

A Study on Factors Influencing the Adoption of Next Generation Telecom Services in Selected Indian Markets

Rohit Rajwanshi

Department of Management
Dayalbagh Educational Institute
Agra, India
rohit0108@yahoo.com

Abstract: *Indian telecom subscriber base is now maturing with increasing usage of next generation telecom services (NGTS). Consumers now look for many services other than voice or short messaging services. The reports released by Telecom Regulatory Authority of India (TRAI), reveals that contribution of data based services in average revenue per user (ARPU) of all the operators is increasing. This paper aims to study the influence of two factors namely switching cost and product/services complexity in adoption of NGTS. Primary data was collected through survey and target respondents were from Delhi/NCR and Agra city. Analysis of primary data using z test reveals that switching cost and product/ service complexity has negative influence on adoption of NGTS.*

Keywords: *Average Revenue Per User (ARPU), Next Generation Telecom Services (NGTS), z test*

1. INTRODUCTION

In India the year 2003 was celebrated as the 150th year of Indian Telecommunication/Telegraphy. Telegraph services commenced in India with a link established in 1853, which is nine years after Samuel Morse invented the telegraph transmitter. Telephone came to India soon after Alexander Bell invented it in 1876. However, at the time of independence, there were only 80,000 telephones, mainly used by government officials. In fact governmental monopoly pervaded the entire sector from manufacturing to providing service. The telecom services now have been recognized world-over as an important driver for socio-economic development for a nation. It is one of the prime services needed for rapid growth and modernization of various sectors of the economy. Government of India conducted the e-auction from 9th April 2010 to 19th May 2010 and the total bid price crossed Rs 16,750.58 crore (<http://www.dot.gov.in/>). Though the price at which it is obtained is quite high, NGTS has become mandatory to maintain the existing base of 900 plus million users in India. Low price, high maintenance and tough competition have raised the challenges for operators. Consumers wishes to access more services in addition to mere voice communication, and better quality of services. This raises the need to study the factors that lead to adoption of NGT services. Exploratory study revealed, NGT services complexity and switching cost has some influence on the adoption on NGT services.

2. NEXT GENERATION TELECOM SERVICES (NGTS)

NGTS is an integration of services like voice, data and video. It is offered through a network which can provide telecommunication services and is able to make use of multiple broadband. It offers unrestricted access for users to different service providers. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users. The 3G and 4G are the standards for NGTS, which are explained below:

2.1 Third Generation Services (3g)

International Mobile Telecommunications-2000, better known as 3G or 3rd generation, is a generation of standards for mobile phones and mobile telecommunications services. It fulfills the specifications stated by the International Telecommunication Union. Application services of 3G include wide-area wireless voice telephone, internet access, video calls and television, in a mobile

environment. Compared to the older 2G and 2.5G standards, a 3G system allows simultaneous use of speech and data services, and provides peak data rates of at least 200 kbps (TRAI consultation paper, 2006). Recent 3G releases also provide mobile broadband access to laptop computers and Smartphones.

2.2 Fourth Generation Services (4G)

4G refers to the fourth generation of cellular wireless standards. It is a successor to 3G and 2G standards. In addition to the services of 3G, 4G provides additional features such as multi-media, newspapers and television programs. In addition, one can transmit data much faster than possible in previous generations.

2.3 Services Offered in NGTS

In NGTS subscribers can expect an abundance of value added services (VAS). This will increase the diffusion and adoption of the services such as m-commerce, gaming, music, video streamlining and downloading, etc. The range of services offered in NGTS is enormous. The subscribers could hold video conferences or video calling on the move, and watch live television, high speed internet access, gaming, downloading songs and other entertainment material, banking facility, navigation facility. The overall public access would increase immensely as people can be reached on a multi media mode. There is also tremendous scope in the field of banking. Further, the pending mobile number portability (MNP) will also add to the applications of NGTS. The mobile number portability provides subscriber to retain an existing mobile number when shifting from one service provider to another, or shifting from one circle to another.

3. RESEARCH METHODOLOGY

3.1 Hypothesis

Product/Services Complexity

Davis (1989) in his Technology Acceptance Model finds that a user's overall attitude toward using a specific information technology and application is a major factor in determining whether an individual uses that system. Attitude toward using is also determined by a user's perceived usefulness and perceived ease of use. Technology adoption model shows strong empirical support for a positive relationship between perceived use and perceived ease of use (van der Heijden, 2003). Therefore, it is hypothesized:

Hypothesis 1₀: Product/Services complexity does not influence the adoption of NGTS negatively.

Hypothesis 1_a: Product/Services complexity negatively influences the adoption of NGTS.

