfaction Model.

Sweeney & Swait (2008) were of the opinion that customer churn is critical in the relational services sector (e.g., retail banking, telecommunications) where profitability in industry depends upon customer retention. Credibility of the brand depends upon service quality and other tools of customer relationship management which leads to customer retention. Commitment and word-of-mouth resulting from brand goodwill help reduce switching behaviours among clients.

Seo, Ranganathan, & Babad (2008) found that the competition in the mobile telecom has increased the cost effectiveness of retaining current customers in
USA. Mobile services are not a one-time sale like commodity products but continuous services, service providers can offer additional services over the length of a customer's tenure to increase customer loyalty. The study referred to factors such as length of association, service plan complexity, quality of connectivity that affect switching costs and customer satisfaction. Customer retention also depends upon demographics, service plan complexity and handset modernity.

**Blattberg, Malthouse & Neslin (2009)** discovered that Customer Lifetime Value though difficult to forecast can be a major determinant in profitability. They established by their study that customer satisfaction, marketing efforts, cross-buying and multichannel purchasing all have positive relationships with Customer Lifetime Value. Effects of pricing, earned rewards and promotions were also pitifully connected with Customer Lifetime Value.

**Maicas, Polo, & Javier Sese (2009)** found that MNP adoption partially depends on customer-related variables. Switching costs impact market competition leading to change in prices, service quality, and customer welfare. Because of negative impact, national regulatory authorities design policies aimed at reducing switching costs and fostering competition, MNP being significant among them. They investigated the effect of MNP on switching costs using a hierarchical Bayes model. A model explaining MNP adoption by customers using a binary logit specification was proposed in mobile phone services.

**Kuo, Wu, & Deng (2009)** built an instrument to assess service quality of mobile value-added services. The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention was analyzed using structural
equation modeling and multiple regression. This Taiwan based study found positive associations between service quality, perceived value and customer satisfaction and post-purchase intention in mobile value added services.

*Liu, Guo, & Lee (2011)* reiterated that the expense of attracting new customers is much higher than the cost of retaining old customers in Taiwan. Customer’s loyalty is a vital factor which in turn depends upon a construct called relationship quality formed by satisfaction and trust. Antecedents of satisfaction and trust were explored. It was discovered that playfulness and service quality impact satisfaction while service quality and intimacy affect trust. The study outlined the role of playfulness and relationship quality towards reducing the likelihood of churn.

*Spiegel (1985)* in his article talked about the importance of public relations. He felt that the increasing marketing activities have relegated public relations to the end of the line. Public relations lack the measurable success in generating revenue. Public relations can be used as an invaluable tool for establishing industry awareness, recognition, and professional credibility which all help create brand image.

*Hensel & Dubinsky (1986)* felt that customers tend to leave the operators who they believe to be unethical or engaging in questionable behaviour. Marketers’ visibility and promotional efforts often gets perceived by society as unethical or questionable behaviours. This perceived behaviour impacts the customer likelihood of churn.

*Darke & Chung (2005)* studied the effect of pricing plans in increasing deal value in retail sector. Price discounts dominate the sales promotions employed by
marketers. Without assurance of product quality this may generate negative quality inferences. As per research free gift promotions maintained quality perceptions without affecting perception of quality while Product trial could be used to magnify promotional effects.

_Gustafsson, Johnson, & Roos (2005)_ in a study of telecommunications services, examined the effects of customer satisfaction, affective commitment, and calculative commitment on retention. Situational triggers were found to influence satisfaction-retention relationship in this study. The results supported customer satisfaction, commitment and prior churn’s impact on retention.

_Zeithaml, Bitner, & Gremler, (2006)_ talked of service quality in terms of SERV-QUAL and E-S-QUAL while trying to capture service quality in general or to capture electronic service quality in latter. Comprehensive review and analysis of services marketing issues practice, and strategy was done by utilizing the GAPS Model of Service Quality as an organizing framework. Customer behaviour, expectations, and perceptions were discussed to form the basis for understanding services marketing strategy and the managerial content.

