

Mandeep Singh

Building Customer Loyalty through Value Added Services

A Case of Telecom Sector

Doctoral Thesis / Dissertation

YOUR KNOWLEDGE HAS VALUE



- We will publish your bachelor's and master's thesis, essays and papers
- Your own eBook and book - sold worldwide in all relevant shops
- Earn money with each sale

Upload your text at www.GRIN.com
and publish for free



Bibliographic information published by the German National Library:

The German National Library lists this publication in the National Bibliography; detailed bibliographic data are available on the Internet at <http://dnb.dnb.de> .

This book is copyright material and must not be copied, reproduced, transferred, distributed, leased, licensed or publicly performed or used in any way except as specifically permitted in writing by the publishers, as allowed under the terms and conditions under which it was purchased or as strictly permitted by applicable copyright law. Any unauthorized distribution or use of this text may be a direct infringement of the author s and publisher s rights and those responsible may be liable in law accordingly.

Imprint:

Copyright © 2011 GRIN Verlag
ISBN: 9783656014515

This book at GRIN:

<https://www.grin.com/document/179126>

Mandeep Singh

Building Customer Loyalty through Value Added Services

A Case of Telecom Sector

GRIN - Your knowledge has value

Since its foundation in 1998, GRIN has specialized in publishing academic texts by students, college teachers and other academics as e-book and printed book. The website www.grin.com is an ideal platform for presenting term papers, final papers, scientific essays, dissertations and specialist books.

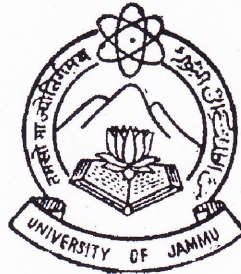
Visit us on the internet:

<http://www.grin.com/>

<http://www.facebook.com/grincom>

http://www.twitter.com/grin_com

**BUILDING CUSTOMER LOYALTY
THROUGH VALUE ADDED SERVICES:
A CASE OF TELECOM SECTOR**



**THESIS
SUBMITTED TO THE UNIVERSITY OF JAMMU
FOR THE AWARD OF DEGREE OF
DOCTOR OF PHILOSOPHY
IN
MANAGEMENT**

**BY
MANDEEP SINGH**

**UNDER THE SUPERVISION OF
DR. ALKA SHARMA
ASSOCIATE PROFESSOR, THE BUSINESS SCHOOL
UNIVERSITY OF JAMMU**

***FACULTY OF BUSINESS STUDIES*
UNIVERSITY OF JAMMU
JAMMU**

2011

Dedicated to

Bari Mummy

(My Grand Mother)

And

My Companion, Friend and Brother

Kanwal Nain Singh

CERTIFICATE

Mandeep Singh, who was registered for the Degree of Ph.D. under my supervision, has completed his work. The exact title of his thesis is "**BUILDING CUSTOMER LOYALTY THROUGH VALUE ADDED SERVICES: A CASE OF TELECOM SECTOR**".

I certify that he has worked under my supervision and the work done by him is original and worthy of consideration for the award of **Degree of DOCTOR OF PHILOSOPHY in Management**.

I further certify that:

1. The thesis embodies the work of the candidate himself;
2. The candidate worked under my supervision for the period required under Statutes;
3. The candidate has put in the required attendance in the Department during the period;
4. The candidate has fulfilled the Statutory conditions as laid down in Section 18 of Statutes Governing Doctor of Philosophy in Management; and
5. The conduct of the scholar remained satisfactory during the period of research.

Dated:

July 07, 2011

Alka Sharma
Dr. Alka Sharma (Supervisor)
Associate Professor
The Business School
University of Jammu
Jammu

Recommended and forwarded
Neelu Rohmetra
Prof. Neelu Rohmetra
Director
The Business School
University of Jammu
Jammu

No: BS/11/233
dt: 07-07-2011

DECLARATION

I, **Mandeep Singh**, hereby declare that the thesis entitled "**BUILDING CUSTOMER LOYALTY THROUGH VALUE ADDED SERVICES: A CASE OF TELECOM SECTOR**" submitted to the **University of Jammu** for the award of **Degree of Doctor of Philosophy in Management**, is an original research work carried out by me in The Business School at the University of Jammu during the period 2009-2011 under the supervision of **Dr. Alka Sharma**, Associate Professor, The Business School, University of Jammu. Any extract of this research in part or as a whole has not been included, incorporated or added to any other work or similar title by any scholar in any other University.