Switching Cost

Switching cost means the cost incurred when switching to different products or services, including time, money and psychological cost (Dick & Basu, 1994). It is defined as perceived risk or potential losses perceived by customers when switching carriers, such as losses of a financial, performance-related, social, psychological, and safety-related nature (Murray, 1991). Migrating to next generation telecom services will cause user to render some price. This can be in the form of changing the handset and service provider, which will further increase the cost. Madden et al. (2004) found that low users cost promote diffusion. Thus, it is hypothesized:

Hypothesis 2₀: Increased cost of switching to NGTS does not influence its adoption negatively.

Hypothesis 2_a: Increased cost of switching to NGTS negatively influences its adoption.

3.2 Research Design

Scope of the Study

Area of survey was Delhi and NCR region.

Instruments

Primary Data

The tools used for the purpose of primary data collection were questionnaires and interviews.

Secondary Data

Data was collected through various magazines, journals, publication of marketing research agencies, newspapers, internet and libraries.

Statistical Techniques

Analytical tools like descriptive statistics and z test were used

Sample composition

Consumers working in banks, IT companies, consulting, academics and industry experts were the part of sample composition.

Sampling Techniques

Technique used for sampling was judgment and convenience based.

Sample Size

Total sample size was 361

Sample plan

Industry/Profession	Agra	Delhi/NCR
Banking	52	37
IT Companies/BPO	47	39
Academics	64	40
Businessmen	51	31
Total	214	147

4. DATA ANALYSIS

4.1 Demographic Details

In demographic details respondents were asked their name, age, gender, geographic location (Agra or Delhi/NCR), income and products possessed by them

Geographic location of the Respondents

Web based questionnaire and hard copy were used in conducting the survey. All the respondents were from Agra, Delhi and NCR region which included Delhi, Noida and Gurgaon. Location wise distribution of the respondents is as follows:

	Agra	Delhi/NCR	Total
No. of Respondents	214	147	361

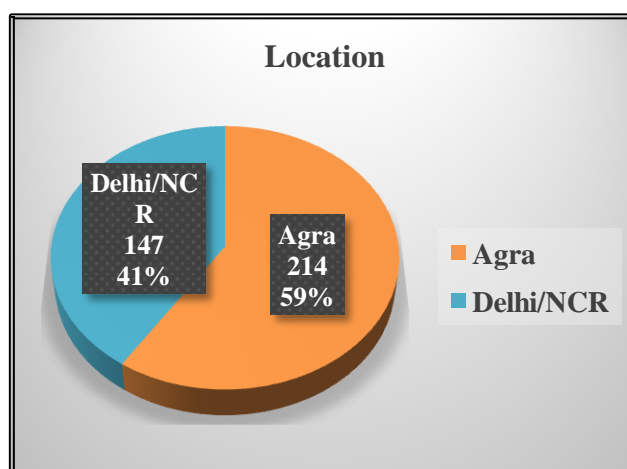


Fig.1. Geographic location of the respondent

Out of 361 respondents, 214 were from Agra city whereas remaining 147 were from Delhi/NCR region.

Occupation

In continuation to the demographic details of respondents, the other question which was asked was about their occupation/profession.