_Ahn, Han, & Lee (2006)_ discussed that retaining customers is one of the most crucial challenges in the saturating mobile market. There study used customer transaction and billing data to investigate determinants of customer churn in the Korean mobile telecommunications service market. The major finding of this study was that call quality-related factors and heavy usage influenced customer churn. The study marked the process of churn where active users moved towards non-use without actually having churned.
Eshghi, Haughton, & Topi (2007)\textsuperscript{10} reported the results of research investigating the determinants of the propensity to switch wireless service providers. There study suggested shifting scarce resources to customer retention through improved service, saving costs of customer acquisition campaigns which were shown to be expensive. A strong association between customer satisfaction and customer loyalty was found in the data. Contracts were comparatively ineffectual in generating loyalty.

The results of a study by (Martensen, 2007)\textsuperscript{30}, indicated that teens are far more satisfied with their mobile phones than adults are and that the mobile phones fulfill children's expectations to a much higher degree. Still, brands are not able to turn teens into loyal customers who will recommend their mobile phones to friends. Teens' loyalty is lower than what is experienced for adults and the relationship between satisfaction and loyalty is very weak.

Shin & Kim (2008)\textsuperscript{41}; Shin, Kim, & Lee (2011)\textsuperscript{42} investigated switching barriers under the Mobile Number Portability (MNP) in the American mobile market. The structural equation modeling analysis was used to evaluate the causal model, and confirmatory factor analysis was performed to examine the reliability and validity of the measurement model. There was a significant effect of demographics on switching decision. Their findings indicated that customer satisfaction and switching barriers significantly affect subscribers' intent to churn. The study was based in USA where contractual obligations have contained MNP to a large extent.
Kim, Yun, & Kim (2009) discussed mobile telecommunication companies of Korea. It was a qualitative study through Focused Group Interview on customers' expectations and customers' requirements. Study collected Voice of Customer (VOC) data in relation to the quality attributes. The study resulted in finding that customer need fulfillment is paramount to success of telecom service providers.

Lai, Griffin, & Babin (2009) evaluated interactions among service quality, value, image, satisfaction, and loyalty in China telecom industry. Analysis of survey data from 118 customers of a Chinese mobile communications company revealed that service quality had an impact on perceived value and image perceptions which is a significant determinant of customer loyalty. As per study value, satisfaction and customer loyalty are inter-related constructs.

Hu, Kandampully, & Juwaheer (2009) recorded that today's world of intense competition; customer satisfaction is not the goal but the eligibility criterion, thus emphasizing customer’s perceptions of service quality. They established the relation between service quality, satisfaction, perceived value and image. They proposed a model indicating how high quality service and superior customer value may lead towards customer satisfaction. Firm’s corporate image and consumer retention in the model depends upon customer satisfaction.

Dierkes, Bichler, & Krishnan (2011) have expounded about word of mouth publicity and customer behaviour. They underlined the role call detail records can play to establish and predict the customer's decisions in the context of churn. The results also provided evidence that word of mouth had a major influence on customers' churn and purchase decisions.
Chuang (2011)\textsuperscript{6} used a binary logit model to investigate the factors that influence subscribers to stay or migrate in Taiwan's mobile phone industry. The results show that “subscribers' satisfaction, switching costs, and habit strength negatively influence switching intentions, constituting a sucking effect that motivates subscribers to stay with their original providers”. The study discussed variables of alternative attractiveness, pull effect and quality of propensity.

G. Kaur and R. Sambyal (2016)\textsuperscript{68} studied the effect of MNP on consumers’ switching intention and also the factors affecting the switching intension in Indian Mobile Phone services context. The study also examines the relationship between switching intensions and actual switching.

Singh, Shamsher; Sirohi, Naveen J. (2015)\textsuperscript{69} studied thy impact of MNP on consumers and different service providers of mobile services in Delhi Circle. The study has involved collection of primary data from the consumers of different mobile service providers across Delhi circle as well as secondary data collected from various sources. The results have indicated that MNP has both positive and negative gains for major service providers.

