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**LONG VIEW OF ENTERPRISE TELECOM
SERVICES IN INDIA AND THE CHALLENGES AND
WAY FORWARD FOR BSNL**

PGPPM DISSERTATION

By

YGSC Kishore Babu



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2012

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*Dissertation Submitted
in Partial Fulfilment of Requirements for the
Post Graduate Programme in Public Policy and Management*



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*has been accepted towards partial fulfilment of the requirements for
the Post Graduate Programme in Public Policy and Management,
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ABSTRACT

The Indian Telecom Industry has become too popular in different contexts. It could be in the context of tremendous growth story in mobile sector synonymous with India's success story of liberalization or telecom licensing issues or controversial top decisions. The market situation is demanding and exacting from the Telecom Service Providers (TSPs) to offer the best services at lowest cost possible. The growing numbers with flat revenues don't hold promise for the TSPs on the large investments already made. Contrary to this saturation in mobile vertical, the broadband and Enterprise Telecom Services (ETS) are showing consistent growth and revenues. ETS services are lifeline to an Enterprise and Enterprises spend good revenues on these services in view of their criticality.

This exploratory study focuses on the segment of ETS beginning its journey to look at what is in store in this segment in the coming period of ten years. Using scenarios method, the long view of Enterprise services is taken to unravel what is plausible and holding for TSPs in the coming years. Exhaustive research material and views of experts in the area are assimilated to arrive at the possible scenarios.

With this background study reflecting likely priorities in ETS services, dynamics and growth areas in ETS segment, the study explores to identify the challenges of BSNL as a TSP in the ETS segment. The study is conducted on the sample area of Bangalore Telecom District, BSNL to look at its challenges in this highly competitive segment of Telecom. Views from highly potential customers, BSNL partners were collected on BSNL performance vis-a-vis with their number one service provider on sample basis. Further, views from BSNL teams were too collected to understand their perceptions on BSNL services in this demanding and critical ETS segment. Then a brief study was done on the areas of concern in the organization to look at areas wanting improvement.

Rapid change of technology and market dynamics demand constant innovation in the organization and innovation structures play a key role in building this innovation capability. Having looked at the areas of concern from the point of Customers, Partners and BSNL teams, the study examines for the existence of innovation structures in BSNL on whether it has suitable structures to capture and systematizing the learning to innovate in this dynamic segment of Telecom Services. Based on the study, appropriate recommendations are made for managers and policy makers.

ACKNOWLEDGMENTS

My work would be incomplete without expressing my gratitude for all the people and structures who contributed in these efforts.

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I express my gratitude for the inspiring encouragement from the faculty, Dr. G. Ramesh, Chairperson, PGPPM Programme and administrative support from Mr. Tyagarajan Babu, Administrative Officer, PGPPM Programme and his team at IIM Bangalore.

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I would like to thank the experts at Annexure II for their valuable and informed inputs and discussions on the subject of my dissertation. I further would like to thank all the respondents consisting of Customers, BSNL teams and BSNL Partners who have taken pains to provide responses for my questionnaires. Coordination and support are very essential to pursue with respondents in collecting

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Chapter I

INTRODUCTION

1.1. Background

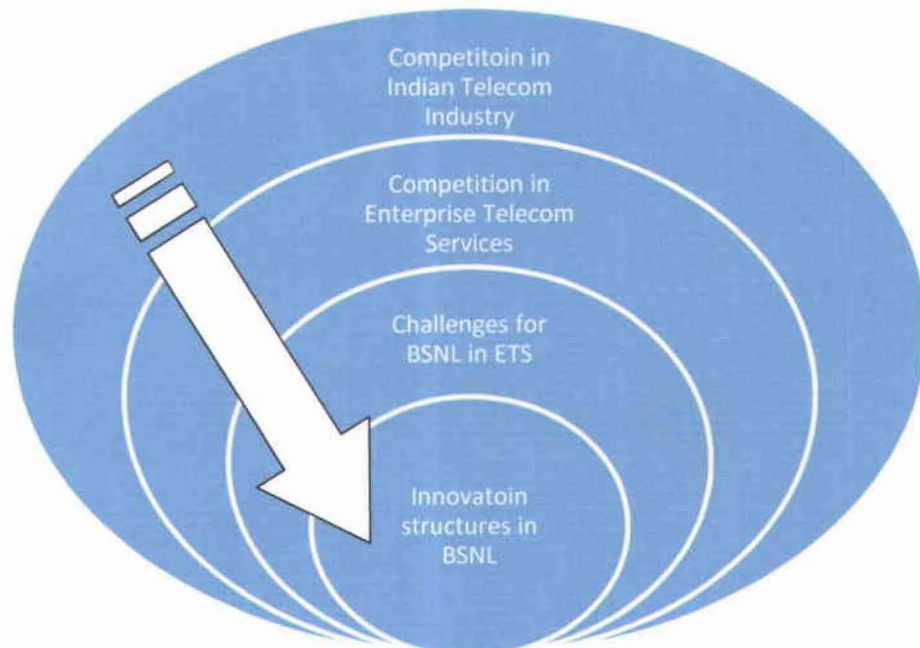


Figure 1 Direction of the Study

India witnessed an extraordinary growth in telecom services industry since the winds of liberalization and the Tele density (TRAI, 2010) jumped from a meagre 9.08% in march 2005 jumped to 52.74% in March 2010, courtesy the fierce competition in wireless segments. During the period the wireline figures (TRAI, 2010) dwindled from 41.43 millions to 36.9 million whereas the wireless subscribers jumped from 52.22 million to 584.32 million. Having 14 service providers in mobile segment (March 2010) the competition is severe for the last few years and though the top line is growing, the bottom line becoming smaller and smaller. The industry is experiencing growth in number month over month but there is reduction in ARPU (Average Revenue Per User).

After March 2010, a few more service providers entered the fray and some of them are yet to commence their services. Considering the size of the country, population,

economic affordability and telephone penetration, there are different views about the industry's attractiveness to the service providers.

Studying the data on mobile subscriptions and service revenues, the growth of revenues is not in commensurate with the revenue growth. For example in 2009-2010, revenues rose to Rs. 157985 crores (a growth of 3.7 % from previous year) where as subscriptions rose by 44.57% (TRAI annual report 2010). Some part of revenue reduction though could be attributable to recessionary waves of economy in 2008, majorly it is attributed to price war and severe competition. It is to note that revenues are almost flattened and they may decrease further to catch up with the tariff war and distribution of revenues to new entrants.

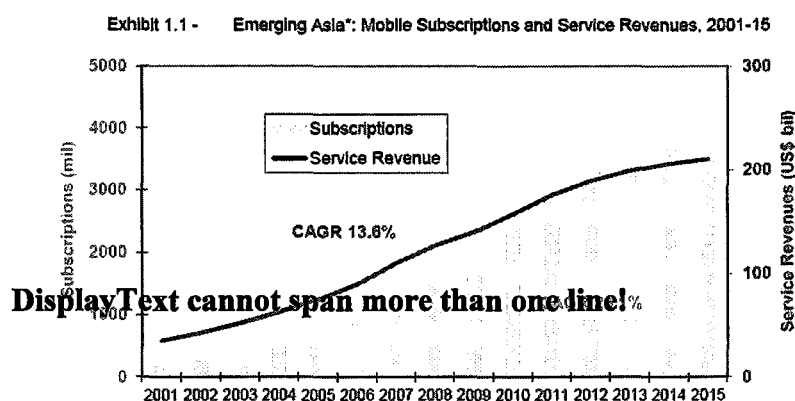


Figure 2 Emerging Asia – Mobile subscriptions and Service Revenues (Elliott, 2011)

Similar trend could be observed at Asia level (Asia being the biggest contributor for telecom growth across the world) from 2007 we can see that the revenue growing at a rate lesser than subscriptions. Projections are that they are almost flattening in the next few years.

Having figures of overall Tele density is 70.89% and rural Tele density is 33.8%, it may be appropriate to say that the new or additional subscribers entering into the net will be more from lower slab revenue contributors (low income rural customers, students or growing up young generation). During the deliberations on interconnect

charges to TRAI, it is presented that that customers contributing revenues of less than Rs. 160 per month account for 36% of total subscriber base but account for only 7% revenues. Further, in their revenues 35% was accounted due to incoming termination charges. This reflects the situation that though total subscription numbers may rise, but revenues are either flattened or may decrease. It is likely to lead to decrease in revenues as investments in the rural areas may not yield appropriate returns under the current market conditions.

The TRAI annual report for 2010-2011 presents a saturation picture and of the industry where RPM – Revenue Per Minute, ARPU – Average Revenue Per User are all decline ¹. The capital employed in the sector increased from Rs 2,86,837 crore in 2009-10 to Rs 3,37,683 crore in 2010-11 i.e. an increase of 17.73 % but the revenue growth is from Rs 1,57,985 crore to Rs. 1,71,719 crore during the year, a growth of 8.69% (TRAI Annual Report 2010-2011).

¹ The minutes of usage (MOU) per subscriber per month for GSM and CDMA registered a decline from 410 and 307 at the end of March 2010 to 349 and 263 respectively. The average Revenue Per Minute (RPM) too decreased from Rs 0.57 to Rs 0.51 (a fall of 10.5%) for GSM operators and from Rs 0.49 to Rs 0.47 (a fall of 4.1%) for CDMA operators. The Average Revenue Per User per month (ARPU) which at the end of March 2010 was Rs 131 in case of GSM operators and Rs 76 for CDMA operators, decreased to Rs. 100/- and Rs.66/- per month for GSM and CDMA operators respectively at the end of the year 2010-11. Resultantly, the Earning Before Interest, Tax, Depreciation and Amortisation (EBITDA) for the telecom sector in 2010-11 was Rs 23,266 crore, as against Rs 29,347 crore in the previous year indicating a fall of 20.72 %. The EBITDA margin declined to 13.95 % in 2010-11 from 19.48 % in 2009-10. (TRAI Annual Report 2010-2011)

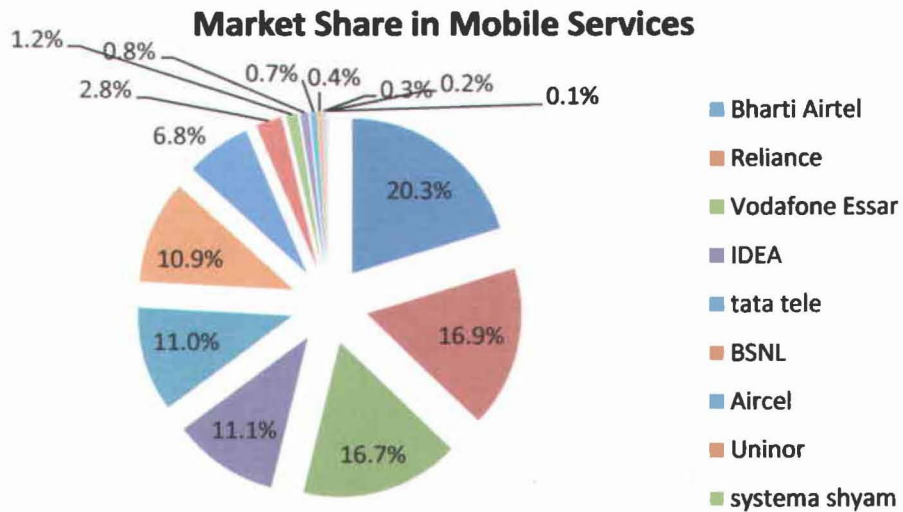


Figure 3

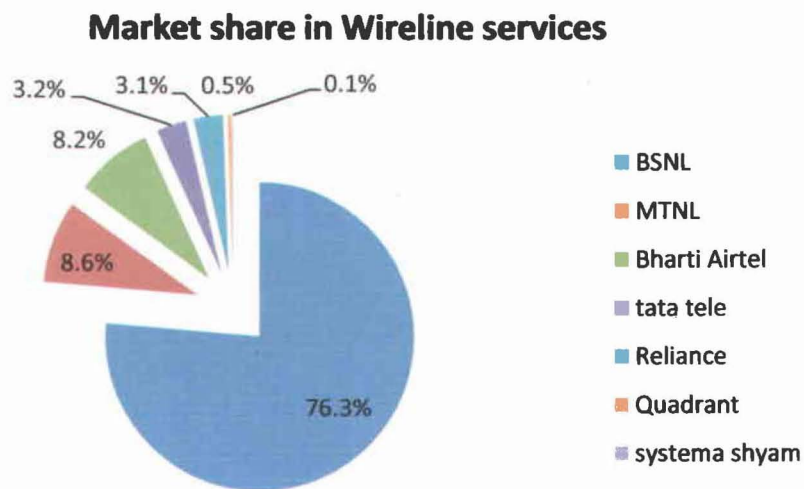


Figure 4

Market share as on March 2011, Data source (COAI) (AUSPI)

1.2 Market share in revenues or market share in Numbers ?

In the market we see the incumbent service providers eyeing for both revenue share and market share whereas the new entrants eyeing for market share in the initial phase to build the critical mass. Having spent large sums for licenses and infrastructure, it is like do or die situation for the new entrants, who try to offer

astronomically low prices to get customers forcing incumbent operators to respond in the same way to contain the attrition. End result of the game is very economic pricing or tariffs for the customer with uncertainty of even existence of the service provider.

Adding to this, TRAI has been in the process of bringing down the termination charges constantly (2009 order is under review now based on Supreme court directions). As mentioned earlier, the low revenue customers can be serviced or investments can be done in the low revenue areas only when the business model is viable to make money or meet the costs. Having the world's lowest termination charges is understood to have made making these investments and said customers less and less attractive. Further, introduction of 3G services, is still not generating commensurate returns for the investments made in spectrum. Introduction of MNP has made switching the service provider easy and cost effective (Rs. 19).

1.3.Challenges

In this scenario, challenges are different for incumbent and new service providers to survive in the market. Some of the challenges, among others, are:

For incumbent service providers,

1. Retaining high revenue customers,
2. Play the tariff game to retain the existing customers.
3. Expand to service new areas or new demands with viable returns
4. Surviving the lag period for the new technologies like 3G to generate additional revenues.

For new service providers,

1. Build market share to attain the critical mass.
2. Attract high revenue customers.
3. Offer innovative packages and tariffs

And common challenges for all service providers are:

1. Offer the quality services and lowest cost.
2. Minimize the operational expenditure
3. Technological choices for long term sustainability

1.4 What this study is about.

This study explores the dynamic market conditions in Enterprise Telecom services (ETS) in India in view of increasing number of players, decreasing tariffs and fluid policy environment. The uncertainty and instability in telecom services industry may prevail in terms of competition and revenues. Some of future events that may impact competition and telecom services revenues in the years to come may be viz. Consolidation, Reduced investments overall and in particular in rural areas, New service providers in BWA, Convergence, New technologies, usage of data services, Stringent norms for promised rollout as per license agreements, MNP, Actions by other competitors et cetera. The study explores the long view of Indian Enterprise Telecom Service Industry for a period of coming ten years taking into consideration the possible events that may impact the industry.

The current trends indicate that the revenues from Enterprise Telecom Services segment is growing steadily. Based on the long view of ETS, the study explores the issues and challenges before BSNL in the ETS segment and existence of innovation structures in BSNL. The state owned service provider, BSNL with a legacy of 150 plus years, in spite of its huge infrastructure and pool of human resources, it has been moving to red for the last few years facing difficulties in the competitive market. The figure below shows the BSNL market share in wireless segment, though a delayed entrant, hovers at sixth position as it moved down from top.

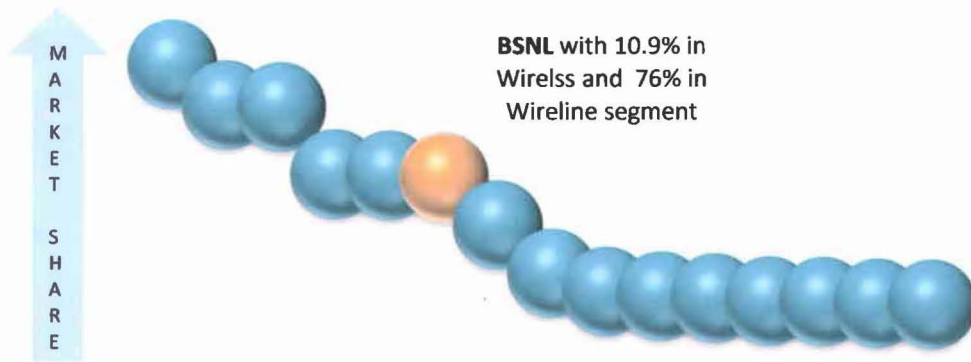
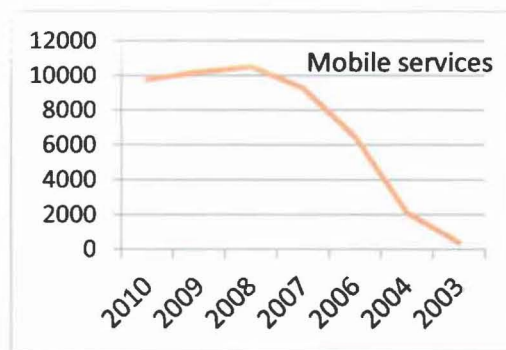
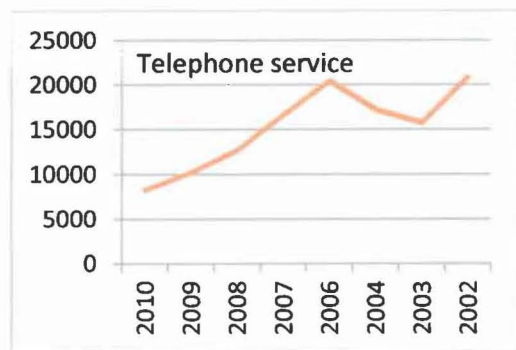


Figure 5 Market share position of BSNL

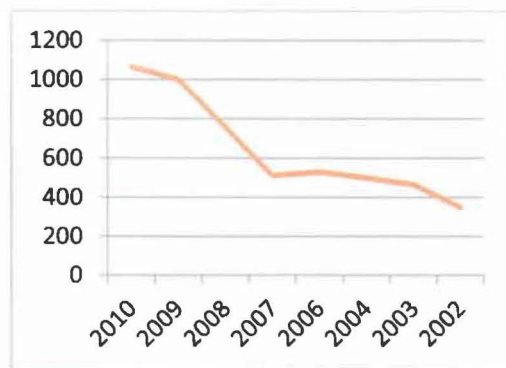
In 2000, BSNL (erstwhile part of Department of Telecom / Department of Telecom services) as an organization went through structural transformation from a pure government department with monopoly in providing telecom services to one of the telecom service providers. The journey was not only difficult but also very turbulent, with internal structures and culture in general remained same but expectations and demand to compete in open market are on part with any private service provider. The following figures give the revenues service wise in rupees Crores for mobile, landline, Data circuits respectively.



A



B



C

Figure 6 Revenues in Mobile, Landline, Enterprise Services of BSNL

The Research Objectives of the study are:

1. The **First objective** is to study ‘the competition in Enterprise Telecom Services (ETS) in Indian Telecom and ‘ the long view’ in terms of future potential areas for revenues and growth.
2. The **Second objective** is to study and identify the challenges for BSNL in the specific area of ETS in terms of “high revenue customer retention” in a sample district Bangalore.
3. The **Third objective** is to study the innovation structures in BSNL in the area of “Enterprise Customer Retention” in Bangalore district building upon dynamic capabilities view.

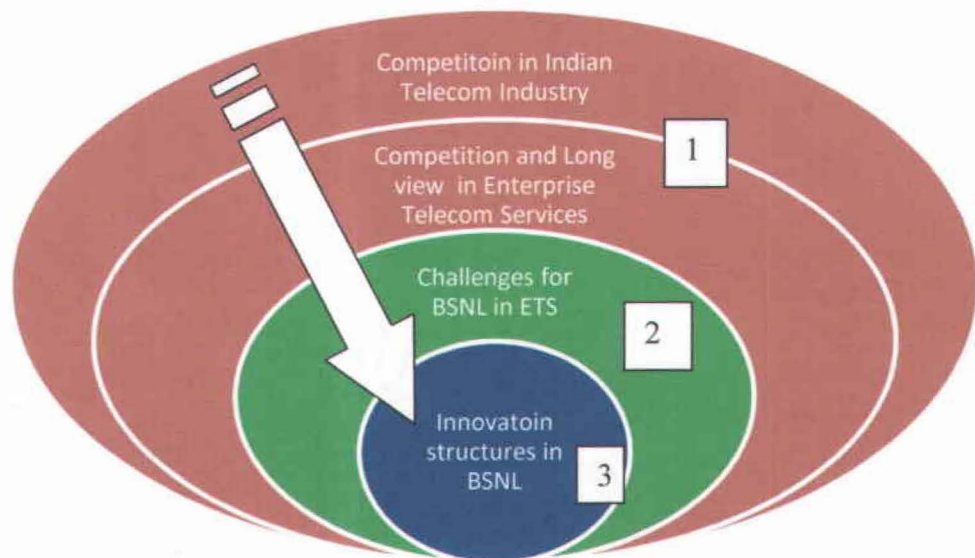


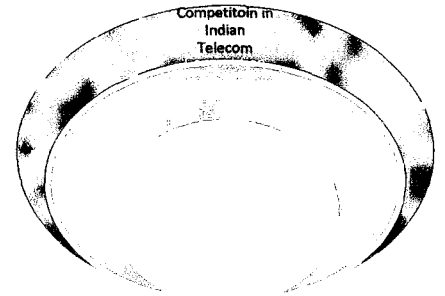
Figure 7 Research Objectives and Direction of Study

Chapter II

LITERATURE REVIEW

2.1. Competition of Indian Telecom Market

Telecom used to be less volatile than the economy as a whole. It grew steadily, with long planning horizons hardly ruffled by the business cycle (Noam, 2006). But in the recent years, as per the data from the TRAI annual report, sales revenue growth is not in the same order of growth in numbers and in fact many companies are going through either low or negative bottom lines. The reasons for this uncertainty are not exogenous but they are endogenous financial and institutional variables of the sector itself (Noam, 2006). Noam speaks about overcapacity created in the industry leading to down turn after adjustment lag.



Current dynamic situation of Indian Telecom Industry² reflects the pattern of boom, over capacity, price war, (Noam, 2006) portending the trends towards bust and shakeout. Similar situation is palpable in the state run telecom services PSU, BSNL, whose operating costs are high with respect to market and whose processes and products are criticised as less innovative.

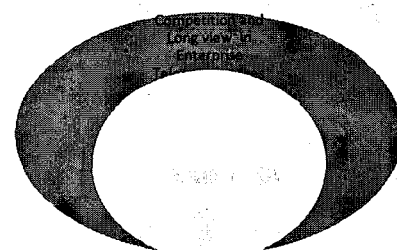
The causes of the telecom industry's recent volatility are not random but fundamental, structural, and inherent, and will remain so for the foreseeable future (Noam, 2006). They are the basic economic characteristics of many network industries: very high fixed cost, very low marginal cost, inelastic demand, lags in supply, network externalities, and technological uncertainties – all of which

² "Periodic bursts of innovation generate a swarm of small new firms, and once their product fetches a high price that attracts entry, which expands output and lowers price. This goes on for a while. Industry growth rate then slows below that of individual firms, and a shakeout, winnowing and consolidation, occurs. Schumpeter's view of discontinuous changes rather than stable equilibrium captures telecom sector, an industry that is operating in a technological environment governed by Moore's exponential "Law". This instability is exacerbated by the cost characteristics of network companies – high fixed-cost, low marginal cost, and network effects – which quickly casts aside firms that are smaller, or operate at higher cost, or whose products or processes are less innovative" (Noam, 2006).

encourage firms to seek market share to gain economies of scale on the supply side and network effects on the demand side. This expansion makes sense for the individual firm; but in the aggregate, it leads to a major oversupply. Competition then drives prices down towards marginal cost and to levels which do not support total cost. Eventually, demand catches up with supply, prices rise, new entrants emerge, supply expands, and then over expands. A new cycle emerges, part of the dynamics of a “fundamental instability” in the telecom sector. In Indian context these symptoms are quite evident in terms of new licensees, heated competition, southward prices, innumerable product plans vying for customer attention and again more new licensees with an end result of precarious margins.

This study explores to understand the current state of telecom services industry in India in the light of various impacting factors and to further understand the long view of the Enterprise Telecom Services (ETS) in the telecom industry in the coming ten years. This study takes the term ‘dynamic; as defined in the paper (Teece, Pisano, & Shuen, **Dynamic Capabilities and strategic management, 1997**) referring to situations where there is rapid change in technology and market forces, and ‘feedback’ effect on the firms. In obtaining the long view, this study uses the framework from the books on Scenario planning (**Schwartz, The Art of the Long View, 1996**) (**Godet, 1987**).

Taking a long view of decisions that need to be made today (Schwartz, The Art of the Long View, 1996) was discussed using a method for investigating important decisions using scenario process in the book The Art of the Long View. This is important for all managers in any dynamic market where economy, technology and new generation customer needs are changing in leaps apart from changing structural aspects of the industry. Experience has shown that looking into the future is most useful when it is the beginning, not the end, of a significant conversation (Schwartz, The Art of the Long View, 1996).



