CHAPTER 2

REVIEW OF LITERATURE

The Indian telecommunications industry is one of the fastest proliferating sectors in the world. Prepaid mobile customers are vibrant in changing their mobile operators within very short time span. Churn rate increases pungently in parallel to the growth of prepaid mobile subscribers. Customer churn happens to be the most challenging issue for mobile industry irrespective of its rapid growth. This in turn entangled with disloyalty and as the industry saturates it become imperative for the mobile operators to redesign service plans with new offerings to enhance customer loyalty. Customer retention, therefore, is becoming critical to sustain customer base. In this regard it is essential to examine the reviews to identify the basis for switching of the prepaid mobile users in India as well as in other countries. And also to ensure a thorough understanding in various perspectives of this topic and to identify similar work done in the same area. Thus the current chapter consists of two main sections, with the following topics,

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SECTION II

2.2 Problems faced by Indian pre-paid service providers
2.3 Customer churn
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SECTION I

2.1 PROFILE OF INDIAN TELECOM SECTOR

2.1.1. Importance of telecom industry and telecom customers

Bautsch et al. (2001) reported that cell phones have several influence over society. This could include convenience to communicate, increased connectivity and affordability of mobiles etc. however many other communication facilities comes under the head of telecommunication like, fixed land line, internet broadband, calling cards and cellular service. So it is highly needful to pave attention to the telecom customers. He also stated that cell phones have multiple influences on our society. This includes the daily interaction / communication of people, access to anyone anywhere, convenience of usage and improved connectivity and affordability of technology [24].

According to Aoki and Downes (2003), cell phones were originally designed for business perspective and adult users but now situation is opposite [25]. Similarly Koopmaa (2000), Katz (2003) and Cooper et al. (2004) suggested that the growing usage of cell phones may influence our social and geographical aspects of people, especially young ones. Growth of cell phone will also provide many solutions and facilities to libraries and education systems [26-27].
Masooud and Gupta (2003) explained the importance of mobile industry and mobile commerce as an important stream of revenues for many telecom organizations and further more they are enjoying much stable position as compare to other industries, explained the importance of mobile industry and mobile commerce as an important stream of revenues for many telecom organizations and further more they are enjoying much stable position as compare to other industries. However a Rapid technological advancement in an industry brings a lot of challenges for organizations. Therefore, it requires continues customer patronage which can be achieved through understanding or analyzing consumer behavior of the industry [28].

In a press release of Gartner (2005) reported that if the current penetration rate of cellular mobile technology which is about 779 million cell phones every year, will continue then by the end of year 2009 the total mobile phones sales per year would reach up to 1 billion cell phones [29]. Moreover, Motorola (2006) reported that in the year 2006 round about 31 percent of people were using mobile technologies [30]. This growth of cellular phones and technology is quite impressive and is a clear evidence of stated literature. Geser (2006) also believed that the diffusion rate of mobile cell phones is much greater than any other technical gadget; this also includes internet and computer [31].

Cell phones are becoming a basic necessity of life according to international telecommunication union estimates, world wide mobile cellular subscription will reach approximately 4.1 billion by end of 2008. Mobile has effectively gained importance in communication technology and significantly adding value into economic development of many countries. Wajcman (2008) explained that information and communication technologies are speeding up the daily lives. Telecom is considered to be one of the world's most dynamic economic sectors and it faces relentless technological and market forces. Therefore the telecom subscribers are highly vibrant in decision making when compared with the customers of other sectors [32].

Rajiv Mohan Gandhi (2013), Indian telecom market is very different compared to other markets because of their delivering complex services and providing a consistently higher level of customer service across wide geographical
areas is one of the major challenges that telecom companies face today. Indian customers are value-driven unlike customers in other nations and making use of trained talent crunch in the telecom sector [33].

Plunkett (2014) accentuated the importance of telecom sector from other sectors by mentioning that no other industry touches as many technology-related business sectors as telecommunications, which, by definition, encompasses not only the traditional areas of local and long-distance telephone service, but also advanced technology-based services including wireless communications, the Internet, fiber-optics and satellites. Telecom is also deeply intertwined with entertainment of all types. Cable TV systems, such as Comcast, are aggressively offering local telephone service and high-speed Internet access. The relationship between the telecom and cable sectors has become even more complex as traditional telecommunications firms such as AT&T are selling television via the Internet, and competing directly against cable for consumers’ entertainment dollars. He also stressed that buying behavior of telecom customers are too complex when compared with customers of other sectors [34].

Garner report (2014) emphasized that managing consumer experiences is very important for telecom industry from other organizations. He also pointed out that dealing with the telecom customers involved with many aspects that are known to affect human cognition, emotional experience and behaviour. This ‘services cape’ consists of a complex interaction of social and environmental elements which are experienced as a whole. Within the service environment, customer motivations vary. Depending on the activity at hand (is the consumer performing a complex or simple task?), the situational context (peak or off-peak hours), and the consumer’s emotional and motivational state (pursuing a specific goal or soaking up the environment), the environmental design of the services cape will impact the consumer’s experience and behavior [35].

2.1.2. Indian telecom sector – Growth in brief

TRAI (2010), Telecommunications has been recognized the world-over as an important tool for socio-economic development for a nation. It is one of the prime
support services needed for rapid growth and modernization of various sectors of the economy. It has become especially important in recent years because of enormous growth of information technology and its significant potential for the impact on the rest of the economy. The Telecom Sector, which has the multiplier effect on the economy, has a vital role to play in economy by way of contributing to the increased efficiency. The available studies suggest that income of business entities and households increases by the use of telecom services.

National Telecom Policy (1999) the introduction of the New Telecom Policy in 1999, Indian telecom industry has witnessed exponential growth, especially in the wireless segment. The industry has evolved as a basic infrastructure on the similar lines of electricity, roads, water etc. The overall tele-density has increased from 4.3 in March 2002 to 78.1 in February 2012, wherein the rural areas registered an increase from 1.2 in March 2002 to 38.5 in February 2012, according to a report titled ‘Telecom Sector in India: A Decadal Profile’ prepared by the Telecom Regulatory Authority of India (TRAI). Also, the share of telecommunication services (excluding postal and miscellaneous services), as a per cent of the total gross domestic product (GDP), has increased from 0.96 in 2000-01 to 3.78 in 2009 -10. The Government has given estimates that every 10 per cent increase in access of broadband connectivity boosts the GDP by 1.38 per cent [36].

International comparisons (among 222 countries) in the same report show that India has the second largest number of telephone subscribers in the world accounting for 12 per cent of the world’s total telephone subscribers. Videsh Sanchar Nigam Limited (VSNL) 16th Annual Report (2002) stated that India like many other countries has adopted a gradual approach to telecom sector reform through selective privatization and managed competition in different segments of the telecom sector. India introduced private competition in value-added services in 1992 followed by opening up of cellular and basic services for local area to competition. Competition was also introduced in National Long Distance (NLD) and International Long-distance (ILD) at the start of the current decade [37].

Uehara (1990); Mutoh (1994) emphasized that technological changes in the telecom and computers have radically changed the business scenario. In turn, the
new demands of business have spurred many telecom based technological innovations. In order to exploit these innovations for competing in global markets, business community has been putting pressures on government to revise the policy, regulation and structure of the telecom sector. Several countries across the world have responded by restructuring the state controlled telecom provider, increasing private participation and deregulating service provisions [38-39].

According to Economic Commission for Europe (2000) this transition of the telecommunication area is mainly technology driven. The borderline between computers and electronics, on the one hand, and telecommunications, on the other, is disappearing. This convergence of technologies has led to the acceleration of the innovation process, which is constantly bringing forward new products and services [40].

Besides expanding the market potential, this innovation process has also given rise to major changes in industry and the institutional structure. Indian Telecommunication Statistics (2002) in its study showed the long run trend in supply and demand of Direct Exchange Lines (DEL). Potential demand for telecom services is much more than its supply. In eventful decade of sector reforms, there has been significant growth in supply of DEL [41].

Economic Survey, Government of India (2002-2003) has mentioned two very important goals of telecom sector as delivering low-cost telephony to the largest number of individuals and delivering low cost high speed computer networking to the largest number of firms [42].

Adam Braff, Passmore and Simpson (2003) state that telecom service providers even in United States face a sea of troubles. The outlook for US wireless carriers is challenging. They can no longer grow by acquiring new customers; in fact, their new customers are likely to be migrated from other carriers. Indeed, churning may account for as much as 80% of new customers in 2005[43].

Dutt and Sundaram (2004) studied that in order to boost communication for business, new modes of communication are now being introduced in various cities of the country. Cellular Mobile Phones, Radio Paging, E-mail, Voice-mail, Video, Text
and Video-Conferencing now operational in many cities, are a boon to business and industry. Value-added hi-tech services, access to Internet and Introduction of Integrated Service Digital Network are being introduced in various places in the country [44].

A study by Jeanette Carless on and Salvador Arias (2004) wireless substitution is producing significant traffic migration from wire line to wireless and helping to fuel fierce price competition, resulting in margin squeezes for both wire line voice tariffs in organization for Economic Co-operation and Development Countries have fallen by an average of three percent per year between 1999 and 2003[45].

Prithipal Singh (2004) with the convergence of technologies, data services are expected to grow exponentially in the years to come. Broadband is likely to take a lead in the development of Indian Telecom Sector. Broadband is growing market and offers immense possibilities for investment. In Broadband policy, India has envisaged a target of 40 million Internet subscribers and 20 million broadband subscribers’ by 2010 [46].

P.S.Saran (2004) the telecom technology in India has transformed from manual and electro-mechanical systems to the digital systems. India has stepped into new millennium by having 100% electronic switching system. The technological changes have made way for new services and economics in the provision of telecom services [47].

T.V.Ramachandran (2005) analyzed performance of Indian Telecom Industry which is based on volumes rather than margins. The Indian consumer is extremely price sensitive. Various socio-demographic factors - high GDP growth, rising income levels, booming knowledge sector and growing urbanization have contributed towards tremendous growth of this sector. The instrument that will tie these things together and deliver the mobile revolution to the masses will be 3rd Generation (3G) services [48].

Rajan Bharti Mittal (2005) explains the paradigm shift in the way people communicate. There are over 1.5 billion mobile phone users in the world today, more
than three times the number of PCOs. India today has the sixth largest telecom network in the world up from 14th in 1995, and second largest among the emerging economies. It is also the world’s 12th biggest market with a large pie of $6.4 billion. The telecom revolution is propelling the growth of India as an economic powerhouse while bridging the developed and the developing economics [49].

ASEAN India Synergy Sectors (2005) point out that high quality of telecommunication infrastructure is the pillar of growth for information technology (IT) and IT enabled services. Keeping this in view, the focus of telecom policy is vision of world class telecommunication services at reasonable rates. Provision of telecom services in rural areas would be another thrust area to attain the goal of accelerated economic development and social change. Convergence of services is a major new emerging area [50].

In overview in Indian infrastructure Report (2005) explains India’s rapidly expanding telecom sector is continuing to witness stiff competition. This has resulted in lower tariffs and better quality of services. Various telecom services-basic, mobile, internet, national long distance and international long distance have seen tremendous growth in year 2005 and this growth trend promises to continue electronics and home appliances businesses each of which are expected to be $2.5 bn in revenues by that year. So driving forces for manufacturing of handsets by giants in India include - sheer size of 101 India market, its frantic growth rates and above all the fact that its conforms in global standards[51].