Abdul and K. Wahab (2015)\textsuperscript{70} found competitive market practices, consumer awareness on procedures, MNP porting cost, lack of porting information and regulator reluctance in enforcing set rules were the main factors that may have led to low uptake of MNP technology in Kenya.

S. G. Nimako, B. A. Ntim and A. F. Mensah (2014)\textsuperscript{71} proposed a model that helps to explain consumer behaviour towards MNP policy and the influence of
MNP adoption factors on consumer switching intention process in the telecommunication industry. The model was tested using data from a cross-section of 736 subscribers of six global companies in Ghana’s mobile telecommunication industry, where MNP has been introduced. The findings indicate that MNP adoption can positively influence consumer switching.

3.3 RESEARCH GAP ANALYSIS

Above discussion leads us to understanding of significance of retaining current customers in telecom sector. Introduction of MNP is an effort towards the abolishment of switching cost. The purpose of the policy of introducing MNP is to induce more competition and facilitate the growth of new or small service providers. It may however quicken the process of market concentration due to discriminatory pricing which may be undertaken by operator. The speed of porting and porting charges majorly influence the impact of MNP. Customer satisfaction, switching barriers, and demographics also significantly affect subscribers' intent to switch. The switching costs have significant effects on users' switching intention. Switching costs themselves are influenced by marketing variables such as price and advertising. The other factors strongly affecting switch may range from demographic to attitudinal. The level of satisfaction with service attributes including call quality, tariff level, handsets, brand image, as well as income and subscription duration have been found to impact subscribers churn behaviour. In presence of switching costs "spuriously loyal" customers may be there. The perceived value may be different from ground realities. Customer lifetime value (CLV) depends upon the antecedents of customer satisfaction and loyalty. MNP adoption or customer churn behaviour partially
Research Methodology

depends on customer-related variables. The relationships among service quality, perceived value, customer satisfaction along with situational trigger influence post-purchase intention of staying or switching.

Besides getting overall view of research on these variables the review of literature also exhibited information on methods of data collection, research, design, tool construction, standardization and use of statistical tool for analyzing data, which helped the investigator in developing an appropriate methodology for the present investigation which has been discussed in the subsequent chapter.

3.4 JUSTIFICATION OF THE STUDY

Telecom Industry is the fastest going industry today. It is just not possible to think about our fast moving lives without mobile phones. From morning alarm to note of important data, from entertainment to social media, we are completely dependent on our phones.

Mobile Number Portability has emerged as an important tool with mobile consumers to choose best of services amongst various service providers. It not only has benefited the industry but also the consumers. More than 204.73 million portability requests have been raised till February 2016 in India.

With the increase in mobile penetration in rural India and the awareness of technology amongst rural consumer, it becomes an important stream of study.

- There is lot of research already done on Mobile Number Portability in urban areas of India. However, the major population residing in Rural
India which is 72.2% needs to be studied as this is the future market for any service provider.

- India being world’s second largest telecom market, it is inevitable to understand the consumer satisfaction and perception about Mobile Number Portability in rural area which has huge opportunities.
- The study would throw light on the choice of appropriate media for promotion of Mobile Number Portability in rural areas.

### 3.5 OBJECTIVES OF THE STUDY

The main objectives of the current research are

- To determine the level of awareness of Mobile Number Portability amongst rural mobile users.
- To analyze the level of satisfaction of rural mobile users with their current service providers.
- To study the expectations of rural mobile users from service providers.

### 3.6 HYPOTHESIS

Developing hypotheses forms the initial step of any research. Hypotheses are the underlying beliefs or assumptions of any research study. After extensive survey of related literature an attempt was made to construct the tentative assumption in order to draw out and test its logical consequence. To use a metaphor- Hypothesis is like the navigator in an aircraft and helps set the direction of the research which in turn leads the research team to remain focused on the end objective. For the purpose of this research the following hypotheses have been formulated.
Central hypothesis

Null Hypothesis \( H_0 \): There is no significant relationship between level of satisfaction and Mobile Number Portability amongst rural consumer with current service providers.