Further, a Scenario depicts the description of a future situation together with the progression of events leading from the base situation to the future situation. The situational scenario presents a snapshot of future situations (Godet, 1987). The scenario planning is about making choices today with an understanding of how the possible paths might turn out. Further, the scenarios are vehicles for helping people to learn (Schwartz, *The Art of the Long View*, 1996). The scenario process provides a context for thinking about the impossibly complex array of factors that affect any decision. Importantly it deals with what-if stories giving clarity to understand the dynamics of different factors and driving forces. Scenarios are stories about the way the world might turn out tomorrow and it is about making choices today with an understanding of how they might turn out (Schwartz, *The art of the long view*, 1996).

When we looked at the Telecom industry which is transitioning from a voice to data industry, it might be of critical interest for making future investments for any TSP where it should put its bets. India provides a myriad of opportunities as well as contradictions. On one side we see new cutting edge technologies vying day by day in market and on other side, India has a culture of frugality and savings for future.

What does the today's Enterprise customer want in ETS services?

What is he looking for future?

Does he perceive any value in bringing IT and Telecom services into his business along with changing times and needs?

Whether is he willing to pay?

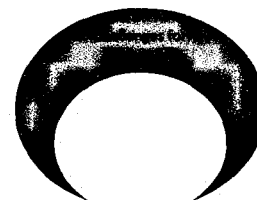
There are many questions than answers to TSPs for making their future investments and enhance value addition to their customers. The end result of scenario planning or long view of the situation is not an accurate picture of tomorrow, but better decisions about the future. The planner and executive are partners in taking a long view (Schwartz, *The Art of the Long View*, 1996)³. There have been earlier

³ This method is overlooked by most planning processes, usually because it is not quantitative enough. This method is scenario, a vehicle for an imaginative leap into the future. In the scenario process, managers invent and then consider, in depth, several varied stories of equally plausible futures. The stories are carefully research, full of relevant detail, oriented toward real-life decisions are designed to bring forward surprises and an expected leaps of understanding. Together the scenario comprise a tool for ordering one's perceptions. The point is not to pick one preferred future and hope for it to come to pass nor is the point to find the most probable future and adapt to it. Rather the point is to make

studies about market concentration in India in Telecom Industry, but the author did not come across the long view about the industry and hence one of the objectives taken is to learn the long view of ETS segment in telecom industry.

2.2 Challenges for BSNL in Enterprise Telecom Services (ETS)

After looking at the long view of ETS in the telecom industry, the focus of the study moves to learn the challenges for BSNL to remain competitive in ETS segment of the market and the state of innovation processes in BSNL as a sources of competitive advantage. The dynamic capabilities framework analyzes the sources and methods of wealth creation and capture by private enterprise firms operating in environments of rapid technological change (Teece, Pisano, & Shuen, Dynamic Capabilities and strategic management, 1997). The erstwhile leading, state owned telecom services organization, BSNL, in spite of government protection but for all purposes, is a corporate entity facing the competitive environment like any other private firm in telecom services industry. Further it is facing even other issues such as large work force, legacy processes and, functional and structural rigidities.



To remain competitive, the organization has been toying with various ideas with professional advice including recent restructuring of all its businesses into business verticals viz. Consumer fixed access, Consumer Mobility, Enterprise services to bring clarity and focus. It is apt to mention one of the criticisms that capabilities can not be replicated just by forming the structures unless the processes below and group dynamics are strengthened with a flexibility to meet the fast moving competing environment. Replication involves transferring or redeploying competences from one concrete economic setting to another. Since productive knowledge is embodied, this cannot be accomplished by simply transmitting information' (Cunha, Innovation and technological convergence: An assessment of

strategic decisions that will be sound for all plausible futures. No matter what future takes place, you are much more likely to be ready for it and influential in it if you thought seriously about scenarios (Schwartz, The art of the long view, 1996).

critical resources of telecommunications service providers using Resources Based View and Dynamic Capabilities, 2007). Further in their (Teece, Pisano, & Shuen, Dynamic Capabilities and strategic management, 1997) paper on 'Dynamic capabilities and strategic management', Teece et al have observed, 'not surprisingly, industry observers have remarked that companies can accumulate a large stock of valuable technology assets and still not have many useful capabilities'. And the essence of competences and capabilities is embedded in organizational processes of one kind or other (Teece, Pisano, & Shuen, Dynamic Capabilities and strategic management, 1997). This looks to be case of BSNL since its infrastructure is the largest among all service providers but not yielding returns in the hypothetical premise of issues in its organizational processes leading to missing dynamic capabilities.

Teece et al further observed in the said paper that organizational processes, shaped by the firm's asset positions and moulded by its evolutionary and co-evolutionary paths, explain the essence of the firm's dynamic capabilities and its competitive advantage. Dynamic capabilities are defined as (Eisenhardt J. , Dynamic capabilities: what are they, 2000) the firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die.

In this background, the study would like to focus on the challenges of BSNL in the focussed area of 'retaining high revenue customers' in ETS segment and to assess innovation structures in the organization that are critical within the dynamic capabilities view. The once core competences (Prahalad & Hamel, 2003), BSNL demonstrated in the past may be are no more sufficient and there may be rigidities and barriers to express its capabilities in the current 'customer and market driven' conditions.

Though being a behemoth organization, BSNL has been putting efforts to streamline its businesses and bring focus on services front. For the last several years, BSNL has been in news for bringing competitive products in spite of its rigidities and

has been working on improving its image and customer care. It engaged professional consultants to study the organization and tried to cause the transformation in its businesses. But it is hypothesized that there are core concerns and gaps in service delivery, assurance and customer care that play a critical role in building customer satisfaction. These gaps may be a reflection of internal processes that are not flexible or ineffective in building the dynamic capabilities that could transform the ability of the organization to meet the market demand.

The BSNL, as an incumbent telecom service provider, who once enjoyed monopoly and provided traditional telephone services, transitioned to providing new generation telecom services with new technologies. But in reality though the transition happened from legacy services to new services, the transition from legacy systems and processes to new systems and processes did not take place. There is necessity not just to deploy new telecommunications technologies but also to develop new capabilities and competences, demanding relooking into the internal organization of the traditional telecom service providers (Cunha, innovation and technological convergence: an assessment of critical resources of telecommunications service providers using resource-based view and dynamic capabilities, 2007). This depicts the picture of BSNL, who was incumbent telecom service provider in India with the mandate of covering all cities, towns and villages, encountered market competition and technology revolution. Even though BSNL deployed new technologies and new services, but the necessary capabilities required to deliver, support and operate the services as per enhanced customer requirements and market demand are not created causing a huge gap between the demand and supply of capabilities to meet the 'new age customer' needs.

The observation also reflects a situation that BSNL, after encountering structural revolutions in the industry and market competition, faced the so called the Schumpeterian shock. Further, it is relevant that in a Schumpeterian world of innovation-based competition, price/performance rivalry, increasing returns, there is a need of 'creative destruction' of existing competencies (Teece, Pisano, & Shuen, 1997) to build the new competencies.

The hypothesis is that BSNL with its traditional firm resources classified into Physical capital resources, Organizational capital resources and human capital resources (Barney, 1991) continued to operate in a traditional way without building the necessary competencies to meet the market demands. There have been studies about positioning of BSNL in the industry based on Porter's framework of market forces, but there was no study on BSNL based on the dynamic capabilities framework.

It is apt to mention that some of the firm's attributes may prevent it from conceiving and implementing valuable strategies and may even obstruct the new strategies (Barney, 1991). Initially, during the traditional times of monopolistic market conditions, these attributes might have been BSNL's strengths but under the changed rules of the game they may turn into core rigidities (Prahalad & Hamel, The Core Competence of the Corporation, 1990).

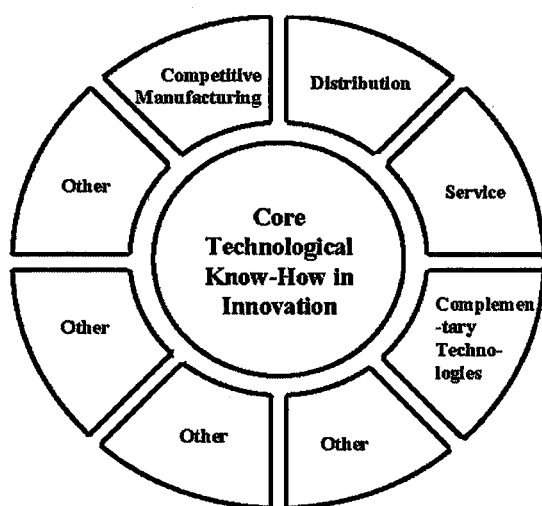
BSNL has built huge assets in terms of exchanges, switching and transmission equipment, technically trained manpower, but when we look at the current revenues, the said assets are not yielding commensurate returns due to missing dynamic capabilities which convert the assets into performance. The dynamic capabilities reflect an organization's ability to achieve new and innovative forms of competitive advantage given path dependencies and market position. (Leonard-Barton, 1992).

Though it was important and necessary for BSNL to restructure their businesses into Consumer Fixed Access, Consumer Mobility and Enterprise Services, but the activity looks to have yielded little results in increasing revenues as per the data available (BSNL made a loss of Rs 6000 crores plus in 2010-2011 as per annual report). It may be premature to comment on the ineffectiveness of restructuring in BSNL, but looking at the revenues decline, the said activity did not contribute to the expected revenues, perhaps due to the reason that competencies are not built but only structures are created. While creating the structure there is a need to build the necessary competencies through processes contributing to the final objective of profitability. May be, this demands a holistic analysis of the situation, understanding the current processes, removing the waste, reducing the hierarchies in the process by

configuration of resources, re-engineering processes and building collaborative partnerships to build competencies that are essential to deliver and support these services.

The complementary assets (Teece D. , Profiting from Technological Innovation: implications for integration, collaboration, licensing and public policy research, 1986) are new resource configurations built through strategic routines when the organizations develop dynamic capabilities to fulfil the gaps as new market requirements emerge. It is very relevant to explain the current situation of BSNL, where the complementary assets such as sales and marketing, customer service support, distribution, billing etc are critical and important in transforming the services from the core infrastructure to the customer. The complementary resources and capabilities include skills, systems, resources to support the other businesses and commercialization activities. This category of resources and capabilities (R & C) are used in internal and external logistics, customer installation and repair, procurement, legal and regulatory, accounting, Finance, billing, collecting, sales. The complementary assets schematic from the above study includes customer service, distribution channels, marketing, publicity, business process management and information technology.

This study explores the Customer, Partners and BSNL team's view of some of the BSNL's core and complementary assets in delivering the core services to the customer in the segment under study.



(Teece D. , Profiting from Technological Innovation: implications for integration, collaboration, licensing and public policy research, 1986)

Figure 8 Complementary assets schematically represented

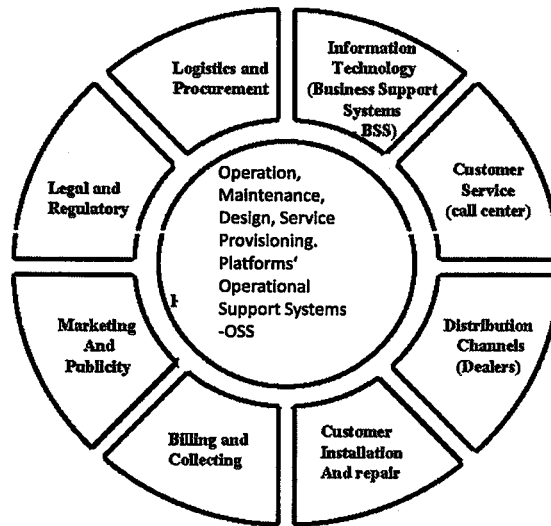


Figure 9 Schematic representation of main resources and capabilities in telecommunications services over complementary assets circle of Teece

(Cunha, Innovation and technological convergence: an assessment of critical resources of telecommunications service providers using resource-based view and dynamic capabilities, 2007)

The figure 9 above (Cunha, innovation and technological convergence: an assessment of critical resources of telecommunications service providers using resource-based view and dynamic capabilities, 2007) represents the main resources and capabilities over complementary assets circle of Teece (Teece D. , Profiting from Technological Innovation: implications for integration, collaboration, licensing and public policy research, 1986). The core technology and abilities are in the centre and other capabilities are represented as complementary assets in the periphery. In the Brazilian study of Telecommunication service providers (TSPs) bys (Cunha, innovation and technological convergence: an assessment of critical resources of telecommunications service providers using resource-based view and dynamic capabilities, 2007), it is observed that different TSPs either they own or outsource the complementary assets to different degrees to build necessary capabilities to meet the market conditions.

For example in India, Airtel has outsourced many of the complementary capabilities such as Information technology (Business Support Systems BSS), Customer service, Distribution Channels, Customer installation and Repair, Billing.

Further M/s Airtel has even outsourced the core activity of equipment and maintenance too to the vendors, and primarily it is focusing on Marketing and Finance.

This is the case even with other private telecommunication service providers where, to different degrees they have outsourced the complementary assets. Teece discusses two extreme possibilities, one in which the organization has its own structures for all the functions and other extreme is contracting / outsourcing out all those functions. In Indian context BSNL and Airtel represent both the extremes. The disadvantages of direct control are said to cause delays in bringing innovation in specific areas, insensitivity to market needs and time to market. However, the other extreme of contracting out everything may pose the danger of vulnerability due to high dependency on external agencies in spite of its agility to bring in capabilities as the situation demands.

In BSNL due to its history, structural rigidities, unionization, government accountability norms, it has built a behemoth of the organization, which it self may become an obstacle to build new competencies. The essence of a telecommunications service effectively happens when a firm serves a customer need. A Good service depends on efficiency of process and support systems that integrate commercial and technical and operational functions. As business environment changes quickly it is necessary that the service provider be responsive to the changes (Cunha, innovation and technological convergence: an assessment of critical resources of telecommunications service providers using resource-based view and dynamic capabilities, 2007)

In the initial stage of new product there will be a fluid pattern, in which focus is on the improvement of product performance and once the product is in matured state the focus will shift to production processes for better efficiency and productivity (Cunha, Innovation and technological convergence: an assessment of critical resources of telecommunications service providers using resource-based view and dynamic capabilities, 2007).

2.3 Innovation capability and Innovation Structures in BSNL

In case of Enterprise Telecom Services (ETS), it looks that the fluid pattern will continue to a large extent due to various factors as follows. The demands of corporate customers vary from one customer to other namely it could be in terms of service quality assurance, service delivery timelines, reliability requirements and technology. Further in the case of enterprise services or in general services, the product consists of not only the service of providing bandwidth or voice but it also includes deployment mechanism in terms of reliability, service support in terms of SLA et cetera. Also the product price may vary from customer to customer depending on many business factors such as customer potential in terms of current and future business, feasibility . In view of this, the fluid pattern of the product will continue to play a key role apart from stress on operational efficiency and productivity demanding innovation in the product, performance and business model continuously.



From Oxford dictionary, 'Innovate' means make changes in something established, especially by introducing new methods, ideas, or products. Innovativeness (Menguc & Auh, 2006) refers to a firm's proclivity, receptivity, and inclination to adopt ideas that depart from the usual way of approaching business. The paper (Menguc & Auh, 2006) further mentions that the innovativeness is not a simple transformation that can be accomplished overnight. Hence there is a need to study the innovation structures in BSNL that could provide enabling environment to elicit a better understanding for the future researches on what efforts may be required to build competencies in BSNL to gain competitive advantage in the volatile market conditions that may continue in the coming years.

Before going into the frameworks and theoretical concepts of the subject, an interesting depiction of "service innovation" was found in the definition offered by the famous "Tekes – The Finnish Public Funding Agency for technology and

innovation”, an agency responsible to nurture innovation in Finland. The Tekes in its ‘Serve - Innovative Services Technology Programme 2006-2010’ defines service innovation 4 as a service product or service process that is based on some technology or systematic method. It observes that the service innovation need not be always something new, but it could be anything technical or non-technical that is new or improved or replicated that will impact the key elements of service or extending the service to the customer. A service benefits both the service producer and customers and it improves its developer’s competitive edge.

The second generation innovation models placed emphasis on the identification of the initiators of innovation as well as the role of functional departments and the third generation models brought focus on time to market cycles, by using cross functional teams as well as functional tasks bringing strategic focus (Zimmermann, Zimmermann, & Lange, 2008).

Having examined on how the dynamic capabilities are relevant to telecommunications industry considering the significant and dynamic changes the

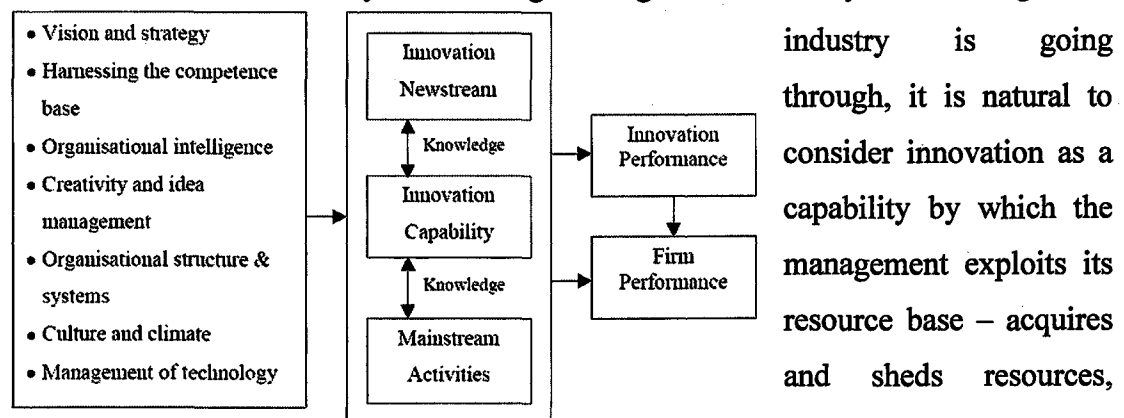


Figure 10 Seven elements of Innovation capability construct (Lawson & Samson, 2001)

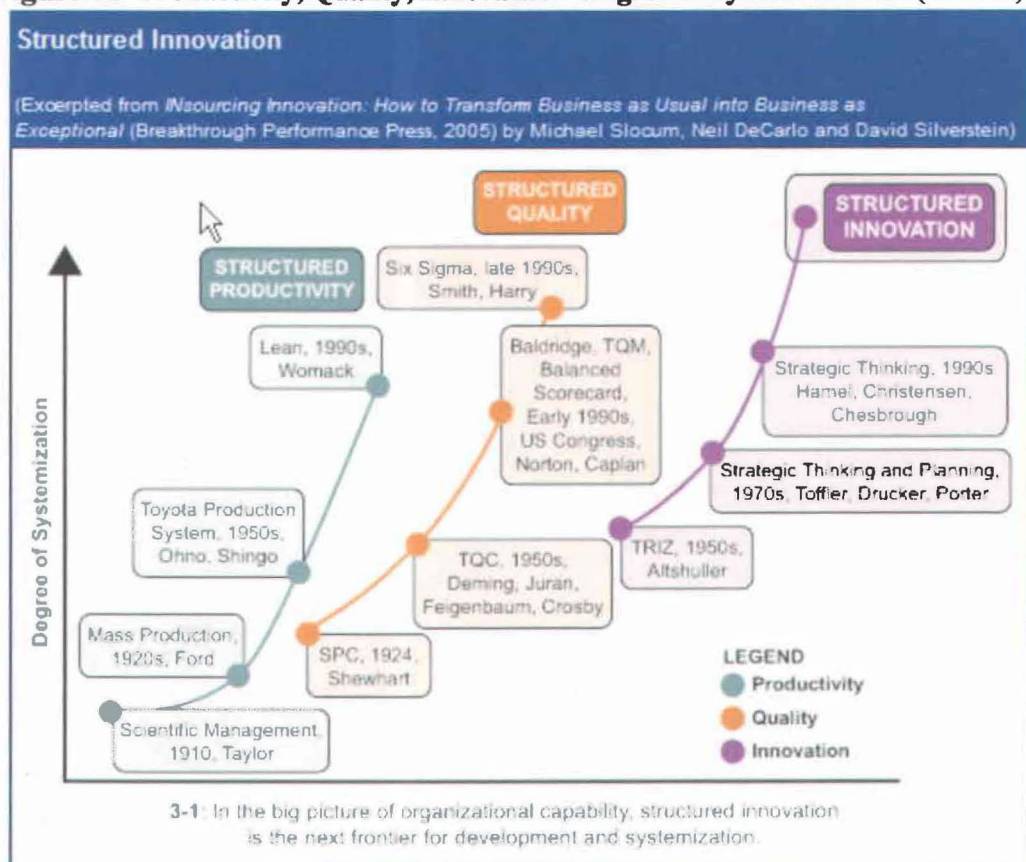
⁴ Service innovation is a new or significantly improved service concept that is taken into practice. It can be for example a new customer interaction channel, a distribution system or a technological concept or a combination of them. A service innovation always includes replicable elements that can be identified and systematically reproduced in other cases or environments. The replicable element can be the service outcome or the service process as such or a part of them. A service innovation benefits both the service producer and customers and it improves its developer’s competitive edge. A service innovation is a service product or service process that is based on some technology or systematic method. In services however, the innovation does not necessarily relate to the novelty of the technology itself but the innovation often lies in the non-technological areas. Service innovations can for instance be new solutions in the customer interface, new distribution methods, novel application of technology in the service process, new forms of operation with the supply chain or new ways to organize and manage services.”

integrates them, and recombines them to generate new value creating strategies (Zimmermann, Zimmermann, & Lange, 2008).

This study uses the “Innovation Capability” construct proposed with seven elements (Lawson & Samson, 2001) for investigating the existence of top five elements in the Enterprise services segment of BSNL. Further, this study relied on the research study titled (Zimmermann, Zimmermann, & Lange, 2008) - Reconfiguring Resource Allocation Routines: Process Innovation at a European Network Service provider, one of the Europe’s leading providers of Information and Communication technologies, which focused on the division responsible for serving business customers including 60 multinational enterprises, public authorities and 160000 medium sized companies.

As part of the study we investigate the existence of innovation processes in the business area of High revenue customers in Bangalore. Organizations possessing this innovation capability have the ability to integrate key capabilities and resources of their firm innovation to successfully stimulate innovation (Lawson & Samson, 2001).

Figure 11 Productivity, Quality, Innovation - Degree of Systematization (Slocum, 2008)



Innovation as a structured methodology is gaining popularity and it is apt to mention that insourcing the innovation competency is considered as differentiator among the organizations (Pal, 2007) ⁵. This is quite applicable in the fierce telecommunication services market in gaining the competitive advantage, when core network and technologies in the back end remain same to most of the service providers. Innovation plays a key role in transforming ‘business as usual’ into ‘business as exceptional’ (Silverstein, DeCarlo, & Slocum, 2005).