Dated: *July 7th, 2011*

Mandeep Singh
Mandeep Singh

ACKNOWLEDGEMENT

Venturing into new areas and reaching to some new constructive conclusion has been the basis of my education and study so far. This aptitude encouraged and motivated me to go for further studies in '*Building Customer Loyalty Through Value Added Services: A Case of Telecom Sector*'. It is an area of interest that kept tickling my imagination. This work of mine is not an individual effort. Many learned personalities contributed and supported me in bringing out this research work. I feel greatly humbled for their valuable help, support and motivation.

First and foremost, I would like to express my gratitude and thank my supervisor, **Dr. Alka Sharma**, *Associate Professor at The Business School, University of Jammu*. But for her kind, enlightening and productive guidance, this work could not have taken its present shape and form. It would not have been possible to put my research labour in proper order without her able guidance. We used to sit together in the department since morning till late evenings, almost every day discussing various issues related to my research work. I think she has put in lot more efforts than me, in order to bring out this piece of research work in proper time and manner. Whenever she used to go for any conferences or seminars anywhere, she always used to bring a lot of reference material for me so that my time and efforts were saved. In nutshell, she provided me with encouragement and support in various ways.

I express my deepest gratitude to respected **Prof. Neelu Rohmetra**, *Director of The Business School, University of Jammu*, for her encouragement, never-ending support and guidance. During the last two years, I got many opportunities to work under her dynamic supervision. As a result, I was able to learn many tit-bits of event management and organising my work.

No work can be an outcome of individual effort, until and unless it is supported, helped, encouraged and systematically put in order by other tertiary help. In this regard, I express my heartfelt gratitude and thanks to all my revered teachers who have always been very kind and ready with their help and advice throughout. I got associated with The Business School in the year 2006 and ever since, **Prof. Ashok Aima, Prof. M.R. Rana, Prof. J. R. Dhotra, Prof. Versha Mehta, Prof. B. C. Sharma, Dr. Rajindra**

Mishra, Dr. Parikshat S. Manhas, Dr. Sameer Gupta and Dr. Amisha Gupta have always provided with me all the support and encouragement.

My special thanks to **Prof. Keshav Sharma** for his unconditional support and guidance ever since I got associated with The Business School. He has extended his invaluable support and contribution for the current research work that cannot be expressed in words. He not only guided and helped me in collecting data from Chandigarh and Shimla but also helped me with my boarding and lodging arrangements at both the places. I also owe a special thanks to **Dr. Vinay Chauhan, Dr. Komal Nagar and Dr. Rachna Mahajan** for helping me in compiling all scattered thoughts in a well knit and proper woven piece of research.

I don't want to value the invaluable help of **Dr. Anil Gupta** by saying a little word of thanks. His help is far above than these customary words. Be it the summer internship during my MBA at The Business School or campus placements and above all this Ph. D work, he has always been there as a teacher; an elder brother and a friend. But for his kind and generous help and guidance, I would have never been able to finish this mammoth task. He is one of the key persons who motivated and encouraged me to take up this research work.

I would also like to thank **Dr. Jaya Bhasin, Ms. Saloni** and my friend and now a faculty member **Ms. Farah Choudhary**.

Collecting data, compiling it and some written work are not the only things that help a scholar's work to reach its logical end but straight discussions among fellow scholars, and some other peripheral discussions with the people in the department and the University have also played a great role in bringing out my research work in its present shape. In this regard, I express my heartfelt thanks to all my co-researchers: **Ms. Pallavi Arora, Mr. Bhanu Pratap Singh, Mr. Tejeshwar Singh, Ms. Ankita Dewan, Ms. Shellika Gupta, Ms. Ridhi Sharma, Mr. Dinesh Gupta, Ms. Shivani Rana, Ms. Neha Saraf, Mr. Deepak Manhas, Ms. Naveeda Sehar, Mr. Anish Yousaf, Ms. Anju Thapa, Ms. Farhat Bano Beg, Mr. Ramjit, Mr. Jeet Dogra, Ms. Shivani Vaid, Mr. Amit Sharma, Mr. Zubair, Mr. Manjeet Singh, Mr. Ravinder Dogra, Mr. Vinod Kumar and Ms. Ranju Katoch**.

The man, who acted as a centralized axis for my compilation of all the data and helped me in giving it a presentable shape, is **Mr. Shafqat Ajaz**. Without his unconditional help and support, the tedious task of data compilation would not have been possible. Thank you Shafqat!