Marine and Blanchard (2005) identifies the reasons for the unexpected boom in mobile networks. According to them, cell phones, based on Global System for Mobile Communication (GSM) standard require less investment as compared to fixed lines. Besides this, a wireless infrastructure has more mobility, sharing of usage, rapid profitability. Besides this, usage of prepaid cards is the extent of 90% simplifies management of customer base. Moreover, it is suitable to people’s way of life-rural, urban, and sub-urban subscribers [52].

Illustrating the lead achieved by Gujarat, according to Business and Economy (2005) the catalyst for Indian mobile operators in the future will undoubtedly be
increased marketing and advertisement expenditure, along with better deals for mobile phone users like the previously mentioned full talk time Rs. 10 recharge card, will go a long way in not only retaining customers but also acquiring the vast market of lowered customers who are extremely sticky about value for money and have extremely low loyalties and almost non-existent switching costs [53].

According Economic Times (2005) Indian mobile phone market is set to surge ahead since urban India has a tele-density of 30 whereas rural India has a tele-density of 1.74. It indicates that the market is on ascent, with more than 85000 villages yet is to come under tele-connectivity [54].

KushanMitra (2005) analyses various factors contributing to competition to Indian Telecom Industry. Besides lowering of prices, increased efficiency, greater innovation, high tech industry and better quality services are some of the reasons which are boosting competition amongst various telecom service providers [55].

Arindham Mukherjee (March, 2006) takes out various case studies like Vodafone, Maxis, Telekopm Malaysia, Tata tele etc. to study the rising interest of foreigners for investment in Indian telecom industry. Various reasons of steming growth can be rising subscriber base, rising tele density, rising handset requirements, saturated telecom markets of other countries, stiff competition, requirement of huge capital, high growth curve on telecom, changing regulatory environment, conducive FDI limits in telecom sector [56].

According to a paper released by the Associated Chambers of Commerce and Industry of India (2005), it is stated that 30% of the new mobile subscribers added by the operators worldwide will come from India by 2009. The 10% of the third generation (3G) subscribers will be from India by 2011. Indian handset segment could be between US $ 13 billion and US $ 15 billion by 2016. It offers a great opportunity for equipment vendors to make India a manufacturing hub. Indian infrastructure capital expenditure on cellular equipment will be between 10 to 20% of the investment that will be made by international operators by 2015. The other proposals included setting up of hardware manufacturing cluster parks, conforming
to global standards and fiscal incentives for telecom manufacturing among others [57].

Virat Bahri (2006) explains the viewpoint of Sam Pitroda the Chairman of Worldtel that identifies opportunities for investments in telecommunications. He analyses that there is an increasing role for telecom in e-governance in India. According to him, technology can be leveraged to take India’s development to next level [58].

Narinder K Chhiber (2008) the mobile telecommunication technology is evolving rapidly in the world as more people demand mobile services with longer bandwidth and new innovative services like connectivity anywhere, anytime for feature like T.V., Multimedia, Interoperability and seamless connectivity with all types of protocols and standards, while the 3G services are yet to fully come up. Serious discussion on 4G has started. WLAN hot spot have made inroads along with 3G to offer an alternative form of mobile access [59].

The telecom subscriber base stood at 944.81 million in July 2012, according to data released by TRAI. Another report by CAG has revealed that telecom users in rural India have increased at a faster pace as against urban users. Moreover, the capital investment in the sector increased from Rs 240711 crore (US$ 43.63 billion) in 2006-07 to Rs 479278 crore (US$ 86.88 billion) in 2010-11, while the capital employed grew to Rs 337683 crore (US$ 61.2 billion) from Rs 198011 crore (US$ 36 billion) in the same period, indicating a tremendous growth in investment in the telecom sector. Furthermore, mobile data traffic in India has increased by 54 per cent between December 2011 and June 2012, according to a report by Nokia Siemens Networks. The statistics reveal that data traffic generated by 3G services has increased by 78 percent while that of 2G services has increased by 47 per cent during the period. While 2G users in India are consuming three-fourth of the total mobile data traffic on average, 3G users consume four times more data than 2G users. Considering such a tremendous growth, Nokia Siemens Networks expects the country’s mobile data consumption to double by June 2013. Owing to ‘banking-on-the-go’ initiatives taken by banks such as SBI and ICICI, the value of mobile
banking transactions increased five-fold to Rs 1140.6 crore (US$206.75 million) between January and May 2012 as against the same period a year ago[60].

Service providers like Airtel have promoted mobiles as medium for bill payments and fund transfers in a big way, due to which the volume of transactions also rose significantly (from 0.5 crore in January-May 2011 to 1.5 crore mobile transactions in January-May 2012). In terms of subscriber base, Bharti Airtel made the lead in the month of July 2012 with 188.8 million subscribers followed by Vodafone with 154.9 million. Idea Cellular added 4,55,912 subscribers to have 117.6 users and State-run Bharat Sanchar Nigam Ltd (BSNL) added 4,71,552 users to have 98.75 million subscribers. Tata Teleservices has a total number of 77.8 million subscribers, while Uninor has 44.5 million [61].

With regards to the handsets market, mobile phone sales increased 9.1 per cent (crossing the 50-million-mark) in January-March 2012 quarter as against the same quarter in 2011, according to the latest data released by Cyber media Research India. Smart phone accounted for 5.3 per cent of the handsets sold and about a quarter of the handset revenues in the country. Multi-SIM handsets captured two-thirds of the total sales, while 3G handsets accounted for less than 10 per cent of it. Finnish handset maker Nokia maintained its leadership position with 23 per cent of the handset market share, followed by Samsung with 14.1 per cent and Indian brand Micromax at third position with 5.8 per cent of the pie, in terms of sales (unit shipments) during the January-March 2012 quarter [62].

China-based telecom equipment maker Huawei has planned to invest US$ 150 million in its research and development (R&D) centre in Bengaluru. The new facility will acknowledge Huawei’s enterprise, telecom operators and cell phone business segments. The Government of India is focusing on improving rural tele-density and broadband connectivity, effective expansion of the networks with efficient utilization of scarce spectrum and ensuring equal sharing of highly capital intensive infrastructure. TRAI, the telecom sector regulator, intends to create standards to ensure quality of service for mobile phone companies which deliver mobile data services to the users. Considering the fact that roll out of 3G and 4G high-speed data access services across the country will lead to quantum jump in the
number of mobile internet users, the authority is seeking comments from stakeholders in the sector. According to the draft regulations issued, TRAI has created nine parameters benchmarks including service activation clause (that the service would be activated within three hours with a 95 percent success rate), drop rate (or the network's inability to upload or download, should be below 2 per cent) etc.

Telecom service providers would be required to collect and maintain compliance records of each of the nine parameters and submit them to TRAI within 60 days of notification of these new rules. Time-Division long-Term evolution (TD-LTE) market in India is at a nascent stage and expected to pick up in the next couple of years. Analysts predict that TD-LTE subscribers in India would reach 5 million in 2013, with the focus on mobile broadband. Further, smart phone launches by companies such as Nokia, Samsung and Apple will spur significant surge in data consumption. TD-LTE, also called as Long-Term Evolution Time-Division Duplex (LTE TDD), is a 4G mobile telecommunication technology which was developed in China [63].

2.1.3. Telecom customer perception and expectations

The concept of consumer and for that matter customer has evolved through time. Before the 1960s the consumer was perceived to consume whatever was produced and therefore was not seen as a vital ingredient in the production strategy.

Reichheld and Sasser (1990) emphasized the importance of factors triggering customer loyalty in the mobile services industry [64]. Holbrook (1994) explained the need of assessing the customer value for marketing activities. Each of these groups had different needs of and attitudes to new products [65].

Gourville and Soman (1998) examined the effect of paying in advance for a service on the consumer’s interest in that service. They found that the longer the delay between paying for a service and using it, the more that consumer tends to treat that service as if it had been acquired for free. They also suggested the importance of investigating consumer perception in which benefits temporally precede costs [66].
Zeithaml, V.A. and M. J. Bitner (2000) described the significance of customer perception in assessing the current performance of the marketers through level of customer satisfaction [67]. Lee, H., Lee, Y and Yoo, D (2000) pointed out that Customer satisfaction is influenced by customers’ perceptions of quality. Service quality is an antecedent of the broader concept of customer satisfaction. Satisfaction is the customers’ evaluation of services after purchase as opposed to their expectation [68].

Kotler et al., (2002), mentioned that Philosophies about the consumer have changed through the production concept period to the societal marketing concept period. The notion about the customer changed, owing to the understanding that the customer plays a crucial role in the organization [69]. Donio, Massari and Passiante, (2006), emphasized the importance of customer perception as it was the vital factor in the competition that organizations are facing due to globalization and the liberalization of the market. Besides, it has been noted that it is cheaper to retain existing customers than recruiting new customers [70].

Birke and Swann (2006) examined the impact of social ties on consumer choice in network markets. In addition, they identified three important factors: Price, firm size and switching cost, which have a significant effect on customer retention. These two studies contribute to the collective understanding of factors affecting customer retention in the UK mobile market. In order to construct a comprehensive understanding for the customer retention, other important factors such as customer satisfaction factors and social influences need to be jointly considered [71].

Grzybowski (2008) analyzed some of the UK mobile regulatory variables and measures, such as switching costs, to investigate customer’s choiceness of network operator [72]. Benjamin Oghojafor (2012) stated that major challenge facing telecom business providers in Nigeria is the continuous growing competition and customers’ expectation of service quality and as such customers are able to choose among multiple service providers based on the level of satisfaction, affordability, and service quality of service providers. Customer demand and competition are forcing firms to cut loose from the traditional customer satisfaction paradigm, to adopt proactive strategies which will assist them to take the lead in the market-place [73].
Wel et al., (2013) explored the role of text messages (SMS) and multimedia messages (MMS) in 3G mobile especially in the perceived ease of use [74]. Koga et al., (2013) evaluated the consumer's behavior in terms of mobile phones discard and recycling in Brazil by means of perception study. Survey result shown that majority of the respondents had awareness about recycling [75].

Kevin J. Clancy; Paul D. Berger; Peter Krieg (2013) pointed out self-report was the best way to percolate the determinants of factors in preferring the brand choice for products and services [76]. Essays, UK. (2013) explained the importance of customer perception study in the Malaysian Telecommunications. It is mainly to evaluate the customer benefits and their needs for purchase in terms of costs of usage. It was found that there were five factors that influenced customers to select particular mobile operators and they were service provider peer influence, quality of services, customer services, promotion and coverage of network [77].

Manish Bahi (2013) inferred that the current economic trends in India coupled with the increasing demands and expectations of digital customers are redefining the way business is done. The success of Indian mid market firms increasingly depends on leveraging business technology to connect with customers and generate growth. Firms must clearly define business outcomes (focused on increases in sales, revenue, customer acquisition, customer satisfaction to name a few) of their IT investments to win in the age of the customer [78].