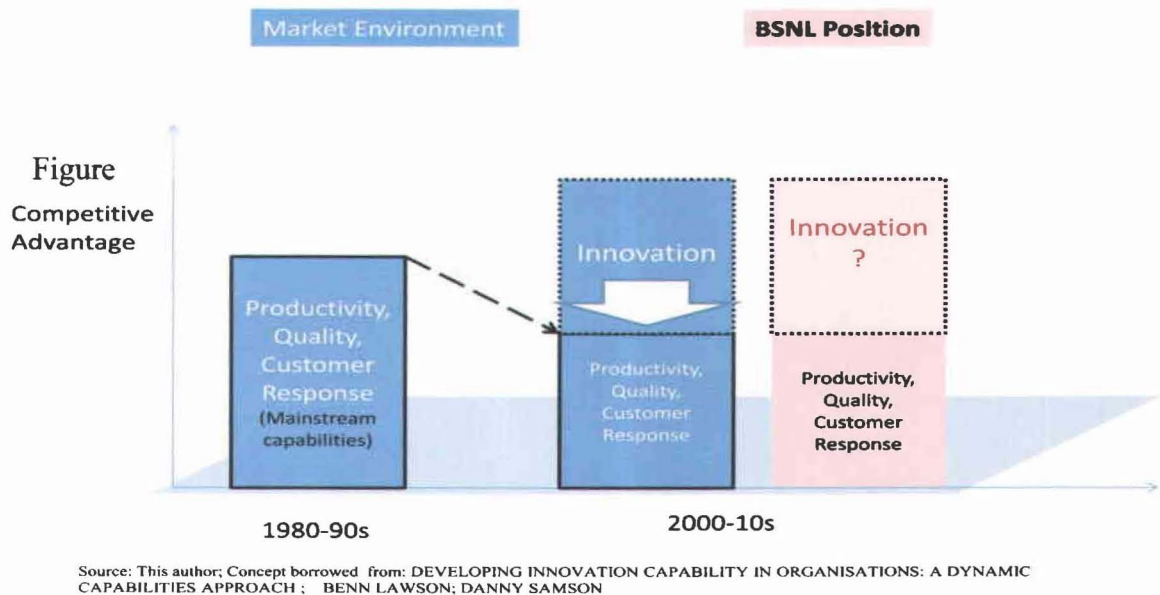


Figure 12 Innovation playing key role and BSNL’s position

The above figure depicts that in 80s the productivity, Quality and Customer response clearly were giving the competitive advantage as they were initially difficult to imitate and substitute (Barney, 1991). However, as the systems improved, processes standardized these mainstream capabilities (Lawson & Samson, 2001), though still valuable and necessary but are no more sufficient to have

⁵ But is innovatibility a skill, or a trait of the genius mind? Rather than leaving innovation to be always brought in by a handful of extremely gifted, innately inventive people, is it possible to provide certain tools for learning its process techniques, teaching them to others, and ensuring thereby the gainful application of this knowledge by many people inside their organizations? (Pal, 2007)

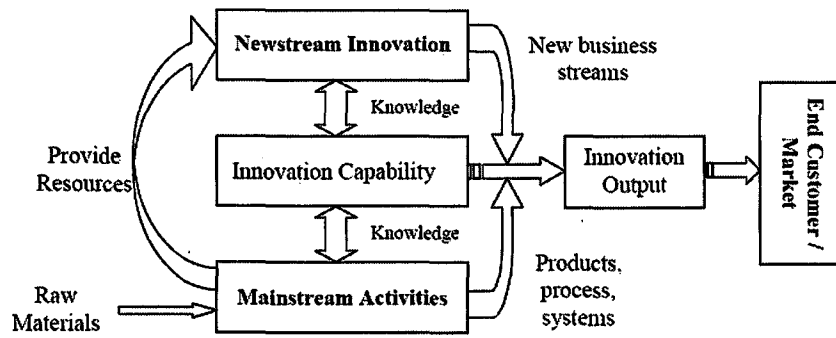


Figure 13 Mainstream activities and Innovation Capability

competitive advantage to offer higher economic value to the customer and improve operational efficiency. The higher integration capability, innovation in the main stream activities in terms of new products, services is becoming the differentiator. For the purpose of this study, the hypothesis taken is that BSNL has necessary structures to provide enabling environment for innovation capability.

Chapter III

RESEARCH METHODOLOGY

3.1 Research Objectives and Research Questions

The **First objective** is to study ‘the competition in Enterprise Telecom Services (ETS) in Indian Telecom market ‘ and ‘the long view’ in terms of future potential areas for revenues and growth.

1. What is the competition and industry concentration?
2. What is the long view of ETS and future potential areas of growth?

The **Second objective** is to study and identify the challenges for BSNL in the specific area of “high revenue customer retention” in a sample district Bangalore.

1. How do you define high revenue customers?
2. What are the areas / processes that are of concern for high revenue customers?
3. What is the current performance in those areas of concern and perceived experience from different quarters?

The **Third objective** is to study the innovation structures in BSNL in the area of “Enterprise Customer Retention” in Bangalore district building upon dynamic capabilities view.

1. What is required to build innovation capability in an organization to meet market demands?
2. What are the systems and processes that exist in the current structure of BSNL to develop the innovation capability in the area of study?

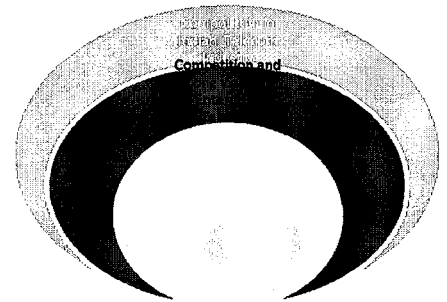
3.2 Competition and Longview in Enterprise Telecom Services

3.2.1 Competition in the Telecom services industry

Exploratory research methodology was used to study the competition in the ETS segment market. The common industry concentration measures, the Hirschman-Herfindahl (HHI), C 4 indexes were used to measure the concentration and effective competition in the market.

3.2.2 Long view of ETS and future Potential Areas of Growth

The process begins by learning how to articulate and isolate the decision. In-depth research was carried out by studying market size, market place, market developments through publications, reports, journals and news articles. Through questionnaire and in depth discussions, views on potential areas, key factors and driving forces were collected from remarkable people, who are experts from challenging environments in industry.



Then after assimilating and converging the information, key factors and driving forces were summarized that could potentially impact the outcome of decisions. Some of the forces, as one may see, are predetermined and other forces are critical uncertainties. The last but essential step was rehearsing the implications (Schwartz, The Art of the Long View, 1996).

This study used the framework prescribed in the books, The Art of the Long View (Schwartz, The Art of the Long View, 1996) and Scenario and Strategic Management (Godet, 1987). Questionnaire and in depth discussions method was used in collecting the inputs from Industry experts as per the list at annexure 1 to figure out long view of fast moving EST segment in telecom industry.

The study looked from the point of view of a TSP on important decisions it should make to remain competitive in the ETS segment in the coming ten years.



Figure 14 Long View Framework

3.2.3 Decisions important from the TSPs perspective –

- What should I (TSP) do to remain competitive in ETS?
- What are the future potential areas?

These primary decisions are translated into 8 sub questions for collecting expert views on key factors and driving forces that are likely to shape up the ETSS in the coming ten years. To ensure the comprehensive coverage of eco system, the key factors or key variables (Godet, 1987) are collected as below.

1. Internal variables (internal to the organization i.e. TSPs)
2. Customer
3. Competitors
4. Environmental: Internal variables – factors internal to the country
5. Environmental: International – factors external
6. Technological and Industrial
7. Socio Demographic variables
8. Institutional variables – Government policies etc

The important driving forces have been identified by significance and uncertainty in preparing the long view of the ETS.

3.2.4 Expert view on the Long View of Enterprise Telecom Services

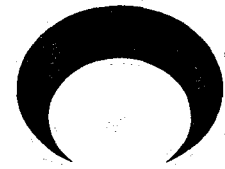
Applicability of Questions is referred to with codes: SP – Service Providers; V- Vendors, Regulators – R, Customers – C, Policy Makers – P.

Table 1 Expert view Questionnaire on the Long View of Enterprise Telecom Services

	Questions	Category	Additional inputs	Your Views
1	How do you view the growth in Enterprise telecom services in the coming years?	SP, V, R, C, P	This study would like to assess the trend for the next 10 years. You may give your views for a period "from Now to next 5 years" and "5-10 years"	
2	Which services, in your opinion, will give better revenues and margins?	SP, V, R, C, P		
3	In the current realm of Enterprise services, which needs of customers are fulfilled and which needs are yet unfulfilled.	SP, V, R, C, P		
4	In your opinion, what are the factors that will condition the future evolution of enterprise Telecom services in next 5 years?	SP, V, R, C, P	Political, Economic, Suppliers, Customers, Regulation, Competition, Social factors	(Request your inputs in the order of importance)
5	In your opinion, what are the factors which will condition the future evolution of enterprise telecom services in next 10 years?	SP, V, R, C, P	Political, Economic, Suppliers, Customers, Regulation, Competition, Social factors	(Request your inputs in the order of importance)
6	What decisions you will have to make to have long term influence (5-10 years) and to build competitive advantage?	SP, V, R, C, P		
7	Who are likely to be your primary competitors and what are those specific services?	SP		
8	What may be your new areas of investment and how important they are?	SP, V		

3.3 Areas of concern for the 'High revenue Customers' in ETS

The Bangalore Telecom District, BSNL is considered one of the high potential cities with large number of high revenue customers. As part of restructuring, the Enterprise customers have been categorized as Platinum, Gold and Silver customers in their of size of the company and revenue potential to BSNL. Deductive research methodology is used to identify the challenges for BSNL in the area of retention of high revenue customers.



3.3.1 Eco system of BSNL in ETS segment in BSNL Bangalore

In-depth discussions and feedback through questionnaire have been taken from 1. Key Customers 2. BSNL Partners and 3. BSNL Team Members. Using dynamic capabilities and complementary assets frameworks the study questionnaires were prepared to seek BSNL performance in different areas such as product awareness, brand, service delivery, service assurance, billing, quality of services, quality of technical support, process flexibility and pricing.

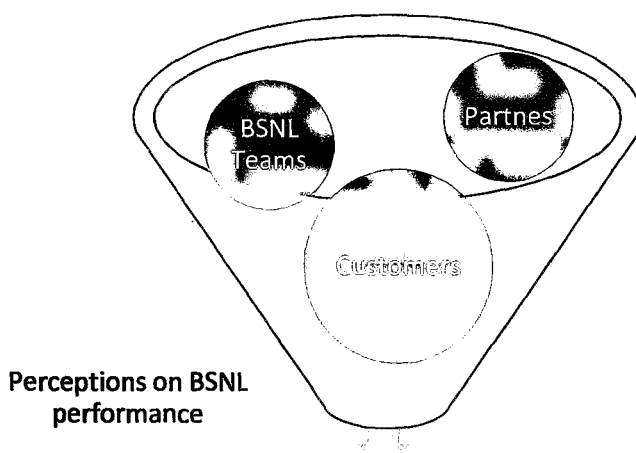


Figure 15 Perception Funnel

The inputs were collected from –

- Potential private corporate customers of Platinum, Gold and Silver categories such as MNCs, Indian MNCs, Large and medium companies covering IT, ITeS services, Mega Manufacturers, Media, , Banks
- Government customers such as PSUs, Government Departments, research institutions
- BSNL Partner companies who provide system integration, solution design- delivery-support, coordination and Maintenance
- BSNL team members involved in Business Development, Service Delivery and Service Assurance

3.3.2 Performance of BSNL with respect to other TSPs

Most of the high revenue customers i.e. enterprises generally have more than one Telecommunication Service Provider (TSP) in view of criticality of service. Possibility of customer switching over to the competition is high when there is a significant difference between the performance of BSNL and other service provider. Seeking response on BSNL performance alone may be incomplete unless we know the experience of customer with respect to his other service providers. Hence, on the aspects where the response was sought on BSNL performance, the customer has been requested to rate the performance of even his number one service provider. This gave scope to assess perception on BSNL performance in comparison with the performance of other service provider to get a sense of retention potential and growth potential for BSNL services from the customer.

3.3.3 Partners and BSNL internal teams

Further, since the unit of analysis is to understand the challenges in the area of retention of high revenue customers, we felt it is appropriate to look at the collaborations BSNL has in the area of enterprise services. The inputs from the BSNL partners are critical to look at the areas of wanting improvement to fill up the necessary collaboration capability i.e. found to be very important to meet the market challenge as identified under the first objective. Further inputs on the various aspects of BSNL performance was collected from BSNL team consisting of account managers, enterprise teams, senior management, service delivery and assurance teams. Efforts

have been put to look at the challenges from different quarters to identify the areas of constraints faced by BSNL.

3.3.4 Study Questionnaire

The contents of the questionnaire reflect some of the core items such as Operations, network design quality, quality of technical team, pricing, product customization and complementary items such as Customer support, Marketing, Service execution, Billing, Collaborations etc.

Table 2 Questionnaire contents for Customers, Partners and BSNL teams

1. Marketing Effectiveness on products, services leading to Customer Awareness
2. Brand recall (The Extent this company comes to your mind when you think of any new requirement or service.)
3. New Service Booking convenience
4. Speed of Provisioning of Service
5. Quality of Provisioning of Service
6. Reliability of Service
7. Speed of 'Service support' (Fault rectification etc)
8. Quality of 'Service support' (Quality of fault rectification so that it will not recur in the short term, say, 3 months and response to the fault reported)
9. Customer Support (Technical clarifications, Reports, Coordination)
10. Quality of Technical Team (in your interactions and technical clarifications)
11. Billing quality (Reliability of billing amount, bill delivery)
12. Process Flexibility (Are 'company's internal processes' oriented to customer needs and convenience?)
13. Product/ service offerings and customization. (Rate on whether products or services take care of customer's specific requirements and needs)
14. Quality of Service Provider's Partners (applicable if any partners, system integrators on behalf of the service Provider worked with you in delivering the services)
15. Online Customer services (Booking of new services, service support, service monitoring , paying for the service)
16. Comparative Pricing of Service with respect to other service providers (High- if the price offered is higher than the other service providers, Low - if the price offered is lower than the other service providers)
17. Could you describe the top THREE aspects, that are most important to you, present in your # 1 service provider (if it is other than BSNL)?
18. What are the top THREE aspects, that are most important to you, that you find missing in BSNL services?

The respondents were requested to rate on five scores viz. Excellent or Very Good or Good or Average or Poor. Details of the reasons of their choice was too requested to get clarity. Further, the respondents were asked to rate their # 1 service provider on the same scale for every item, to derive a comparative assessment. To summarize their views, the top three aspects present in their #1 service provider and top three aspects that are most important to them missing in BSNL were sought.

In the questionnaire subjected to team BSNL, the respondents from Business Development teams were asked to provide inputs on above applicable items as per above table but also they were asked to distribute their efforts of 100 hours (on a constant sum scale) into different heads to assess how their efforts are spent.

- Identify and work on new customers and technical proposals
- Obtaining approvals for pricing within BSNL
- Engagement with existing customers for additional business
- Coordination with internal units for provisioning of new services
- Coordination with billing team on billing issues
- Coordination with internal teams on fault rectification and service issues of existing customers

The questionnaires were prepared to test from reliability perspective by including some redundancies in the questions, summarizations and from validity perspective by seeking data that may reflect customer's views in their billing and in rating their performance on their other service provider etc.

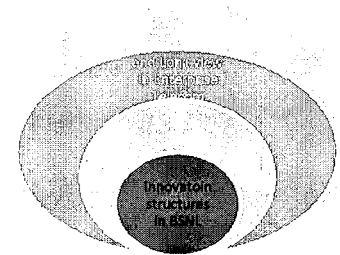
3.3.5 Limitations of the study:

The study is looking at the challenges faced by BSNL at the customer interface only. From the dynamic capabilities perspective, the study focuses on the performance of its complementary assets in delivering services to its customers. However, the other assets (including leadership, people), organization positions and its evolutionary paths are not part of this study. The study tries to bring out the issues of customer, partners, teams involved in enterprise business to identify the challenges faced by BSNL. These challenges could be the symptoms manifested due to other source reasons lying elsewhere in the organization in the areas

mentioned above. The gap in the performance and customer expectations in the current market competition is a reflection of lack of dynamic capabilities in the organization to convert its assets into performance.

3.4 State of Innovation structures to build dynamic capability

Deductive research methodology is used - to study the existing structures and processes, to obtain the status through in-depth discussions with key managers and feedback through survey questionnaire from key functional people from three tiers of BSNL offices responsible for Enterprise Telecom services.



The study is focused on the existence of innovation processes in the BSNL to meet the market requirement. The following picture depicts the general role of hierarchical three offices responsible for Enterprise services.

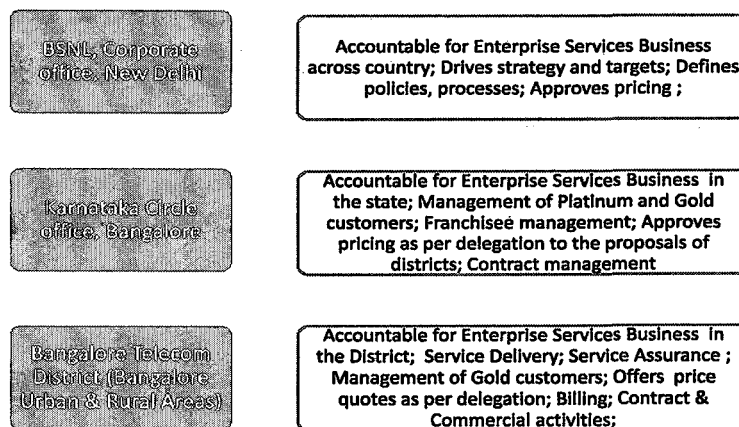


Figure 16 Three Tier BSNL Organization Structure

3.4.1 Contents of the questionnaire

A questionnaire has been prepared based on the seven element construct (Lawson & Samson, 2001). After subjecting the questionnaire to a few managers, the sample questionnaire was revised based on the inputs and to give more clarity. The managers were asked to rate on a scale of 1-7. In depth discussions have been held with the key managers responsible for managing the activities at Corporate office level and Circle office level as they drive the policies down the structure. These are the managers who are working / have worked on the existing processes and also responsible for the business at respective levels. The inputs were collected from key people and quantitative analysis is not envisaged and qualitative inputs are used for theoretical reflection of the construct in the study.

The members covered under the questionnaire in Enterprise segment are Senior Management at Corporate office level, Senior Management & Functional managers at Circle level, Functional managers and key members at district level.

. The Questionnaire based on innovation construct (Lawson & Samson, 2001) is used to check on the existence of following aspects in BSNL

Table 3 Questionnaire contents for Innovation Structures

No.	Item for questions
1	Do you have 'Innovation' as a Strategy and 'Embedding of innovation process' in vision and strategy statements of BSNL.
2	Do you have 'Innovation structures' or 'Mechanisms' for structuring the ways in which innovation projects are organized or idea management is handled such as think tanks or idea groups or innovation committees.
3	Do you have teams or focused groups comprising people with different functional expertise (Cross functional teams) for specific projects or programmes in the form of Think tanks or idea groups or innovation projects or excellence groups etc
4	Do you have Focused groups on identification of common / major customer issues

	; Identification of Operational or process issues ; Market and competitor analysis.
5	Do you have Focused groups to work on New product development or to identify and analyse which part of the value chain creates most value.
6	Do you Use ICT for Information flow within and between internal and external resources for authorizations, e-invoicing, e-billing, e-tendering, e-applications etc
7	<ul style="list-style-type: none"> a. Do you have systems and structures to process and capture learning. b. Do you capture and use the capabilities from suppliers, partners etc.; c. Do you integrate learning into organization processes; d. Do you identify and use best practices from industry and analysis
8	Do you use ICT tools such as Audio Conference, Video Conference, Web presentations for working on issues with BSNL Teams located in different locations.
9	Do you have someone accountable for leadership in driving innovation with End to end responsibility.
10	Do you see clear interconnection between innovation process / projects, strategy and existing organizational layers.
11	Do you have Rewards or incentives for ideas generated.
12	Do you involve suppliers and partners in innovation process or projects.

The following table identifies the manifestation of elements of the innovation capability construct⁶ looked for in the study and the limitations.

⁶ Innovation capability itself is not a separately identifiable construct. The capability is composed of reinforcing practices and processes within the firm. These processes are a key mechanism for stimulating, measuring and reinforcing innovation. The elements making up an innovation capability are grouped into seven major elements. These elements have been built up from the literature on the management of innovation, as well as best practice models (Schwartz, *The Art of the Long View*, 1996)

Table 4 Manifestation of Elements of Innovation capability construct

Elements of the construct	Factors looked for	Limitations of study
vision and strategy	Embedding of innovation in company's vision and strategy. Reflection of leadership focus in the strategy. Questions: 1, 9, 10, 11, 12	Restricted to reflection of innovation in strategy statements and objective communication.
harnessing the competence base	Existence of cross functional teams, excellence groups, Usage of ICT to enable this. Questions: 2, 3, 4, 8, 9, 11	Restricted to identification of structures and opportunities for grouping of competencies
organizational intelligence (the capability to process, interpret, encode, manipulate and access information in a purposeful, goal-directed manner, so it can increase its adaptive potential in the environment in which it operates") (Glynn, 1996: 1088)	Analysis of markets and competitors, value chain analysis, systems and structures to capture and use learning. Questions: 4, 5, 7, 12	Restricted to existence of processes and structures to capture learning making learning integration into organization making functions person independent.
creativity and idea management	Management panels, think tanks, idea groups, innovation committees. Questions: 2, 9, 10	Restricted to existence of Management of creativity and ideas
organizational structures and systems	Accountability, innovation projects, , innovation structures, mechanisms,	Restricted to accountability and existence of specific structures of innovation

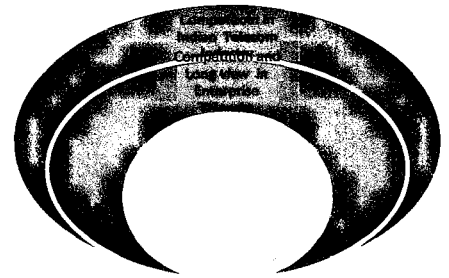
	focused groups 2, 8, 10, 11, 12	
culture and climate		Not assessed
management of technology		Not assessed

Chapter IV

ENTERPRISE TELECOM SERVICES – COMPETITION & THE LONG VIEW

4.1. Introduction

The Economic Times (Philip, 01-02-2012) has quoted that the Telecom Industry in India had a debt of Rs. 2,75,000 crores and the trend of rise in call rates is inevitable at least even to service the huge debt. It is apt to mention that the telecom industry has paid Rs. 1.05 lakh crore to buy 3G spectrum. The rising numbers in consumers but with decreasing ARPUs & revenue per minute is the current trend in mobile services and majority of the TSPs (Telecom Service Providers) are going through the hardship to keep the nose above water. This study focuses on Long view of Enterprise Telecom Services segment of Indian Telecom Industry.



Based on an extensive series of interviews with industry leaders, combined with primary research and a review of a wide range of industry and economic data, Booz & Company has identified four opposing forces with the potential to redefine the boundaries and practices of the industry: Commoditization versus innovation, lean operations versus strategic investment, consolidation versus fragmentation and re-regulation versus deregulation (Al-Bawaba.com, 2009).

Trailing on the recessionary trends of 2009, in spite of the Indian Success story of reasonably consistent growth and stability, the telecom industry is still going through the grip of above opposing forces. But when we look at the services contributing to the growing topline, the Broadband and Enterprise Telecom Services (ETS) are leading the march.

The traditional Enterprise Telecom Services consists of voice and data connectivity services which are important for an enterprise to accomplish productivity & operations efficiency, and customer convenience. The leading TSPs are competently and reasonably

equipped to provide the data pipes with quality and reliability. These services with high QoS , reliable connectivity at affordable cost are important for any enterprise looking for productivity in the current era where the minimum norm of the game is optimization of enterprise to meet the globalization and market demand of connectivity on 24*7 basis.

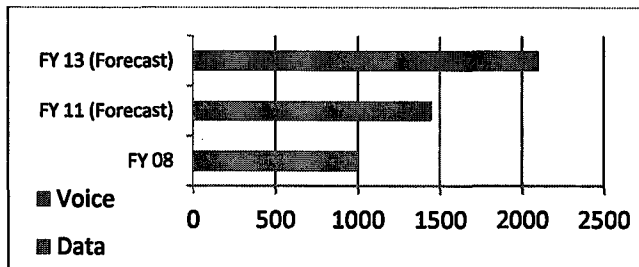


Figure 17 Contribution of Voice and Data i the total revenues

(Rs. Billion) source PWC Research (FICCI-Report, October 2011)

The above forecasts of growing data revenues looks to be realistic considering the scope for growth in services sector in India to meet the ever increasing data needs of society. Hence there is every need to explore the possibilities of potential and growth in ETS services before making big decisions.

The objective is to study ‘the competition in Enterprise Telecom Services (ETS) in Indian Telecom and ‘ the long view’ in terms of future potential areas for revenues and growth.

The study focuses on the following research questions.

1. What is the competition and industry concentration in ETS?
2. What is the long view of ETS and future potential areas of growth?

Decisions important from the TSPs perspective -

1. What should I (TSP) do to remain competitive in ETS?
2. What are the future potential areas?

4.2 Indian Picture

Apart from expert views through discussions and questionnaires information has been looked for from conventional sources such as Magazines, News reports, and unconventional sources such as overhearing of third person discussions, display boards of analysts etc.

4.2.1 Key Players and Competition

(FICCI-Report, October 2011)

In the earlier sections, we saw the competition in Telecom Industry. In this section, we will see the competition and concentration in Enterprise Telecom Services segment. The enterprise services consist of various products comprising voice, data and video and their applications. The following gives a glimpse of market share of the revenues in this segment.

Table 5 Competition and market concentration in ETS

Company	Revenue Market share in %	in Billion USD	in Crores Rs.	Square of Market share
A	B	C	D	E = C ²
Bharti Airtel	28	2.436	10962	784
BSNL	22	1.914	8613	484
Reliance Communications	13	1.131	5089.5	169
Vodafone	11	0.957	4306.5	121
Tata communications	7	0.609	2740.5	49
Idea	4	0.348	1566	16
Tata Teleservices	3	0.261	1174.5	9
Aircel	3	0.261	1174.5	9
Tulip	2	0.174	783	4
BT	1	0.087	391.5	1
AT&T	1	0.087	391.5	1
MTNL	1	0.087	391.5	1
Verizon	1	0.087	391.5	1
Others	3	0.261	1174.5	9
1USD=45INR				1658

(FICCI-Report, October 2011)

The segment concentration C4 of top 4 firms is 74%. The HHI figure for the segment is 1658, which as per the definition (HHI) indicates moderate concentration (<1800), but bordering the concentration levels.

4.2.2 Customers and Services offered under Enterprise Telecom Services

Any Enterprise customer using Telecom services for his enterprise operations and connectivity. The End customers are either other Enterprise, who are customers of above Enterprises, or individual citizens or groups or Government organizations, who are using the services of TSPs.

