



AN ANALYSIS OF TELECOM INDUSTRY AND IMPACT OF PRIVATIZATION ON IT

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ABSTRACT:

The current paper sheds light on the analysis of the Indian Telecom Industry and the impact of privatization on it. The telecommunication industry of India is one of the vast and leading industries in the world connecting different parts of the country through various modes like telephone, radio, TV, satellite and internet. The telecom Regulatory Authority of India governs this industry by providing a regulatory framework and favourable environment for its efficient operations. The telecom industry stands as the second largest in the world due to its rapid advancement and is in cut-throat competition with the telecom industries of the other developed countries. On the other hand privatisation is the process of switching the authority from the government to the private sector. Privatization is the process that has huge impact on the telecom sector in India. Data for the paper is the secondary data which is obtained from different annual reports of Telecom Regulatory Authority of India (TRAI) and from Google.

KEYWORDS: Privatisation, telecommunication, growth, service providers.

INTRODUCTION:

The Indian telecom industry is considered to be a vital tool for the development of the country on the whole by contributing towards the immense growth, quick expansion and up gradation of various sectors of the nation. India's telecommunication network is the second largest in the world by number of telephones (both fixed and mobiles) users with 1.179 billion subscribers as on 31 July 2018. Development of telecommunication is significant in inducing the economic process of the states. It has been observed in India that the telecommunication sector is monopolized since the process of independence. Telecommunication sector of India has witnessed a huge growth after it had opened to the personal sector. The developments within the telecommunication have helped in the alternate sectors in their operations. The privatization of the telecom industry helped India to grow in all aspects.

OBJECTIVES:

The main objectives of the papers are as follows:

To analyze the history and evolution of Indian Telecom Industry.

To review the Government Telecom policies.

To identify the present trends in the Indian Telecom Industry and its growth.

To study the impact of privatisation on the Indian Telecom Industry.

METHODOLOGY

The data for the paper is the secondary data which is obtained from various annual reports of Telecom Regulatory Authority of India and the reports of Department of Telecom and from other sites. Different telecom magazines, newspapers and journals were consulted for gathering of information.

ANALYSIS

The study has been conducted to depict the history and evaluation, present trends and privatisation in the telecom industry of India. The government telecom policies that govern this industry, growth of telephones (fixed and mobiles both), Tele-density in Rural and Urban areas, wireless and wireline communication, public and private sector telecom operators, has been also discussed and presented in detail.

HISTORY

1. Indian Telecommunication industry is the third largest telecommunication network in the world and the second largest in terms of number of wireless connections.
2. In 1850, the first experimental electric telegraph Line was started between Kolkata and Diamond Harbor.
3. In 1851, it was opened for the British East India Company. The Posts and Telegraphs department occupied a small corner of the Public Works Department, at that time.
4. Construction of 4,000 miles (6,400 km) of telegraph lines connecting Kolkata (Calcutta) and Peshawar in the north via Agra, Mumbai (Bombay) through Sindwa Ghats, and Chennai in the south, as well as Ootacamund and Bangalore was started in November 1853.
5. Dr. William O'Shaughnessy, who pioneered telegraph and telephone in India, belonged to the Public Works Department. He tried his level best for the development of telecom throughout this period.
6. A separate department was opened in 1854 when telegraph facilities were opened to the public.
7. In 1880, two telephone companies namely The Oriental Telephone Company Ltd. and The Anglo-Indian Telephone Company Ltd. approached the Government of India to establish telephone exchanges in India. The permission was refused on the grounds that the establishment of telephones was a Government monopoly and that the Government itself would undertake the work.
8. By 1881, the Government changed its earlier decision and a licence was granted to the Oriental Telephone Company Limited of England for opening telephone exchanges at Kolkata, Mumbai, Chennai (Madras) and Ahmedabad.
9. On 28 January 1882, Major E. Baring, Member of the Governor General of India's Council declared open the Telephone Exchange in Kolkata, Chennai and Mumbai. The exchange at Kolkata named "Central Exchange" was opened at third floor of the building at 7, Council House Street. The Central Telephone Exchange had 93 number of subscribers.
10. Bombay also witnessed the opening of Telephone Exchange in 1882.
11. First Central Battery of telephones introduced in Kanpur in 1907.
12. First Automatic Exchange installed in Shimla in 1913-1914.
13. Radio-telegraph system between the UK and India, with beam stations at Khadki and Daund, inaugurated by Lord Irwin by exchanging greetings with the King of England on 23 July 1927.
14. Radiotelephone system inaugurated between the UK and India in 1933.
15. First subscriber trunk dialing route commissioned between Kanpur and Lucknow in 1960.
16. First PCM system commissioned between Mumbai City and Andheri telephone exchanges in 1975.
17. First digital microwave junction introduced in 1976.
18. First optical fibre system for local junction commissioned at Pune in 1979.
19. First satellite earth station for domestic communications established at Secunderabad, A.P. 1980.
20. First analog Stored Program Control exchange for trunk lines commissioned at Mumbai in 1983.
21. C-DOT established for indigenous development and production of digital exchanges in 1984.
22. First mobile telephone service started on non-commercial basis in Delhi 1985.