Alternate Hypothesis \( H_1 \): There is a significant relationship between level of satisfaction and Mobile Number Portability amongst rural consumer with current service providers.

Sub hypothesis

Null Hypothesis: The expectation of rural mobile users does not affect Mobile Number Portability.

Alternate Hypothesis: The expectation of rural mobile users affects Mobile Number Portability.

3.7 UNIVERSE OF THE STUDY

The universe of the study is been entire users of Jaipur District Rajasthan. The research was conducted only in tehsils of Jaipur District of Rajasthan. Thus, the geographical limitations were assumed to be a hurdle in the authenticity of the research.

Basically there are two types of data – Secondary and Primary. Secondary data is obtained from individuals as well as from external sources of an organization. Primary data is collected by the researcher for the first time. The present study is exclusively based on the Primary data which has been collected from various users of mobile phone from various places in Rajasthan as respondents. The study is also supported with the help of secondary data obtained from reliable indexed
sources. (Such as Journals, Net, Books, E-Books and Reviews published by various sources).

*Primary data was basically collected by conducting survey through the following sources-*

Through a Schedule of Sample size $n=500$ and the area for survey was Jaipur District.

### 3.8 SAMPLE DESIGN

The current research had been accomplished chiefly through *qualitative approach that is based on the secondary information as well as quantitative studies like surveys etc.* are also considered and taken into account.

*Qualitative research includes the reviewing and analysis of the articles, research papers, interviews and other published information in order to gain a deeper understanding of the prevailing scenario.* These methods has help to understand the opinion and views of eminent and learned academicians and leading businessmen and provide an idea of future developments in higher education sector.

**Type of Research:**

*Exploratory research* is intended only to provide greater familiarity with the phenomena (one) wants to investigate so that (one) can formulate more precise research questions and perhaps develop hypotheses. Such studies can be essential when (one) is investigating new phenomena or phenomena that have not been studied before” The aim of the research is to explore and describe the facts and developments related to the topic of the study.
A quantitative approach is felt as the ideal method to be used for this study. This is because the literature review has clearly shown that this approach is widely used in the field of research on *Mobile Number Portability*. Specifically, the study uses a survey research design method that allows the inclusion of a large number of sample (respondents) while considering several intervening variables. Survey methodology has several strengths that make it more capable to intercultural studies. For the current research study data have been collected through a schedule.

The research design was exploratory and descriptive.

**Research Design**

- **Sample type** - Multi Stage and Simple Random sampling.
- **Sample Size** - How many respondents are really needed? This simple question is a never-ending quandary for researchers. A larger sample can yield more accurate results — but excessive responses can be pricey.

Consequential research requires an understanding of the statistics that drive sample size decisions. A simple equation will researcher to determine sample confidently.

Before one can calculate a sample size, researcher need to determine terminology about the target population and the sample needed:

1. **Population Size** - How many total people fit research demographic? For instance, if you want to know about Rural Mobile Users in Rajasthan, total population size would be the total number of Mobile Users in India. Don’t worry if you are unsure about this number. It is common for the population to be unknown or approximated.
2. **Margin of Error (Confidence Interval)** - No sample will be perfect, therefore one need to decide how much error to allow. The confidence interval determines how much higher or lower than the population mean one is willing to let his or her sample mean fall. If one have ever seen a political poll on the news, you’ve seen a confidence interval. It will look something like this: “68% of voters said yes to Proposition Z, with a margin of error of +/- 5%.”

3. **Confidence Level** - How confident researcher want to be that the actual mean falls within his confidence interval? The most common confidence intervals are 90% confident, 95% confident and 99% confident.