(<http://www.airtel.in/wps/wcm/connect/airtelinaes/AES/Voice+Solutions/>)

Table 6 ETS Products Bharti Airtel

<u>Voice</u>	<u>Data and IP</u>	<u>Conferencing</u>	<u>Data Center</u>	<u>Network IT</u>	<u>Digital Media</u>	<u>Global Business</u>
<u>Convergence Solutions</u>	<u>Internet access</u>	<u>Audio Conference</u>	<u>Product Vision</u>	<u>Network Integration</u>	<u>Advertisement Ecosystem</u>	<u>Global Data</u>
<u>Fixed Line and Broadband</u>	<u>Data Transport Solutions</u>	<u>Service</u>	<u>Integrated Service</u>	<u>Professional Services</u>	<u>Cinema Delivery</u>	<u>Global Voice</u>
<u>Mobile Data, Devices and Applications</u>	<u>Satellite Services</u>	<u>Video Conference</u>	<u>Offerings</u>	<u>Business Ready</u>	<u>Digital Signage</u>	<u>Global Coverage</u>
<u>Toll Free Services</u>	<u>MPLS Solutions</u>	<u>Service</u>	<u>Infrastructure and Footprint</u>	<u>Branch</u>	<u>News Gathering</u>	
	<u>Online Desktop</u>		<u>Products</u>		<u>Post Production</u>	
	<u>Website Builder</u>				<u>Teleport</u>	
	<u>Hosted Mail</u>					
	<u>Business Ready Branch</u>					
	<u>Security Solutions</u>					

(http://www.rcom.co.in/Rcom/business/HTML/sbbn_overview_main.html)

Table 7 ETS Products - Reliance Communications

Voice Solutions	Data Solutions	Collaborative Solutions	IDC products
Office Centrex	Internet	Audio Conference	Co-location
E1-DID	Business	Video Conference	Cloud Computing
OneOffice Duo	Broadband Internet	Unified	Managed Hosting
Audio conferencing	Leased Line	Communications	Managed Security
Toll Free Services	Ethernet Leased Lines	Web Conference	IT Applications System
ITFS	IPLC		Integration
PCO	VPN		DC Build & Maintenance
HCCS	HSD VPN		
	SSL VPN		
	WDVPN		
	Reliance MSS		

www.bsnl.co.in

Table 8 ETS Products BSNL – Enterprise Services

<p>1</p> <p>Unified Communications Suite</p> <ul style="list-style-type: none"> >Data Circuits >PRI >Mobile >CUG (closed user group) >VoIP >Fax >Audio conferencing >Video conferencing >Home zone 	<p>2</p> <p>Internet start- up pack</p> <ul style="list-style-type: none"> >ILL (Internet Leased line) >Domain Name >Website >Mail >Web hosting 	<p>3</p> <p>Global Connectivity pack</p> <ul style="list-style-type: none"> > International Bandwidth with bundled VoIP > Call center solution > Remote office operations > CUG + Broad Band + Data Cards
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The Telecom Enterprise Services sector consists of Traditional TSPs (Telecom Service Providers), Enterprise TSPs, Telecom Equipment Manufacturers, Infrastructure Providers and Application Service providers. The inputs for the above questionnaire are received from experts in different categories as explained above.

4.2.3 ETS Growth from Customers

4.2.3.1 Citizen Customer base attractive to TSPs

The customers for Enterprise services are though Enterprise customers, these Enterprises are in turn serving other Enterprises or Citizens. Let us have a brief look at the citizen base in Indian market. India's current phase of demographic dividend with large percentage in productive group, will be a catalyst to trigger the demand for goods and services. The provisional estimate of 2011 census indicate that the urban population has grown at 31.8% during the last decade (an annual growth of ~ 2.8%) is a good sign of positive trend in consumption of more goods and services in urban areas. Further even in Rural areas, the literacy rate has grown up by 10 percentage point in the last decade, with figures of 493 million literates in rural and 285 million in urban areas.

A simplistic view of possible urban population and literates is projected in the coming 5 and 10 years range. This reflects a great opportunity in services to serve various needs of literate people in urban and Rural areas. Further, the Indian Industry in various other sectors⁷ is making significant strides to serve domestic and global markets.

Table 9 Literacy Growth

	Urban	Urban literacy	Rural literacy
Now	377	285 (85%)	493 (69%)
5 years	432*	389**	
10 years	496*	446**	

Projected Urban population and literacy figures in the coming 5-10 years range * 2.8% annual growth rate ; ** 90% proportion population literate; Figures other than projected ones (Executive Summary - Census India 2011)
Key catalysts for ETS considered likely to be Economic growth, Corporate expansion and Rural Market.

⁷ Banking and financial services, information technology and business process outsourcing / call centres are some examples of high growth sectors in the country. The enterprise market is primarily being led by the demand for connectivity from the IT, ITeS, government and financial services segments. Telecom is being used as a strategic tool in Indian industry. (FICCI-Report, October 2011)

4.2.3.2 ETS growth from Enterprise segment (Source Expert views)

Table 10 ETS Growth from Enterprise segment forecast

Segment	Annual Growth forecast for ETS services in next 5 years
SME Segment	20-25%
MLE Segment	25-30%
Large Corporate Segment	15-20%

4.2.4 Indian Market Place

Let us look at the current market place, which is considered to be radically different from the market place what traditionally it used to be (Kotler, Keller, Koshy, & Jha, 2009). The following major, interlinking societal forces have created new behaviours, new opportunities, and new challenges in the arena of Enterprise telecom Services too.

- Network Information Technology
- Globalization
- Deregulation
- Privatization
- Heightened competition
- Industry convergence
- Consumer resistance
- Retail transformation

New consumer capabilities (Kotler, Keller, Koshy, & Jha, 2009) described for a normal consumer are equally applicable to an Enterprise customer.

Today's Enterprise (customer) and its ultimate customer perceive fewer real product differences and show less brand loyalty. They are becoming more price and quality sensitive in their search for value. The Enterprise consumer is growing from a King to Emperor in demanding (from his service providers) what ever it requires him to serve his ultimate customers.

- A reasonably good buying power

- A greater variety of available goods and services from TSPs. The traditional network services are commoditized (Al-Bawaba.com, 2009) leaving little room for differentiation unless value addition is offered in real sense to customers in terms of money and quality.
- A great amount of Information about practically everything about different TSPs and their USPs.
- An amplified voice to influence peer groups

4.3 Developments in Indian Market Place (sources in the Appendix I)

Growth in End devices:

- Total PCs projected growth rate in 2011 – 14%.
- Around 12 million smart phones are expected to be sold in India in 2011.
- Introduction of world's cheapest tablet AAKASH at \$ 35 may significantly enhance demand and usage for e-services.

Online Transactions

- Electronic payments: India has the potential to emerge among the top 5 economies in the world for electronic payments and transactions. Electronic card transactions - debit, credit and prepaid - are growing at double-digit rates.
- E payments trend: 2005-06: 81% paper based; 19% electronic based. 2010-11: 57% paper based; 43% electronic based.

Affordability

- India is supposed to have 3 million affluent households - defined as those with more than \$100,000 investable surplus.
- Out of population of 1.2 billion, 350-400 million are supposed to be the growing middle class.

Government Policies to promote IT, Electronics and online public services

- Increase software exports from \$ 59 billions at present to \$ 200 billion by 2020.
- Aim to increase skilled IT professionals to 10 million by 2020. Bring \$ 100 billion of worth of investment into the sector and create 28 million jobs over the next 9 years.
- Aim to provide public services on mobile devices. make one person IT literate in every household
- Integrate AADHAR to deliver public services to the masses.
- Delivery of 'Electronic Services Delivery Bill'. Mandates all the government departments to deliver services electronically within 5 years.

Storage Demand:

- Significant increase in storage demand in India, growing from one petabyte in 2001 to more than 34 petabytes by 2007, thereby increasing the data center uptake in companies - Gartner. The potential for Indian data centers is large with the external-controller-based (ECB) market

expected to grow by more than 22 percent in 2008, making India the fourth-largest market for ECB storage in the Asia/Pacific region”.

- Data center growth will be driven by increasing domestic requirements from sectors such as financial institutions, telecom operators, manufacturing and services. While large financial institutions and telecom companies are likely to build data centers for hosting their growing data storage needs, data center hosting providers will also put significant investments into growing their capacities to fulfil demand arising from small and midsize users.
- India Data centre services to touch Rs. 10,000 cr by 2011. Shrinking budgets, rising energy costs and adoption of blade servers spur new domestic outsourcing stream in India says IDC. India data centre services market will touch nearly Rs. 10,000 crore by the end of 2011, a CAGR of 22.7 per cent over the two-year period 2009-2011. The overall India data centre services market was estimated at Rs. 6,300 crore in 2009.
- Third-party data center services are gaining traction with enterprise customers due to the lack of in-house skills, high investments and long gestation period that a data centre calls for - User Research, IDC India. IT adoption in SMBs may increase further to achieve business growth objectives
- Technology giant IBM is betting big on its data centre business, driven by the telecom sector, as more companies look at outsourcing their data storage requirements."Over the past years, the number of third party data centres are increasing because they not only help companies save cost but also provide benefits such as protection against natural calamities, reduced power consumption etc.

Enterprise BPO Customers

- Indian BPO industry is world's leading global outsourcing location with a share of 34 per cent in 2010, the industry is transforming itself to provide a uniquely powerful value proposition for its customers. The industry is in the process of reinventing itself and shift from a volume-based to a value-based services such as high-end knowledge-based services like Data Analytics, Legal Process Outsourcing, etc. It is also exploring opportunities in the fast growing emerging markets (Australia, China, Middle East) and underpenetrated verticals like Retail, Healthcare, Utilities, etc.

Cloud Computing

- NASSCOM estimates the Indian cloud market opportunity would reach \$16 billions by 2020.. The biggies entry such as Google, Microsoft, Amazon into the field has made the idea of cloud computing more acceptable and assuring than it was 5 years ago. For smaller firms using a cloud computing service is an immensely profitable option. As it makes all capital investments in hardware and software all but redundant.
- The top service providers have international submarine systems connecting continents with global network that provides leverage than local players. They also own huge data centres and they have competitive advantage to the pure pipe or physical connectivity suppliers as the services are moving to Data centres and cloud computing (forward integration).

4.4 Indian Enterprise Market Size:

The total revenue generated in Enterprise services in 2010-2011 is USD 8.6 billion and it has seen a growth of 20-25% CAGR over the last 3 years. Yet the penetration of enterprise digital connectivity in corporates is low (FICCI-Report, October 2011). The Figure 2 indicates the scope of potential growth for Data services in India in the coming years, as Enterprises get more connected to reach wide spread domestic and global markets.

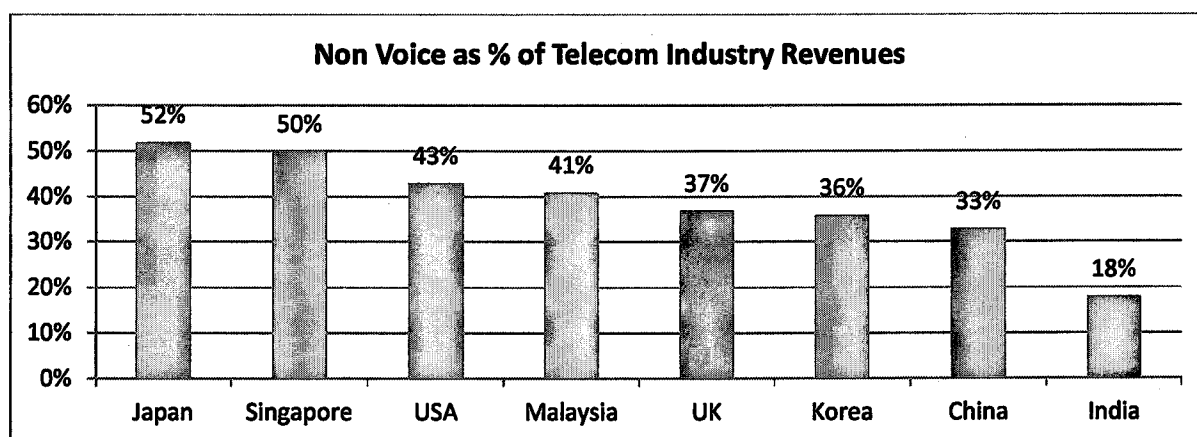


Figure 18 Non Voice Revenues in different countries

Voice traffic has grown 8.4 billion minutes in 2007-08 to 9.8 billion minutes in 2010-11. (FICCI-Report, October 2011)

4.5 Future areas : Internet of things (IOT) & IP Traffic Growth

The TSPs are likely to have great opportunities in the coming years as Internet of Things is shaping up seeking connectivity for all machines around us making them intelligent and smart. It could be an era of connecting all the household appliances, providing control and coordination in creating new intelligence, and shaping new consumer behaviours.

The following global picture of IOT, with ever increasing connected devices per person predicts huge pipes of connectivity, servers and storage needs. An expert view claims that the opportunities of smart cities, grids and intelligent environments could provide opportunities for the TSPs to move up in the value chain by building collaborations with technology vendors and application developers.

Global Market Transitions (Creation of Internet of things – IoT)
(Nokia-Siemens-Networks, 2011)

Table 11 Global Market Transitions – IOT

Year	2010	2015	2020
Connected devices on earth (Billions)	12.5	25*	50*
Connected devices on earth per person	1.84	3.47*	6.85*
<ul style="list-style-type: none"> Conservative forecast based on what we know is true today 			

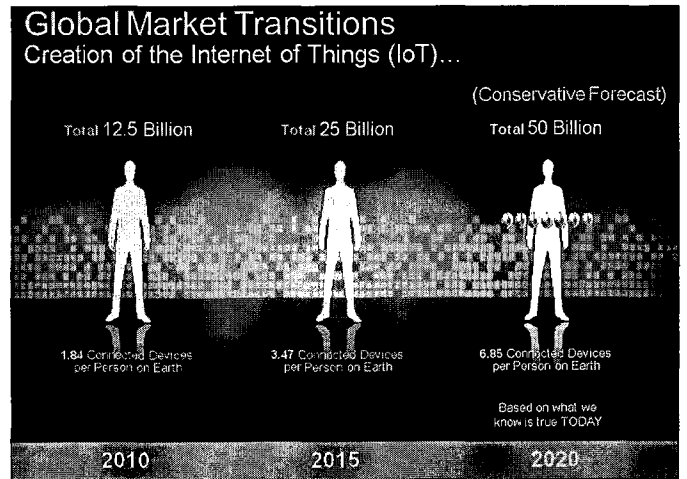


Figure 19 Global market Transitions – Internet of Things

IP Traffic Growth (CISCO-IBSG-SP-Analysis, 2011)

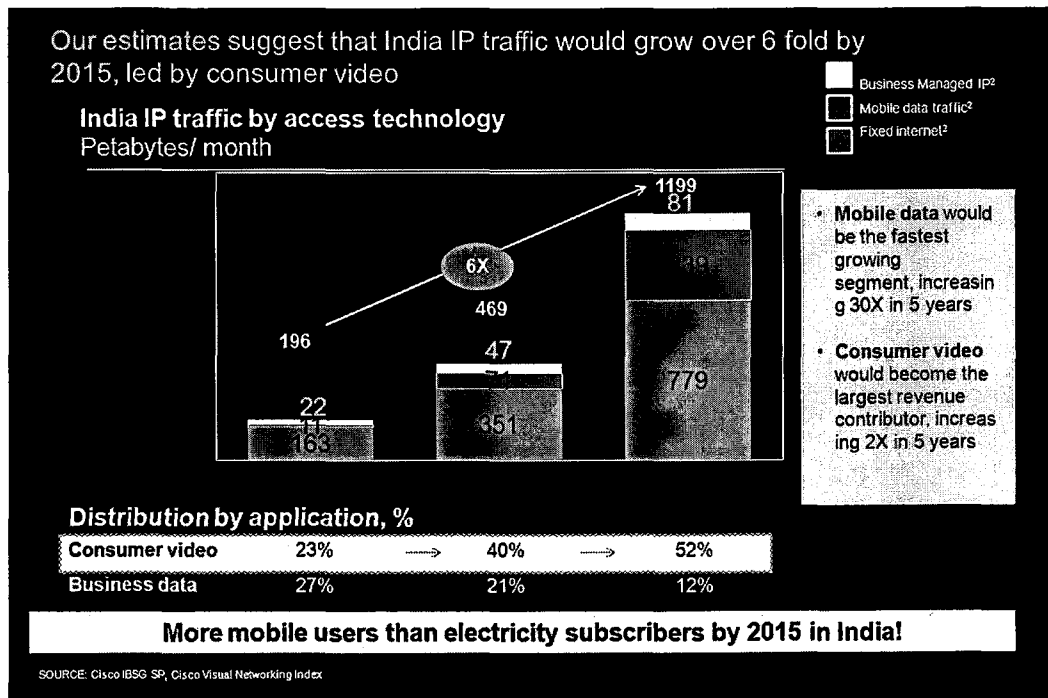
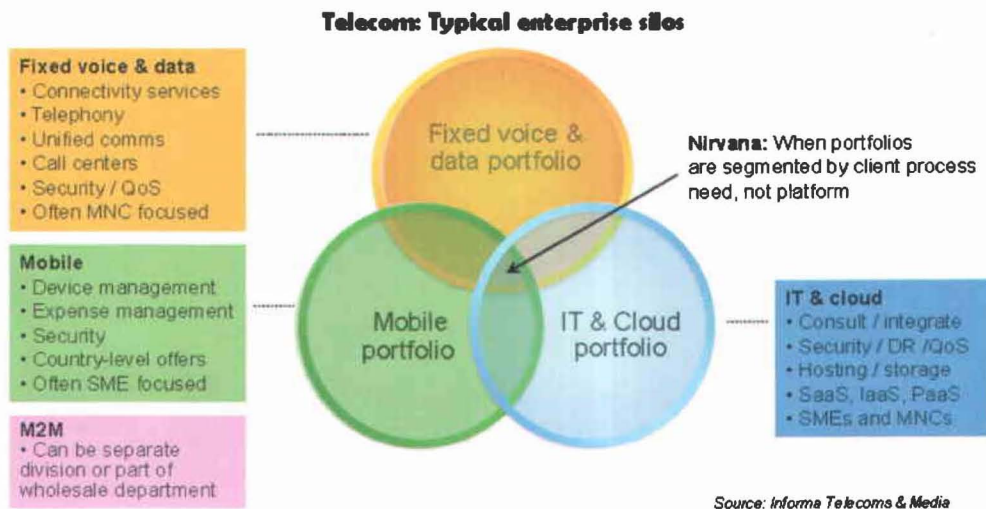


Figure 20 Projections of Indian IP Traffic Growth

4.6 Challenges for TSPs

One school of thought is that the separation from TSPs and IT services companies is slowly blurring and it is an opportunity, though a difficult one to execute, for TSPs to move into ICT services domain for their enterprise customers. For example companies such as BT, AT&T and Orange services are successfully competing in the IT services segment with growing margins (Forth, Halbard, & Wilms, 2011). Looking at the opportunities we saw above, the common view is that the TSPs may have to move up in the value chain to grow profitable.

However, the TSPs are basically network centric and a move towards Customer centric is not an easy journey which demands more on building capabilities in human resources than current strengths of network capabilities (Forth, Halbard, & Wilms, 2011). If TSPs only look at the connectivity part of above needs, as already happening, the pipe loses its value proposition and huge capacities will drive down the costs.



Silos may hamper service innovation, particularly in cloud mobility.

FIGURE 21 TELECOM ENTERPRISE SILOS

(Mendler, 2011)

Developing long term partnerships with the following will be a key strength with the critical blocks of the eco system shaping up with new value propositions.

- technology providers in the space of Enterprise security, NGN
- equipment vendors
- application developers, content providers
- third party service providers in the space of cloud, DCs
- government agencies

It is viewed that the transition from a pure pipe service provider to an ICT services is not easy and simple for TSPs to come out of its silos. TSPs may have to explore creating a new entity independent of TSP for this purpose (a different structure other than a carrier structure) to build the necessary competencies to move up in the value chain, become customer centric and create a different work culture suitable to develop new capabilities of collaboration and partnerships. The TSP sub system will take care of the physical connectivity.

4.7 Indian Myth

India, a huge country with diversity in cultures, people, religions and prosperity is a symbol of contradictions in every walk of life. It has been claimed as 'Unity in Diversity'. The objective of this introspection in this paragraph is not to say what is good about India as there are many positive things, but the purpose is to look at the areas of concern.

Generally, it occurs that we have a deep down culture of quickfix solutions (as someone rightly put it as 'chalta hi' or 'it is ok') to meet the immediate need or purpose. The supposed motive is neither good or bad but to survive the situation. It has a positive side that the solution is provided in a short time but on negative side the solution has a short life. The wise saying says, every solution leads to a new problem. In India, the culture of quickfix solutions has also led to a system of complexity where everything needs constant maintenance. Be it planning of urban infrastructure, deployment of infrastructure or even the maintenance activities themselves need constant rework, which I view as an outcome of the quickfix solutions.

In my view, this may be due to the combination of scarcity culture, lack of discipline / respect to the system and general good, and short sight to look beyond current problem/situation. This situation is palpable in all most all walks of life from policy making to execution. There is a criticism that India has excellence in individuals but as a group it does not get expressed in the absence of a visionary leader or external demand. I remember the high school experiment how in the presence of magnet, the disparate iron particles get direction and form into a pattern. There is also a view that we have less regard for others capabilities and commitment, and time goes in assessing others than self assessment.

In the face disregard for general good, righteous politics, and democratic pulls and pushes, even great policies may go into drain either in the initial stage of policy making itself or in the implementation stage. This demands cautious optimism to believe into great talk around us on various government policies in IT and Telecom sectors till they take physical shape and implemented at the ground level.

4.8 Key factors and Driving Forces

Now we would like to sum up views of the experts, market information and current developments into important factors and driving forces to explore the possible scenarios. The following diagrammatic representation depicts the important driving forces and key factors.

Key factors - Driving Forces

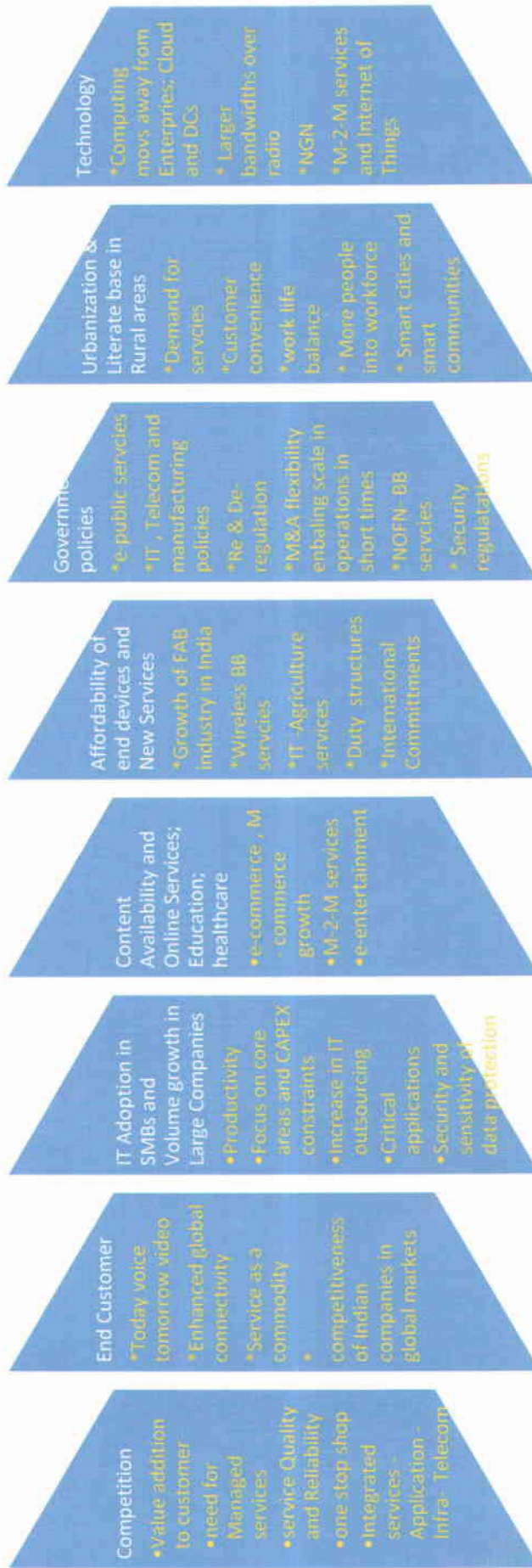


Figure 22 Key Factors and Driving Forces

4.9 Summary of Expert Views

Existing Business	New Business	Competitive Advantage	Strategic Technology & Service Partnerships	What Ifs / Dampeners
<ul style="list-style-type: none"> • Revenues from plain BW services increase but less margins • Quality - Reliability very high priority • Commoditization of traditional services 	<ul style="list-style-type: none"> • One stop shop for all services voice, video, data • Growth & Margins in Managed Services • TSPs can be competitive only by offering integrated services at cost effective prices with credibility • Cloud and DC services 	<ul style="list-style-type: none"> • IT Infra-Telecom - Applications from TSPs • Global connectivity and global presence • OPEX optimization • Collaboration and partnerships with Equipment vendors • Business models • Forward integration of end services 	<ul style="list-style-type: none"> • Enterprise security services • Data-Voice-Video convergence • Applications and content development • E-Entertainment • Education and Health services • Cloud and DC services 	<ul style="list-style-type: none"> • Policy constraints from Government - quick fix solutions • Global recessionary trends. Persisting delay in recovery of US and Europe • Lack of political stability • Poor QoS and Reliability in BW services. • No differentiation - low Prices of New services • Data Monitoring by government • security threat to external data and insecurity to customers • Change in outsourcing trends from US and Europe • China etc. posing serious competition in IT and ITeS services • Need of different structures for TSP to develop capabilities to move up in value chain.