Ericsson Consumer Lab’s India study 2013, gives a detailed analysis of Indian consumers’ expectations from their mobile operators. The study ranks 12 different service industries including mobile operators on nine performance attributes, including the ability to quickly solve problems, ease of making payments, and innovation. The study also focuses on touch-points that operators can address to transform consumer satisfaction and loyalty. The survey represents the opinions of 100 million urban Indian mobile consumers. Resolving problems quickly has the maximum impact on driving consumer satisfaction across all industries. The benchmarking analysis revealed that airlines, online shopping, and fast food industries were ranked high by consumers on overall consumer experience offered due to transparency, punctuality, and innovation. Mobile operators are comparatively
behind on such service expectations. The report highlights areas that operators can focus on to deliver a superior consumer experience. "Findings across four markets (US, India, Brazil and Russia) highlighted customer service as an important touch point to drive consumer satisfaction." said Ericsson’s Region India Head, Chris Houghton. "For India, initial purchase experience and customer service emerged as priority touch points." One in three urban mobile users claim they do not find mobile plans that best suit their usage patterns, and 85% rate quick activation of services as very important[79].

India Infoline News Service (2013) stated that customer experience management is emerging as a business discipline for marketing, sales and customer service leaders. Setting a level of expectation and delivering over and above the expectation is the basic rule that Enterprises today have to follow. Today looking at the increasing number of consumers, it is become impossible for the companies to keep a track of each and every consumer individually. But at the same time, ignoring customer relationship is not an option that companies have, therefore mobile as a medium is increasingly being used by the Enterprises. The medium is very strongly being used to manage the expectations of their customers. A recent report by Gartner states that significant shifts will occur in the customer relationship management (CRM) market in the next two years. The company predicts mobile CRM apps available for download on app stores will grow to over 1,200 by 2014 from over 200 in 2012. The report also states that customer experience management is emerging as a business discipline for marketing, sales and customer service leaders. Each day leaders are incorporating more new technology into their projects to achieve organizational goals. To retain customers, managing customer expectations is the need of the hour. And what better way than the use of a personal device such as the mobile phone for the same [80].

Manivannan Senthil Velmurugan and Masa Sakthi Velmurugan, (2014) studied the consumer awareness and adoption of 3G Mobile Phones in India by emphasizing the vital need of any marketer to know the exact need of the customers in selecting the particular mobile operator [81]. Raheem, Ahmed Rizwan and Nawaz, Ahmad and Mujeeb, Mirza and Vishnu. Parmar (2014) pointed out that the
perception of customers need to monitored for understanding the switching behavior of the customers from 2G TO 3G services[82].

2.1.4. Categories of telecom services

According to the official report of Telecom Regulatory Authority of India (2014), major sectors of telecommunication industry in India are telephony, internet, data centers and broadcasting.

2.1.4.1. Telephony

According to the official report of Telecom Regulatory Authority of India (2014), the telephony segment is dominated by private-sector and two state-run businesses. Most companies were formed by a recent revolution and restructuring launched within a decade, directed by Ministry of Communications and IT, Department of Telecommunications and Minister of Finance. Since then, most companies gained 2G, 3G and 4G licenses and engaged fixed-line, mobile and internet business in India. On landlines, intra-circle calls are considered local calls while inter-circle are considered long distance calls. Foreign Direct Investment policy which increased the foreign ownership cap from 49% to 74%. Now it is 100%. The Government is working to integrate the whole country in one telecom circle. Some major telecom operators in India include Airtel, Vodafone, Idea, Aircel, BSNL, MTNL, Reliance Communications, TATA Teleservices, Infotel, MTS, Uninor, TATA DoCoMo, Videocon, Augere, Tikona Digital.

2.1.4.2. Fixed telephony

According to the official report of Telecom Regulatory Authority of India (2014), Until the New Telecom Policy was announced in 1999, only the Government-owned BSNL and MTNL were allowed to provide land-line phone services through copper wire in India with MTNL operating in Delhi and Mumbai and BSNL servicing all other areas of the country. Due to the rapid growth of the cellular phone industry in India, landlines are facing stiff competition from cellular operators. This has forced land-line service providers to become more efficient and improve their quality of service. Land-line connections are now also available on
demand, even in high density urban areas. India has over 31 million main line customers.

2.1.4.3. Mobile telephony

According to the official report of Telecom Regulatory Authority of India (2014), with a subscriber base of more than 929 million, the Mobile telecommunications system in India is the second largest in the world and it was thrown open to private players in the 1990s. GSM was comfortably maintaining its position as the dominant mobile technology with 80% of the mobile subscriber market, but CDMA seemed to have stabilized its market share at 20% for the time being. By May 2012 the country had 929 million mobile subscribers, up from 350 million just 40 months earlier. The mobile market was continuing to expand at an annual rate in excess of 40% coming into 2010. Based on the billing option it is divided in to postpaid and prepaid.

The country is divided into multiple zones, called circles (roughly along state boundaries). India is divided into 22 telecom circles. Government and several private players run local and long distance telephone services. Competition has caused prices to drop and calls across India are one of the cheapest in the world. The rates are supposed to go down further with new measures to be taken by the Information Ministry. The dominant players are Airtel, Reliance Infocomm, Vodafone, Idea cellular and BSNL / MTNL. There are many smaller players, with operations in only a few states. International roaming agreements exist between most operators and many foreign carriers. The government allowed Mobile number portability (MNP) which enables mobile telephone users to retain their mobile telephone numbers when changing from one mobile network operator to another.

2.1.4.4. Internet

According to the Internet and Mobile Association of India (IAMAI) 2013, the Internet user base in the country stood at 190 million at the end of June, 2013. As of October, 2013 report, it is over 205 million. The number of broadband subscribers at the end of May 2013 was 15.19 million. Cumulative Annual Growth rate (CAGR) of broadband during the five-year period between 2005 and 2010 was about 117 per
cent. DSL, while holding slightly more than 75% of the local broadband market, was steadily losing market share to other non-DSL broadband platforms, especially to wireless broadband.

There were 161 Internet Service Providers (ISPs) offering broadband services in India as of 31 May 2013. The top five ISPs in terms subscriber base were BSNL (9.96 million), Bharti Airtel (1.40 million), MTNL (1.09 million), Hathway (0.36 million) and You Broadband (0.31 million).

2.1.4.5. Broadcasting

According to the official report of Telecom Regulatory Authority of India (2014), television is the most penetrative media in India with industry estimates indicating that there are over 554 million TV consumers, 462 million with satellite connections, compared to other forms of mass media such as radio or internet. Government of India has used the popularity of TV and radio among rural people for the implementation of many social-programs including that of mass-education [83].

2.1.5. Features of pre-paid customers

According to the official report of Telecom Regulatory Authority of India (2014), a prepaid mobile phone (also commonly referred to as pay-as-you-go, pay-as-you-talk, pay and go, prepaid wireless, or prepay) is a mobile phone for which credit is purchased in advance of service use. The purchased credit is used to pay for mobile phone services at the point the service is accessed or consumed. If there is no available credit then access to the requested service is denied by the mobile phone network. Users are able to top up their credit at any time using a variety of payment mechanisms. The alternative billing method (and what is commonly referred to as a mobile phone contract) is the post-paid mobile phone, where a user enters into a long-term (generally lasting 12, 18 or 24 months) or short term (also commonly referred to as a rolling contract or a 30-day contract), billing arrangement with a mobile network operator or carriage service provider (CSP). A prepaid plan may have a lower cost (often for low usage patterns e.g. a telephone for emergency use) and make it easier to control spending by limiting debt and controlling usage. They often have fewer contractual obligations – no early termination fee, freedom to
change providers, plans, able to be used by those unable to take out a contract (i.e. under age of majority). Depending on the local laws, they may be available to those who do not have a permanent address, phone number, or credit card. This makes them popular amongst students away from their home towns and travelers. Additionally, they are popular with parents who wish to have a way to stay connected with their college age students but do not want the surprise of an unexpected and lofty bill [84].

Gourville and Soman (1998) examined the effect of paying in advance for a service on the consumer’s interest in that service. They found that the longer the delay between paying for a service and using it, the more that consumer tends to treat that service as if it had been acquired for free. They also suggested the importance of investigating consumer perception in which benefits temporally precede costs [85].

MarcinOwczarczuk (2010) explained that prepaid clients do not sign any contract and are anonymous. So we do not have any personal data about them [86]. Amal M. Almana et al (2014) mentioned that unlike post paid customers, prepaid customers are not bound by service contracts and they often churn for simplest reasons. Thus, it is quite difficult to predict their churn rate. Another factor is customer loyalty that may be determined by customer service and product quality offered by the service providers. Issues like network coverage issues and reception quality may influence customers to move to the competitor with broader reach and better reception quality. Other factors that increase probability of customers defecting to the competition include slow or inadequate response to complaints and billing errors. Factors such as packaging prices, inadequate features, and older technology may also cause customers to defect to the competition. Customers often compare their providers with others and churn to whoever they feel provides better overall value [87].

COAI (2014), prepaid customers account for a significantly higher share in the total subscriber base in both the GSM as well as CDMA segments. Prepaid subscribers form around 93.10% and 94.30% of the total subscriber base of the CDMA and GSM segments, respectively. "Pay-as-you-go", "PAYG", and similar terms are also used for other non-telephone services paid for in the same way. Ease
of changing the tariff plans anytime coupled with the notion that prepaid connections help in limiting expenses within a fixed budget are likely to have made prepaid connections an attractive proposition for the customers, especially in the middle and lower income segments [88].

2.1.6. Features of service offer for pre-paid customers

2.1.6.1. Network quality

Research conducted by Birke and Swann (2006) found that network geographical coverage influences the subscriber’s choice of a mobile-service provider[89]. Seo, Ranganathan and Babad (2008) further note that geographical coverage and voice clarity (call quality) are the fundamental quality characteristics of a mobile-telecommunication service which affect the subscriber’s choice of a mobile-service provider[90]. Similarly, Min and Wan (2009) noted from research undertaken in the Korean mobile market that 13.7% of subscribers had churned their mobile-service provider owing to network coverage problems in the form of weak signals[91]. Research results by Turki (2010) further show that more than a third of the participants in the UK mobile market claimed that poor mobile signal, which usually results from poor network coverage, is the main cause of subscribers switching to another mobile-service provider[92].

Rahman, Haque and Ahmad (2010) also noted that network quality was one of the important factors of overall service quality of mobile-service providers in Malaysia [93]. Research by Paulrajan and Rajkumar (2011) indicated that communication and price are the key and influencing factors that motivate subscriber’s preference of service provider in the Indian mobile-telecommunication market [94].

2.1.6.2. Mobile tariffs

Sensitivity of demand refers to the extent to how volume-sensitive a product, or a service, is to price changes. Thus, sensitivity represents a valuable strategic tool in pricing although the principle is relatively old, it holds true for modern-day price and demand that a small change in price could result in higher subscriber churn. However, Munnukka (2008) argued that the subscriber’s price perception relates to
perception of quality, value and other beliefs. Thus, arguably, if a service provider was rated as high in network quality, the subscriber might be less sensitive to changes in mobile tariffs. The opposite would be true if the network quality was poor. In other words, changes in mobile tariffs could result in subscriber churn if network quality was poor [95].

Min and Wan (2009) also identified mobile tariffs as one of the four main factors that affect the switching behavior of subscribers in the Korean mobile market. The other factors included customer satisfaction, switching cost and customer loyalty. From their research results 27.4% of subscribers churned their mobile-service provider because of more competitive deals in the market, while 14.7% of subscribers churned their mobile-service provider owing to high-priced calls tariffs[96].