I have been lucky enough to have the support of people not only in my department at Jammu University but also, people in other departments, University Business School, Punjab University, Shri Mata Vaishno Devi University and University of Himachal Pradesh. My special thanks to **Mr. Ashish Saijhpal** (UBS- Regional Centre, Ludhiana) **Ms. Rashi Taggar** (SMVDU), **Mr. Deepak Sharma** (SMVDU), **Mr. Suresh Sadhotra** (SPMR College of Commerce, Jammu) and **Dr. Ranta** (Himachal University) for their invaluable help in data collection for my research work. I would also like to thank the staff members of Department of Computer Sciences, University of Jammu, especially to **Mr. Sanjay Manhas**, **Mr. Amit Mahajan** and **Mr. Rakesh** for their kind help and support. My very special thanks to **Ms. Saranpreet Kour Broca**, **Dr. Neelika Arora**, **Dr. Suvidha Khanna**, **Dr. Anuradha Sharma**, **Mrs. Poonam Sharma** and **Dr. Bharti Gupta**, for their kind support and encouragement.

I would also like to thank **Directorate of Distance Education, University of Jammu** especially **Dr. Sandeep Tandon** for giving me an opportunity to teach the students there. Interactions with the students there helped me a lot in better understanding of management concepts. I express my gratitude to the staff of **Central Library** and University administration for their support.

I don't want to forget to thank my friends, **Ms. Keshni Sharma** (Doctoral Fellow at IIT-Kanpur) and **Ms. Neha Sadhotra** (Research Fellow at IIM-Lucknow) for their help in getting a number reference material. Thank you for your support! I would also like to thank **Mr. Rohit Bhagat** (Reliance Communications) for his invaluable inputs that helped me in better understanding of Value Added Services in telecom sector.

Thanks are also due to the non teaching staff of The Business School for extending their help and support during the process. Therefore, I would like to express my heartfelt thanks to **Mr. Rajneesh Baru**, **Mr. A. K. Ambardar**, **Mrs. Sheetal Kohli**, **Mrs. Anju Gupta**, **Mr. Sanjeev Gupta**, **Mrs. Rupali Abrol**, **Mr. Sharif**, **Mr. Balwan Singh**, **Mr. Dileep Bhat**, **Ms. Sakshi Gupta**, **Mr. Gurcharan Singh**, **Mr. Duni Raj**, **Mr. Parshotam**

Sharma, Mr. Ravi Kumar, Mr. Raj Kumar, Mr. Tilak, Mr. Arjun, Mr. Moti and Mr. Sanjay. A very special thanks to **Mr. Kuldeep Raj and Mr. Atul**, who always helped me in administrative and paper work related to my research.

I humbly express my gratitude to the editorial team of **Journal of Services Research** and **Jims-8M Research Journal** for accepting my research papers for publications in their esteemed journals. I am also grateful to **Mr. Ankit Magotra** and **Mr. Aaditya Sharma** (both students of MBA at The Business School) and all those who directly or indirectly helped me in the data collection and to those who freely gave their time in completing my questionnaires.

I also owe a humble thanks to **Mr. Manish Pathania** (Care College & Punjab Technical University Study Centre), my friends from **Jammu and Kashmir Entrepreneurship Development Institute**, **Mr. Vishal Ray**, **Ms. Priyanka Mahajan**, **Mr. Gourav Khajuria**, **Mr. Dheeraj**, **Mr. Vishavjeet Singh** (now a KAS officer), **Mr. Kunal Anand** and **Ms. Pavika Raina** (WLC College, India- Jammu Campus) for inviting me as guest faculty in their respective organisations from time to time. All these teaching opportunities gave me an excellent platform to enhance my research and teaching skills.

Last but not least, I would like to express my special thanks and gratitude to my uncle, **Dr. Baljeet Singh** (chacha ji), who is a teacher by profession, for his support and guidance. He has also been my teacher since my childhood and one of those persons who encouraged me to take up this research work.

It may appear formal and customary to thank my parents for all their support, still I feel it to my duty to say, ***"Mummy, Papa, I simply wrote the thesis, but you are always a beacon light for me and shall encourage me for many more such works."***

For any errors or inadequacies that remain in this work, of course, the responsibility is entirely my own.

I may have forgotten some of the worthy valuable support who contributed to this thesis in any way. My heartfelt thanks to them all!