Figure 23 Summary of Expert Views

4.9 Summary of Expert Views

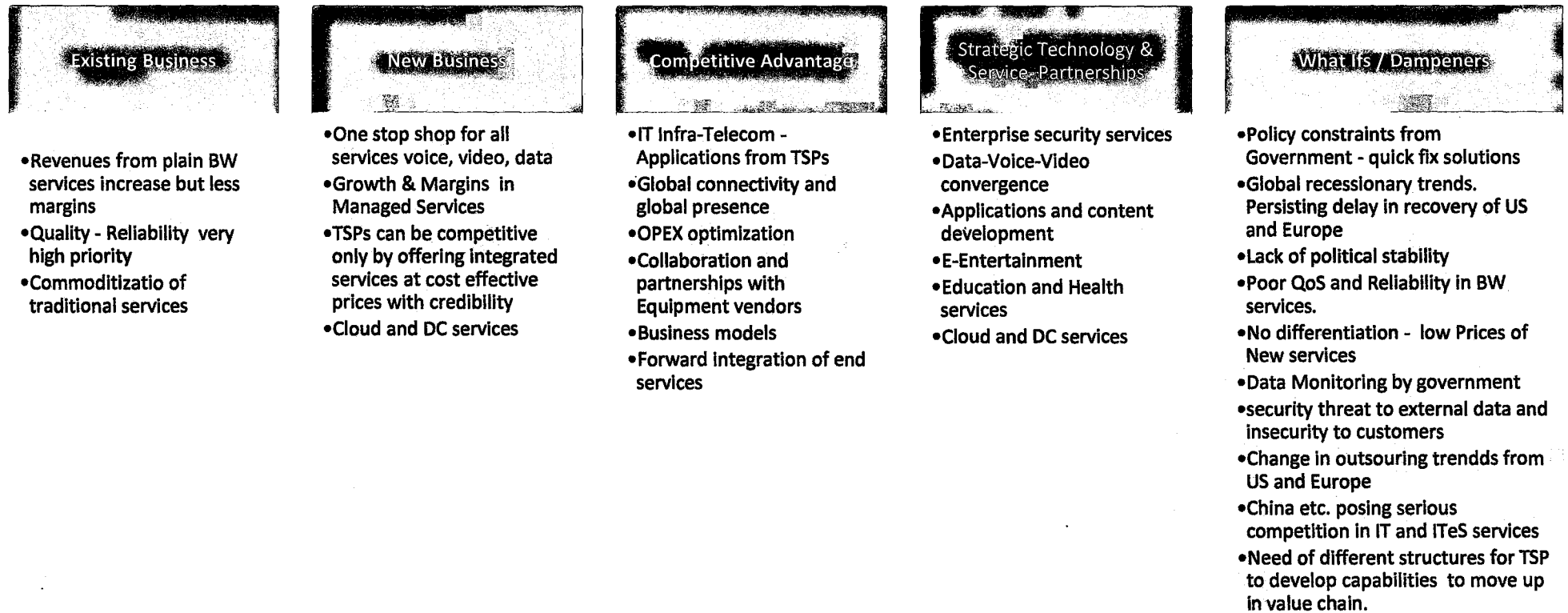


Figure 23 Summary of Expert Views

4.10 The Long view on Enterprise Telecom Services in India

It will be interesting to see the growing phase of Enterprise Telecom services (ETS), which may too have features of fundamental instability (Noam, 2006) inherent to the telecom industry. From the trends and growth of ETS, the Enterprises are moving to network and data connectivity. There is consensus from the views of the experts that the ETS to have a definite growth looking at the increasing needs and challenges of the business eco system prospering in India, assuming that the factors of stability, security and reasonable global demand continue to exist.

The trend of irreversible globalization is reasonably certain. Hence there is an exacting need on the Enterprise to be highly cost effective. This may call for resource optimization through automation and outsourcing to improve its productivity, flexibility and reduced time cycles in all Enterprise activities. This looks to be the prime driver to propel the growth of Enterprise services from Telecom Service Providers (TSPs) in short to medium term of five years. Further, in a time line of 5-10 years, the demands of the connected new age Indian (who is literate and productive) who would be ubiquitous in the rural areas is likely to drive the need for online services leading to enhanced connectivity solutions from TSPs.

While drawing the scenarios, the end result, is not an accurate picture of tomorrow, but better decisions about the future (Schwartz, The art of the long view, 1996)

The TSPs are under significant market pressure due to erosion in their traditional services and in turn in their bottom lines, and they are exploring all the options to improve their situation considering the pinch of debt burden and license fee payments. Margins will be under pressure if service providers see themselves as pure “pipe” providers – and don’t go up the value chain by offering other services as part of their offerings. The new genre of third party service providers, ITeS providers offering DC (Data Centres) and cloud services are throwing challenge to the TSPs to capture the market demand for the remote management services, cloud services etc.

The future would demand transformation from a conventional TSP to an Integrated services provider of IT Infrastructure – Telecom – Application services, to remain competitive in the market. Due to the commoditization of plain vanilla services and wireless connectivity, there may not be any loyalty from the customer unless he sees value proposition in the offering. The Trend of TSPs making bigger investments in DC with Disaster Recovery, Cloud computing applications may continue (creating over capacities) making TSPs offer managed, computing and storage services either directly or through partners offering value addition to the customer.

Investment in ‘wireless broadband and evolution to 4G’, is likely to reap returns in the chaotic situation of infrastructure development both in urban and rural areas, that is likely to throw constant challenges in back bone stability in spite of limitation of wireless solutions in BW (Bandwidth) capacities when compared to BW offered from fibre. Lack of standardized infrastructure such as ducts as part of city planning is likely to pose a major challenge for the stability of services leading to OPEX and dissatisfaction to customers unless reliability is assured on wireless. Imminent QoS monitoring by the regulator and commoditization of traditional ETS (such as Infrastructure services as pure pipe and to a limited extent in services such as Broadband etc) will push standardization in Bandwidth services.

In spite of availability of Enterprise Services from several TSPs, the performance aspects such as QoS, Reliability will play a key role in building the credibility of the TSP. This is not just from the point of view of connectivity, but it is also about how the customer can look for moving computing from his place to TSP’s to reduce his CAPEX. Considering the sensitivity and criticality of data, the customer will not just decide on any TSP only based on price, unless TSP has already established credibility in terms of QoS and reliability. The incumbent TSPs and even a few of the Private TSPs are experiencing the challenges in offering competitive QoS and Reliable services.

A BCG study that looked at the developments in other countries, observed that the telecom value chain can be chopped up in any number of ways leading to different successful business models and activity segments in the current challenging times. It is important to recognize that carriers are collections of increasingly unrelated businesses and the activities of traditional carriers are being pulled apart by centrifugal forces (Breedveld, Nicol, & Wilms, 2010).

There is a profound need for TSPs to develop capabilities to build effective strategic and technological partnerships to enable TSPs offer state of the art Enterprise security, Global SDP (Service Delivery Platform) supporting all e-services, Data-Voice-Video convergence, Applications & content, E-Entertainment, and Education & Health services. These areas look to be promising to provide advantage to TSPs in the ETS market as connectivity is still a stumbling block on pan-India basis. Under managed services category, the Managed IP services for Ethernet Private Lines (EPL) on MEN, hosted IP-PBX services, hosted DC services, Telepresence and Managed security services are likely to bring margins in medium term. The niche areas could be IT services in Agriculture, GIS, Enterprise security, commodity services, public distribution and e-content and health have promising opportunities if provided with end to end solutions.

Though there are positive indications from policy perspective to take measures to create preferential market access to domestic manufacturing (with a lofty objective of reducing import burden and encourage Indian IPRs), the Indian myth may prevail, unless policy ensures systematic assessment of core issues and take bold steps to avoid traditional quick fix alternatives. As widely expected, the flexible M&A regime will support in building the scale for the budding TSPs (who have strengths in collaboration) as volumes will help to sustain. The NOFN (National Optical Fibre Network), electronic delivery of public services, growing government spending on IT services look to bring in opportunities in a long term of ten plus years.

4.10.1 In view of above indications and trends, three potential scenarios are proposed.

Table 12 Potential Scenarios

Scenario 1	Scenario 2	Scenario 3
Demand for ETS services is on rise with increase in prosperity and increase in demand for the services from Enterprises.	Demand for ETS is moderate but on rise due to compulsions on Enterprises for productivity and operational efficiencies. Pressure resource optimization demands for enterprise connectivity and IT solutions. Large Enterprises look for new markets and new category of services seeking for cost effective connectivity and services from TSPs.	Demand for ETS in conventional services is on rise but investments in new infrastructures such as DC and cloud computing in deadlock. TSPs who invested in a big way in new infrastructure to capture market share in DC and Cloud services are significantly impacted.
Economic growth positive and good	Economic growth recessive	Economic growth is moderate
Prices of EST are moderate and competitive due to large capacities. Fall in end device prices irrespective of local production or imported.	EST prices hitting low due to peak competition due to small market space. Fall in end device prices.	Security concerns from government policy; Govt. monitoring,, privacy and integrity factors about data of Enterprises stored at TSPs and 3 rd party providers' premises create concerns for Enterprises to move back computing and data storage to their premises.
Demand for QoS and reliability with competitive prices.	Difficult to assure QoS and reliability due to cost involved.	Demand for QoS and reliability based on price.
All TSPs assured with reasonably good business to serve different categories of customers. Entry of new service providers in niche segments eating into revenues of TSPs due to their nimble and focussed strategies. Managed service providers on demand to take care of end to end services.	TSPs with low QoS relegated to serve low end customers in the market and face difficulties to survive due to large OPEX. TSPs with end to end solutions grab market share. Most of the TSPs offer managed services. TSPs winding down certain segments of their operations and consolidate.	TSPs with end to end solutions will survive the market shock and instability.

4.10.2 Scenario 1

This is one scenario, the telecom industry would prefer to have it, if it is possible. In view of overall prosperity, the number of enterprises is increasing and the need for enterprise connectivity is also increasing. In the initial few years say now to 5 years, price with reasonable QoS may be the only differentiator for SMEs whereas the QoS will be the prime differentiator for Large enterprises considering there are a few TSPs within the same price basket.

In the drive for capturing market, TSPs and other service providers create large capacities. Sooner due to commoditisation of traditional services and over capacities, price may become the only differentiator pulling prices down in all services (QoS in traditional services may not be a major differentiator due to wireless and new technology solutions in low capacity connectivity). Small and medium size customers may go for new services of cloud computing in the short term (now to 5 years) and large customers will make decisions in a long term of 5-10 years. Large Enterprise customers, due to the criticality of applications and competition, will demand for security, high QoS and reliability in the traditional and new services.

Entry of new technologies and applications demands integration and management of enterprise services silos, that traditional TSPs will not be successful to carry out. Hence, the traditional TSPs will not be able to capture the niche markets due to their compulsions on large OPEX, and rigid structures leading to entry of more global players with their focussed and nimble operations. Very few TSPs will be successful in providing end to end solutions leading to a demand for managed service providers who will dominate the market, making decisions for large Customers in buying connectivity and IT services.

The Social and cultural trends demand for enhanced data rates for using online services and content based services leading to demand in conventional & international connectivity, and hosting and development of local content.

Due to difficulties to develop new capabilities to serve all customer segments, the TSPs will adjust their customer segments appropriately to serve the respective customer segments differentiated by cost and QoS. The prices of large Bandwidth charges is likely to go up between medium and long term (5-10 years) for want of QoS and reliability in services as the current underground infrastructure becomes unmanageable and the TSPs will be forced to go for new large investments in new wireless technologies or new underground infrastructure.

4.10.3 Scenario 2

This scenario poses a subdued economic climate of little growth in enterprises with flat or moderate demand in EST services due to long-lasting moderate recessive trends. The major customer countries (using IT and ITeS services from India) resort to overprotection on outsourcing in spite of their compulsions to be cost effective. Business to India will face strong competition from other countries such as China, Israel, Ireland, Germany et cetera. India will lose the cost advantage factor to the competition leading to reduction in the external demand for enterprise telecom services.

However, due to reasonable domestic demand in key sectors, there is moderate need for enterprise connectivity and services. The investments in the infrastructure of new telecom services will be done by new entrants in the short term, as TSPs (on individual basis) can not afford additional investments due to existing financial commitments. Investments in new telecom infrastructure and services will come to a halt in the medium term, as initial investments don't yield commensurate returns.

There will be pressure on TSPs to offer managed services as customers can not afford to use the services of separate managed services providers. The price becomes the prime differentiator. Though the QoS is assured, TSPs can not manage to offer the assured QoS due to costs involved in OPEX. There will be fierce fighting among

TSPs for all customer segments vying for small market space pushing prices to the bottom.

M&A in Telecom Enterprise services is on cards between medium and long term (5-10 years) as TSPs will offer different segments of their assets on block. The new entrants in the market providing niche services will pick and choose the blocks of their need and synergy to integrate their operations. Government disinvests (on long term lease) large portions of PSU TSPs giving fillip to asset starving telecom market. Similar to National highway authorities, a conglomerate of TSPs with government participation will invest in information / communication highway corridors.

4.10.4 Scenario 3

Growth is moderate for Enterprise services. Need for cost effective solutions and services is on rise. To save costs and increase productivity, all category of enterprises will move computing away from the enterprise to save on CAPEX and OPEX in managing the services on their own. Market offers standardized packages and 'office with smart connectivity ready' solutions from the TSPs and third party service providers.

The demand for managed services to maintain the critical infrastructure of the enterprise is likely to grow in short term and with critical infrastructure moving away from the enterprise, dependency of Enterprise customers increases. In this scenario we will see 'what ifs that may have adverse impact on the so-called value addition in terms of data centres and cloud computing'.

It is apt to recollect the story of alligator and the monkey, in which the monkey says that it keeps its heart on the tree to escape killing by the alligator who likes to eat the monkey's heart. Under contemporary forces of market conditions, remote management, data storage solution in data centres and running the applications remotely on managed platforms will be a cost-effective solution. But storing of all the important data away will soon lead to a situation, where data centres become the

critical points of failure and scrutiny. The redundancy failures, enhanced monitoring by different government agencies on company's data will be issues of customer dissatisfaction. Further, the data centres may become the symbol of concentration of economic power that may attract the attention of unscrupulous elements for violence and terrorism.

In the medium to long term, the large and medium enterprises will revert back to traditional ways of internal computing and internal storage. This leads to overcapacities created in the TSPs and third-party data centres. The fear of excessive and unregulated monitoring by the government authorities and privacy fears of IPRs may kick start putting the investments in data centres at stake.

The situation leads to demand for traditional services and demand on TSPs increases to move up in the value chain to offer the managed services and remote management services.

Chapter V

Challenges for BSNL in enterprise telecom services

5.1. Introduction

BSNL is an incumbent telecommunications service provider in India as a government owned telecommunications services company, which has been evolving technologically and structurally under different market conditions. Till 2000, BSNL, as Department of Telecommunications (DoT), provided leased, telegraph, telephone circuits for government organizations, media and business enterprises. These services, the initial form of 'telecom enterprise services', were part of ETS basket of DoT or BSNL.



The basket of ETS has grown multi-fold as shown in table 13 below. Further the table 14 gives a picture of trends in revenue of different services offered from BSNL. The revenue from landline and mobile services is either decreasing or flat, whereas revenue is growing in broadband and Data services. The Enterprise services basket includes both voice and data services provided to enterprise customers, and this segment is poised to play a key role in improving the revenues. Considering the huge infrastructure and asset base of BSNL, it is essential to reap returns on the investments of public money.

1	2	3
Unified Communications Suite <ul style="list-style-type: none">> Data Circuits> PRI> Mobile> CUG (closed user group)> VoIP> Fax> Audio conferencing> Video conferencing> Home zone	Internet start-up pack <ul style="list-style-type: none">> ILL (Internet Leased line)> Domain Name> Website> Mail> Web hosting	Global Connectivity pack <ul style="list-style-type: none">> International Bandwidth with bundled VoIP> Call center solution> Remote office operations> CUG + Broad Band+ Data Cards

Table 13 BSNL Enterprise Telecom services

Appreciating this fact, in spite of being under government, BSNL has taken on vertical restructuring of services into Consumer Fixed Access (CFA), Consumer Mobility (CM) and Enterprise Services so that special focus for the segment is given to drive business. There is no doubt that the restructuring has led to awareness within BSNL about segmentation of services to drive sector specific focus, but it has not led to increase in the total revenues of BSNL. There is a criticism that, in spite of increase in revenues in Enterprise services segment due to volumes, the market captured by BSNL is only a tip of the iceberg. It is viewed that efforts are spent to capture small enterprises and small revenues leading to volume rise in Enterprise business.

The above view is justified due to the fact that some of the very high-revenue customers have drastically reduced their billing on BSNL in recent years from their previous billing though their total expenditure on telecom services is increasing. From my domain knowledge, I view that the core issues of this trend that why such high revenue customers may be going away are not systematically analysed and concerted actions are not taken. The focus for analysing root causes of corporate customer churn has not attracted enough attention to work on corrective measures from top to build the necessary competencies. I assume that there is a significant gap in customer expectations and BSNL performance in the segment of enterprise services and this study focuses on BSNL challenges. I find it critical to systematically assess the BSNL performance in the eyes of customers vis-a-vis with other service providers, that may be of use to identify the challenges faced by BSNL to support the efforts in the area of retention of high revenue customers.

When the subject was discussed with managers and BSNL teams at different levels it is understood that there was no comprehensive feedback on the BSNL performance from important customers except the general talk about poor performance of BSNL and inputs from here and there. Hence this study covers inputs from some of important customers through in depth discussions and feedback questionnaires. The words 'competencies' and 'capabilities' are sometimes interchangeably used in this study.

Table 14 BSNL Services and Revenues - Trend

Sl. No	Services	2006-07	2007-08	2008-09	2009-10	2010-11	CAGR % (2010-11 over 2006-07)	CAGR % (2010-11 over 2009-10)
1	Telephones (excl. WLL)	16605	12668	9174	8268	6839	-20.23	-17.28
2	Operator receipts	6146	5656	4305	2978	3285	-19.37	10.3
3	Cellular	9265	10530	9828	9761	8803	10.98	-9.81
4	Wireless in local loop (WLL)	568	618	636	575	506	4.51	-12.08
5	Broadband income	514	916	1756	2485	3308	97.9	33.11
6	Data services	513	757	960	1064	1827	19.03	71.68
7	Other operating income-USO	1719	467	2075	2665	2304	10.8	-13.56
8	Miscellaneous services	1006	1230	1535	118	174	-42.31	47.35
9	Total income from services	36336	32842	30269	27914	27046	-7.36	-3.11

5.2 Research objective

The **Second objective** is to study and identify the challenges for BSNL in the specific area of “high revenue customer retention” in a sample district Bangalore.

- How do you define high revenue customers?
- What are the areas / processes that are of concern for high revenue customers?
- What is the current performance in those areas of concern and perceived experience from different quarters?
- Is there is any evidence for those perceived issues?

5.3 Who are High revenue customers?

After vertical restructuring, all the organizations and corporate customers using telecom services extended for enterprise applications are grouped under enterprise segment.

The enterprise customers, in turn, have been categorized into three categories namely Platinum, Gold and Silver. One of the categorization is based on the annual turnover of the company. For example the annual turnover of Platinum, Gold and Silver customers are >500 crores, 100-500 crores and 50-100 crores respectively. For the purpose of this study, the Enterprise Customers have been taken as High revenue customers.

5.4 Findings

5.4.1 List of Customers who provided inputs on performance

The response on BSNL performance was taken from the following high potential customers.

Table 15 List of BSNL Customers who provided response

	Short Name	Name of the Customer	Type of Organization and features
1	Org 1	Reliance industries	One of the largest business group in manufacturing
2	Org 2	Kenna metals	Manufacturer
3	Org 3	IBM	MNC IT solutions provider
4	Org 4	Times of India	One of the Media houses
5	Org 5	HP	MNC IT solutions provider
6	Org 6	Bosch Mico	MNC Manufacturer
7	Org 7	CAPL (support agency for major banks)	National coordinator for Banks
8	Org 8	AT&T	MNC Global Services and solutions provider
9	Org 9	Sequel	Logistics provider
10	Org 10	Wipro	Indian MNC in IT services
11	Org 11	Dell	MNC IT devices manufacturer
12	Org 12	Intek	Manufacturer
13	Org 13	BHEL	One of navartna PSUs
14	Org 14	IKA India	
15	Org 15	ADA	Indian Research Organization
16	Org 16	Income Tax Department	Government department
17	Org 17	Infosys	Indian MNC in IT services
18	Org 18	IB	Government department
19	Org 19	Integra	Indian IT services company

5.4.2 Summarized Views of the Customers

Table 16

Summarized view	Specific Issues expressed by the Customers
Lack of focus on customer	Processes are rigid and not customer oriented. Market prices are not reflected in BSNL pricing. Even to offer quotes on par with market prices, it needs internal, high end approvals with lot of delay in customer response. Missing market study and price analysis.
Poor Marketing; Missing marketing strategy	No regular marketing and presales teams visit to customers. BSNL teams don't use BSNL mail IDs. No visibility of organization identity for MNC customers. There is no focus on how to drive marketing strategy. No presales teams with technical experts.
Poor process efficiency and absence of integrated IT systems	Coordination with BSNL internal teams consumes efforts of customers and BSNL account teams. No integrated systems among different functions viz. service booking-execution-billing-service support up to field level. No systemic updation to customer. Customer has to follow up for everything.
Lack of ownership and responsibility.	No single point contact; missing ownership for all India coordination; Without prodding higher-ups, mobilizing BSNL teams is impossible. No proactive monitoring of execution and faults and no customer updation on stages. No effective escalation matrix. Requires god father to get support and fast response.
Lack of skills in field teams	Sales teams, Technical teams are not trained to reflect professionalism. Shortage of Tools and equipment. Generally, field teams try to provide temporary solutions.
Poor service quality and reliability.	SLA document is ineffective. It does not assure ways of reliability and ownership from BSNL on how to build reliability to meet external contingencies. Bureaucratic attitude. Take it or leave it. No support after office hours and holidays. MNC customers can not tolerate this. Hence, managed services providers such as AT&T don't recommend BSNL. BSNL is remembered only when no TSP is present in the service area or only as a back up.
Network has become old	Copper network is not maintained up to mark. Even OFC (Optical fibre cable) rings are missing.
Lack of internal coordination; Lack of teamwork	Due to lack of systemic information flow among internal wings, there is no information flow hence leading to delays and efforts from all corners to get things done. Long execution times. Every case needs to be pursued upon. Things don't happen systematically.
Lack of accountability and no relationship building form mgmt	No visits by senior management members of BSNL to top customers in building long term relationship. 80-20 policy not on the top of senior management of BSNL. No action from BSNL even when high revenue customers move away.

5.4.3 Top three aspects that Customers find in Other Service providers and Top three aspects the Customers don't find in BSNL

Table 17 Important top Three aspects for the Customers

Short code	Top THREE aspects, that are most important to Customer, present in their other # 1 service provider (other than BSNL)?	Top THREE aspects, that are most important to Customer, missing in BSNL services?
Org 17	<ol style="list-style-type: none"> 1. Speedy response, competitive price 2. quality service with minimal disruption 3. good after sales service. 	<ol style="list-style-type: none"> 1. Quality service , 2. TAT is high for fault resolution 3. Procedural hindrance 4. Pricing
Org 8	<ol style="list-style-type: none"> 1. Better support to get more business. 2. Flexible in commercials 	<ol style="list-style-type: none"> 1. Not supportive mentality. 2. No one take individual responsibility. 3. Need more interaction from BSNL to get more business.
Org 7	<ol style="list-style-type: none"> 1. Immediate response and call tracking till closure with update n each development without reminder. 2. Sharing ERT for each problem 3. 24/7 availability 	Same is missing
Org 6	<ol style="list-style-type: none"> 1. SLA 2. Taking ownership for the service and support 3. Customer engagement 	Same is missing <ol style="list-style-type: none"> 1. further BSNL domain and email id is not used, hence the first impression with MNC is poor 2. There is no proactive and regular meeting with customer like private service provider
Org 5	<ol style="list-style-type: none"> 1. Customer Focus 2. Very Good Customer Relationships management 3. Single point of contact who can take the ownership. 	<ol style="list-style-type: none"> 1. Customer Focus 2. Very Good Customer Relationships management 3. Single point of contact who can take the ownership
Org 3	<ol style="list-style-type: none"> 1. Quality of service, reliability 2. Cost 	Attitude to customer. Take it or leave it attitude.