4. **Standard of Deviation** - How much variance researcher expect in responses? Since we haven’t actually administered our survey yet, the safe decision is to use .5. This is the most forgiving number and ensures that your sample will be large enough.

As, now one can calculate our needed sample size.

Step 1- Present confidence level corresponds to a Z-score. This is a constant value needed for this equation. Here are the z-scores for the most common confidence levels:

- 90% – Z Score = 1.645
- 95% – Z Score = 1.96
- 99% – Z Score = 2.576

Step 2- Plug in your Z-score, Standard of Deviation, and confidence interval into this equation:**
Step 3 - **Necessary Sample Size** = \((Z\text{-score})^2 \times \text{StdDev} \times (1-\text{StdDev}) / (\text{margin of error})^2\)

Sample Size for Current Research- Here is how the math works assuming researcher chose a 95% confidence level, .5 standard deviation, and a margin of error (confidence interval) of +/- 5%.

\[
((1.96)^2 \times .5(.5)) / (.05)^2
\]

\[
(3.8416 \times .25) / .0025
\]

\[
.9604 / .0025
\]

384.16

**385 respondents are needed**

- **Sample Unit** – Sample of the study broadly comprised of 500 respondents from rural areas of Jaipur district. The District is divided into thirteen Tehsils. Eight Tehsils would be selected randomly. Further four villages from each Tehsil would be randomly selected for research contributing to 500 respondents would be further categorized on the basis of Age, Income level, Occupation and Literacy level.

The research design was exploratory and descriptive. The research study had been accomplished through in-depth review and analysis of secondary information available in the published form, which includes data from textbook, journals, management reports seminar papers etc. The electronic data and results of surveys conducted by organizations were also important data sources for the report.

To gather all the information in this report researcher had found related information by accessing reference books, business magazines and journals & Web sources.

- **Sampling Instrument**: A structured schedule is used
To measure the Mobile Number Portability and Consumer satisfaction, a schedule comprising of the following basic elements and some demographic questions was constructed. The MNP related elements are:

- Questions related with mobile usage details
- Questions related with level of satisfaction analysis of respondents
- Questions related with awareness and expectation of mobile number portability analysis of respondents
- Miscellaneous questions

The schedule was taken to different people of tehsils with a brief explanation of the questions. The respondents were also given a written guarantee of confidentiality for information. Respondents (Mb Users) were asked to indicate the level of satisfaction or dissatisfaction which they derived from each of the five aspects of their satisfaction. The scale ranged from I to V representing:

- \( I = \text{“Highly satisfied” or “Strongly Agree” or Yes} \)
- \( II = \text{“Satisfied” or “Agree”} \)
- \( III = \text{Neutral} \)
- \( IV = \text{“Dissatisfied” or “Not Agree” or “No”} \)
- \( V = \text{“Highly dissatisfied” or “Strongly Disagree”} \)

The demographic questions in the survey included age, marital status, rank, education, gender, monthly income, and length of uses of Mobile Phone/ Number. Answers to these questions provide a good picture of respondent’s background.
3.9 ANALYTICAL TOOLS

The statistical techniques used for establishing the relationships between the data and the unknowns and methods used to evaluate the accuracy of results i.e., the analytical tools of research are very important for scientific analysis of the problem. The design of the methodology and its aptness in the context of the particular research study are the most important parts of a scientific and systematic research.

The models used, statistical measures applied, the testing of hypothesis – parametric and non-parametric tests used, other tools, statistical techniques, and formulae used, etc. form part of the analytical framework of the study.

Statistical analytical tools to be used in the research would be: ANOVA test, t-test, Correlation, Percentage, etc.

3.10 LIMITATIONS OF THE STUDY

The scope of study is limited due to the following reasons:

- The universe chosen being rural area, the responses are captured through schedules. There may be difference in capturing of responses due to individual perceptions.
- The willingness of respondents to participate in the study may be a concern.
- Due to confidentiality of some information accurate response was not revealed by some of the respondents.
- Some of the replies of the respondents may be biased.
REFERENCES