Mandeep Singh
07 July, 2011
Mandeep Singh

TABLE OF CONTENTS

Acknowledgement

List of Tables

List of Figures

List of Acronyms Used

Chapter 1: Introduction	1-47
1.1 Relevance of Services Sector in Economy	1-3
1.2 Telecommunication Services: Importance and Evolution	3-9
1.3 Evolution of Telecom Services in India	10-11
1.4 Value Added Services (VAS): Concept and Evolution	12-14
1.5 Categories of Mobile Value Added Services	14-16
1.5.1 Entertainment VAS	
1.5.2 Information VAS	
1.5.3 mCommerce VAS	
1.5.4 Mobile Applications	
1.6 Key Value Added Services	16-20
1.6.1 Short Message Service (SMS) or Text Messaging	
1.6.2 Instant Messaging	
1.6.3 Multimedia Messaging Service (MMS)	
1.6.4 Mobile E-mail	
1.6.5 Video Service and Mobile TV	
1.6.6 Caller Ring Back Tones (CRBT)	
1.6.7 Wireless Internet	
1.7 Market Size of Indian Mobile Value Added Services (VAS) Sector	20-22
1.8 Marketing of Telecom Services	22-33
1.8.1 Service Quality	
1.8.2 Perceived Value	
1.8.3 Customer Satisfaction	
1.8.4 Customer Loyalty	
1.9 Need For Study	34-35
1.10 Outline of the Study	36-38
References	39-47

Chapter 2: Review of Literature	48-97
--	--------------

2.1 Research Papers and Articles in Journals	48-78
2.2 Published Books	79
2.3 Industry Reports	80
2.4 Thesis and Dissertations	81-82
2.5 Other Miscellaneous Papers/Articles	82-85
2.6 Research Gap	85
References	86-97

Chapter 3: Profile of Companies	98-144
--	---------------

3.1 Introduction to Indian Cellular Market	98-103
3.2 Bharti Airtel Limited	103-115
3.2.1 Company Background	
3.2.2 History	
3.2.3 Recent Initiatives	
3.2.4 Corporate Vision and Promise	
3.2.5 Management Team	
3.2.6 Milestones	
3.3 Vodafone Essar Limited	115-123
3.3.1 Company Background	
3.3.2 History	
3.3.2.1 Vodafone Group Plc	
3.3.2.2 Vodafone Essar Limited	
3.3.3 Recent Developments	
3.3.4 Corporate Vision and Strategy	
3.3.5 Milestones	
3.4 Reliance Communications Limited	123-135
3.4.1 Company Background	
3.4.2 History	
3.4.3 Recent Initiatives	
3.4.4 Corporate Vision and Mission	
3.4.5 Board of Directors	
3.4.6 Milestones	
3.5 Bharat Sanchar Nigam Limited (BSNL)	136-140
3.5.1 Company Background and History	
3.5.2 Corporate Vision and Mission	

- 3.5.3 Board of Directors
- 3.5.4 Milestones

References 141-144

Chapter 4: Research Methodology 145-167

- 4.1 Research Purpose 145-147
- 4.2 Research Hypotheses 147-149
- 4.3 Research Objectives 149-150
- 4.4 Questionnaire Design and Development 150-156
 - 4.4.1 Quality of Value Added Services
 - 4.4.2 Service Quality
 - 4.4.3 Perceived Value of Services
 - 4.4.4 Customer Satisfaction
 - 4.4.5 Customer Loyalty
- 4.5 Pretesting and Final Instrument 156-159
 - 4.5.1 Value Added Services
 - 4.5.2 Perceived value of Services
 - 4.5.3 Overall Service Quality
 - 4.5.4 Customer Satisfaction
 - 4.5.5 Customer Loyalty
- 4.6 Sampling 159-161
- 4.7 Data Tabulation, Statistical Tools and Techniques Used for Processing 161-163
 - 4.7.1 Measure of Central Tendency (Mean)
 - 4.7.2 Measure of Dispersion (Standard Deviation)
 - 4.7.3 Regression Analysis
 - 4.7.4 Percentage Analysis
 - 4.7.5 Analysis of Variance (ANOVA)
 - 4.7.6 Factor Analysis
 - 4.7.7 Reliability Analysis of Measurement Scales

References 164-167

Chapter 5: Data Analysis and Interpretations 168-212

- 5.1 Demographic Profile 168-172
- 5.2 Factor Analysis 172-175
- 5.3 Descriptive Statistics for Various Measurement Items 175-183
- 5.4 Regression Analysis 183-199