		<p>3. Customer support</p>	<p>Nobody is worried. No salary cut for anybody even you loose business or don't support. You speak very bad to customer. Customer is treated very badly.</p> <p>So at one point though BSNL prices were low we did not go because of quality and reliability issues. Our travel budgets are restricted and some portion of this is dedicated to communications. Hence telecom reliability is very critical to substitute</p>
Org 1		<p>Ubiquitous coverage, Consistent policy and Long term relationship</p> <ol style="list-style-type: none"> 1. Feasibility and turn around time and timely execution 2. Service support and quality of service 3. Billing phase – minimum glitches 	<p>The important things as mentioned are lacking. further</p> <ol style="list-style-type: none"> 1. Service delivery and assurance, 2. Competitive price, 3. speed of turning over for fault rectification and new services are poor in BSNL. <p>BSNL is remembered only when there is no TSP having coverage in that area or only a second or backup service provider.</p>
Org 10		<ol style="list-style-type: none"> 1. We are expecting end to end accountability/Ownership from BSNL 2. Pro-active monitoring of MPLS links and provide capacity planning 3. Periodic response & update for the fault ticket. 4. Root cause analysis (RCA) for major incidents 5. Ensure that repeated failures are 	<ol style="list-style-type: none"> 1. We are expecting end to end accountability/Ownership from BSNL 2. Pro-active monitoring of MPLS links and provide capacity planning 3. Periodic response & update for the fault ticket.

		address and its not revoke	
Org 4		<ol style="list-style-type: none"> 1. Cost is low 2. Good customer support 3. Upgraded new versions available on competitive basis 4. Good Marketing strategy 	<ol style="list-style-type: none"> 1. Cost 2. Customer support – One needs to have a god father 3. Low marketing strategy
Org 13		<ol style="list-style-type: none"> 1. Service commitment 2. Service reliability 3. Service quality 	<ol style="list-style-type: none"> 1. Service commitment 2. Service reliability 3. Service quality
Org 15		<ol style="list-style-type: none"> 1. QoS 2. Promptness 3. Flexibility 	Improved coordination

5.4.4 Top 3 critical aspects for BSNL

The top 3 aspects missing in BSNL services as viewed by the Enterprise Customers are

1. The quality of service and reliability
2. 24*7 Customer support & SPoC (single point of contact) with ownership
3. Cost (competitive pricing)

As we can see above, not only the private corporate customers, even the government organizations are complaining about service quality and service reliability in BSNL. The demand for service quality and reliability is natural from enterprise customers due to their work culture, global presence, 24*7 working, criticality of applications and available high quality and reliable services from other service providers. Further, telecom expenditure from the private customers is huge due to their scale of operations and in tune with their expectations on service quality.

5.4.5 Views of BSNL Partners & Collaborators

The Partners and Collaborators contribute significantly to the dynamic capabilities of an organization by filling the gaps in its abilities and complementing the strengths. The partners' abilities strengthen the organization processes to integrate,

reconfigure, gain and release resources to match the market requirements. In this context they are the important elements of the eco system of the organization to meet the changing market and technology requirements to bring at least competitive parity (Barney, 1991) and gain competitive advantage.

BSNL has identified some of the system integrators as its partners to deliver, maintain Enterprise services to customers to meet the market competition. Now let us look at the inputs from this important part of BSNL eco system i.e. partners. Inputs are taken from four partners of BSNL.

Table 18 Summarized views from BSNL Partners

Summarized view	Specific Issues expressed by the Partners
Accountability and Customer Relationship	<p>In BSNL everything needs persuasion. No aggressiveness like private TSPs.</p> <p>Customer relationship and customer visits are not done by top BSNL management even for key and high value customers.</p> <p>Lack of professional attitude towards customers.</p>
IT systems	<p>In BSNL information is maintained in islands. Whereas in private TSPs all project execution is CRM based. The CRM is comprehensive and includes all technical and financial info.</p> <p>All the operations are through IT systems. So all the info is available at all the points throughout TSP network. Respective sections are accountable to update in the systems.</p> <p>In BSNL there is always gap between commercial and billing teams. Coordination is difficult.</p>
Responsiveness and Service support	<p>Poor response from Call centres.</p> <p>Very high lead time to respond back to customers due to lack of initiative and book approach by BSNL.</p> <p>Nights and Holidays no support. BSNL is the only TSP, which does not support on holidays and nights.</p> <p>In Private TSPs major customers have single point contact and service support is 24*7 with escalation matrix and response within half an hour. Airtel and Tata & Reliance provide 24*7</p>

	<p>customer support for all enterprise products.</p> <p>Poor quality of service and no proactive monitoring like in other TSPs.</p>
Training	<p>Lack of solution experts. BSNL field teams to be accompanied by technical experts as part of presales to give confidence to MNCs due to high reliability requirements due to criticality of services.</p> <p>In the case of Internet services, BSNL offers maximum latency and it is very high with respect to other TSPs.</p> <p>Most of the fault rectification is done on fire fighting mode and on restoration, there is no follow up action or plan for standardizing services for high performance and there are no planned maintenance activities.</p>
Processes and decision making	<p>Though processes are fixed in other TSPs, they are integrated. Most important thing is quick decision making. Everything is time bound.</p>
Payments to Partners	<p>This is very poor in BSNL. The delays are long and there are many obstacles and cases have to go through many tables and it may take months to get paid. In private TSPs early execution and exemplary support by partners is incentivized and rewarded.</p>
Empowerment of field teams and middle management	<p>Empowerment of sales and marketing teams for normal and day to day business to make on the spot decisions.</p> <p>Time to time aggressive commercials depending on the business potential of the customers should be worked out in advance and middle management to be empowered to take quick decisions. Now every case, which needs to meet the competition pricing, has to go to head of the district in Bangalore or head of the circle or to corporate office.</p> <p>Order processing, special prices and paperwork including approvals, is totally not time bound and there is no commitment when the order would be closed and services would be commissioned.</p>
Marketing	<p>Lack of strategic marketing. Advertizing and marketing of services of poor performing products such as IP TV, FTH, collocation services etc bring down the credibility of services.</p>

The partners bring in significant strategic advantage that is well acknowledged in the importance of collaboration as per the IBM study⁸. The IBM study is in sync with observations from complementary assets management (Teece D. , Profiting from Technological Innovation: implications for integration, collaboration, licensing and public policy research, 1986).

5.4.6 Views of Team BSNL

The areas of concern are Accountability and ownership at all levels, Resource management, Service quality and reliability in the services, complex internal coordination due to information islands and isolated processes, lack of professional training.

Table 19 Summarized views from Team BSNL

Summarized view	Specific Issues expressed by the Team BSNL
Ownership	<ol style="list-style-type: none"> 1. Lack of Ownership and direction from top management. No visits by the top management to key customers to build long term relationships. 2. Lack of delegation of powers to sales and marketing teams. 3. Too many escalation levels. 4. No customer relationship.
Customer interface	<ol style="list-style-type: none"> 1. Helpdesk should be brief, pleasurable, innovative, effective in solving customer complaints. Follow up to customer through call, sms and email. These are missing. 2. Lack of Single window for all service complaints. 3. Customer service centres are inefficient to project proper image and they lack professional training. No extended working hours.
Poor resource planning and Resource crunch	<ol style="list-style-type: none"> 1. No proper resources for testing and analyzing complaints. If latest equipment resources are being

⁸ However, as new entrants from the media, entertainment and Internet industries encroach on their territory and the competition becomes increasingly fierce, the incumbent providers will have to expand their innovation horizons. To a much greater extent, they will have to embrace new ways of doing business and collaborate with external partners – both equipment providers, and innovators in information and entertainment services. (Kenny & Arias, 2006)

	<p>made available, quality of support will automatically increase.</p> <ol style="list-style-type: none"> 2. Complex internal coordination
Service support	<ol style="list-style-type: none"> 1. Current quality of support is poor and there is no SPoC. 2. No 24*7 support and no support outside office hours. Emergency mobile squads with talented staff is a must. 3. Staff has to be made accountable. They should be moved from their safety zones. 4. Poor communication and internal coordination
Rigid processes	<ol style="list-style-type: none"> 1. Not flexible to meet the expectations of corporate customers. Improve internal processes 2. Complexity of process 3. Delay in all most all processes would drive away them to other service providers
IT systems	<ol style="list-style-type: none"> 1. Since data and information is not computerized, feasibility is known only to the line staff of the field, the junior or middle management are not aware. 2. Poor internal coordination due to lack of information 3. IT services may be outsourced to professionals 4. Need of integrated online processes for internal productivity and customer services facilitation.
Marketing	<ol style="list-style-type: none"> 1. First employee awareness and internal communication 2. No marketing strategy for the enterprise segment 3. Recruit marketing specialists and professionals
Aged Network	<ol style="list-style-type: none"> 1. Age old infrastructure particularly in outdoors. On copper network most of the joints are kachha joints (non-standard) and service quality can not be assured. Copper network lacks professional maintenance end to end. 2. Even fibre network is poorly maintained and immediately it requires professional maintenance.

5.4.7 Response on Constant sum scale

Table 20 Efforts of Team BSNL - Constant sum Scale

Sl. No	Item of work	Allocation to the specific activity out of 100 hours										Contribution %
		A	B	C	D	E	F	G	H	I	Total allocation	
1	Identify and work on new customers and technical proposals	5	30	8	15	10	20	5	50	10	153	17%
2	Obtaining approvals for pricing within BSNL	15	20	24	30	20	20	5	5	45	184	20%
3	Engagement with existing customers for additional business	10	10	6	10	10	10	10	30	5	101	11%
4	Coordination with internal units for provisioning of new services	35	30	48	20	30	20	40	5	15	243	27%
5	Coordination with billing team on billing issues	15	5	8	5	10	10	20	5	5	83	9%
6	Coordination with internal teams on fault rectification and service issues of existing customers	20	5	6	20	20	20	20	5	20	136	15%

The data on proportionate time spent on individual activity is taken from some members of the business development teams who work for bringing in new business (from old and new customers) and also act as account managers. The size of data is small for a quantitative analysis but it gives a sense of where majority of the efforts go into.

The items 1 and 3 only deal with engaging with new and existing customer for new business. All other items together deal with execution and customer support activities. It indicates that the business development teams spend around 28% in engaging with the customer for new business and the rest 72% is spent on coordination with other BSNL units for execution and service support and approvals.

Though the total picture is not captured, it projects exhaustive requirement of coordination indicating process inefficiency and lack of accountability in complying to the customer commitments.

5.5 Study into BSNL

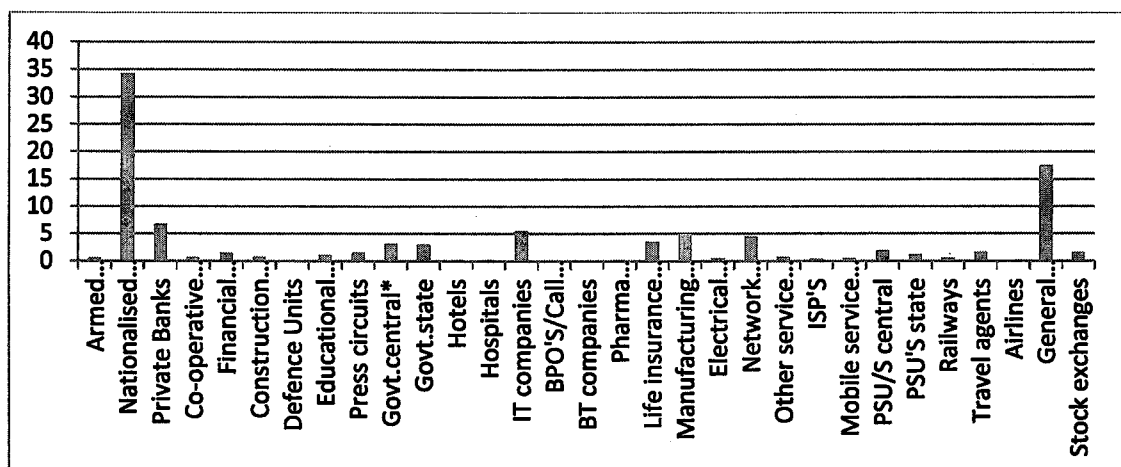
In view of above inputs, some important aspects such as Account Management Teams, Service support and information connectivity are analyzed at a macro level.

5.5.1 Customer segmentation

When we examined the quantum of services taken by the Enterprise customers with BSNL, it shows banks, government and other small customers are major users of BSNL and the private corporate customers who demand high QoS and Reliability are in minority.

Further, considering the growth of ecommerce and growing citizen expectations on high QoS and 24*7 support, even the government customers are demanding reliability and QoS. So retaining the government customers and increasing the business with Private corporate customers (where BSNL is either a back up services provider or one among the many service providers with small fraction of business) is essential.

So, building the necessary capabilities to meet corporate customers expectations is critical to retain business in high revenue areas.



*Excluding Defence, Railways, BSNL and other central PSUs

Figure 24 Customer category - % of Data circuits used in Bangalore (Old data)⁹

5.5.2 Fault incidence and Quality of Service

It can be seen from below table, that fault incidence, 27%, is very high (when compared to 4-6% fault rate of basic telephonic services as reflected in TRAI reports). The observation that fault resolution times are very high in BSNL gains credence from below table where around 32% of faults take > 8 hours resolution time, when compared to observation of some of the customers that in other TSPs the fault resolution time is around 1-2 hours. These figures reflect a serious need of enhanced customer support and service quality requirements as Enterprises can not survive if their connectivity is down for such long hours.

Table 21 BSNL Bangalore fault resolution time for ETS Data services

Fault Performance in December 2011 (No. of faulty circuits / Total circuits)	27%
% of faults	Resolution time
62%	0-8 hours
2.30%	8-12 hours
11.60%	12-24 hours
19.30%	24-72 hours
4%	>72 hours

For enterprises, the service resolution times are very critical and there is NO effective escalation matrix in BSNL, that is very critical for a service industry when organizations are running on 24*7 basis with global presence. In contrast, the following figure shows the escalation matrix of a private TSP where any fault 'service affecting' more than 6 hours will be escalated to Circle, National Service head. In BSNL, there is no single point of contact (SPoC) or no such accountability at senior

⁹ The above figure only describes the data services as a count serviced for different categories of customers. However, it does not reflect the revenue contribution in similar proportions as each data circuit may vary in bandwidth and revenue earning capability. For example, one 2 Mbps local circuit may earn a revenue of Rs. 30 k whereas a 2 Mbps internet circuit may earn a revenue of Rs. 2 lakhs and an MPLS circuit may earn around Rs. 4-5 lakhs per annum, but for quantum they are counted as one only in above categorization.

level to support this critical customer support. Further, there is no support on holidays and nights.

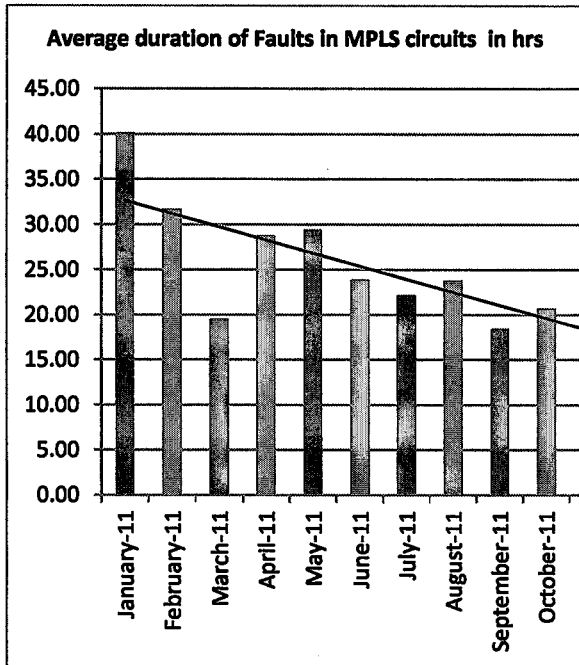


Figure 25 All India average duration of Faults

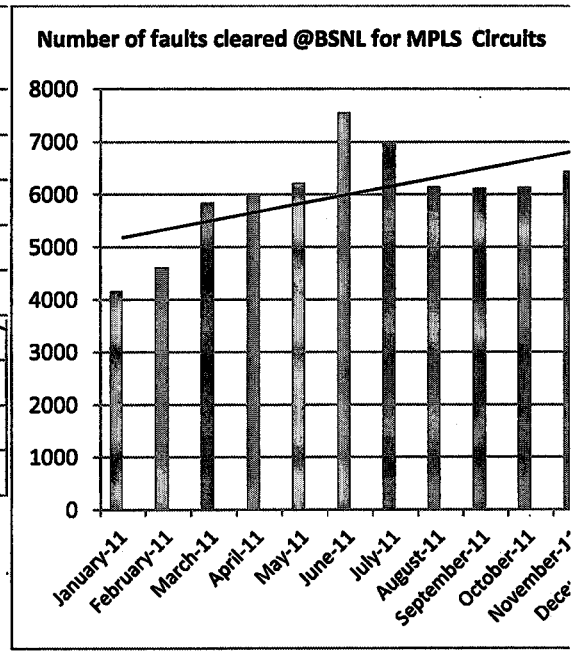


Figure 26 All India Number of MPLS Faults

Fault reporting		Landline phone / Toll Free					
Escalations							
Level of escalation	Service affecting	Performance Issues	Contact Point	Contact Name	E-mail Id	Contact number	Time of the day
Level 1	2 hours	6 hours	Help Desk				24X7
Level 2	4 hours	12 hours	Service Assurance Manager				7AM-10PM
Level 3	6 hours	18 hours	Circle Service Head				7AM-10PM
			National Service Head				
Level 4	8 hours	24 hours	VP Circle Operations				7AM-10PM
Night	4 hours	12 hours	Night Desk	Shift Head			10PM-7AM

Figure 27 Escalation matrix of a private TSP

5.5.3 IT Systems and interconnectivity and Customer Help desk

The below diagram shows the IT systems interconnectivity in Bangalore BSNL for Data services. Though IT is extensively used, there are islands of IT systems with poor interconnectivity and information flows causing delays in decision making. Though the CRESTEL, CDR packages attempt towards integration, they still don't cover the enterprise services gamut as required under market conditions to have integrated information for all points of access for BSNL teams in the network.

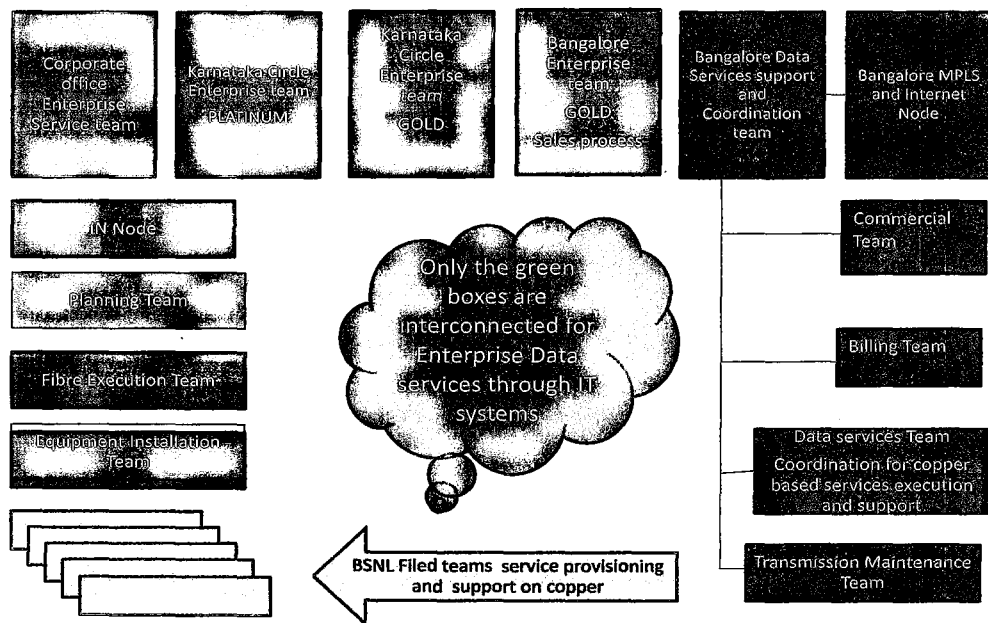


Figure 28 BSNL Bangalore IT systems and Interconnectivity

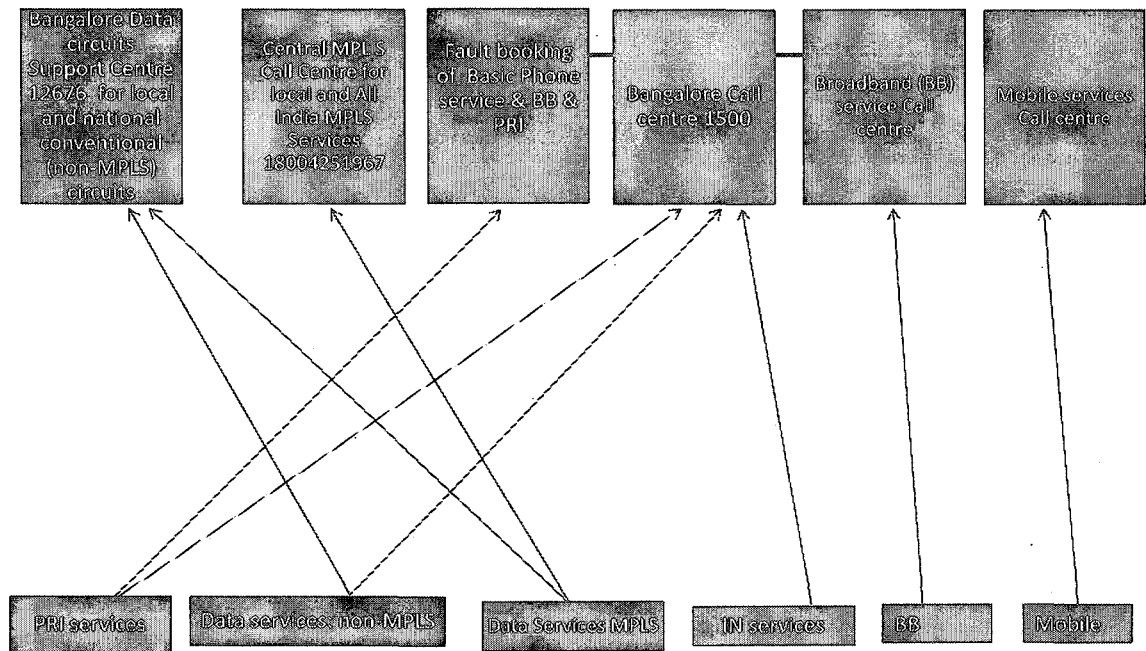


Figure 29 Service support at Bangalore for Enterprise Services

Multiple centres, little interconnectivity reflect the need of integrated IT system for Enterprise services.