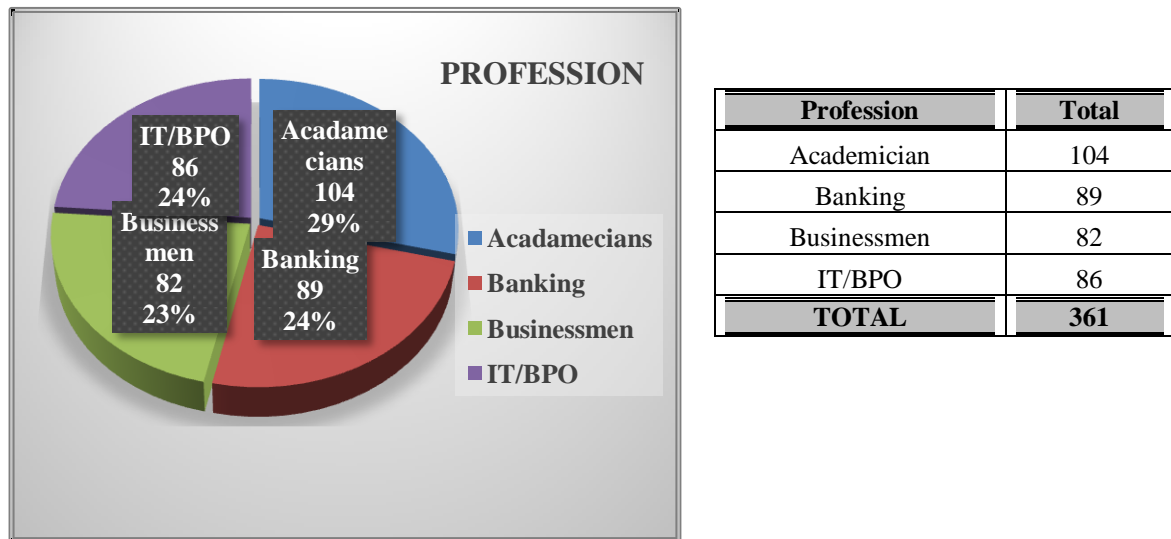


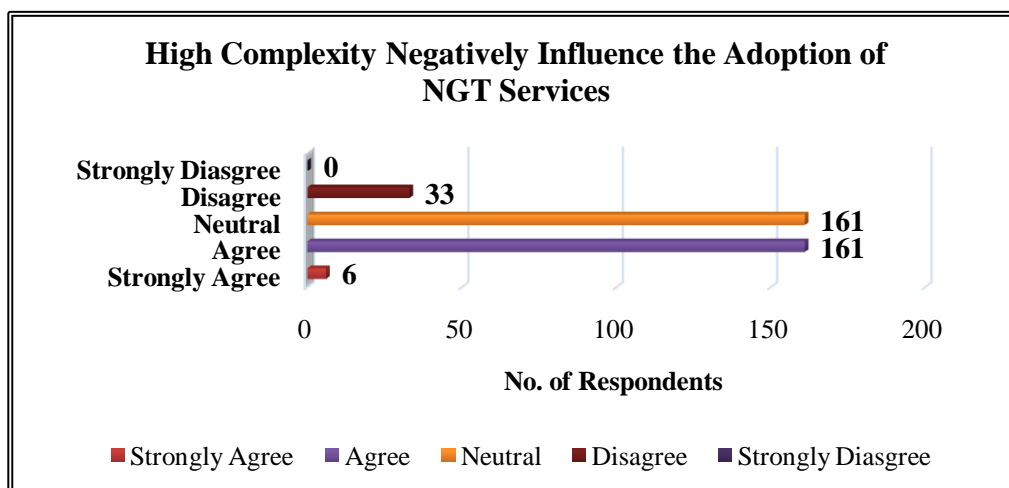
Fig 2. Occupation

Of all the respondents, Academicians were 104 (29%), Bank employees were 89 (24%), Businessmen 82 (23%) and IT/BPO were 86 (24%).

4.2 High Complexity of Next Generation Telecom Services and its Likelihood of Adoption

Different NGT services have different procedures. Consumer may find these services complicated. Thus the purpose of this question was to analyze whether the high complexity of NGT services will negatively influence its adoption or not. As shown in the table, 44% respondent formed no opinion about it whereas, 46% agreed to this statement and 9 % respondent disagreed to this statement.

Fig 3. High Complexity of NGT Services and its Adoption

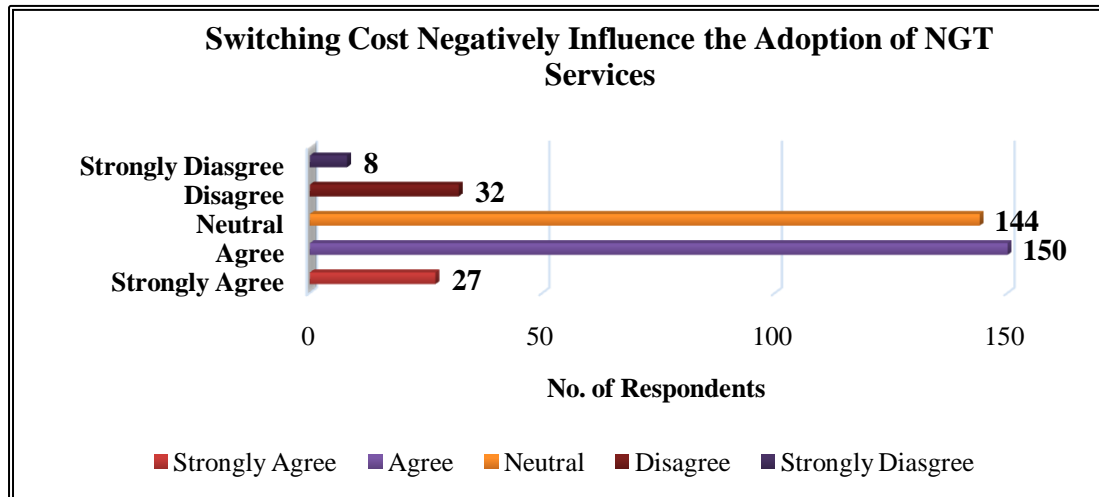


Class	Frequency (%)
Strongly Disagree	0
Disagree	33
Neutral	161
Agree	161
Strongly Agree	6
Total	361