Thus, mobile tariffs are considered to be an influential factor for prepaid mobile subscribers when choosing a mobile-service provider. Haque, Rahman and Rahman (2010) also argued that mobile tariffs are one of the factors that subscribers consider when deciding to churn from a mobile-service provider. With reference to mobile tariffs, a company that offers lower charges would be able to attract more subscribers who would be willing to commit themselves to the mobile telephone networks, and hence, a significant number of “call minutes” might be achieved (Rahman, Haque & Ahmad, 2010). This was further supported by Rahman, Haque and Ahmad (2010) in their research findings that mobile tariff was an important factor for subscribers when selecting a mobile-service provider. Thus, the mobile tariffs do play a vital part in the choices that subscribers make in terms of a service provider [97].

In addition, research conducted by Paulrajan and Rajkumar (2011) found that mobile tariffs was one of the key and influencing factors that motivated subscribers to prefer a specific service provider [98].

2.1.6.3. Mobile tariff plan types

Mobile tariffs and mobile tariff plan types are closely related. Kollmann,(2000) represented that the mobile tariff plans of mobile-service providers
such as per-second tariffs, flat tariffs or two-part tariffs would drive certain usage behavior and, depending on the market, will be perceived differently by subscribers. However, the risk of having many different prepaid mobile tariffs plans in an oligopolistic or competitive mobile-telecommunication market could encourage multiple mobile-service provider SIM usage behavior [99].

The empirical results of Lambrecht and Skiera (2007) indicated that prepaid tariffs are driven by the under estimation of the subscriber’s usage, and indicate the subscriber’s risk of over spending [100]. Raghuram, Jedidi, & Kohli (2008) explained that mobile tariff plans reflect subscribers’ preferences that minimize their billing rates within their expected usage [101]. Barrantesa & Galperin, (2008) mentioned that the prepaid subscribers at the lower end of the market are driven by cost, and tend to make short calls, changes in the billing unit, can make a significant difference in overall mobile expenditure [102]. In addition, Barrantesa and Galperin (2008) note that per-second tariffs will increase usage among lower-end prepaid subscribers, and will prevent them from churning. A Subscriber could use any SIM of the different service providers at a specific point that provides the maximum benefit to the subscriber at the expense of another service provider [103].

2.1.6.4. Distribution and availability of prepaid recharge cards

Lambart, Stock and Ellram (1998) argued that when consumers perceived all of the top brands as substitutes for each other, this would lead to a lower brand loyalty, which in turn would decrease the manufacturer’s power. However, this actually increases the distributor’s power because sales are then determined by what is in stock, and most often by what is recommended by the distributor, and not by what a particular brand is offering [104].

Gorchels, Marien, & West (2004) mentioned that for most of the service organizations, consumer-marketing and industrial-marketing firms, the distribution channel, or inter-organizational network of institutions, comprising agents, wholesalers, distributors and retailers play a significant role in the flow of goods from producers to consumers [105].
Heggde & Kumar (2011) emphasized that in commoditized industry, such as the mobile-telecommunication industry, subscribers will expect product availability through both formal and informal channels, and it to be easily accessible. Thus, lack of product availability will in turn result in subscribers churning as their needs and wants of product are not met [106].

2.1.6.5. Promotions

Rowley (1998) mentioned that the promotional strategies are mainly to increase sales, maintain or improve market share, create or improve brand recognition, create a favorable climate for future sales, inform and educate the market, create a competitive advantage that is relative to competitor’s products or market position and to improve promotional efficiency. With these objectives, the importance of promotions as a factor in the choice of a mobile-service provider is noted [107].

Alvarez and Casielles (2005) further noted that promotion was a set of stimuli that were offered sporadically, and these stimuli reinforced publicity actions to promote the purchasing of a certain product. Moreover promotional offers consist of several different objects for creating a better sales impact, for example, coupons, samples, premiums, discounts, contests, point-of-purchase displays and frequent-buyer programs. They explained that every promotion technique was intended to have a direct impact on buying behavior and perception about the company or service providers. They further argued that the objectives of promotion would be reached largely when it was done sporadically; in other words, when the consumer did not expect it. Furthermore, they note that promotional actions had to be well planned, systematically organized, and commonly integrated into the subject corporation’s strategic marketing plan [108].

Rahman, Haque and Ahmad (2010) noted that promotion had significant impact on subscriber perception in selecting a mobile-telecommunication service provider in Malaysia, since it was used to communicate with the subscribers in terms of product offerings. Thus, promotion and the perceived value it creates for the subscriber are factors that could significantly influence the prepaid subscriber’s
choice of a service provider. Similarly, in the Bangladesh mobile-telecommunication market, Haque, Rahman and Rahman (2010), found that statistically promotions had a positive impact on the subscribers’ perceptions when choosing a mobile-service provider [109].

2.1.6.6. Loyalty programs

Leenheer, Bijmolt, Heerde and Smidts (2002), noted that loyalty has three types of designs, namely, a saving component, price discounts and a multivendor structure. A saving component is a saving program, which gives saving points to customers, dependent on the monetary amount spent by the customer at the company. A program member can redeem his or her points for a reward, such as a free product, after reaching the minimal redeeming threshold [110].

Yi and Jeon (2003) noted that in times of serve competition, a loyalty program is usually introduced to build customer loyalty through a planned reward scheme that is based on a customer’s purchase history [111]. Kim, Park, & Jeong,(2004) pointed out that mostly the loyalty programs are similar for mobile-telecommunication users with the objective of rewarding subscribers for their usage [112]. Noordhoff, Pauwels & Odekerken, (2006) explained that a loyalty program is a supplier’s structural effort to increase the customer’s attitudinal and behavioral commitment to the supplier’s marketing offer [113].

Steers (2007) emphasized that the loyalty programs enable firms to build stronger relationships, enhance customer retention, encourage customers recommendations, and increase the number of products and services sold to their clients [114].

According to Kotler and Keller (2009), frequency programs are designed to provide rewards to customers who buy frequently. These programs are also evident in the mobile-telecommunication industry. However, the relevance and the impact of influencing customer retention and acquisition have been highlighted as possible factors that will influence a prepaid subscriber’s choice of a mobile-service operator [115].
2.1.6.7. Customer service quality

Service quality is essential and important for a telecommunication provider to ensure the quality service for establishing and maintaining a loyal and profitable customer (Zeithaml, 2000; Leisen & Vance, 2001)[116-117]. According to Leisen and Vance (2001), customer service quality helps to create the necessary competitive advantage by being an effective differentiating factor. However, competitive advantage by firms is a value-creating strategy, which is not simultaneously implemented by any existing or potential competitors [118]. As a result, service quality can be used as a competitive advantage, which is related to the customer’s satisfaction, and leads to consumer loyalty and future purchase (Johnson & Sirikit, 2002)[119]. It has become a distinct and important aspect of the product and service offering (Wal, Pampallis & Bond, 2002) [120]. Customer service is a system of activities that comprises customer-support systems, complaint-processing, speed of complaint processing, ease of reporting a complaint and friendliness when reporting complaint (Kim, Park, & Jeong, 2004) [121]. In particular, consumers prefer service quality when the price and other cost elements are held in a constant state (Boyer & Hult, 2005). Moreover, according to them, a competitive advantage is also sustained when other companies are unable to duplicate the benefits of this strategy [122].

According to Soderlund and Rosengren (2008) the friendly attitude and courteous behavior of the service workers at service firms leave a positive impression on the customer, which leads to customer satisfaction, whilst the opposite behavior will result in subscribers churning as a result of poor customer service [123].

Rahman, Haque and Ahmad (2010) noted that this might be a major problem for the telecommunication service providers, especially for the mobile-telecommunication service providers, to deliver quality service consistently as changes in market compositions and competing characteristics have been surfacing incessantly [124]. Omotayo and Joachim (2008), through research results indicated a strong relationship between customer service, satisfaction and retention in the mobile-telecommunication industry in Nigeria. In the Korean mobile-
telecommunication market, Min and Wan (2009), noted that 11.6% of subscribers churned their mobile-service provider because of poor customer services [125].

Research conducted by Rahman, Haque and Ahmad (2010) on Malaysian mobile telecom subscribers also found that customer service quality directly affected the subscriber’s perceptions in selecting mobile telecommunication service providers. Furthermore, among all the significant variables from the study, they also found that Malaysian telecommunication subscribers perceived that price or call rate was the most important issue followed by customer service quality, service availability and promotion [126].

2.1.6.8. Product bundles

Horvath & Sajtos (2002) indicated that product bundles are a reflection of utilitarian reinforcements that could encourage consumer retention. Thus, the research proposition is that by offering different types of product benefits it would increase the utilitarian reinforcements, and would influence the subscriber’s choice of a mobile-service provider. Consumer relation to product form is dependent on consumer’s personal characteristics, surrounding products, utilities, experience, and enjoyment of use and the contribution to the fulfillment of the object’s purpose [127]. Bundling is defined as the sale of two or more separate products or services in a package at a discount (Stremersch & Tellis, 2002).

Stremersch and Tellis (2002), identify the following two categories of bundling:

1. “Price bundling”, which is the sale of two or more separate products in a package at a discount without any integration of the products.

2. “Product bundling”, which is the integration and sale of two or more separate products in a discounted package with benefit to some consumers because of the benefit brought about by the integration whereas price bundling is a pricing and promotional tool, product bundling is regarded as strategic and of long-term value, and involves new product development [128]. Bundling also changes competitive structure, and reduces the threat of focused specialists (Nalebuff, 2004) [129]. Therefore, suppliers should increase the quality and
quantity of utilitarian reinforcements provided to both existing and potential new subscribers in order to satisfy their needs, and encourage their retention behavior (Ferguson & Hlavinka, 2006) [130].

A premise of bundling is that consumers have asymmetric valuations of separate products. The larger the dispersion and the higher the uncertainty in such valuations, the bigger the gains are from the bundling of these products (Rautio, Anttila & Tuominen, 2007) [131].

Among other things, benefits of bundling include the following: Bundling is likely to transfer surplus from consumers to firms, but it also encourages products to be offered that might not be available under the pricing system (Crawford & Cullen, 2007). They further stated that bundling is an effective entry (deterrent strategy), especially in an oligopolistic market [132]. Bundling reduces both average and fixed costs, as average costs are reduced by the demand increase and by shared fixed costs (Rautio Anttila & Tuominen, 2007) [133].

Content and location-based services, Messaging services, mobile commerce, music and sound download, photo download, mobile TV, mobile games and location-based services are becoming important product additions to mobile-service providers (Kuo & Yen, 2009)[134].

Value-added services have an impact on subscribers' usage patterns, and become a significant differentiator across telecommunication service providers (Kargin, Basoglu & Daim, 2009). Thus, the research proposition is that content and location-based services will be factors that influence the choice of a mobile service provider [135].