23. The Telecom Regulatory Authority of India TRAI was established by the Government of India Indian Telegraph Act, 1885 in 1997 as independent regulator to regulate the telecommunications business in India.
24. The Telecom Commission was set up by the Government of India vide Notification dated 11th April, 1989 with administrative and financial powers of the Government of India to deal with various aspects of Telecommunications.
25. National Telecommunication Policy was announced on March 26, 1999. This policy came into force on April 1, 1999. With this the telecommunication policy of 1994 came to an end. Participation of the private sector was emphasized in this policy.
26. Bharat Sanchar Nigam Ltd. formed in October, 2000, is World's 7th largest Telecommunications Company providing comprehensive range of telecom services in India: Wireline, CDMA mobile, GSM Mobile, Internet, Broadband, Carrier service, MPLS-VPN, VSAT, VoIP services, IN Services etc. Presently it is one of the largest & leading public sector unit in India.
27. National Long Distance Service NLD was opened from August 13, 2002
28. The National Internet Backbone of BSNL consists of 432 Point of Presence (POP) that gives it the capability of transporting IP traffic from every hook and corner of the country. This network provides internet services to more than 1 million dial-up customers including about 3.5 lakh customers on CLI basis.
29. The guidelines for Unified Access Service License regime were issued on November 11, 2003.
30. India is currently under the Calling Party Pays regime which was implemented in 2001 after being presented by the Telecom Regulatory Authority of India (TRAI) after first being presented in their second consultation paper on Telecom Pricing in 1998. India switched to this regime to be in line with what was seen as a 'global practice' because 90% of the world's telecom regimes are on CPP.
31. The Universal Service Support Policy came into effect from 01.04.2002. The guidelines for universal service support policy were issued by DoT and were placed on the DoT website www.dot.gov.in on 27th March 2002. Subsequently, the Indian Telegraph (Amendment) Act, 2003 giving statutory status to the Universal Service Obligation Fund (USOF) was passed in December 2003. The Fund is to be utilized exclusively for meeting the Universal Service Obligation by providing access to telegraph services to people in the rural and remote areas at affordable and reasonable prices. The USO Fund was established with the fundamental objective of providing access to 'basic' telegraph services.
32. Subsequently, an Act has been passed on 29.12.2006 as the Indian Telegraph (Amendment) Act 2006 to amend the Indian Telegraph Act, 1885 to enable provision of all types of telegraph services.
33. The total number of telephones in the country crossed the 100 million mark in April 2005 and the total numbers of telephone subscribers have reached 218.05 million at the end of May 2007 as compared to 211.76 million in April 2007.

MAJOR MILESTONES OF THE INDIAN TELECOM INDUSTRY

The Indian Telecom Industry comprises of various segments that are an indicator of its growth and development. It is broadly divided into two segments, Fixed Communication and Mobile Communication. Nowadays, there is a rapid growth in the field of mobile communication as compared to fixed communication due to an increasing demand for cellular phones. The technologies like GSM and CDMA are adopted by the Indian Telecom Industry. Different service providers offer both fixed as well as mobile communication while operating in various service areas of India.