Field support only during working hours and no support on Holidays and nights

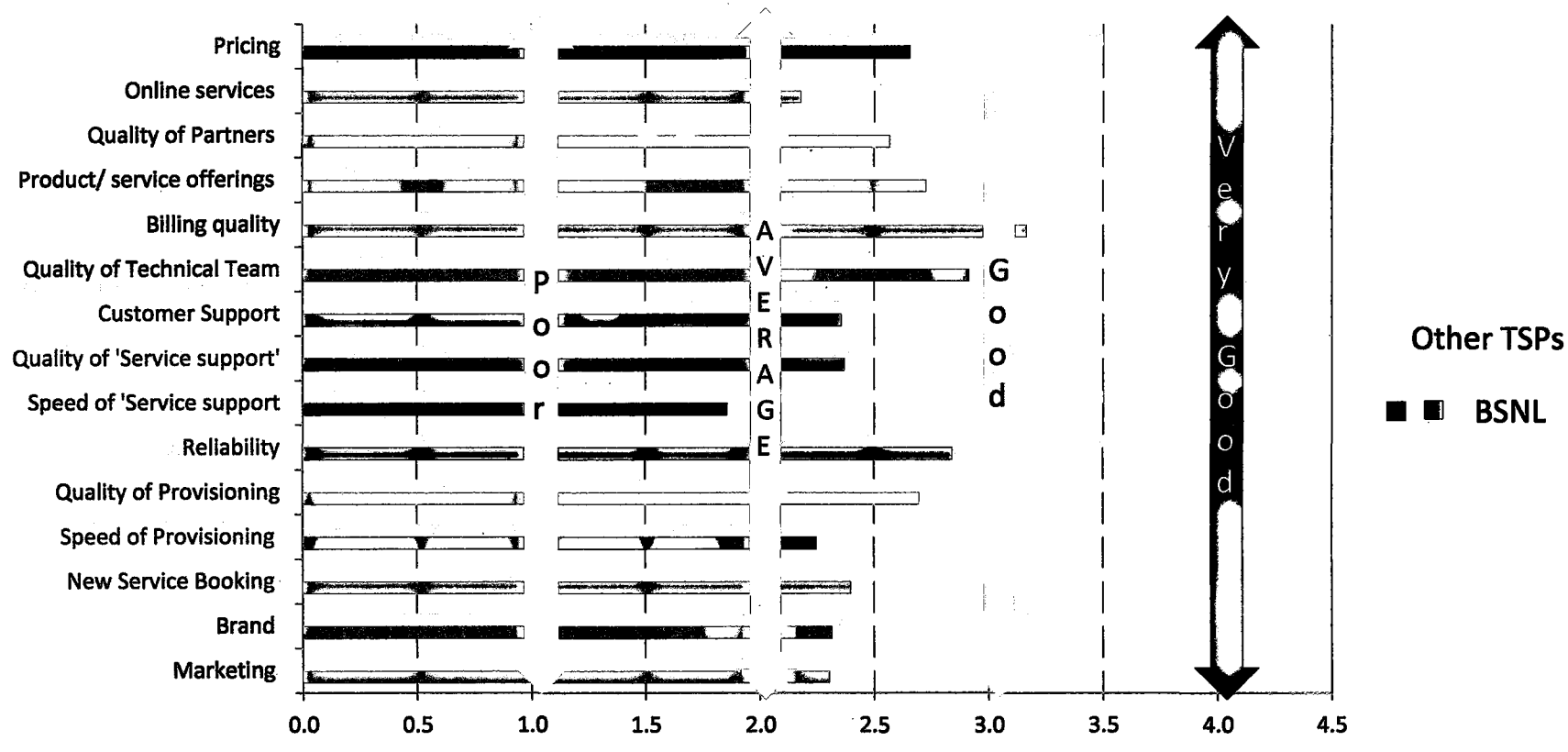


Figure 30 Pictorial representation of BSNL performance and vis-a-vis with other service providers

Though the original observations are ordinal and can not be quantified, the ordinal ranking is converted to numbers just to have a pictorial presentation: Poor -1, Average - 2, Good - 3, Very Good - 4, Excellent - 5. The averages of each item from all responses has been plotted as bar diagram for BSNL with respect to Other TSPs. The bars plotted in red are projected as top concerns for the customers with respect to performance of other TSPs.

5.6 Innovation linkage

Moving forward, in the coming chapter, we will study the existence of innovation structures in BSNL in filling the capability gaps and the company's capability in learning to cause and trigger transformation. The 'innovation', a dynamic capability, plays a key role in the organization's learning to 'integrate, build, and reconfigure internal and external competencies (Teece, Pisano, & Shuen, 1997). Hence this study moves to the area of innovation in BSNL in the focus area of study.

Chapter VI

INNOVATION STRUCTURES IN BSNL

6.1. Introduction

In this chapter, the unit of analysis of the work is to study the innovation structures to inculcate innovation capability in BSNL, in the specific area of “High revenue customer retention”, building upon the dynamic capabilities view. Successful innovation requires an optimal overall formal business structure (Burgelman & Maidique, 1988). BSNL being a services company and service innovation plays a key role in bringing the organization in tune with the market needs. In spite of BSNL’s pan-India infrastructure, continuous poor financial performance strengthens the chief criticism that there is a significant gap in its service perspective & performance in comparison with the competitors. The hypothesis of this study is that BSNL has innovation structures to build the capability necessary to retain high revenue customers.



Innovation capability is proposed as a higher-order integration capability, that is, the ability to mould and manage multiple capabilities (Lawson & Samson, 2001). In agreement with this, the study views innovation in an organization as an expression of the need by the organization either to become a leader in the segment based on its stakes or to survive or to be productive or to be competitive or to comply to regulatory environment or a combination of them. Acknowledging the importance of leadership in establishing and sustaining the framework necessary to create this capability, the source for innovation is supposed to emerge from the organization’s mission and vision strategies. In this chapter we will be searching for the manifestation of processes and structures necessary to create and develop the innovation capability in the Enterprise segment of BSNL.

The Indian telecommunications services market has been facing rapid changes in the past two decades and transformation, from erstwhile pure government form to BSNL in its new avatar as a PSU, did not help in stabilizing the revenues and establishing BSNL as a reckoning service provider (with its lagging 14% of overall telecom market) except in wire

line segment. In such a scenario, the necessity of innovation framework and processes for a rapid reconfiguration of service providers' capabilities (Zimmermann, Zimmermann, & Lange, 2008) is necessary to strategically renew BSNL in quicker time-to-market of new services. Further innovation management has become an essential part of a company's strategy.

Based on the views and study of BSNL in the focus area of Enterprise services of Bangalore from Customers, Partners and Team BSNL in the previous chapter, we saw that service quality & reliability, effective support, cost competitiveness and internal coordination are figuring top on the performance issues. In this chapter, we will look into the scope for innovation capability in the current processes and structures to support the main stream activities and as well to build competitive advantage (refer Fig. 12).

The Research objective is to study the innovation in BSNL in the area of "Enterprise Customer Retention" in Bangalore district building upon dynamic capabilities view.

Research questions

- What is required to build innovation capability in an organization to meet market demands?
- What are the systems and processes that exist in the current structure of BSNL to develop the innovation capability in the area of study?

6.2 Findings

6.2.1 Ratings on Innovation Questionnaire – limited response received

Table 22 Ratings for the Innovation Questionnaire – scale: 1 (low) -7 (High)

No.	Item for questions	Corporate Office	Circle office	District office
1	Do you have 'Innovation' as a Strategy and 'Embedding of innovation process' in vision and strategy statements of BSNL?	1.5, 1	1, 1, 2, 6	1, 1
2	Do you have 'Innovation structures' or 'Mechanisms' for structuring the ways in which	1.5, 1	1, 1, 3, 2	1, 1

	innovation projects are organized or idea management is handled such as think tanks or idea groups or innovation committees?			
3	Do you have teams or focused groups comprising people with different functional expertise (Cross functional teams) for specific projects or programmes in the form of Think tanks or idea groups or innovation projects or excellence groups etc.?	2.5, 4	1, 1, 4, 2	1, 1
4	Do you have Focused groups on identification of common / major customer issues ; Identification of Operational or process issues ; Market and competitor analysis?	3, 3	1, 1, 5, 2	1, 1
5	Do you have Focused groups to work on New product development or to identify and analyse which part of the value chain creates most value?	3.5, 3	1, NA, 2, 3	1, 1
6	Do you Use ICT for Information flow within and between internal and external resources for authorizations, e-invoicing, e- billing, e-tendering, e-applications etc?	3, 3	5, 2, 5, 6	1, 1
7	Do you have systems and structures to process and capture learning?	2, 1	1, 1, 3, 1	3, 1
	Do you capture and use the capabilities from suppliers, partners etc?	1.5, 1	4, 2, 2,1	1, 1
	Do you integrate learning into organization processes?	2, 1	1, 2, 3, 3	1, 1
	Do you identify and use best practices from industry and analysis?	2.5, 1	5, 1, 4, 3	2,1
8	Do you use ICT tools such as Audio Conference, Video Conference, Web presentations for working on issues with BSNL Teams located in different locations?	1.5, 1	6, 3, 6, 2	2,1
9	Do you have someone accountable for leadership in driving innovation with End to end responsibility?	1.5, 1	1, 2, 2, 2	1, 1
10	Do you see clear interconnection between innovation process / projects, strategy and existing organizational layers?	1, 1	1, 1, 3, 2	1,1
11	Do you have Rewards or incentives for ideas generated?	1, 1	1, 1, 3, 2	0,1
12	Do you involve suppliers and partners in innovation process or projects?	1, 1	5, 3, 4, 2	1,1

6.2.2 Outcome from Feedback Questionnaire

Table 23 Status of Innovation Structures as deciphered from Innovation Questionnaire

Sl. no	Item	Status of existence
1	'Innovation' as a Strategy and 'Embedding of innovation process' in vision and strategy statements of BSNL.	It does not exist in its 'aspiration' declaration. No strategy to pursue.
2	'Innovation structures' or 'Mechanisms' for structuring the ways in which innovation projects are organized or idea management is handled such as think tanks or idea groups or innovation committees.	Absent at all levels.
3	Teams or focused groups comprising people with different functional expertise (Cross functional teams) for specific projects or programmes in the form of Think tanks or idea groups or innovation projects or excellence groups etc	Cross functional teams absent at Corporate, circle level and district level offices. Depending on the need they may be formed. There are islands of excellence who may be driving innovation.
4	Focused groups on identification of common / major customer issues ; Identification of Operational or process issues ; Market and competitor analysis.	No established mechanism. However the respective operational units responsible for the tasks to take care of issues.
5	Focused group on work on New product development or to identify and analyse the value chain.	Focused group present at Corporate office. Value chain creation is still an issue.
6	ICT for information flow within and between internal and external resources for authorizations, e-invoicing, e-billing, e-tendering, e-applications etc	Use of ICT has gone up. Requests for price approvals come through email from circles to Corporate office. However more could be done.

7	Systems and structures to process and capture learning.	Almost absent due to isolated systems.
	Capture and use the capabilities from suppliers, partners etc.	absent at corporate level but partially present at circle level
	Integrate learning into organization processes	absent at all levels
	Identify and use best practices from industry and analysis	Partially present at corporate, Circle and district levels.
8	Use of ICT tools such as Audio Conference, Video Conference, Web presentations for working on issues with BSNL Teams located in different locations.	Very limited use at Corporate office level and partially present at circle level, district levels.
9	Have someone accountable for leadership in driving innovation with End to end responsibility.	Absent at all levels
10	Employees seeing clear interconnection between innovation process / projects, strategy and existing organizational layers.	Absent at all levels
11	Have Rewards or incentives for ideas generated	Absent at all levels
12	Involve suppliers and partners in innovation process or projects.	Absent at Corporate office level and district level but visible at Circle level

6.2.3 Discussion

BSNL in the recent past has replaced its corporate strategy statements viz. vision and mission with 'ASPIRATION', that is reproduced below.

- Be the leading Telecom Service Provider in India with global presence.
- Create a customer focused organisation with excellence in sales, marketing and customer care.
- Leverage technology to provide affordable and innovative products/services across customer segments
- Provide a conducive work environment with strong focus on performance
- Establish efficient business processes enabled by IT

It is apt to refer to the observation - "The disconnect between technological progress and product and service innovation (Cunha, Innovation and technological convergence: an assessment of critical resources of telecommunications service providers using resource-based view and dynamic capabilities, 2007) is not due to lack of technological capacity of knowledge but due to organizations that do not have the right processes to deliver and use the new technologies to supply customers needs". We can see a parallel here on introduction of new technology and new services in BSNL. For example though BSNL provides data services for corporate customers and the processes do not adopt or use the technological innovations available in current deployed technologies. For example, the MLLN (Managed Lease Line Network) equipment provides system based availability reports, diagnostic tests, desktop clouds and functions such as backup services using second-line or doubling the bandwidth using the second-line are seldom used.

As we observed from the feedback received for the survey questionnaire at Table 2, the mainstream activities viz. Productivity, internal coordination, quality of service , customer response are still wanting improvement. Hence there is far more

need for in-sourcing or developing innovation capability to climb the value proposition ladder to gain competitive parity (Barney, 1991) at least.

In the previous chapter we have seen the indispensability of collaboration to survive. But two reasons viz. complex processes and inflexible infrastructures (Kenny & Arias, 2006) have been attributed as the major obstacles in going forward. This is exactly the feedback from Partners on the BSNL's preparedness on collaboration and building effective partnerships. Innovation driven from top needs to play a key role in devising the structures to overcome this deep gap in the capabilities.

While describing an innovative organization (Siegel & Kaemmerer, 1978) five factors are said to be important to reflect the innovative side of the organization viz. leadership, ownership, norms for diversity, continuous development, and consistency. From the findings table and from my domain experience, I deduce that there is gap in leadership, strategy, structures for inculcating innovation and organizational intelligence in the Enterprise services segment of business.

In the Indian market, as per the Airtel's Directors' report for the year 2010-2011, Airtel entered into 18 major alliances or agreements with its partners in the telecom ecosystem and also introduced 15 new services or features to its new customers. This indicates importance of collaboration for competitive advantage (source: <http://www.indiaonline.com/Markets/Company/Fundamentals/Directors-Report/Bharti-Airtel-Ltd/532454>). Whereas we see very few partnerships and collaborations in BSNL.

BSNL partnerships as per annual report 2010-2011 (page 16)

- JV with Millennium telecom Limited – tender cancelled
- BSNL invested USD 50 million in the EIG (Europe India gateway) submarine cable system
- MoU signed with Bay of Bengal Gateway (BBG) submarine cable system consortium. Investment decision pending.
- BSNL signing carrier relation agreements with about 29 international carriers.

From the chapter 5, we saw that BSNL performance in the area of high revenue customers or enterprise services is relatively poor and it is a significant area of concern if neglected. Considering the core rigidities of BSNL which might have been its characteristics while servicing traditional services in the era of monopoly, the business model and collaboration are the important aspects where it should insource strengths.

There are some positive steps such as RIM (Remote Infrastructure Management) and Managed Solutions in the area of collaboration with a few of the partners, but the feedback from partners, clearly shows that collaborations are not very effective and partners are with serious dissatisfaction. This is the time for BSNL to focus and relook at its resources and processes to build the capabilities necessary.

This exploratory study indicates, contrary to the hypothesis, that there are no structures in the system for nurturing 'innovation', the so called higher order integration capability in BSNL in the focus area of study. Creating the processes and structures for innovation, and capturing and systematizing learning are essential to meet the market challenges and to avoid the situation of Corporate Brownian Motion' or a direction-less bunch of barren activities, (Silverstein, DeCarlo, & Slocum, 2005).

Chapter VII

MANAGERIAL AND POLICY RECOMMENDATIONS

7.1 Long view of Enterprise Telecom Services

7.1.1 Managerial Implications

Considering the tumultuous period the telecom industry is going through, ETS segment holds promising future for the TSPs. The Enterprises will drive the need for connectivity and related IT services in the medium term (now to 5 years) and growth in Health, Education and Entertainment will drive growth for ETS services to serve the needs of transforming customer.

Though the growth either high or moderate in ETS segment is assured, the demand on service providers will increase for QoS, Reliability and solution centric approach. The TSPs to approach with One stop shop convenience and Professional Management of services for customers. Demand for Managed services in Enterprise security, converged voice and video solutions, hosted IP-PBX, MEN (Metro Ethernet) services is likely to grow for Enterprises.

The traditional TSPs to be prepared to transform to Application – Infrastructure – Telecom service providers to remain competitive. This demands building key customer centric capabilities from traditional network centric approach. The capability gaps are inevitable to provide end to end solutions and in-sourcing is necessary. Strategic collaboration and partnerships with Technology providers, Equipment provider and Other service providers is critical to offer potential services with margins. M2M services will be a key area for TSPs for collaboration and long term partnerships with technology providers to cash on in the long term (5-10 years)

TSPs to strategically decide about their focussed customer segment in planning their new investments. If the aim is for good margin-potential customer

segments, better invest in robust infrastructure and offer cost effective services with value proposition in terms of customer convenience, experience and security.

The TSPs may have to invest in wireless broadband infrastructure to remain competitive in the next 10 years. Considering the poor quality underground infrastructure and lack of policy in that direction, to enhance the scale of operations and connectivity, the wireless broadband is the key access for TSPs.

The TSPs may carefully examine the direct investments in building large capacities for offering cloud computing, Data centre services. Capacities may be created with scalability options based on demand. Credibility based ecosystem needs to be developed for building confidence in the customers with deliberate efforts.

Restructuring of the functions may be necessary to develop the necessary capabilities and functions to provide customer centric and integrated offerings.

7.1.2 Policy Recommendations to Government

Support for maintenance of fixed underground infrastructure such as copper cables, optical cables is mandatory to avoid huge re-investments in next 5 years. Especially for the PSU TSPs, the underground copper cable infrastructure is in critical state at all its points such as DPs, Pillars, Joints and the cable need immediate professional maintenance to bring them back to life to reap benefits of broadband. Lack of focus on professional maintenance has left the underground copper infrastructure beleaguered and it is a fact from my domain knowledge that a significant portion of the copper network is not ready to support broadband services in the network of both PSU TSPs MTNL, BSNL.

Similar effort is required even for underground fibre network, which is critical for backbone connectivity of current mobile and landline services, and even for future wireless broadband backbone connectivity.

A cost benefit analysis may be carried out on current OPEX costs involved in maintenance of copper network and telephone exchanges to one time fixed costs to convert all the landline phones to fixed mobile network. The exercise should also take into consideration certain critical aspects such as the opportunity cost of providing broadband and additional possible revenues on the copper, possible savings on significant reduction of manpower in the absence of copper network and thousands of under capacity run telephone exchanges and reduction in OPEX costs.

Government to provide policy directive for provision of concrete ducts as part of urban civic planning to lay underground cable infrastructure. This will enable safe and stable connectivity with longevity on the huge moneys that are being invested in cable and its maintenance. In the absence of strong enforceable policy and duct infrastructure, in orderly and non standard laying is likely to lead short life of the cable infrastructure.

NOFN is an opportunity for people and for government towards creating information society reach for rural populace. Policy should focus not just on laying the infrastructure but to build the ecosystem in terms of services (proven on the ground), devices, and most importantly professional maintenance of this mammoth fibre infrastructure that is critical for offering services with reliability. Reliability and availability of services will be key for the success of these services in rural areas.

7.1.3 Recommendations to BSNL

The aspects discussed in 7.1.1 above are very relevant to BSNL as a TSP. However, in view of its status as a government PSU, the following areas are relevant too.

The BSNL should focus on QoS, Reliability and Solution centric approach in its enterprise business strategy. Though there are efforts to cause One stop shop convenience and Professional Management of services for customers, as we are going to see in the next part of BSNL challenges in ETS segment, these efforts are only partial and it is important to implement with a professional approach.

Looking at the growing demand for Managed services in Enterprise security, converged voice and video solutions, and hosted IP-PBX, MEN (Metro Ethernet) services for Enterprises, BSNL should initiate a customer centric integrated approach for these services with professional partnerships.

A stock taking is necessary for BSNL on its capability gaps and it is very important for in-sourcing the capabilities that are necessary to fill up the gaps through Strategic collaboration and Partnerships with Technology providers, Equipment provider and Other service providers.

M2M services will be a next big wave of opportunity. BSNL should equip itself to capture the opportunity considering its ubiquitous presence in the country in partnership with MTNL, the other PSU service provider in Delhi and Mumbai.

BSNL may like to do cost benefit analysis of its wireline business as mentioned in 7.1.2 above.

7.2 Challenges for BSNL in ETS segment

7.2.1 Managerial implications:

During the in depth discussions with the customers, partners and team BSNL, the unanimous view is that BSNL's ubiquitous coverage, infrastructure and credibility of 'not for profit at the cost of customer' are its greatest strengths. But these strengths alone are not bringing any competitive advantage to BSNL in the market.

The challenges in Enterprise services for BSNL are:

- Productivity, Quality and Customer response are mainstream capabilities since earlier decades in the market. These characteristics have been taken as minimum requirements in this competition era. But, the sample feedback reflects that these areas are still wanting drastic improvement in BSNL performance in ETS segment. Whereas the other TSPs especially the #1 TSP of the interviewed customers has been doing extremely good in terms of Service quality, reliability, customer response & ownership and competitive

costs. It is obvious that it is mandatory for the private TSPs to build the said capabilities for their very survival but it is not so for BSNL. In this scenario, it is very likely that BSNL will be relegated to a back up service provider and with fewer revenues from major enterprise customers.

- Rapid technological, structural, organizational changes constantly take place in Private TSPs to meet market needs with agility and adaptability. Private TSPs are better equipped in processes and ICT tools. Large size of Human resources inculcated with bureaucratic functioning is a set back to BSNL. Not easy to enforce accountability and time bound decision making.
- Structural rigidities in BSNL prohibit it to move towards customer centric culture and access to radical supplier innovations and advancements.
- Enhanced customer needs and criticality of applications demand enhanced levels of customer support and responsiveness on 24*7 basis.

But lack of customer focus, accountability with single point ownership, quick decision making, leadership is BSNL's bane to serve the enterprise customers. BSNL may look into the following aspects to improve upon its performance.

Table 24 Core Recommendations for improving performance in ETS segment

1. Fixing of accountability with timelines at respective levels for services execution and customer support.
2. Quick decision making by the management. Timelines to be defined for decision making for various issues of customers and partners.
3. Integrated system for booking, commercial, account management, execution, billing, customer support for all Enterprise services. CRESTEL, TVARIT, CDR don't provide integrated solutions for Enterprise Customer needs.
4. Reliability aspects of the service are to be reflected in product specifications and in SLAs. Considering the current status of copper and fibre network, focused and concerted efforts are required to improve the network and maintenance aspects. For all important customers, service should be made available on a different media too to enhance the reliability.
5. Customer support on 24*7 basis. (currently Remote Managed network support is extended for MPLS services. It should be extended to all other Data and PRI services. Field support on 24*7 basis). Proactive customer support in booking faults, stage updation to customer. <i>(The view of customers that 'BSNL is remembered only when there is no TSP having coverage in that area or only as a second or back service provider. BSNL is remembered only for landline, mobile or BB services and not for critical ETS' is to be taken seriously)</i>
6. Performance linked wage structures

Table 25 Other Recommendations for improving performance in ETS segment

7. Empowerment of Account Managers on pricing decisions, building reliability, to work with BSNL partners for quick decision making and service execution.
8. Capability demonstration to managed services providers of customers
9. Professional technical training and attitudinal training for all employees. Advance technical training and resources to the field technical staff. Training to maintenance teams for standardized wiring at customers ends.
10. Strategic partnerships and collaborations and incentivizing the partners for better performance. Effective use of abilities of partners. Training to management teams on effective ways to work with partners.
11. Pan-India billing and integrated approach on Enterprise services. Integrated Bill through email.
12. BSNL does not have its own international bandwidth. Every MNC needs international connectivity and hence BSNL is at disadvantage position to offer competitive pricing as it has to buy the bandwidth from other TSPs. It is understood that the other operators have more international presence and own lot of international bandwidth, they are able to get better termination rates from other countries and hence have a distinct advantage over BSNL.
13. Mere marketing will not help unless core support improves
14. Effective Single point of contact for all support issues and sales issues for major customers. Senior level Account managers for all big accounts. Single contact centre all Enterprise customer support.
15. Marketing and presales teams with experts should meet customers regularly. Improve the service of “bsnl mail “ so that all communication goes to customer from this.
16. Management, based on market analysis, periodically analyse the prices for quick adoption and delegation.
17. BSNL solutions to be made more solution centric. International partnerships necessary to meet the increasing global connectivity requirements and to offer one stop shop solutions at competitive rates.

The above aspects are important for even government customers as there is demand for service quality and customer responsiveness in view of growing demand for offering public services on line.

While studying the case, though the sample size is small, the views of important Enterprise customers, BSNL partners and BSNL teams have been captured to assess the challenges from all the faces of ecosystem. The assessment may be

considered as a reflection of current performance of BSNL services in the market. Bangalore being the IT capital of the country, the potential of Enterprise services is huge in the city and opportunities are many if the quality and reliable services are offered. If the core strengths of BSNL are credibly supplemented with accountability and quality services, the corporate customers may likely to move its status from back up service provider to one of the core service providers.

However, the traditional legacy factors such as structural constraints, and processes are preventing from conceiving and implementing valuable strategies and advantages it enjoys (as a government service provider) and obstructing the new strategies that are being tried. In the current scenario, there is greater amount of efforts going into internal coordination (72%), indicating that the BSNL's processes are not successful to integrate, reconfigure, gain and release resources – to generate the necessary dynamic capabilities to match the market change. Further, there is a strong need to strengthen complementary assets to convert core assets into performing assets.

Moving forward, we studied the existence of innovation structures in BSNL in filling the capability gaps and the company's capability in learning to cause and trigger transformation. The 'innovation', a dynamic capability, plays a key role in the organization's learning to 'integrate, build, and reconfigure internal and external competencies (Teece, Pisano, & Shuen, 1997). Hence this study moves to the area of innovation in BSNL in the focus area of study.

7.3 Existence of Innovation Structures in BSNL

7.3.1 Managerial Implications

The findings from chapter 5 show key performance issues are 1. Quality of Service and Customer support 2. Reliability of service 3. Cost competitiveness. Is it that BSNL does not have infrastructure to provide quality of service and reliability?

From my view based on my domain experience, it is not true. In spite of its infrastructure, I view that there is no innovation mechanism in the processes to capture learning and leading for continuous improvement I consider that there is lack of focus and urgency to encourage innovation in the areas of priority.

It is apt to refer to the IBM CEOs survey on Leadership focus on innovation¹⁰, which states that generally there is less focus on innovation from top management from Telecom industry when compared to their peers in other industries.