Chan-Olmsted and Guo (2011) noted that in a competitive market, a mixed product bundling strategy, one that offers both bundled and individual services, would dominate pure bundling strategy. In a sense, when necessary the mixed product bundling system offers a firm more opportunity for differentiation. Furthermore, Chan-Olmsted and Guo (2011) explained that in order to differentiate their products in a competitive marketplace, mobile-telecommunication service providers will adopt a “mixed-product” bundling strategy [136].
2.1.6.9. Brand loyalty

Kim, Park, & Jeong (2004) elucidated that corporate image and brand awareness are also strong antecedents for establishing customer loyalty in mobile-communications service markets [137]. Wood (2004) suggested that the cost of recruiting a new customer is five times greater than the cost of retaining an existing customer because of the following reasons that loyalty reduces customer acquisition costs, Positive word of mouth from loyal customers saves on marketing costs to get new customers, Loyal customers’ demand elasticity is lower, based on the degree or type of loyalty. Brand-loyal customers increase the chances that a brand extension will succeed and lower the risk of new product failure. Loyalty rates are connected to market share [138]. The concept of brand loyalty has strategic importance in terms of a firm’s ability to obtain sustainable competitive advantage and growth. In addition, research findings by Kim and Lee (2010) indicate that corporate image and brand awareness are also strong antecedents for establishing customer loyalty in mobile-communications service markets [139]. Ersoy and Calik, (2010) further noted that brand-loyal consumers are more profitable, and that the costs of marketing to them are lower, than customers who are not brand-loyal [140]. Consumers who develop a positive mental schema of a brand will tend towards higher satisfaction and loyalty (Brodie, Whittome& Brush, 2009; Hartman& Spiro, 2005) [141]. Therefore, a positive corporate image appears to encourage customer loyalty to the service provider.

2.1.7 Market scenario since 1991 for pre-paid services in India

Sunil Mani (2008) described the market scenario of telecom industry from 1991 and the entry of prepaid services. In 1991, India had just 5 million telephone subscribers. At the end of July 2007, there were 233 million subscribers thus showing an average annual growth rate of over 27 per cent per annum. This was mainly due to the entry of prepaid mobile services. The first prepaid mobile services were introduced by Reliance Infocomm during 2003. No other country in the world, other than China, has shown such high rates of growth in the number of telephone subscribers. Tele density too which was below one telephone per 100 persons has now risen sharply to about 20. Among the infrastructure industries,
telecommunications is the only industry that has shown significant improvements over the reform period. Consequently it is generally opined that a revolution of sorts is taking place in the Indian telecoms industry. There are at least, seven dimensions of this growth performance that merit our attention [142].

2.1.8 Competition among the service providers

Telecom Regulatory Authority of India (2005) reported that the history of the mobile services industry can be traced to 1997 or so when GSM cellular services were started. Since then the industry has grown and matured with another standard, CDMA, being introduced towards the end of 2002. Compared to the fixed services, the mobile services industry has a number of distinguishing features. First, the industry started as one dominated by private sector enterprises and the government religiously followed a policy of ‘managed competition’ by licensing more than one service provider in a telecom circle. In fact majority of the 28 circles have at least four services providers and in a number of cases there are six service providers well. In short right through inception the government envisaged an oligopolistic form of competition. Second, most of these private sector enterprises had some of foreign equity holding of sorts. Third all of them are based on new technologies that were state-of-the art. Fourth, the conduct of the industry was, relatively speaking, more regulated by the newly created independent regulatory agency, the Telecom Regulatory Authority of India (TRAI). Fifth, it is one of the fastest growing industries in India and it can be safely assumed that it is the growth of this industry that has catapulted the communications sector as one of the major growth-contributing sector of India’s economy. Sixth, the mobile communications industry, especially the equipment part of the industry is the second largest in the world (next to China) and therefore has attracted considerable FDI in the manufacture of handsets leading to the employment of skilled manpower. Seventh, India is supposed to be having the cheapest mobile telecom tariffs in the world. The early part of the industry was of course riddled with much controversy pertaining to the terms and conditions under which the licenses were issued and the spectrum allocated between various kinds of service providers (Desai, 2006). Since all the services providers were new and had the same vintage of technology, their competition was more in
terms of price and conditions of sale and of late these two aspects are much in public scrutiny thanks to the timely intervention, on various occasions, by the regulator.

Most of the service providers have focused on specific regional markets, with the exception of Bharti (the largest mobile service provider). In fact there are only four service providers who have a presence in at least 20 of the 29 circles. It is also interesting to see that the circles where BSNL has a monopoly position are also those with very low revenue potential. In other words, the private sector providers have positioned themselves in the most revenue earning circles. Also it is seen that it is the circles with high revenue earning potential that one sees an increase in the intensity of competition- the metros of Delhi, Mumbai and Chennai for instance.

2.1.8.1. Dominance of wireless technology, rather than wire line

The Indian telecom sector is now heavily dominated by wireless technologies, which include cellular mobile and fixed wireless technologies. In fact almost the entire increase in the availability of telephones has been contributed by wireless technologies. India has one of the highest ratios of wires less to wire line technologies, which is now almost five. In fact what is interesting is that since 2005, the availability of wire line technologies has started decreasing. A number of factors explain this and this decrease in the popularity of fixed telephones has now become a worldwide trend. This rather heavy reliance on wireless technologies, while extremely positive from the availability point of view, has some implications for the diffusion of Internet in the country [143].

Abhishek Singh (2012) pointed out the reasons for the users preferring prepaid rather than postpaid. He mentioned that the survey was conducted by Nielsen pointed out that 97% of the Indian youth were using pre-paid mobile connections till the end of 2010. The situation is almost the same, majority of users in India are still using prepaid services despite of increasing number of Smartphone and Tablets in the market [144].

2.1.9 Prepaid mobile users: how Indians differ from global consumers

According to global information and Measurement Company Nielsen (2013), 84% of all Smartphone owners and 92% of feature phone owners in India have
prepaid connections; a majority of Indian Smartphone users also prefer data plans that have a fixed monthly charge for limited amount of data usage. Nielsen’s study noted that a majority of mobile phone users in developed countries like US, UK and Australia prefer contract based post paid plans rather than prepaid services. Only 15% of Smartphone users and 30% of feature phone users in US use prepaid mobile services. In UK, 17% of Smartphone owners and 55% of feature phone owners’ use prepaid. 21% of Australian Smartphone users and 55% feature phone users opted for prepaid mobile services [145].

2.1.9.1. Prepaid services around world

One of the factors driving the preference for contracted over prepaid service in developed countries is a customer’s ability to buy a handset directly from the mobile service provider. The contract generally involves either a monthly installment or a lump sum discounted down payment over and above the monthly plan charges. These contracts are also known to have a fixed monthly spend which customers will incur whether they use the allotted minutes and data or not. An installment for the handset through the length of a contract may be additional.

In countries like India and China, most Smartphone and feature phone users prefer prepaid mobile services over postpaid connections. Nielsen’s study (2013), notes that only 8% of all feature phone users and 16% of Smartphone users in India use postpaid connections. About half of all Chinese Smartphone owners use prepaid services.

A majority of Indian Smartphone users prefer to incur a fixed monthly cost for their data usage. According to Nielsen’s report, India also emerges to be a unique market with one of the highest proportion of Smartphone users opting to pay a per-day fee for data usage. 42% of all Smartphone users in India prefer to incur a fixed monthly charge for limited amount of data usage, 19% pay a per-day fee, 15% opt to incur a fixed monthly charge for unlimited data usage and 12% do not pay for data usage by accessing Wi-Fi and other hotspots.

Nielsen’s study 2014, noted that despite the preference of contracted service in developed western countries especially the US, most markets in the world still
prefer prepaid mobile service. That is evident as mobile phone users in India and China, countries which have the world’s first and second highest number of mobile subscriptions, prefer prepaid. According to the latest Ericsson Mobility report, China and India account for nearly 29% of the world’s mobile subscriptions.

In an earlier generic usage-based comparison of prepaid and postpaid services in India, there appeared to be logic in having a prepaid connection when usage levels are low. Indian mobile operators have begun to woo consumers with top of the line smart phones like Apple’s i-phone by giving contract based connections [146].

2.1.10. Marketing strategies adopted by prepaid service providers

ICRM India (2013) mentioned that Aircel adopted innovation as its key branding strategy and communicated with customers through simple and thoughtful advertising campaigns [147].

Ravindra Kulkarni (2014) mentioned the marketing strategies adopted by the mobile operators to attract customers. He pointed that the telecom operators are offering many promotional packages to attract the users to their services due to cut-throat competition. This ranges widely from Closed User Groups (CUGs) to extra toppings to free Instant messaging services. Let us list of some of the most popular such schemes.

2.1.10.1. Friends and Family Offers

Indian families are fast moving from joint family to nuclear families. Though there is a shift in the family structure, Indian families still tend to be closely knit to their close relatives and hence try to seek most economical ways to be in touch with them. To bank on this drive, Reliance first offered Friends and Family special offers during its initial launch of CDMA service which was quickly adopted by the other operators. Till today this is one of the most popular extra the operators are providing to attract whole family towards their service together.

2.1.10.2. Closed User groups

This is another manifestation of the friends and family where the operators provide “free” calling between the users of CuG. Almost all major employers and
now a day’s even SMEs have tied up with one or the other service providers for CuG.

2.1.10.3. Community Campaigns

One of the most studied areas in Anthropology is the study of communities and their preferences. Based on the community needs and issues faced by them, telecom operators are designing their campaigns. Companies like Idea are pitching their “Community” oriented services and advertise their community concerns rather than their services. They also pitch on how their services can be used for better community. There are varied topics of such advertising from save tiger to how to save trees using the telecommunication services to catch the cheats using mobile internet.

2.1.10.4. Free Messaging services

The younger generation in India is adapting to the technology faster and are continuously seeking easier and cheaper ways to be in touch with their peer groups and kins. To tap this demographic segment, some operators are offering free messaging services like Whatsapp, face book chat etc. For free if the subscribers use their prepaid services. Thus they advertise their services as “helping to be connected”. Low intra- network charges: The operators also offer cheaper call and SMS charges within their own network. This encourages the social group or a family to use a single operator so that the calling charges within themselves are low and a saving on frequently called numbers. Relationship based marketing communication: Reliance started advertising their service based on relationship. Two significant advertising campaigns that can be quoted here are JijuSali recharge campaign and Engaged couple unlimited talking advertisement. These mainly concentrated on the free of charge calls between the spouses and families and how this free call helps them to bring the relationship closer.

2.1.10.5. Demography based packages and campaigns

Some operators also started offering demographic specific packages like emergency recharge package for female users etc. to show their community oriented business approach and social responsibilities as well as to attract the users in that
particular segment. This also extended to advertising campaigns like “We are the blackberry guys” which showed that the blackberry service is not only restricted to business community but also for young and cool populace [148].

2.1.10.6. Airtel’s Promotional strategies

UK essays (2014) elaborated the Airtel’s marketing strategies. It mentioned that Airtel have implemented many business processes based on Customer Specification.

2.1.10.7. Successful Marketing Plan

In the year 2002 Airtel signed on music composer A. R. Rahman to compose a tune for the Airtel. This Rahman’s signature tune for Airtel is one of the most downloaded ringtone in India. This was one of the most successful plan created by the Airtel and because of this popularity of Airtel has gone to the top. They introduced less price prepaid cards and cheap SMS which really influenced people and mainly students to adopt Airtel.

2.1.10.8. Business Process Management

They have adopted this method to have good communication with their customer so that they are able to understand their wants and needs. They process, innovation and continuous improvement through people’s involvement. Their first priority is to the customers. They also adopt Problem investigation by Fact based-Root cause analysis. So whenever a problem occurs their first approach is to see the root cause of the problem and the following steps are to eradicate it.