WIRELESS COMMUNICATION AND WIRELINE COMMUNICATION

The Wireless Communication is the fastest growing segment of the Indian Telecom Industry. Through the development of wireless communication, it has become easier to transmit information between two or more points that cannot be connected by an electrical conductor. The wireless technologies being employed presently by the Indian Telecom Industry are Cellular (mobile) phones, Television, Radio etc. The private telecom operators now dominate the wireless market. However, this

was not the case in the beginning. The changes in the market structure were mainly due to the changes in the National Telecom Policy of 1999. The Government of India is providing benefits to private players to grow in this sector. Mobile phone communication is one of the best known examples of wireless technology and is also known as cellular phone communication. The major operators in the wireless field are Bharti Airtel, Vodafone, Reliance Communications, Idea Cellular, Tata Indicom and BSNL/MTNL. The Wireline Communication focuses mainly on landlines. Fixed telephones are facing stiff competition from mobile phones. The fixed telephones network quality has presently improved a lot and these phones are now available even in high density urban areas on demand. The public telecom operators like BSNL and MTNL dominate the wireline market followed by the private operators. India has the world's second- largest telecom network after China in terms of both fixed as well as mobile communication. India had a subscriber base of 1.179 billion till the end of March'18 in terms of fixed and mobile communication.

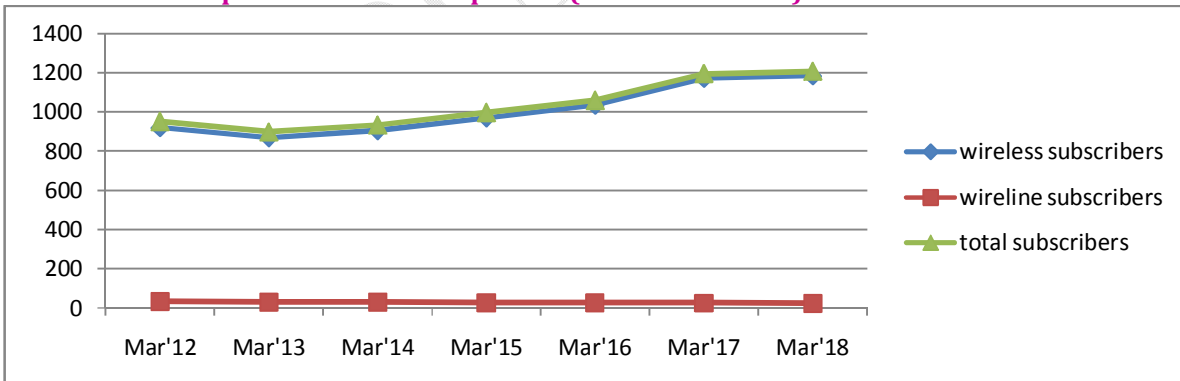
Table 1: Growth of telephones over the years (in million)

YEAR	WIRELESS SUBSCRIBERS	WIRELINE SUBSCRIBERS	TOTAL SUBSCRIBERS	ANNUAL GROWTH %
2012	919.17	32.17	951.34	12
2013	867.80	30.21	898.01	-6
2014	904.52	28.50	933.02	4
2015	969.90	26.59	996.49	7
2016	1033.63	25.22	1058.85	6.26
2017	1170.18	24.40	1194.58	12.82
2018	1183.41	22.81	1206.22	0.97

Source: TRAI Annual Reports from 2012- 2018, Press Releases of TRAI

The above table indicates that over the years, the number of wireless subscribers has increased whereas there has been a decline in the number of wireline subscribers due to an increasing demand for wireless phones as compared to fixed telephones.

Graph 1: Growth of telephones (fixed and mobile) from 2012 to 2018



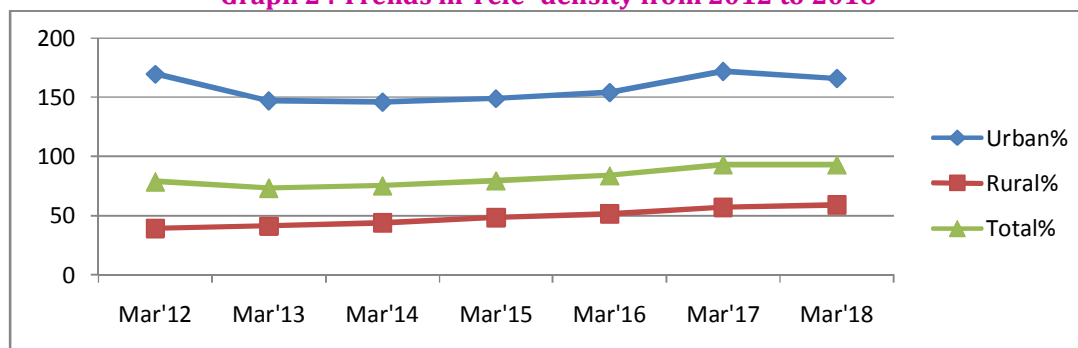
Source: TRAI Press Releases and Annual Reports from 2012-2018