5.4.1	Impact of Value Added Services (VAS) offered on Perceived Service Quality	
5.4.2	Relationship between Perceived Service Quality and Perceived Value of Services	
5.4.3	Relationship between Perceived Value of Services and Customer Satisfaction	
5.4.4	Relationship between Customer Satisfaction and Customer Loyalty	
5.4.4.1	Relationship between Customer Satisfaction and Customers' Intention to Use Services in Future	
5.4.4.2	Relationship between Customer Satisfaction and Customers' Intention to Recommend Services to Others	
5.4.5	Relationship between Value Added Services (VAS) offered and Perceived Value of Services	
5.4.6	Relationship between Value Added Services (VAS) offered and Customer Satisfaction	
5.4.7	Relationship between Value Added Services (VAS) offered and Customers' Intention to Use Services in Future	
5.4.8	Relationship between Value Added Services (VAS) offered and Customers' Intention to Recommend Services to Others	
5.4.9	Relationship between Perceived Service Quality and Customer Satisfaction	
5.4.10	Relationship between Perceived Service Quality and Customers' Intention to Use Services in Future	
5.4.11	Relationship between Perceived Service Quality and Customers' Intention to Recommend Services to Others	
5.4.12	Relationship between Perceived Value of Services and Customers' Intention to Use Services in Future	
5.4.13	Relationship between Perceived value of Services and Customers' Intention to Recommend Services to Others	
5.5	Hypotheses Testing	200-201
5.6	Analysis of Variance (ANOVA)	201-211
5.6.1	ANOVA for Value Added Services	
5.6.2	ANOVA for Perceived Service Quality, Perceived Value of Services and Customer Satisfaction	
5.6.3	ANOVA for Customer Loyalty	
	References	212

Chapter 6: Summary, Conclusion and Suggestions

213-233

6.1	Synoptic View	213-216
-----	---------------	---------

213-216

6.2	Objectives of the Study and Their Achievement	217-222
6.3	Validity of Hypotheses Tested	223-224
6.4	Analysis of Variance of Means	224-226
6.5	Conclusions and Suggestions	226-229
6.6	Limitations of the Study	229
6.7	Research Contribution, Managerial Implications and Direction for Future Research	230-233

Bibliography

234-257

LIST OF TABLES

Table Number	Table Title	Page
Table 1.1	Performance in Services Growth of Top 12 Countries	2
Table 1.2	Revenue Structure of Indian Cellular Operators	21
Table 5.1	Respondents in Select Cities	168
Table 5.2	Gender Profile of Respondents	169
Table 5.3	Age-wise Representation of Respondents	169
Table 5.4	Type of Connection of Respondents	170
Table 5.5	KMO and Bartlett's Test	172
Table 5.6	Total Variance Explained	173
Table 5.7	Constructs and Composite Reliability	174
Table 5.8	Features of Value Added Services	176
Table 5.9	Reliability of Value Added Services	177
Table 5.10	Comfort in Usage of Value Added Services	178
Table 5.11	Personal Attention Given by Operator	179
Table 5.12	Mean Values of Various Factors of VAS	179
Table 5.13	Perceived Value of Services	180
Table 5.14	Overall Service Quality	181
Table 5.15	Customer Satisfaction Level	182
Table 5.16	Intention to Use Services in Future	182
Table 5.17	Intention to Recommend Services to Others	183
Table 5.18a	Regression Analysis: VAS and Perceived SQ	183
Table 5.18b	Regression Coefficients: VAS and Perceived SQ	184
Table 5.19a	Regression Analysis: Perceived SQ and PV of Services	185
Table 5.19b	Regression Coefficients: Perceived SQ and PV of Services	185
Table 5.20a	Regression Analysis: PV of Services and CS	186
Table 5.20b	Regression Coefficients: PV of Services and CS	186
Table 5.21a	Regression Analysis: CS and Intention to Use Services in Future	187
Table 5.21b	Regression Coefficients: CS and Intention to Use Services in Future	188
Table 5.22a	Regression Analysis: CS and Intention to Recommend Services to Others	188
Table 5.22b	Regression Coefficients: CS and Intention to Recommend Services to Others	189
Table 5.23a	Regression Analysis: VAS and PV of Services	190
Table 5.23b	Regression Coefficients: VAS and PV of Services	190
Table 5.24a	Regression Analysis: VAS and CS	191
Table 5.24b	Regression Coefficients: VAS and CS	192
Table 5.25a	Regression Analysis: VAS and Intention to Use Services in Future	193