2.1.10.9. Result oriented approach

Each process of the Airtel has designed by first planning the desired result. Their targeted results are found through identification of the next customer and end customer expectations, Quantifiable purpose of the process and the key result areas. And also through the Past experience of “What went wrong can go wrong”
2.1.10.10. Successful Marketing Plans

In the year 2002 Airtel signed on music composer A. R. Rahman to compose a tune for the Airtel. This Rahman’s signature tune for Airtel is one of the most downloaded ringtone in India. This was one of the most successful plan created by the Airtel and because of this popularity of Airtel has gone to the top. They introduced less price prepaid cards and cheap SMS which really influenced people and mainly students to adopt Airtel [149].

SECTION II

2.2 PROBLEMS FACED BY INDIAN PREPAID SERVICE PROVIDERS

TRAI (2009) mentioned that, even though there is an increased clarity on the direction of regulation and policy, some of them are the industry is currently facing slow down in revenue growth and huge pressure on profit margin [150]. Some of these key challenges faced by the telecom industry are listed below.

2.2.1. Revenue growth

According to TRAI (2010), there were 15 telecom operators in the country. In each circle there are around 9-10 operators competing for the same revenue pie which is not growing. Lower tariff and high introductory offers which the industry saw during 2009 resulted in multiple SIM ownership and reduced realization per minute of use. The new operators who entered the market during 2009 offered subscriptions at throw away prices loaded with free talk time. The incumbent operators are also forced to get into this tariff war and this converted the existing paying minutes to non paying minutes and slowed down the revenue growth of the sector. The revenue growth during the calendar year 2009 was just 12% as compared to 22% during the previous year 2008 [151].

2.2.2. Subscriber growth

India will continue to be the fastest growing telecom market in the world in terms of total number of new subscriber additions. However the industry’s focus has now shifted from customer market share (CMS) to revenue market share (RMS). This is because the multiplicity of SIM ownership has made the subscriber numbers
meaningless to gauge the strength of the business. The dual SIM is contributing to 30%-35% of the new additions. There is a huge disparity between the CMS and RMS as the higher CMS has not led to higher RMS for some of the operators. This is because of the huge inactive subscriber base and the low ARPU from the newly added subscribers. While the industry will continue to achieve the subscriber growth mile stones, reaching these subscribers profitably will be a major challenge. The operators need to work on new business models and radically change the products to improve the profitability (TRAI, 2011)

2.2.3. Profit Margin

The telecom operators are trying to overcome the profit margin pressures by reducing the operating costs through business process outsourcing, infrastructure sharing, IT outsourcing and revenue assurance (TRAI, 2011) [152].

2.2.4. Number of operators

The total number of operator now stands at 15. With several operators operating at tariffs lower than cost, the eventual consolidation of the operators is inevitable and expected very soon. Some of the new operators have already approached the government for surrendering their licenses and seeking refund of license fee paid. However, the telecom industry provides lucrative long term opportunities for strong operators with deep pockets (TRAI, 2014)

2.2.5. Rural penetration

The urban market in India is highly saturated. Rural coverage will be the key to operator’s growth strategy. Rural tele-density is still under 25% with significant growth potential whereas the urban tele density has already crossed 100%. The government has set a target of 40% for rural tele-density by 2014. But the factors which are restricting rapid roll out in rural areas are the low ARPU customers and high cost of maintaining the network at these places. The challenge for the operators is to search for new cost effective ways to roll out network in rural areas by choosing appropriate technology and leverage on the use of available infrastructure to reduce cost and time of network roll out (TRAI, 2014)
2.2.6 Networks

Network operations are usually designed to address frequent disruptions caused by equipment failures. Sometimes the telecom companies do not address the catastrophe level incident like fire, earthquake etc. This is because in telecom, the network equipments are located across the country and at multi-occupancy premises which are shared with third parties. All of these factors have an impact on fire, security and health and safety issues which are required to be managed to ensure that there is no interruption to the service.

The network roll out is a big challenge and time consuming and involve huge capital expenditure. The telecom industry is capital intensive as the industry needs to continuously adapt itself to the latest technology (TRAI, 2014) [153].

James Middleton (2012), mentioned that customer loyalty seems to be ‘obsolete’ in prepaid market and he reasoned that Customer loyalty is fast disappearing. The average mobile customer switches service provider every 27 months, more than twice as frequently as a decade ago, according to research released this week. At the end of 2011, 44 per cent of global mobile subscribers churned the highest level ever according to Strategy Analytics. Among the more fickle consumers in the prepaid market, churn has increased dramatically, as promotional SIM activity in developing markets has made customer loyalty virtually obsolete in some countries. Strategy Analytics said that average prepaid customer lifetimes have halved over the last five years, to only 17 months. By contrast, average postpaid customer lifetimes of 67 months have improved from the depths of the global recession in 2008/09, since customers show an increased propensity for upgrading with their current provider instead of switching to better deals elsewhere. “Prepaid churn has really been hit by promotional SIM card activity,” said Phil Kendall, director of wireless operator strategies at Strategy Analytics. “For example, prepaid churn in Asia-Pacific is nearly 100 per cent per year. It doesn’t cost much to push new SIM cards into the market, however, operators would still benefit by promoting targeted offers to existing users which build longer-term, more valuable, customer relationships” [154].
2.3 CUSTOMER CHURN

Churn is a term used in the telecommunication and many other industries and refers to customers’ decision to move their subscription from one service provider to another (Berson, Smith, & Thearling, 2000). Churn is caused by several common reasons such as dissatisfaction with the services and high bills [155]. In addition, customers often receive attractive offers when signing up with a new mobile operator. It is also a well-known fact that a churn customer influences his acquaintances in the same network to churn as well as the relationship with service provider. The propensity of customers to cease doing business with a company in a given time period” can be defined as customer churn (Chandar, Laha, & Krishna, 2006) [156].

2.4 CHURN TYPES IN TELECOMMUNICATION INDUSTRY

Customer churn can blemish a company by decreasing profit level, losing a great deal of price premium, and losing referrals from continuing service customers (Reichheld & Sasser, 1990) [157]. Burez and Van den Poel (2008) have divided the voluntary churners to two groups: commercial churners and financial churners. According to their research customers who voluntary leave the company can be divided into two groups: customers who do not renew their fixed term contract at the end of that contract, and others who just stop paying during their contract to which they are legally bound. The first type of churn can be considered commercial churn, i.e., customers making a studied choice not to renew their subscriptions. The second phenomenon is defined as financial churn, people who stop paying because they can no longer afford the service [158].

Previous researches have examined the concept of customer churn from different points of view. According to Olafsson, Li, and Wu, (2008) there are two different types of churns. The first is voluntary churn, which means that established customers choose to stop being customers. The other type is forced churn, which refers to those established customers who no longer are good customers and the company cancels the relationship.
2.4.1. **Involuntary churners** are the customers that Telecommunication Company decides to remove from the subscribers list. This category includes people that are churned for fraud (customers who cheat), non-payment (customers with credit problem), and under-utilization (customers who don’t use the phone).

2.4.2. **Voluntary churn** occurs when the customer initiates termination of the service contract. When people think about Telco churn it is usually the voluntary kind that comes to mind. Under the category of voluntary churn one can recognize two major types of voluntary churn: incidental churn and deliberate churn.

a. **Incidental churn** occurs, not because the customers planned on it but because something happened in their lives. For example: change in financial condition churn, change in location churn, etc.

b. **Deliberate churn** happens for reasons of technology (customers wanting newer or better technology), economics (price sensitivity), service quality factors, social or psychological factors, and convenience reasons. Deliberate churn is the problem that most churn management solutions tries to solve [159]. Ahn et al. explored that the Voluntary churn occurred when the customers initiate termination of the relationship with the service provider. It can be divided further into two types: Incidental and deliberate churn. Incidental churn happens when the customers’ circumstances change in a way that prevents them from extending their relationship with the service provider. Financial circumstances and moving to new places provide example reasons of incidental churn. In contrast, deliberate churn occurs when customers decide to switch to a competing company, for reasons such as dissatisfaction with the service provided. This service encompasses many dimensions like technology and quality. Customers switching service provider due to seeking new technologies that their existing supplier does not provide is one example of technology-based churn. Another example of deliberate churn is that due to quality factors, like poor cover. Unlike incidental churn, which cannot be controlled or managed, deliberate churn is the problem that most churn solutions seek to identify and manage.
When considering postpaid churn, the deactivation date, i.e. the date that a customer is disconnected from the network, is equal to the churn date. After all, this is the actual date a customer stops using the operator’s services.

In contrast to postpaid segment, prepaid segment does not imply contractual obligations between users and a telecom operator, so the very definition of prepaid churn is not that simple. In the case of prepaid churn however, the deactivation date does not necessarily have to match the churn date. In general, it takes a long period before a prepaid customer is actually disconnected from the network. In many cases customers are churned long before they are disconnected from the network. This is exactly the reason why the deactivation date is not a suitable indicator for churn [160].

2.5 STATUS OF PREPAID CUSTOMERS- A COMPARISON WITH OTHER COUNTRIES

Gerpott, Rams, and Schindler (2001) believe that retention, loyalty and satisfaction of customers in telecom industry are causally inter-correlated and that service price, perceived benefits, and also lack of number portability have strong effects on customer retention. They investigated the influential factors on bringing superior economic success for telecommunications network operators in German market and tested the hypotheses suggesting that Customer Retention (CR) Customer Loyalty (CL), and Customer Satisfaction (CS) should be treated as differential constructs which are causally inter-linked. The result shows that overall CS has a significant positive impact on CL which in turn influences a customer’s intention to terminate / extend the contractual relationship (CR). It’s also been revealed that mobile service price and personal service benefit perceptions as well as lack of number portability between various cellular operators’ perceived customer care performance had no considerable effect on CR [161]. Since the cost of winning a new customer is far greater than the cost of preserving an existing one, mobile carriers have been shifting considerable attention from customer acquisition to customer retention (Fildes, 2002) [162].
Customer churn in mobile telecommunications (often refers to customer attrition in other industries) refers to “the movement of subscribers from one provider to another” (Wei & Chiu, 2002). There exist two basic approaches to manage the customer churn. Untargeted approaches which rely on superior product and mass advertising to increase brand loyalty and retain customers and targeted approaches which rely on identifying customers who are likely to churn, and then either provide them with a direct incentive or customize a service plan to stay. The targeted approach falls in two categories: Reactive and Proactive. Adopting a reactive approach, a company waits until customers contact the company to cancel their (service) relationship. The company then offers the customer an incentive, for example a rebate, to stay. Adopting the proactive approach, the company tries to identify customers who are likely to churn at some later date in advance. The company then targets these customers with special programs or incentives to keep the customer from churning. Targeted proactive programs have potential advantages of having lower incentive costs (because the incentive may not have to be as high as when the customer has to be “bribed” not to leave at the last minute) and because customers are not trained to negotiate for better deals under the threat of churning) [163].