The above line graph clearly depicts that there has been a positive percentage growth in the number of total telephones during the previous years, except in the year 2012-13 which had been due to the removal of inactive mobile phone connections by the service providers. TRAI's annual reports indicate that the total number of wireless subscribers have reached 1206.22 million at the end of Mar'18 from 951.34 million at the end of Mar'12.

Tele- density

Tele- density indicates the number of telephone connections per hundred people. It is a significant indicator of telecom penetration in the country. There is an exponential growth of tele-density in India due to the evolution of hi-tech wireless technologies.

Graph 2 : Trends in Tele- density from 2012 to 2018



Source: TRAI Annual Reports from 2012 to 2018

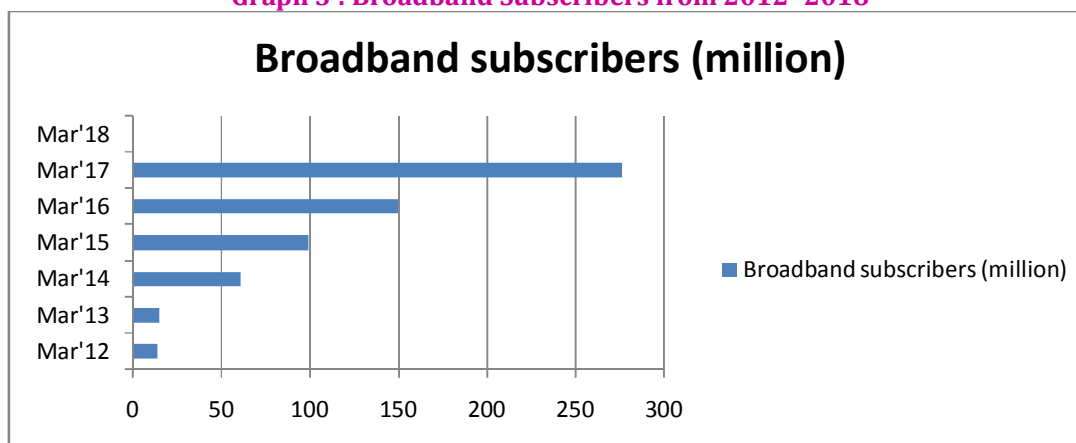
According to TRAI's annual reports of various years, India's tele- density has increased from 70.89% at the end of March 2012 to 92.84% at the end of March 2018. However, tele- density declined from 78.66% at the end of March 2012 to 73.32% at the end of March 2013. This is also indicated in the above graph. The graph also depicts that the Urban Tele- density has decreased from 169.55% at the end of March 2012 to 146.96% at the end of March 2013. But Rural Tele- density has increased during this interval. There is a large disparity between the urban tele-density and rural tele-density. The slow growth in tele-density in the rural areas is due to these areas being less attractive for the telecom service providers to invest in. Furthermore, providing telecom services in the remote and rural areas also requires massive investment. Rapid increase in rural tele- density is very important for the economic and social development of rural areas, which will help in the overall development of the whole country. The Government of India has employed several measures for spreading up of mobile network in distant rural areas. Private telecom operators are trying their best to expand their services in rural areas by providing them good services.

Table 2: Overall Tele- density in various service areas at the end of March 2018

S.No.	Service Area	Tele- density (%)
1.	Total	92.84
2.	Bihar	63.12
3.	Madhya Pradesh	66.99
4.	Uttar Pradesh	71.21
5.	Assam	74.63
6.	Odisha	80.22
7.	Rajasthan	86.67
8.	West Bengal	91.02
9.	Haryana	94.38
10.	Andra Pradesh	97.07
11.	Maharashtra	108.46
12.	J&K	108.63
13.	Karnataka	109.01
14.	Gujrat	112.44
15.	Kerala	121.61
16.	Punjab	123.3

As depicted in the table, the Metro cities have high tele-density as compared to other service areas.