Table Number	Table Title	Page
Table 5.25b	Regression Coefficients: VAS and Intention to Use Services in Future	193
Table 5.26a	Regression Analysis: VAS and Intention to Recommend Services to Others	194
Table 5.26b	Regression Coefficients: VAS and Intention to Recommend Services to Others	194
Table 5.27a	Regression Analysis: SQ and CS	195
Table 5.27b	Regression Coefficients: SQ and CS	195
Table 5.28a	Regression Analysis: SQ and Intention to Use Services in Future	196
Table 5.28b	Regression Coefficients: SQ and Intention to Use Services in Future	196
Table 5.29a	Regression Analysis: SQ and Intention to Recommend Services to Others	197
Table 5.29b	Regression Coefficients: SQ and Intention to Recommend Services to Others	197
Table 5.30a	Regression Analysis: PV of Services and Intention to Use Services in Future	198
Table 5.30b	Regression Coefficients: PV of Services and Intention to Use Services in Future	198
Table 5.31a	Regression Analysis: PV of Services and Intention to Recommend Services to Others	199
Table 5.31b	Regression Coefficients: PV of Services and Intention to Recommend Services to Others	199
Table 5.32a	ANOVA: VAS with respect to the Operators	204
Table 5.32b	Tukey's HSD Homogeneous Subsets for Features of VAS	204
Table 5.32c	Tukey's HSD Homogeneous Subsets for Reliability of VAS	205
Table 5.32d	Tukey's HSD Homogeneous Subsets for Comfort in Usage of VAS	205
Table 5.32e	Tukey's HSD Homogeneous Subsets for Personal Attention Given by Operator	206
Table 5.33a	ANOVA: SQ, PV of Services and CS with respect to Operators	207
Table 5.33b	Tukey's HSD Homogeneous Subsets for Service Quality	208
Table 5.33c	Tukey's Homogeneous Subsets for Perceived Value of Services	208
Table 5.33d	Tukey's Homogeneous Subsets for Customer Satisfaction	209
Table 5.34a	ANOVA: Customers' Intention to Use Services in Future and Intention to Recommend Services to Others with respect to Operators	210
Table 5.34b	Tukey's HSD Homogeneous Subsets for Customers' Intention to Use Services in Future	211
Table 5.34c	Tukey's HSD Homogeneous Subsets for Customers' Intention to Recommend Services to Others	211

LIST OF FIGURES

Figure	Number	Figure Title	Page
Figure	1.1	Mobile Network	6
Figure	1.2	Evolution of Value Added Services in India	13
Figure	1.3	Categories of Value Added Services	14
Figure	3.1	Composition of Indian Telecom Subscribers	99
Figure	3.2	Composition of Indian Cellular Subscribers	101
Figure	3.3	Group-wise market share (in terms of subscribers) of Indian GSM Operators	101
Figure	3.4	Proportion of Pre-Paid & Post-Paid Subscribers in Indian GSM Market	102
Figure	3.5	Global Presence of Airtel	104
Figure	3.6	Global Presence of Vodafone	116
Figure	5.1	Respondents of Select Operators	170
Figure	5.2	Respondents Using Different Types of Value Added Services	171

LIST OF ACRONYMS USED

1 G	First Generation cellular networks
2.5G	2.5 Generation cellular networks
2G	Second Generation cellular networks
3G	Third Generation cellular networks
3GPP	Third Generation Partnership Project
3GPP2	Third Generation Partnership Project 2
4G	Fourth Generation cellular networks
AMPS	Advanced Mobile Phone Service
ANOVA	Analysis of Variance
ANSI	American National Standard Institute
ARPU	Average Revenue Per User per Month
BSNL	Bharat Sanchar Nigam Limited
CAGR	Compound Annual Growth Rate
CDG	CDMA Development Group
CDMA	Cellular Digital Packet Data
CMTS	Cellular Mobile Telephone Service
CRBT/RBT	Caller Ring Back Tone/ Ring Back Tone
CRM	Customer Relationship Management
CSO	Central Statistics Office
DoT	Department of Telecom
EDGE	Enhanced Data rates for GSM Evolution
ETSI	European Telecommunications Standard Institute
FDI	Foreign Direct Investment
FMCG	Fast Moving Consumer Goods
GDP	Gross Domestic Product