The customer churn is closely related to the customer retention rate and loyalty. Hwang et al. (2004) defines the customer defection the hottest issue in highly competitive wireless telecom industry. They suggest that churn rate of a customer has strong impact to the long term value because it affects the length of service and the future revenue. Hwang et al. also defines the customer loyalty as the index that customers would like to stay with the company and indicated further that churn describes the number or percentage of regular customers who abandon the services [164]. In (2004) Kim and Yoon investigated the underlying elements of customer churn in mobile telecommunications service providers. From what they found we can understand that attrition of customers in this industry depends on the level of satisfaction with alternative specific service attributes including call quality, tariff level, handset, brand image, as well as income, and subscription duration, but only factors such as call quality, handset type, and brand image affect customer loyalty as has been measured by the positive word of mouth in the form of recommendation. In
other words, according to Kim and Yoon (2004) determinants of churn clearly differ from those of loyalty and in order to decrease the churn rate in telecom industry the company is supposed to focus on boost the satisfaction level rather than loyalty [165].

In a powerfully competitive environment, customers receive numerous incentives to switch and encounter numerous disincentives to stay. While reducing churn is important for success, mobile operators must not focus on this benchmark in isolation but, instead, must consider its interrelationship with other factors (Heath et al., 2006) [166]. In South Africa, there are numerous available packages for the consumers, both contract and prepaid, across all the mobile networks (Esselaar et al., 2006). The pricing of these packages is so complex that it is not possible for an ordinary consumer to determine which package is most cost effective. This results in consumers choosing packages that lead to financial losses (Esselaar et al., 2006) [167]. These tactics are profitable for mobile operators but they fuel discontent among their customer base (McGovern and Moon, 2007) [168]. Customer churn figures directly in how long a customer stays with a company and, in turn, the customer’s lifetime value (CLV) to that company (Neslin, Gupta, Kamakura, Lu, & Mason, 2006) [169], which is the sum of the revenues gained from company’s customers over the lifetime of transactions after the deduction of the total cost of attracting, selling, and servicing customers, taking into account the time value of money (Hwang, Jung, & Suh, 2004) [170]. However, these systems can be very wasteful if churn predictions are inaccurate, because then companies are wasting incentive money on customers who would have stayed anyway. (Neslin, Gupta, Kamakura, Lu, & Mason, 2006) [171].

According to Hadden et al. (2007), mobile telecommunication have become the dominant communication medium over the last two decades. In many countries, especially developed ones, the market has reached a degree of saturation where each new customer must be won over from the competitors. At the same time, public regulations and the standardization of mobile communication now allow customers to easily move from one carrier to another, resulting in a very fluid market. As a result, churn prediction has emerged as a crucial mobile Business Intelligence (BI)
application that aims at identifying customers who are about to transfer their business to a competitor.

Song et al. (2007) emphasized that a good churn prediction system should not only pinpoint potential churners successfully, but further provide a sufficiently long horizon forecast in its predictions. Once a potential churner is identified, the retention department usually makes contact and, if the customer is established to be a churn risk, takes appropriate measures to preserve her business. Thus, a long forecast horizon is an obvious advantage since the further away the customer is from actually making the churn decision, the easier it is to prevent that decision at a significantly lower cost. Naturally, retention efforts are allocated limited resources and thus only a tiny fraction of the subscriber pool can be contacted at any given time.

Piotr Sulikowski Poland (2008) emphasized the set of potential churn factors on which data can be relatively easily extracted from the operator’s databases and analyzed using the SAS. A multi-stage research procedure utilizing such real-world data is proposed. It allows the identification of significant churn factors, the segmentation of customers, and finally the establishing of a rule model of the phenomenon for each customer segment. Carole Manero, France (2008), pointed out retaining customers is one of the most critical challenges in the maturing mobile telecommunications service industry. Customer churn adversely affects mobile telecom operators because they stand to lose a great deal in price premium, decreasing profits levels and a possible loss of referrals from continuing service customers. Figuring how to deal with churn is turning out to be the key to the survival of telecoms organizations.

In general, researches in this field have been made with one of the following aims: finding the influential factors on customer churn, or model building for customer churn prediction which is still of high importance (Coussement & Van den Poel, 2009).

Kojoabiw-abaadood JR (2011) stated that Churn affects Market share, frustrates effort to achieve projected revenue, dissatisfied customers dent the brand image, increases operational costs as it requires marketing intervention to win-back
churners as well as potential churners. Developing the predictive model, the neural network was used to calculate the propensity for a customer in the dataset to churn while the decision tree describes the behavior of the churners [177].

Pratompong Srinuana, Erik Bohlina& Gary Madden (2012) explained about the strategic instruments, such as termination-based price discrimination and calling clubs, can produce consumer switching costs in the Swedish mobile [178]. W. Bruce Allen, (2012) pointed out the major differences between the United States and India markets include: the preponderance of prepaid services in India, the dominance of 2G services in India compared to the advancements in 3G and 4G in the U.S.; the use of wireless handsets that support multiple carriers in India, as compared to the U.S. where services and devices are generally bundled together; and the much higher churn rate in India as consumers switch to lower-cost plans [179].

Sana Salman, Pakistan, (2013) explained the comparison of real time event triggered churn models to conventional monthly churn models in which the problem arises when the event triggered behavior of the subscriber is averaged out[180]. Silvia Trif, Adrian Visoiu, Romania (2013) pointed out the needs a churn prediction system must address with respect to a mobile operator are related to the peculiarities of the environment. Prepaid subscribers represent the overwhelming customer majority for many mobile operators across the world [181].

2.6 CAUSES OF CHURN

In response, consumers give the companies bad publicity by posting their bad experiences on hate web sites like www.hellkom.co.za. The top three complaints on www.hellopeter.com, the South African customer service web site, are telecommunications (Telkom and mobile network operators), banks and the motor industry (Bhengu, 2007). In addition, customers” dissatisfactions are manifested in a high churn rate in the industry, annually almost a quarter of the customers churn [182].

Geppert (2002) gave the following as some of the causes churn;
2.6.1. Price

Particularly in the wireless and long-distance markets, carriers often offer pricing promotions, such as relatively low monthly fees, high-volume offerings (fixed number of minutes at a reasonable fee per month), and low rates per-minute. These price incentives can provide residential customers, in particular, with powerful incentives to change carriers [183].

2.6.2. Service quality

Lack of connection capabilities or quality in places where the customer requires service can cause customers to abandon their current carrier in favor of one with broader reach or a more robust network (Peppard and Rylander, 2006)[184].

2.6.3. Fraud

Customers may attempt to game the system by generating high usage volumes and avoiding payment by constantly churning to the next competitor.

2.6.4. Lack of carrier responsiveness

Slow or no response to customer complaints is a sure path to a customer relations disaster. Broken promises, long hold times when the customer reports problems, and multiple complaints related to the same issue are sure to lead to customer churn.

2.6.5. Brand disloyalty (or loyalty to another)

Brand issues may arise due to service or other issues experienced over time, mergers or acquisitions involving the incumbent carrier, or entry into the market of another carrier with strong brand recognition and reputation. Marginal brand loyalty can often be overcome by competitors ‘incentives.

2.6.6. Privacy concerns

Consumers have an increasing awareness that companies they deal with have a lot of information about them, including their spending habits, personal financial information, health information, and the like. Breaking of privacy promises, publicized privacy problems, telemarketing, and other issues are causing many
customers to consider their personal privacy as an asset and they are holding their service providers responsible for keeping privacy promises.

### 2.6.7. Lack of features

Customers may switch carriers for features not provided by their current carrier. This might include the inability of a particular carrier to be the one-stop shop for all the customer’s communications needs.

### 2.6.8. New technology or product introduced by competitors

New technologies such as high-speed data or bundled high-value service offerings create significant opportunities for carriers to entice competitors’ customers to switch.

### 2.6.9. New competitors enter the market

The mere existence of viable competitors to the incumbent carrier may cause certain disloyal customers to churn. Further, as competitors enter new markets, they often offer short- or long-term incentives to new subscribers to build market share.

### 2.6.10. Billing or service disputes

Billing errors, incorrectly applied payments, and disputes about service disruptions can cause customers to switch carriers. Depending on the situations, such churn may be avoidable [185].

### 2.6.11. Customer Behavioral Intentions

Certain customer behavioral responses provide a strong indication that they are bound to the organization. For instance when customers show a preference for one organization over others, or when they praise the organization. It has also been argued that service excellence enhances customers’ inclination to buy again, to buy more, to buy other services, to become less price sensitive, and to tell others about their positive experiences (Bolton et al., 2000)[186]. Boulding et al. (1993) stated that service quality has a positive impact on customer's repurchase intentions and intentions to recommend the company to others [187]. Zeithaml and Bitner (2000) on the other hand indicated that service quality influences different intentions, such as
giving recommendations, doing more business, and willingness to pay more [188]. There is growing evidence that customer perception of service quality affects their behavioural intentions (Johnson and Sirikit, 2002) [189].

2.6.12. Changes in technology and regulatory requirements

Several other features of the global market are likely to increase churn, such as changes in technology and regulatory requirements. Traditionally, the telecoms markets are structured around vertically integrated incumbents, who are often exclusive providers of facilities. Value was added to the fundamental transmission functions of the infrastructure through the layer of network services that made it possible for the routing of voice calls and management of traffic (Esselaar et al., 2006). With the technological revolution of the 1980s, a value added-layer was added to the value chain. This enabled access or management of data and information services in addition to basic voice. This layer is known as value-added network services (VANS). In conjunction with the changing dynamics of the telecommunications industry, the role of regulations has extended from concentrating on consumer disputes, universal services issues and price setting to a much broader role of regulating the sector to enable competition (Esselaar et al., 2006)[190].

The uniform Internet Protocol (IP) standards allow convergence of data, television and telecommunications’ services (Esselaar et al., 2006). It is through these new IP based networks that seamless communication across networks, like broadcasting, IT and telecoms, is realized. In addition, the convergence of technology allows for lower cost IP based services, such as Voice over IP (VoIP) and IP Television (IPTV), to be offered or transmitted over the same platform (Esselaar et al., 2006)[191]. As an example, Telkom was awarded a television (broadcasting) license by the South African communication regulator in 2007 and is planning to offer the service on an IPTV platform (McLachlan, 2007)[192].

2.6.13. Policy and regulation

The intention of policies and regulations is to protect the consumer and open up the market. The cumulative effect of both is that they empower the consumer. By allowing the consumer to own a telephone number, MNP is protecting the user
because it simplifies switching or churning. Deregulation of the industry has removed barriers of entrance, meaning more players are entering the industry, thus providing consumers who want to churn with more choices. As the number of new players entering the market increases, prices go down and benefit customers even further. Therefore it could be argued that the policies and regulations are benefiting consumers and more importantly, in the long term, will give more people access to the market (Esselaar et al., 2006)[193].