Graph 3 : Broadband Subscribers from 2012- 2018



Source: TRAI Annual Reports from 2012-2018

The above graph clearly reflects that the number of broadband subscribers have increased considerably from 2012 to 2018 owing to an increased demand for broadband connectivity.

Telecom Service Providers

The Indian Telecom Industry comprises of both public and private sector service providers. The public sector telecom operators occupy a major share in the wireline segment as compared to the wireless segment. The private telecom operators dominate the wireless market. Their share is very less in the fixed line segment. BSNL and MTNL are the two major public sector service providers. The major private sector service providers are Bharti Airtel, Vodafone, Reliance Communications, Idea Cellular, Tata Indicom.

Table 3: Market share of different service providers in the wireless and wireline segment (%) from 2015 to 2018

Year/ service providers	2015		2016		2017		2018	
	Wireless	Wireline	Wireless	Wireline	Wireless	Wireline	Wireless	Wireline
BSNL	7.96	61.71	8.35	58.52	8.63	56.10	9.44	53.78
MTNL	0.36	13.35	---	13.89	0.31	14.19	0.30	14.67
Bharti Airtel	23.03	12.83	24.31	14.52	23.39	15.84	25.70	17.24
Vodafone	18.95	0.30	19.15	0.36	17.87	0.57	18.82	0.97
Reliance comm.	11.29	4.45	9.91	4.64	7.14	4.81	0.02	4.05
Idea	16.27	---	16.94	---	16.70	---	17.85	1.07
Tata Indicom	6.81	6.29	5.81	6.83	4.19	7.17	2.64	8.22

Source: TRAI Annual Reports from 2015-2018

As depicted in the table above, the public sector operators BSNL and MTNL have a larger share in the wireline segment as compared to the wireless segment. BSNL's share is much larger in the

wireline sector in comparison to MTNL because it covers whole India whereas MTNL operates only in Delhi and Mumbai. Over the years, the wireline market share has declined due to an increased demand for wireless phones by subscribers. Amongst all the private sector operators, Bharti's share is higher in the wireless as well as wireline segment. The private service providers namely Bharti Airtel, Vodafone, Idea, Reliance Communications and Tata Indicom secured 1st, 2nd, 3rd, 4th and 5th rank respectively according to their market share at the end of March'18.

Revenue of major access telecom service provider in FY16, FY17 and Q2 18

Service providers	FY16 (In crore)	FY17 (in crore)	Q2 18 (in crore)
Bharti	48880	36922	---
Vodafone	34680	26308	8226.80
Idea	29436	22616	
BSNL	13110	10564	2273.58
Reliance Jio	-303	7466	7125.69
Tata	9957	6478	553.98
Aircel	11164	5082	---
Reliance Comm.	4734	2680	149.12
MTNL	2867	1985	440.24
Videocon	4712	--	---

Source: TRAI annual reports from 16 to 18.

Airtel, Vodafone, Idea cellular, BSNL and Reliance Jio are the top five telecom operators in India based on their annual Revenue in 2017.

FOREIGN DIRECT INVESTMENTS

Foreign Direct Investment has been one of the major contributors in the growth of the Indian economy and therefore, the need for higher FDI is felt across sectors in the Indian economy. The telecom sector has played a crucial role in attracting FDI in India. The telecom industry of India requires huge investments for its expansion as it is capital-intensive and FDI plays a vital role in meeting the fund requirements for its expansion. The relaxation in FDI norms has attracted many foreign telecom majors to this industry. The presence of foreign players has not only encouraged faster infrastructure development and up gradation but also has opened up the telecom industry to foreign competition. The rise in FDI has also enabled technology transfer, market access and has improved organizational skills. FDI is also used for providing telecom services to rural areas, where tele-density is still very low.

During August 2013, the Telecom Commission raised the FDI cap from 74% to 100% in order to encourage foreign investors to invest in the Indian Telecom industry. This has made telecom one of the major sectors attracting FDI inflows in India. According to the report of telecom minister Manoj Sinha, FDI in the telecom sector has jumped nearly five times in the last three years- from \$1.3 billion in 2015-16 to \$6.2 billion in 2017-18.