GPRS	General Packet Radio Service
GPS	Global Positioning System
GSM	Global System for Mobile Communication
IAMAI	Internet And Mobile Association of India
ICT	Information and Communication Technology
IM	Instant Message
IMRB	IMRB International
IMT-2000	International Mobile Telecommunications 2000
IN	Intelligent Network
IP	Internet Protocol
ISP	Internet Service Provider
ITU	International Telecommunications Union
IVR	Interactive Voice Response
LAN	Local Area Network
LTE	Long Term Evolution
MNO	Mobile Network Operator
MNP	Mobile Number Portability
MPLS- VPN	Multiprotocol Label Switching-Virtual Private Networks
MTN	Mobile Telephone Network and MTS Group of Africa
MTNL	Mahanagar Telephone Nigam Limited
MTS	Mobile Telephone Service
NMT	Nordic Mobile Telephone
P2P	Person-to-Person / Point-to-Point
PDC	Personal Digital Cellular
QoS	Quality of Service

RCOM	Reliance Communications Limited
SBI	State Bank of India
SIP	Session Initiation Protocol
SMS	Short Message Service
STK	Sim Application Toolkit
TIA	Telecommunications Industry Association
TRAI	Telecom Regulatory Authority of India
UASL	Unified Access Service Licence
UMTS	Universal Mobile Telecommunication System
URL	Universal Resource Locator
USAL	Unified Service Access Licence
USSD	Unstructured Supplementary Services Data
VAS / MVAS	Value Added Services / Mobile Value Added Services
VoIP	Voice over IP
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WAP	Wireless Application Protocol
W-CDMA	Wideband CDMA
Wi-MAX	Worldwide Interoperability for Microwave Access

CHAPTER 1

INTRODUCTION

“It is high time that the ideal of success should be replaced by ideal of service.”

----- Albert Einstein

1.1 RELEVANCE OF SERVICES SECTOR IN ECONOMY

Services constitute the tertiary sector in an economy, including all activities that are neither related to agriculture nor manufacturing. The emergence of services sector can be traced back to post World War-II era, when it started assuming greater significance in rebuilding the world economies that were devastated due to the collapse of manufacturing sector. Eventually, this phenomenon led to a change in the basic structure of economies with services becoming the dominant component. However, with the passage of time, newer services were developed leading to their simultaneous commercialization and professionalization. As a result, the services sector became the back-bone of every economy. According to the Indian Economic Survey 2010-11, UN National Accounts Statistics in its report published on 4th February 2011, has also mentioned that the services sector with an overall share of 64.2 percent in world GDP in 2009 (Table 1.1), has been playing a dominant role in the world order, especially in high-income countries which have transited to services-led growth.

From education to entertainment, finance, fast-food, travel, telephone, advertisement to market research, maintenance services, retailing etc. services are widely used by people and

organizations today. More so with the advancements in new technologies like telecommunication, information based technologies and continuous innovations in performing business functions; a radical change has taken place in the living-habits, tastes, preferences, needs and requirements of people.

Table 1.1: Performance in Services Growth of Top 12 Countries

Country	Rank*		Share of Services (% of GDP) 2009	Services Growth Rate (%) 2009	Estimated CAGR (%) (2000-09)
	Overall GDP	Services GDP			
USA	1	1	76.5	-3.1	2.0
JAPAN	2	2	71.0	-5.6	0.5
CHINA	3	3	39.1	9.4	10.5
GERMANY	4	4	66.6	-1.4	1.4
FRANCE	5	5	71.1	-1.1	1.5
UK	6	6	70.5	-3.3	2.3
ITALY	7	7	66.6	-2.0	0.9
BRAZIL	8	8	57.3	2.6	3.6
SPAIN	9	9	63.6	-1.0	3.1
CANADA	10	10	65.5	-0.2	2.8
INDIA	11	12	52.0 55.2**	6.8	8.9
RUSSIA	12	11	54.0	-5.1	5.6
WORLD			64.2	-1.6	2.5