Churn management is a field under operational CRM which refers to the process of keeping the most profitable customers in subscription (Kentrias, 2001)[194] and assessing the most effective way that an operator can react against churn (Hung, Yen, & Wang, 2006)[195]. Ahn et al. (2006) identified four major groups of factors affecting customer retention: (1) Customer satisfaction; (2) switching costs; (3) service usage; and (4) customer-related variables. According to Chu, Tsai and Ho (2007), price comes in the top of the contributors to the churn, followed by customer services and then by service quality and coverage (at the same level of importance)[196-197]. Added to these, social influence is another important factor, which directly affects customer retention (Birke and Swann, 2006; Dasgupta et al., 2008). On the other hand, churn prediction belongs to analytical CRM and consists of two goals: (1) explain why customers unsubscribe their subscription and move to a competitor, (2) predict which customers are most likely to churn in the near future. The final output of churn prediction is each customer’s likelihood of churning, often called churn score. The likelihood can be used to rank customers descending from the one who is most likely to churn to those who are least likely. Mobile operators then decide to contact to the top percent with the highest churn score and invite them suitable offers to keep them from churning. In addition, the mobile operators can integrate the churn scores together with customer value ranking. This collaboration provides the list of the most profitable customers who are at risk of churning and need to be contacted [198-199].
2.7 EFFECTS OF CUSTOMER CHURN

Preventing customer churn is critical for the survival of mobile service providers because it is estimated that the cost of acquiring a new customer is more if the advertising, marketing, and technical support etc are all taken into consideration. On the other hand, the cost of retaining a current customer is usually as low as the cost of a single customer retention call or a single mail solicitation (Berson et al. 2002). The high acquisition cost makes it imperative for mobile service providers to devise ways to predict the churn behavior and execute appropriate proactive actions before customers leave the company [200].

In addition to lost revenue, customer churn means increased activation and deactivation costs. In the global wireless industry, these amount to $10 billion per year, according to an August 2001 study by International Data Corporation (Geppert, 2002)[201].

Geppert (2002) indicated that a high churn rate also puts pressure on companies to win new customers. The cost of acquiring each new customer ranges from $350 to $475 and providers need to retain these new customers for more than four years to break even. Replacing old customers with new ones carries other burdens. In addition to marketing and advertising, companies incur costs associated with provisioning new customers, as well as increased risks associated with billing issues and other revenue assurance matters [202].

Customer churn also generates soft costs: loss of brand value when dissatisfied customers tell others about their experiences, lost opportunities for cross-selling of complementary products and services, and a potential domino effect with respect to the carrier's remaining customer base.

Further, the deactivation and disconnection of customers brings inherent risk of revenue and margin deterioration, particularly when multiple service providers are involved. Finally, the potential impacts on profitability that come from inactive, underutilized, and otherwise unprofitable network facilities must be considered (Ahn et al., 2006)[203].
L.J.S.M. Alberts (2006), Churn prevention, through churn prediction, is one way to keep customers ‘in house’. This study was focused solely on prepaid customers. In contrast to post-paid customers, prepaid customers are not bound by a contract. The central problem concerning prepaid customers is that the actual churn date in most cases is difficult to assess. This is a direct consequence of the difficulty in providing a unequivocal definition of churning and a lack of understanding in churn behavior [204].

Carole MANERO, France (2008), pointed out retaining customers is one of the most critical challenges in the maturing mobile telecommunications service industry. Customer churn adversely affects mobile telecom operators because they stand to lose a great deal in price premium, decreasing profits levels and a possible loss of referrals from continuing service customers. Figuring how to deal with churn is turning out to be the key to the survival of telecoms organizations[205].

Angela Stainthorpe (2008), explained that, mobile Number Portability (MNP) implementation is gathering pace across the world. Much of Western Europe and North America is used to the easy freedom subscribers have to move operators, and many operators in the rest of the world will soon learn first-hand what this freedom will mean for their business. But MNP does not necessarily mean increased churn and increased costs; thorough preparation is central to turning MNP implementation from threat to opportunity [206].

Kojoabiw-abaidoo JR (2011), stated that Churn affects Market share, frustrates effort to achieve projected revenue, dissatisfied customers dent the brand image, increases operational costs as it requires marketing intervention to win-back churners as well as potential churners. Developing the predictive model, the neural network was used to calculate the propensity for a customer in the dataset to churn while the decision tree describes the behavior of the churners [207].

Benjamin Oghojafor (2012) stated that major challenge facing telecoms business providers in Nigeria is the continuous growing competition and customers’ expectation of service quality and as such customers are able to choose among multiple service providers based on the level of satisfaction, affordability, and
service quality of service providers. Customer demand and competition are forcing firms to cut loose from the traditional customer satisfaction paradigm, to adopt proactive strategies which will assist them to take the lead in the market place [208].

Pratompong Srinuana, Erik Bohlina & Gary Madden (2012) explained about the strategic instruments, such as termination-based price discrimination and calling clubs, can produce consumer switching costs in the Swedish mobile [209]. W. Bruce Allen, (2012), pointed out the major differences between the United States and India markets include: the preponderance of prepaid services in India, the dominance of 2G services in India compared to the advancements in 3G and 4G in the U.S.; the use of wireless handsets that support multiple carriers in India, as compared to the U.S. where services and devices are generally bundled together; and the much higher churn rate in India as consumers switch to lower-cost plans, Rafi Kretchmer, (2009), pointed out the reasons of customers spending, especially if they are on a tight budget. This explains the prevalence of prepaid services in emerging economies. In addition, many customers want to ensure they have a choice and are not tied down by a contract to one service provider, (How to Promote Loyalty with Prepaid Customers) [210-211].

Sana Salman, Pakistan, (2013), explained out the comparison of real time event triggered churn models to conventional monthly churn models in which the problem arises when the event triggered behavior of the subscriber is averaged out [212]. Silvia Trif, Adrian Visoiu, Romania (2013), pointed out the needs a churn prediction system must address with respect to a mobile operator are related to the peculiarities of the environment. Prepaid subscribers represent the overwhelming customer majority for many mobile operators across the world [213].

2.8 CHURN MANAGEMENT

Churn prediction is a case in point in terms of the discussion on the efficiency of various tools and techniques of manipulating data. Baurdeau et al. (2005) indicated that technological innovation in the telecom industry is customer centric and emphasized that addressing customers’ needs is an utmost priority. The problem of loyalty still remains one of the most vital problems. To address the current
limitations of churn prediction technologies in terms of determining the right customers as well as on whom to spend retention and loyalty resources, the mobile carriers need to re-evaluate or redefine the notion of churn management [214].

According to Hung et al. (2006) churn management is a framework of two analytical modeling processes. This they indicated as predicting, who are about to churn and, second, coming up with the most effective way to react to the targeted customers [215]. They indicated that Owczarczuk’s (2010) study of data mining models for identifying betrayers among prepaid customers in the telecommunications industry is another example[216].

2.9 DATA MINING TECHNIQUES

Data mining (knowledge discovery) is an interdisciplinary field that involves the extraction of hidden predictive information from large databases (Thearling, 1999). Recent researches showed two types of churn model. In the Prediction models, the outcomes can be illustrated as target customers who will churn. Through precisely predicting which customer will leave a company in a given period of time, the models also provide some features of the customer likely to churn. This helps managers retain the labeled customer [217].

The outcomes of these models are customers’ life time value, which can be interpreted as customers’ contribution to the company, normally the higher the outcome, the more valuable of the customer. Then managers can focus on the valuable customers instead of all customers. The following subsections review these two kinds of churn modeling separately. Most techniques for churn prediction modeling come from Data Mining techniques. Logistic regression, decision trees, and neural network are successful techniques used to build churn models (Mozer et al, 2000) [218]

For business purposes, data mining provides tools and techniques to search for meaningful pattern and decision support knowledge within the huge amount of raw data. It helps business practitioner either to confirm hypotheses or find new things in the data that have not been known, provides them valuable insight and competitive advantages (Witten & Frank, 2005). The process of data mining requires
the cooperation of fields such as database system, data warehousing, machine learning, and statistics [219].

Unsupervised learning techniques on the other hand do not require the data set to contain the target variable. Clustering is a type of unsupervised learning technique that can be used to explore data sets in order to discover the natural structure and unknown but valuable behavioral patterns of customers’ hidden in it (Thomassey and Fiordaliso, 2006)[220].

Coussément and Poel (2008) stated that there are mainly two types of data mining techniques that are used in practice: supervised learning and unsupervised learning. Supervised learning requires that the data set should contain target variables that represent the classes of data items or the behaviors that are going to be predicted. The most important decision in customer churn management is the separation of churners from non-churners. This is a task that is quite capably handled by supervised learning techniques [221].

Shan Jin1, Yun Meng1, Chunfen Fan1, FengPeng, Qingzhang Chen (2012), pointed out the use data exploration technology to build a predictive model, find out the possible churners and provide personalized service. Compare the performance of different data mining techniques to select appropriate data mining tools [222].

Şimşek Gürsoy (2010) indicated that the introduction of competition in the telecommunications industry has given rise to many issues and situations that are quite uncommon, unnatural and maybe even unimaginative for a utility type industry. Originally vertically integrated, mobile carriers now have to carefully address the needs of millions of customers, understand their behaviour, predict their needs and design products and services that will at best address those needs. The competition becomes even more fierce with the penetration of mobile phone usage steadily reaching its peak, as attracting new customers becomes extremely difficult. Churn analysis uses the data period in which customers are still with company, and focuses on customer retention [223].

GoranKraljevi´c, Sven Gotovac (2010), stated the importance of successful model for prediction of potential Prepaid churners, in which the most important part
is to identify the very set of input variables that are high enough to make the prediction model precise and reliable. Several models have been created and compared on the basis of different Data Mining methods and algorithms [224].

2.10 NEURAL NETWORK

Neural networks became popular in the 1980’s because of a convergence of several factors. First, computing power was readily available, especially in the business community where data was available. Second, analyst became more comfortable with Neural Networks by knowing that they were closely related to known statistical methods.

According to Shaw et al (2001) The inputs(xi) are collected from upstream neurons (or Dataset) and combined through a combination function such as summation, which is then input into a (usually nonlinear) activation function to produce an output response(y), which is then channeled downstream to other neurons. One of the advantages of using neural networks is that they are quite robust with respect to noisy data. Because the network contains many nodes (artificial neurons), with weights assigned to each connection, the network can learn to work around these uninformative (or even erroneous) examples in the dataset. However, unlike other algorithms like Decision trees which produce intuitive rules that are understandable to non-specialists; neural networks are relatively opaque to human interpretation [225].

Neural Networks is a data mining technique that has the capability of learning from errors. Neural Networks are motivated by the brain. This happens in the sense that the brain learns a few new things which then will be transmitted via neurons. Equally, the neural network neuron with learning algorithms is able to learn from training data; this makes them be referred to as Artificial Neural Networks (ANN). This is in line with the research provided by Mozer et al. (2000) in which shows that the nonlinear neural network outdoes the decision tree and logistic regression [226]. According to Rygielski [2002] neural networks provide a more powerful and accurate means of prediction, and over fitting when compared with a decision tree. Another important factor to be aware of when considering the use of neural networks
is that they do not uncover patterns in an easily understandable form. According to his work, neural networks provide a more powerful and predictive model than other techniques. They are also documented to be applicable to a wider area of applications [227].

Au et al. (2003) shown that neural networks out do decision trees for prediction of churn through identification of more churners compared to decision trees [228].

The results of Lazarov and Capota (2007) work showed that ANNs gave the best results as compared to other known algorithms. Moreover they argued that an appropriate prediction model requires constant updating, and should put in to application a variety of data mining algorithms [229]. Guo en and wei dong, (2008) mentioned that neural networks are the powerful tool in churn prediction when compared with other tools [230].

Sharma and Panigrahi (2011) proposed the neural network based approach in the prediction of customer churn in line with cellular wireless services. The outcomes of experiments on a churn dataset indicated that neural network based approach can predict customer churn with accuracy more than 92%. Accuracy that is achieved by neural networks fully outweighs the limitation that they need large volumes of data sets and a lot of time to calculate a considerable load for predictor attributes [231].