Technology changes, dynamic market expectations and limitations on capability development demand continuous infusion of necessary competencies internally or using partners to sustain in the market. Innovation plays a key role in this direction. Hence innovation structures and enabling environment is critical for translating the firm's assets into performing assets.

Further, innovation structures play an important role even to explore innovation in the business models which is stated to be critical in the current dynamic market. There is a strong need and focus on collaboration from the IBM study to gain competitive parity in first place¹¹. The IBM study (Kenny & Arias, 2006) revealed the innovation Paradox in the telecom industry with its observation that telecom executives focus on new products and services in spite of knowing that likely a new

¹⁰ **Innovation requires orchestration from the top** Telecom CEOs also take less responsibility for innovation than CEOs in other industries. Only 23 percent of respondents say that they took personal responsibility for fostering innovation compared with 35 percent of the CEOs in our cross-sector analysis. Fourteen percent of telecom companies rely on committees and 14 percent on someone below C-level to manage their innovation, while nearly 5 percent do not assign responsibility to any specific individual or entity (Kenny & Arias, 2006)

¹¹ **External collaboration is indispensable** Telecom CEOs concur with their fellow CEOs in other industries that external collaboration is indispensable. Eighty percent of telecom respondents acknowledge the importance of collaborating with a wide range of external partners, especially as converging services and industries reshape the business scene. Indeed, they say that 51 percent of the ideas they develop come from external sources. But are they as collaborative as they need to be? No. There is a marked gap between the significance telecom CEOs attach to collaborating with others and the extent to which they succeed in doing so. Only 50 percent say that they are strong collaborators (see Figure 3). They cite complex processes and inflexible infrastructures as two of the biggest obstacles their companies face in integrating new technologies and collaborating with external organizations

business model from a competitor will result in radical changes to the landscape of the entry telecom industry¹².

7.3.2 Recommendations to BSNL – Creation and driving of innovation structures

- 1. Creation of communication nervous system in the organization, providing platform and access for communication flows. Create practices and use of modern day electronic working means such as intranet social network & automated workflow processes, and communication means such as video & voice conferencing.**
- 2. Create innovation structures for generation of ideas and inculcate accountability at all the three levels of BSNL integrating both top to bottom and bottom to top system based information flows. Cross functional teams at every circle office for evaluating ETS customer issues and solutions.**
- 3. Capture and Systematize the learning on issues learnt from Customers, Partners and BSNL teams into practice.**
- 4. Create Cross functional teams for - market analysis, new product offerings and value addition to customer, evaluating possible business models.**
- 5. Effective Rewards and incentive system.**

Further, BSNL may look into the following areas for innovative customer relevant applications and solutions.

- **Creating one stop shop for all services in voice, video and data with differentiation in positive customer experience**
- **Offering Integrated services with IT Infra-Telecom-Applications**
- **CAPEX, OPEX optimization in its operations**
- **Forward integration of end customer services such as content etc.**
- **Strategic partnerships in the following areas**

¹² CEOs are *more* worried about the disruptive potential of new business models, but put *less* effort into business model innovation. They allocate only 26 percent of their innovation resources to business model innovation, versus 28 percent to operational innovation and 46 percent to the development of new products, services or markets (Kenny & Arias, 2006)

- Enterprise security services
- Data-Voice-Video convergence
- Applications and content development
- E-Entertainment
- Education and Health services

7.4 Limitation of the study and possible areas of future research

Scenarios are not forecasts or projections: Scenarios provide a canvas to capture diverse factors from different spheres and provide an opportunity to look at what plausible shapes the dynamics may lead in tandem. Scenarios provide a platform for systematic assessment of what-ifs based on research and perceptions and to keep the stakeholders ready and prepared for the future, no matter which future takes shape (Schwartz, The art of the long view, 1996). In spite of exhaustive research in the study, the scenarios may have a limited perception due to limited number of views from experts or limitations in assimilating the content based on available research material.

Limited focus area and views: While studying the case on challenges of BSNL in Enterprise Telecom Services segment, this qualitative study covers only Bangalore telecom district. The customer cases studied are around twenty, BSNL people involved in the study are around fifteen and BSNL partners are four. I believe that this sample though is good enough to reflect the general perception about BSNL performance in this ETS segment as it covers some of the very potential customers, partners and important people of BSNL involved in ETS services, still the study has not covered the entire population of customers, BSNL teams. So, perceptions covered may not reflect the perception in entirety of population. On similar lines, the study on innovation structures covered only the key functional people involved in enterprise services at Bangalore telecom district, Karnataka Telecom circle and BSNL corporate office. It may be possible that innovation is existing in some isolated processes and in individuals' contributions on informal basis.

Possible areas of future research: In spite of BSNL's several available structures and processes, there is no perceivable expression of need to express BSNL as a leader in commensurate with its mega infrastructure and credibility tag . It would be an interesting research to explore whether the challenges discussed earlier are actually symptoms of core organization issues which may be addressed only with a strong Leadership and Vision. The issue of attitude, accountability reflect in majority of the issues leading to missing dynamic capabilities. The areas such as -

- Role of Leadership
- Human Resource Management
- Integrated IT processes
- Innovation structures in other verticals
- Obstacles in developing partnerships and
- Structural rigidities

could be some of the important areas for further study.

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Appendix I

Table 26 ETS Market Development from various sources

	Observations	Reference
1	PC sales: Growth in 2011: Desktop PCs-10% (11.9); Portable PCs-17.3% (17.2); Total PCs-12.7% (14). Desktop PCs - 6.74 Million; Portable PCs-4.41 Millions; Total PCs-11.15 million; [figures within brackets are projections for 2011-2012]	Article: Desk tops wont die soon; Business standard; page 11; 13-09-2011; source cyber media research
2	Indications of Intenet usage in mobiles: Around 12 million smarphones are exported to be sold in India in 2011. Out of total mobile customers 858 millions as on July 2011, 601 millions are said to be active users.	Article: Desk tops wont die soon; Business standard; page 11; 13-09-2011; source cyber media research
3	According to Gartner analysis, it is observed that Generation Y Is not buying PCs as their first or necessarily as their main device.	Article: Desk tops wont die soon; Business standard; page 11; 13-09-2011; source cyber media research
4	Electronic payments: India has the potential to emerge among the top 5 economies in the world for electronic payments and transactions, accoording to a survey. Electronic card transacitons - debit, credit and prepaid - are growing at double-digit rates with debit cards' compounded annual 45.5% driving the growth. Out of population of 1.2 billion, 350-400 million are growing middle class. 2005-06: 81% paper based; 19% electronic based. 2010-11: 57% paper based; 43% electronic based.	Article: India bets big on electroic payments; page 9; 12-09-2011; Economic times; source TSYS Evalueserve study
5	India is supposed to have 3 million affluent households - defined as those with more than \$100,000 investable surplus.	Atricle: Public Services to go Mobile, Govt Targets 3-Fold Rise in IT exports; Economic times; october 8, 2011
6	India plans to provide all public services on mobile devices, make one person IT literate in every household and increase revenues from softwareexports to \$ 300 billion by 2020 from \$ 89 billion this fiscal, according to draft policy on IT.	Atricle: Public Services to go Mobile, Govt Targets 3-Fold Rise in IT exports; Economic times; October 8, 2011
7	The draft policy proposes to increase software exports from \$ 59 billions at present to \$ 200 billion by 2020. proposes to diversif exports to other countries other than US and Europe to mitigate the impact of recession.	Atricle: Public Services to go Mobile, Govt Targets 3-Fold Rise in IT exports; Economic times; October 8, 2011
8	Government may also offer tax incentives to local tech companies after introduction of direct tax code.	Atricle: Public Services to go Mobile, Govt Targets 3-Fold Rise in IT exports; Economic times;October 8, 2011
9	The proposed National IT policy aims at increasing skilled IT professionals to 10 millions by 2020. The draft electronics policy aims to bring \$ 100 billion of worth of investment into the sector and create 28 million jobs over the next 9 years.	Atricle: Public Services to go Mobile, Govt Targets 3-Fold Rise in IT exports; Economic times; october 8, 2011
10	government plans to integrate AADHAR to delvier public services to the masses and simplify their delivery. Deelivery of 'Electronic Services Delivery Bill' in the winter session of Parliament. The bill mandates all the government departments to deliver servcies electronically within 5 years.	Atricle: Public Services to go Mobile, Govt Targets 3-Fold Rise in IT exports; Economic times; october 8, 2011

11	Introduction of world's cheapest tablet AAKASH at \$ 35 may revolutionize the IT usage and may significantly enhance demand and usage for e-services.	Atricle: Public Services to go Mobile, Govt Targets 3-Fold Rise in IT exports; Economic times; october 8, 2011
12	“There has been a significant increase in storage demand in India, growing from one petabyte in 2001 to more than 34 petabytes by 2007, thereby increasing the data center uptake in companies”, said Mr. Nareshchandra Singh, principal research analyst, Gartner. “The potential for Indian data centers is large with the external-controller-based (ECB) market expected to grow by more than 22 percent in 2008, making India the fourth-largest market for ECB storage in the Asia/Pacific region”.	http://www.gartner.com/it/page.jsp?id=808212
13	Data center growth will be driven by increasing domestic requirements from sectors such as financial institutions, telecom operators, manufacturing and services. While large financial institutions and telecom companies are likely to build data centers for hosting their growing data storage needs, data center hosting providers will also put significant investments into growing their capacities to fulfill demand arising from small and midsize users.	Gartner Says Data Center Capacity in India to Surpass 5 Million Square Feet by 2012 (Accessed on Oct 6, 2011)
14	India Data centre services to touch Rs. 10,000 cr by 2011. Shrinking budgets, rising energy costs and adoption of blade servers spur new domestic outsourcing stream in India, says IDC BANGALORE, INDIA: Leading IT intelligence firm, IDC India, has predicted that the India data centre services market will touch nearly Rs. 10,000 crore by the end of 2011, a CAGR of 22.7 per cent over the two-year period 2009-2011. The overall India data centre services market was estimated at Rs.. 6,300 crore in 2009.	http://www.ciol.com/News/News/News-Reports/India-Data-centre-services-to-touch-Rs-10000-cr-by-2011/133129/0/
15	The key verticals, that contributed nearly 80 per cent of third-party data centre services revenue in 2009, were Manufacturing and IT/ITeS, with the third-party data centres constituting about 18 per cent of the total revenues, the report added. IDC expects this to go up to 22 per cent by 2011. Captive data centres ('captives') will grow at a CAGR of 19.9 per cent during 2009-11, with manufacturing and banking, financial services and insurance (BFSI) showing high deployment. Demand from the government sector is expected to pick up in 2010 and beyond.	http://www.ciol.com/News/News/News-Reports/India-Data-centre-services-to-touch-Rs-10000-cr-by-2011/133129/0/
16	“Third-party data center services are gaining traction with enterprise customers due to the lack of in-house skills, high investments and long gestation period that a data centre calls for”, stated Ravikant Sharma, senior analyst, User Research, IDC India. “As the economy further strengthens in 2011 and IT adoption in SMBs increases further to achieve business growth objectives, this segment is expected to become the next growth driver for third party data centre services”, Ravikant added.	http://www.ciol.com/News/News/News-Reports/India-Data-centre-services-to-touch-Rs-10000-cr-by-2011/133129/0/

17	<p>With bandwidth costs having come down significantly, data centre hosting in India is set to become cheaper. And with heightened interest in implementation of technologies like cloud computing and grid computing in data centres, the India market is expected to be a long term growth opportunity, according to the study.</p>	<p>http://www.ciol.com/News/News/News-Reports/India-Data-centre-services-to-touch-Rs-10000-cr-by-2011/133129/0/</p>
18	<p>Complaint to UDAI on misuse of personal credentials by one of the citizens</p>	<p>Article in Business standard</p>
19	<p>Tulip Telecom on Friday announced that it has chosen IT major IBM and data centre consultant Schnabel to establish a data centre in Bengaluru [Images], which the company said will be India's [Images] largest and the world's third-largest data centre.</p> <p>"We are extremely happy about our association with IBM and Schnabel for our fifth and the country's largest data centre set up," said Tulip Telecom CEO Sanjay Jain in a statement.</p>	<p>http://www.rediff.com/business/report/tulip-plans-worlds-3-rd-largest-data-centre-in-bengaluru/20110429.htm</p>
20	<p>"Having world leaders like IBM and Schnabel as consulting partners will enable us to further enhance the enterprise data services experience for our customers, who are not only based in India, but also outside the country," Jain added.</p> <p>Tulip, through its wholly owned subsidiary company, Tulip Data Centre Pvt Ltd, acquired the SADA [Images] IT Parks facility, spread across 9 lakh square feet, earlier this year for Rs. 230 crore (Rs. 2.3 billion).</p> <p>The data centre will be built with an approximate investment of Rs. 900 crore (Rs. 9 billion), spread over three years, the statement said.</p>	<p>http://www.rediff.com/business/report/tulip-plans-worlds-3-rd-largest-data-centre-in-bengaluru/20110429.htm</p>
21	<p>NEW DELHI: Technology giant IBM is betting big on its data centre business, driven by the telecom sector, as more companies look at outsourcing their data storage requirements.</p> <p>"Over the past years, the number of third party data centres are increasing because they not only help companies save cost but also provide benefits such as protection against natural calamities, reduced power consumption etc," IBM India/South Asia Vice President Infrastructure Services Sales Shailesh Agarwal said.</p> <p>Sectors like manufacturing and BFSI (Banking, Financial Services and Insurance) and telecom are expected to see huge growth this year for data centre deployment, he added.</p>	<p>http://articles.economictimes.indiatimes.com/2011-06-06/news/29625863_1_data-centre-ibm-india-telecom-sector</p>

22	<p>the Indian BPO industry has been on a steady growth trajectory. Having established itself as the world's leading global outsourcing location with a share of 34 per cent in 2010, the industry is transforming itself to provide a uniquely powerful value proposition for its customers.</p> <p>The industry is in the process of reinventing itself and shift from a volume-based to a value-based industry by expanding its scope of services lines and moving from providing traditional services like CIS, F&A, etc to more high-end knowledge-based services like Data Analytics, Legal Process Outsourcing, etc. It is also exploring opportunities in the fast growing emerging markets (Australia, China, Middle East) and underpenetrated verticals like Retail, Healthcare, Utilities, etc.</p>	NASSCOM BPO report 2011
23	<p>Cloud computing: as per NASSCOM estimates the Indian cloud market opportunity would reach \$16 billions by 2020. This redefines two things - computing as a service than a product, it promises to reshape the IT industries of the world because of its cost effectiveness . The biggies entry such as Google, Microsoft, Amazon into the field has made the idea of cloud computing more acceptable and assuring than it was 5 years ago. For smaller firms using a cloud computing service is an immensely profitable option. As it makes all capital investments in hardwares and softwares all but redundant.</p>	The Times of India October 8, 2011, Times city Gurgaon

Appendix II

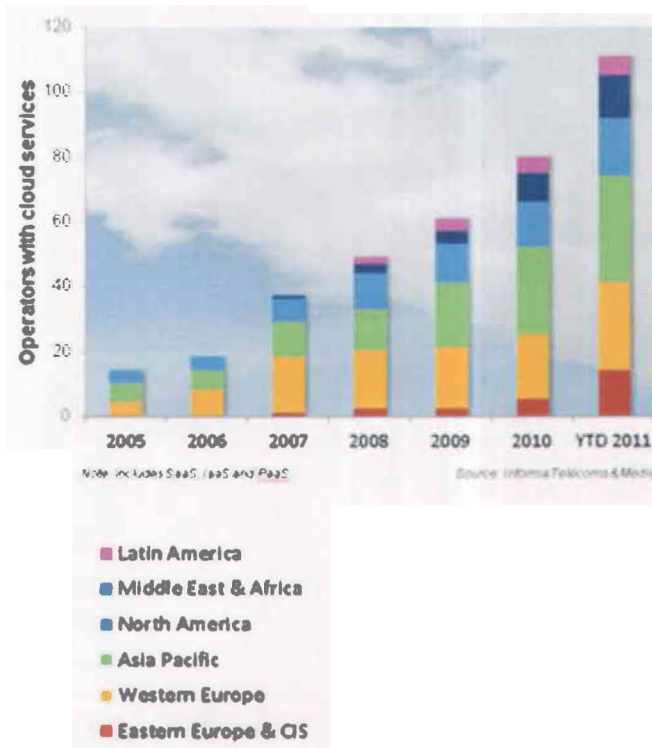
Table 27 List of Experts who contributed to the Long view on Enterprise Telecom Services

Expert Details	Role	Organization	Organization category
Mr. Arvind Mathur	Strategic Technical Officer; India & South Asia Office of the CTO	Cisco Systems	Technology Provider and Manufacturer
Mr. B. Nagaraj	Sr. Vice President, WAN Networks	Reliance Industries Ltd	Service Provider and Customer
Dr. C.S. Rao	Head Corporate Affairs & Regulatory Function	Reliance Infocomm Ltd	Service Provider
Mr. D.C. Sharma	Director – Regulatory Affairs and Industry Relations	Ericsson India Pvt. ltd	Technology Provider and Manufacturer
Mr. J.P Garg	Principle Advisor	Nokia Siemens Networks Ltd	Technology Provider and Manufacturer
Mr. Jitendra Singh	Director – Govt. Affairs	Qualcomm India	Technology Provider and Manufacturer
Mr. Madan	Director - Technical	Alakrity Consols Pvt. ltd	Enterprise Services System Integrator
Mr. Mahapatra	Chief Operating Officer	Coral Networks	Technology Provider and Manufacturer
Mr. Raghavendra Prasad	Head, Site IT operations	Hewlett Packard	Technology Provider and Manufacturer & Customer
Mr. Rajeev Mahajan	Sr. Vice President - Sales	Tejas	Equipment Manufacturer
Mr. R.N. Jha	Deputy Director General – International Relations	Department of Telecommunicati ons	Government Organization
Mr. Rohit Dokania	Telecom Consultant		
Mr. Shiv Kumar	Senior Manager, Carrier Relations – Global Access Management	AT & T	Global ISP, Managed Services Provider
Ms. Susila Cherla	R&D Line manager	Nokia Siemens Netowrks Ltd	Technology Provider and Manufacturer
Mr. T.V. Ramachandran	Resident Director, regulatory Affairs & Govt. Relations	Vodafone Essar Ltd.,	Service Provider

Appendix III

Table 28 Mean Quantitative ratings after Translation of qualitative ratings on BSNL performance in ETS

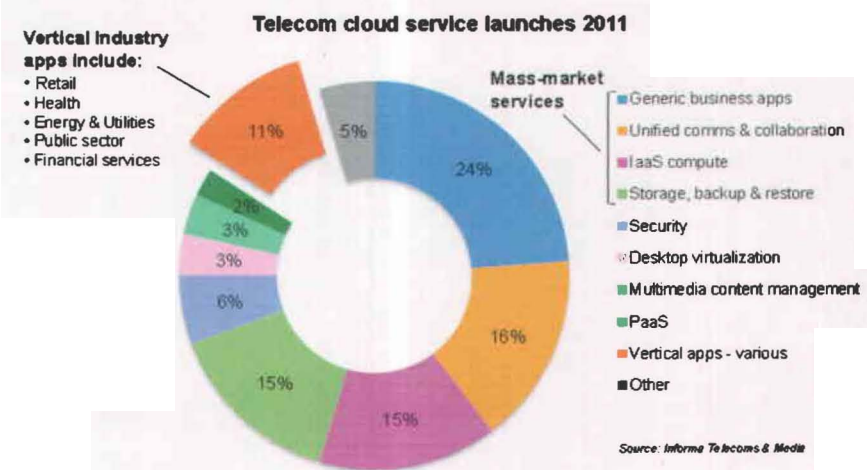
	Item	BSNL	Other TSPs
1	Marketing	2.3	3.6
2	Brand	2.3	4.0
3	New Service Booking	2.4	3.9
4	Speed of Provisioning	2.3	4.0
5	Quality of Provisioning	2.7	3.9
6	Reliability	2.8	4.0
7	Speed of 'Service support	1.9	3.5
8	Quality of 'Service support'	2.4	3.7
9	Customer Support	2.4	3.8
10	Quality of Technical Team	2.9	3.6
11	Billing quality	3.2	3.6
13	Product/ service offerings	2.7	3.7
14	Quality of Partners	2.6	3.9
15	Online services	2.2	3.6
16	Pricing	2.7	3.5



Skylight

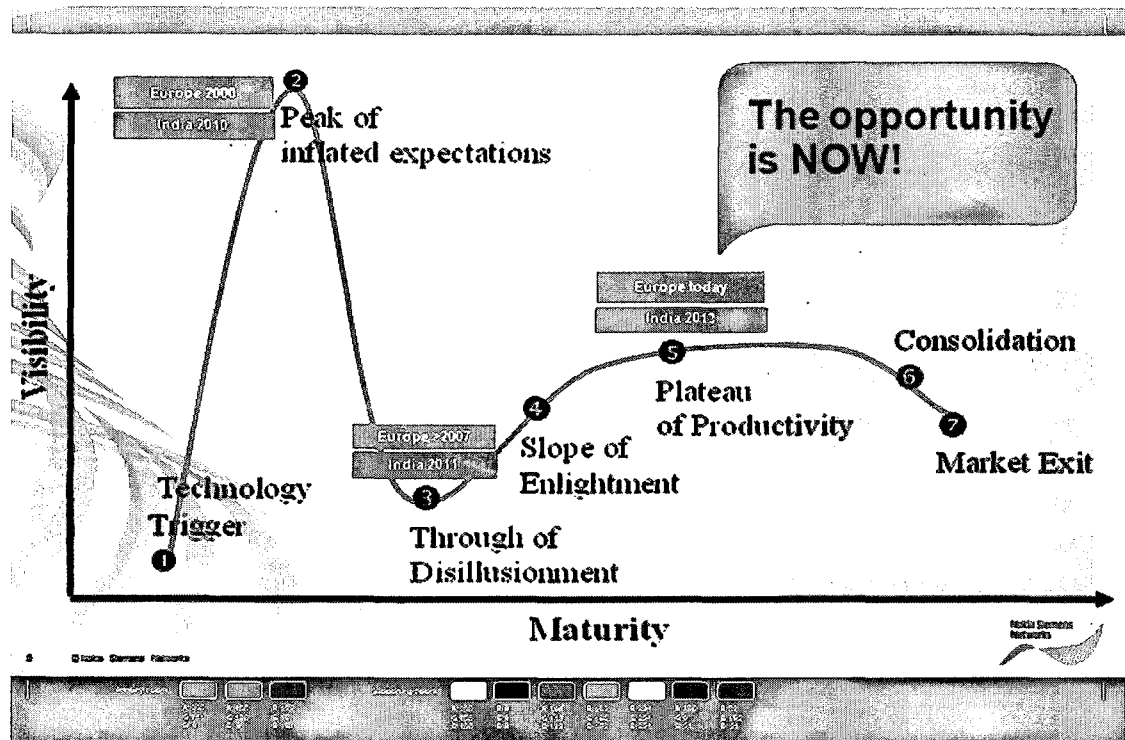
- **Telcos have committed US\$11 billion to cloud pursuits in 2011**
 - Eight out of 10 transactions involve datacenter assets
- **Service differentiation remains poor**
 - 122 new services, 70% mass-market offers, heavy SaaS usage
- **Telco strengths are underplayed**
 - Security and cloud mobility aren't pushed hard enough
- **ROI will come, but it's a long game**
 - Cloud services contribute a single-digit percentage of telco revenues today

Cloud portfolio: Mass-market plays are favoured



Portfolio differentiation remains limited across operators.

<http://www.informatandm.com/wp-content/uploads/2011/04/cloud.jpg>



(Nokia-Siemens-Networks, 2011)

NBN could enable 6 types of retail services

Connectivity	Terminal/ Cross-sell	Platform	B2B services	Vertical solutions	Digital media
<ul style="list-style-type: none"> Retail line Public Wi-fi IMS Mobility Connected home Connected office Fixed wireless 	<ul style="list-style-type: none"> OEM Terminal maintenance Telco cross-sell Other product cross-sell 	<ul style="list-style-type: none"> Unique identification Security ISP Invoicing/charging Signature Anti-virus IaaS PaaS SaaS Augmented reality 	<ul style="list-style-type: none"> Advertisement Customer base marketing support BPO Location based services System / network integration 	<ul style="list-style-type: none"> Healthcare Education eGovernance Financial services Retail Transportation / logistics Other sectors 	<ul style="list-style-type: none"> Content creation, acquisition, distribution and broadcast N-Screen Digital Media Exchange

NBN Infrastructure

SOURCE: Cisco IBSG SP analysis

(CISCO-IBSG-SP-Analysis, 2011)

GLOSSARY

["Click and Type"]

K37228
ಶುಭಕಾಲಯ / Library
ಭಾರತೀಯ ಸಂಸ್ಥಾನ ಬೆಂಗಳೂರು
Indian Institute of Management Bangalore



भारतीय प्रबंध संस्थान बेंगलूर
INDIAN INSTITUTE OF MANAGEMENT
BANGALORE

.....END.