Source: Indian Economic Survey 2010-11

* Ranks are based on GDP at current prices

** In 2009-10 as per CSO, India.

In response to this, the corporate sector has been developing multi-faceted services to deliver the best to the society leading to a phenomenal growth of services sector. This fact holds truth in Indian context also, where GDP of ₹ 7,87,7947 crores (at current market prices, 2010-11)

with a growth rate of 8.6% gets a contribution of around 55.2% from a very dynamic and substantial services sector that had an expected growth rate of around 10% for the year 2010-11 (Indian Economic Survey, 2010-11). While referring to Table 1.1, India with a services sector share of 52% in national GDP in 2009 and 55.2% in 2009-10 has been compared with the other 11 countries, which have recorded the highest overall GDP. The comparison clearly indicates that China's share of services in its national GDP at 39.2 per cent has been lowest among all. However, in terms of services growth rate, China (CAGR: 10.5 per cent) followed by India (CAGR: 8.9 per cent) have emerged as the two fastest growing economies among the top 12 countries. Further, in the global crisis year of 2009, when most of the countries have recorded negative growth in services, only China (9.4 per cent), India (6.8 per cent), and Brazil (2.6 per cent) registered positive growth. Further analyzing the services sector, it has been seen that telecommunication, as a service, has emerged as the sunrise sector in almost all the economies. It is so because globally, the focus is shifting towards the telecom sector, especially in recent years, due to the enormous growth of Information Technology and its significant impact on the rest of the economy.

1.2 TELECOMMUNICATION SERVICES: IMPORTANCE AND EVOLUTION

Telecommunication refers to the transmission of information, over significant distances, for the purpose of communication. In earlier times, telecommunication involved the use of visual signals, such as beacons, smoke, semaphore telegraphs, signal flags, and optical heliographs, or audio messages via coded drumbeats, lung-blown horns, or sent by loud whistles. In the modern age of electricity and electronics, telecommunication now also includes the use of electrical devices such as telegraphs, telephones, and teletypes, the use of radio and

microwave communications, as well as fiber optics and their associated electronics, plus the use of the orbiting satellites and the internet.

Due to such a wide spectrum of mediums being used for telecommunications globally, the industry has been estimated to be about US\$4 trillion sector in 2010. It is one of the major employment providers in the world, with nearly 1 million employees in the United States of America alone (Plunkett, 2010). Besides being the major employment provider, the cellular industry has impacted the economies at both structural as well as economic level so much so that it has emerged as the complex new industry with advanced technologies, organizational and human capabilities to deliver the services to final user on the one hand and on the other with large multiplier effects in terms of investments, income and employment. Even, it is to further mention that many aspects of production and distribution systems have changed since the advent of mobiles contributing towards the enhanced productivity. It has shrunk boundaries of the world. Moreover, roaming the world with an access to information and communication has been possible due to mobile telephony, developments in its technology and the global standards. Various agencies have estimated the global wireless subscriber base in 2010 to be around 5.3 billion users (The World Fact Book, 2011). Without such developments, globalization as a phenomenon would not have taken place as fast as it has over the recent years.

From this, it can be inferred that the mobile communication has been a key factor for economic growth and social change. Hence, it can be said that in the present scenario where every economy depends heavily upon communication technologies and the internet based industries, telecommunication has emerged as one of the important services. A similar trend has been observed in Indian services sector, where telecommunication services have recorded a phenomenal growth, which is evident from the fact that the Indian telecom sector has grown

from a level of 22.8 million telephone subscribers in 1999 to 54.6 million in 2003 and 764.77 million at the end of November 2010. Wireless telephone connections have been a major contributor to this growth as the number of wireless connections rose from 3.57 million in March 2001 to 729.58 million by the end of November 2010. Further, this sector has attracted FDI inflows of around ₹ 46,727 crores during April 2000 to December 2010, which accounted for 8% of total inflows during the same period (Indian Economic Survey, 2010-11).

As far as, the emergence of mobile telephony as a service is concerned, the story of digital wireless and cellular communication started in 1940's when commercial mobile telephony began. The first service named Mobile Telephone Service (MTS) was launched by AT&T in America on 17th June, 1946. The next four decades saw a rather sluggish growth and development in mobile telephony primarily due to slow technological innovations, cautiousness of businesses and most importantly the government regulations. By mid 80's many innovations took place and by early 90's low cost microprocessors and digital switching technology became easily available paving the way for wireless revolution which resulted into a spectacular growth in global telecom industry that was never seen before.

While referring to the wireless revolution, cellular telephony has been one of the key contributors in the growth of such services. Cellular telephony derives its name from the partition of a geographic area into small "cells". Each cell is covered by a 'cell site' which is a site where antennas, radio transmitters and receivers are placed to create a radio coverage area in the mobile network. They are powerful enough to enable connectivity with cellular phones (mobile terminals), within its area. The set of cells forms the radio access network, and the radio frequencies are used for the transmission of calls and data. Voice and data that is exchanged between a mobile terminal and regular phone networks, or the internet, are