4.3 Switching Cost and Adoption of Next Generation Telecom Services

To access the complete NGT services consumer may require upgrading or changing the handset. Some of the components of switching cost in this case can be changing of handset which offers high speed compatibility and dual camera as well. As shown in the table more than 47% of respondents are confirming that higher switching cost will effect negatively the adoption of NGT service

Figure 4. Switching Cost and Adoption of NGTS



Class	Frequency (%)
Strongly Disagree	8
Disagree	32
Neutral	144
Agree	150
Strongly Agree	27
Total	361

4.4 Hypothesis Testing

Hypothesis 1₀: Product/Services complexity does not influence the adoption of NGTS negatively.

Hypothesis 1_a: Product/Services complexity negatively influences the adoption of NGTS.

$$z = \frac{x_1 - x_2}{\sqrt{\frac{(sd_1)^2}{n}}} = \frac{3.353 - 3}{\sqrt{\frac{(.677)^2}{361}}} = 9.9$$

The value of Z is calculated at 99% confidence

Z_{cal} = 9.9 which is greater than Z_{critical} = 2.33

Hence null hypothesis is rejected and alternate hypothesis is accepted

Mean 1 (X ₁)	Mean 2 (X ₂)	Standard Dev. (sd ₁)	N- Number of users (n)
3.353	3	.677	361

Hypothesis 2₀: Increased cost of switching to NGTS does not influence its adoption negatively.

Hypothesis 2_a: Increased costs of switching to NGTS negatively influence its adoption.

$$z = \frac{x_1 - x_2}{\sqrt{\frac{(sd_1)^2}{n}}} = \frac{3.4389 - 3}{\sqrt{\frac{(.8322)^2}{361}}} = 10.14$$

The value of Z is calculated at 99% confidence

Z_{cal} = 10.14 which is greater than Z_{critical} = 2.33

Hence null hypothesis is rejected and alternate hypothesis is accepted

Mean 1 (X_1)	Mean 2 (X_2)	Standard Dev. (sd_1)	N- Number of users (n)
3.4389	3	.8322	361

5. MANAGERIAL IMPLICATIONS

To fully access NGT services, it requires compatible handsets, which results in high switching cost. It was observed during survey that few respondents had fully compatible handsets which supported complete range of NGT services. Many respondents had this opinion that video calling service is useful but since it requires switching of handsets, they discourage using all the types NGT services. Therefore, it can be concluded that to promote the adoption of NGT services in mass market, low price smartphones should be made available, which reduces the switching cost for the consumers. Question related to product/service complexity resulted in interesting responses. Majority of the respondents did affirm that complexity in the NGT services will negatively influence its adoption. It was analyzed that respondents who were frequent internet user didn't found any complexity in any of the services. Whereas those who were not the frequent users of internet did found some of the services complicated.

REFERENCES

- Agarwal, N.K., Wang, Z., Xu, Y. and Poo, C. (2006), "Factors Effecting 3G Adoption: An Empirical Study," *11th Pacific-Asia Conference on Information Systems*.
- Assael, H. (1981), *Consumer Behavior and Marketing Action*, Boston, MA: Kent.
- Bannister, J., Mather, P. and Coope, S. (2004), *Convergence Technologies for 3G Networks*, Wiley.
- Bradley, S. P. and Sandoval, M. (2002), "Case Study: NTT DoCoMo – The Future of the Wireless Internet," *Journal of Interactive Marketing*, 16 (spring), pp. 80-96.
- Barnes, S. J. (2002), "The Mobile Commerce Value Chain: Analysis and Future Developments," *International Journal of Information Management*, 22, pp. 91-108.
- Business Monitor Intelligence : Indian Telecom Report 2011-13
- Ching, S.Y. and John, W. H. (2009), "Factors Affecting the Adoption of Mobile Commerce in Malaysia," *The ICFAI University Journal of IT*, V (3), pp. 24-37.
- Nokia. (2002). 3G Market Research Mobile Messaging: An End User Perspective. Nokia Report.
- Parasuraman, A., Berry, L.L. and Zeithaml, V.A. (1988), "SERVQUAL: A Multiple-item Scale for Measuring Customer Perceptions of Service Quality," *Journal of Retailing* (64:1), spring, pp.12-40.
- Telecom Regulatory Authority of India website – www.trai.gov.in

AUTHOR'S BIOGRAPHY



Mr. Rohit Rajwanshi

Assistant Professor

Educational Qualification - M.B.A., M.Phil. (Management), N.E.T. Qualified, Ph.D. (Pursuing) from D.E.I.