TELECOM INDUSTRY AND PRIVATIZATION

The term 'privatization' has a variety of meanings, but they all involve a degree of entry of private capital and entrepreneurship into the telecommunications business. The main constraint for developed economies is the underdevelopment of local capital markets unless they are willing to see foreign capital enter on a grand scale. There can be many advantages in doing so, but local political considerations and priorities may dictate otherwise, in which case the costs of foregoing foreign capital need to be offset, and therefore to some extent justified, by local reforms. There are various stages privatization can take, and many forms, but equally many interest groups to lobby for and against. The principal stakeholders on the supply side are government and the employees, where government can

be motivated by different considerations such as raising funds from an IPO or promoting structural reform and investment in telecommunications, and employees by safeguarding jobs, salary structures, pension rights and other fringe benefits. Clearly many policy trade-offs are involved if the process is to be successful and these need to be clearly identified and made public before privatization is carried out. Restructuring after the event leads to uncertainty and capital flight. Efficiency is a dangerous word because it can mask all kinds of bad things, such as declining quality, standards of health and safety, choice, which do not get measured in the econometrics. Studies do tend to show that output (fixed lines per capita) rises along with profitability, but evidence on prices is rather lacking, and complicated by tariff rebalancing where it takes place and which is associated with efficiency. So overall, as Megginson and Netter (2001) also conclude, 'there is little empirical evidence on how privatization affects consumers.' (p.47) Most studies find that employment falls in the incumbent firm as a result of privatization, although there is no consensus whether this is by a large amount or small amount. Where competition is robust jobs tend to be created, and the market grows, the one tendency canceling out the other. There is evidence that where a strong independent regulator is established these effects are greater. Market growth also implies capital investment and this in turn results in rising labour productivity, which some studies find stronger in developed than developing economies.

These results also mean the effects of privatization are either complemented or overwhelmed by the effects of market structure (competition) and/or regulation. Separating out the effects is difficult, but the evidence suggests that competition is the more significant element in driving telecommunications investment and output than privatization. It also suggests that privatization without strong regulatory support is less effective.

Non-econometric research has turned up important lessons as to the process of privatization or divestiture. The nature of the state and its relation to civil society, and how open it is to manipulation by interest groups has important consequences for the success or failure of the reform process. Three key issues that need addressing when planning to privatize are price regulation, how prices are to be governed, network growth targets including universal service targets and how to pay for them, and quality of service targets, how to measure consumer benefits. The lessons from new institutional economics suggest that incentives, including property rights issues, need to go into the design of reforms, and transactions cost theory raises useful guidelines for working out the costs and benefits of different designs of policy reform, to see just what it takes and costs to create successful reform.

Share of private and public sector in wireless and wireline services in 2018

Sector/ service	Private sector (%)	Public sector (%)
Wireline share	31.55%	68.45%
Wireless share	90.55%	9.45%

Source: TRAI annual report of 2018.

How growth of telecommunication sector contributed to other industries in India

It has been widely accepted that development of telecom has positively influenced socio economic parameters of a nation (IBEF, 2015). Indian telecom industry has grown leaps and bounds for the liberal government policies. With the support of the telecommunication the other sectors have also grown enormously.

Telecom and Banking and Financial services

The challenges of time and distance have been solved with the help of digital communication in the banking system. This has not only saved time but also money by reducing transaction costs. The banking system changed with the emergence of ATM machine. These machines helped customers to do transactions outside bank premises and at convenient locations. Next the facility of phone banking with which transaction could be done through ordinary phones (Komal, 2012). These developments helped the banks to serve their customers effectively and efficiently. The usage of debit cards and credit cards has also increased for the developed telecommunication. The growth of telecom services in India has

brought a huge wave of change among the Indian consumers' process of banking. There have been changes in the basic payments and financial services. With the development of the mobile technology and increase in internet penetration consumers are increasingly using the digital platform for basic funds transfer, bill payment and balance check transactions (PWC, 2015). This had given easy accessibility to the customers to the banking and other financial services. The recent trend in banking is mobile banking. The use of this digital channel is serving as a catalyst to financial inclusion (PWC, 2010). Very soon the telecom service providers would be providing the basic banking services to its consumers. With this consumers with ordinary handset without internet connection would be able to do fund transfer, balance inquiry in savings account, change of PIN, mini statement, cheque book request, etc, with simple text messages (Ghosh & Guha, 2014).

Telecom and Agriculture

e-Choupal is the first of its kind initiative of internet based intervention in agricultural sector to the rural farmers of India. It was launched by ITC's Agri Business Division in 2000. This initiative helped the farmers to learn new agricultural tactics, make informed decision, understand market demand and directly deal with the company without middleman to earn more revenue. Another initiative called Nokia Life provides localized information including weather conditions, advice about crop cycles, general tips and techniques, as well as market prices for crops to the farmers through SMS (Sivakumar, 2013). Another pioneering initiative is Reuters Market Light which provides customized information in local language through SMS on mobile phone about different aspects of agriculture (Sivakumar, 2013). Also there are farmers who are making their own portals and selling their products successfully (Mukhtar, 2015). The government has targeted to connect 10 million farmers through their mobile phones for whether and crop forecasting information to be provided by the Agromet Advisory Service (CGIAR & CCAFS, 2012).

Telecom and Transportation

The major mode of transportation of India is the railways. Online ticketing service IRCTC (Indian Railway Catering and Tourism Corporation) has helped reduction of 96% of the passenger reservation workload. National train Enquiry System helps passengers to get updated train running information. Freight Operations Information System (FOIS) is also facilitating the travelers (Ministry of Railways, 2014). Online travel portals have made air ticketing easier than before due to which the online travel segment forms 70% of the ecommerce business (IMRBI & IMAI, 2013). E-ticketing for bus services is also coming up big way. There are many online travel companies which provide bus tickets through their portals. Most modern feature of online bus ticketing is themTicketing where consumers can purchase the bus tickets on their mobile phones (Thomas, Pathak, & Vyas, 2014). In most

cities of India Radio Taxi services are becoming indispensable mode of commute. The service use GPS to locate the customer and the available cabs so that they can serve the customer in the shortest time. Many IT firms are proving the solution to the radio taxi firms (Singh, 2007). The consumers can now use mobile application (App) to book their taxis and also make payments online (Julka & Chanchan, 2014).

Telecom and ecommerce & M commerce

E-commerce and M-commerce refers to electronic commerce and mobile commerce respectively. Any economic activity that occurs online is electronic commerce. Indian ecommerce market is soon expected to be the largest among Asia Pacific countries (Agarwal, 2014). It is said that e-commerce would be soon taken over by m-commerce (PTI, 2015). Mobile commerce is the transactions done through the mobile phone applications with the help of internet. The industry of digital commerce is experiencing exponential growth in India for rising smartphone sale and affordable data plans. The private internet service providers like Bharti Airtel Ltd, Idea Cellular Ltd and Vodafone Group Plc have been slashing the mobile internet charges for increasing revenues from data services. Indian consumers are transacting online for travel, e-tail, banking, etc.

CONCLUSION

It can be concluded that the Indian Telecom Industry contributes significantly to the overall socio- economic development of India. It is an essential tool for the growth of the nation. The various telecom service providers offer voice and data services to the customers across different regions of the country including both urban and rural areas thereby facilitating the growth of this industry. Government monopolized Indian telecom sector was opened to private players post liberalization of the economy. Privatization of the sector helped the growth of telecommunication by improvement of teledensity, increase in revenue and heavy inflow of FDI. With more of manufacturing units and many service providers there have been huge employment opportunity for various people. The cut throat competition made the telecom services affordable to the common man. With the growth of this sector, banking and financial services, agricultural sector, transportation industry and digital commerce were tremendously benefitted. It is often over that the Indian telecommunication trade contributes considerably to the socioeconomic development of India. It's an important tool for the expansion of the state. The assorted telecommunication service suppliers provide voice and knowledge services to the purchasers across completely different regions of the country as well as each urban and rural areas thereby facilitating the expansion of this trade. As a result of the fast advancement in technologies, the telecommunication operators of India area unit operating actively so as to adapt themselves to the ever-changing technology to continue existing within the market.

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