# Disaggregation of Infrastructure and Service: Learning from Indian Telecom Sector

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## Executive Summary…

- Telecom market in India has seen tremendous growth post industrial liberalization that saw unveiling of national telecom policy in 1994 followed by new telecom policy in 1999. Today India boasts of 900 million telecom subscribers and very competitive tariffs at less than US$ 0.01 (less than INR 0.5) per minute.
- Indian Telcos, in a fiercely competitive market with 8 to 12 players in each circle, did a good job in keeping costs low and making their business profitable at low ARPUs of USD 2-3 per month.
- Companies took bets on technology: GSM / CDMA earlier and 3G HSPA/ TDLTE now. The focus on differentiation and capability building through technology management that was noticed in earlier phases of growth has reduced in the last phase with Telcos outsourcing their network and IT systems and sharing infrastructure.

## …Executive Summary

- This paper attempts to study the impact of policy and outsourcing decision on Telcos' competitiveness particularly in the face of global competition and ability to succeed during volatile time and rapidly changing market dynamics
  - The key objective of our study is to understand the growth of Indian telecom sector during three phases (Phase I from 1994 to 1999, Phase II from 2000 to 2006 and Phase III from 2007 onwards), exploring technology strategies and competitiveness performance with specific focus on the relationship between infrastructure and service integration
  - We begin by understanding the impact of policy intervention on the growth and in creating competition and expanding the telecom market in India
  - Some leading Indian companies adopted a unique business model outsourcing large part of their Network and IT infrastructure and this paper attempts to evaluate its impacts.

## Indian Telecom Market

## Indian Telecom Market …

- More than 900 million telecom subscribers [1], [2]
- Very competitive tariffs at less than US$ 0.01 (INR 0.5) per minute..
- 7 Pan India players, 4 Regional players [3]
- Growth in 3 phases
  - Phase I (from 1994 to 1999): Marked by National Telecom Policy 1994; Supply constraint, duopolistic market with technology defined by regulator
  - Phase II (from 2000 to 2006): Result of New Telecom Policy 1999; Competition opens with entry of new players and dramatic decline in tariffs
  - Phase III (from 2007 onwards): Entry of 5-6 new players; Focus shift to cost optimization with key players reaching competitive parity on infrastructure; Infrastructure sharing and Outsourcing of Network, IT and parts of Customer Service Delivery

## National Telecom Policy 1994 [4]

- Why it was needed?
  - Telephone density in India was at a low 0.8 per hundred persons as against the world average of 10. It was also lower than that of many developing countries of Asia like China (1.7), Pakistan (2), Malaysia (13), etc.
  - There were about 8 million lines with a waiting list of about 2.5 million.
  - Nearly 25% of 0.58 million villages in the country were covered by telephone services.
- Objective
  - Telephone should be available on demand by 1997
  - All villages should be covered by 1997
  - 1 PCO (public call office) per 500 population

## New Telecom Policy 1999 [5]

- What NTP94 achieved
  - 8.73 million telephone lines against the eighth plan target of 7.5
  - Telephone coverage to 0.31 million villages (60%)
  - Urban PCO penetration of 1 PCO per 522 population
- Objective of NTP99
  - Create modern and efficient telecom infrastructure
  - Universal service to all uncovered areas, including rural areas
  - Convert PCOs into public teleinfo centers
  - Greater competitive environment in both urban and rural areas providing equal opportunities and level playing field for all players
  - Strengthen R&D efforts in the country and provide an impetus to build world-class manufacturing capabilities
  - Achieve efficiency and transparency in spectrum management

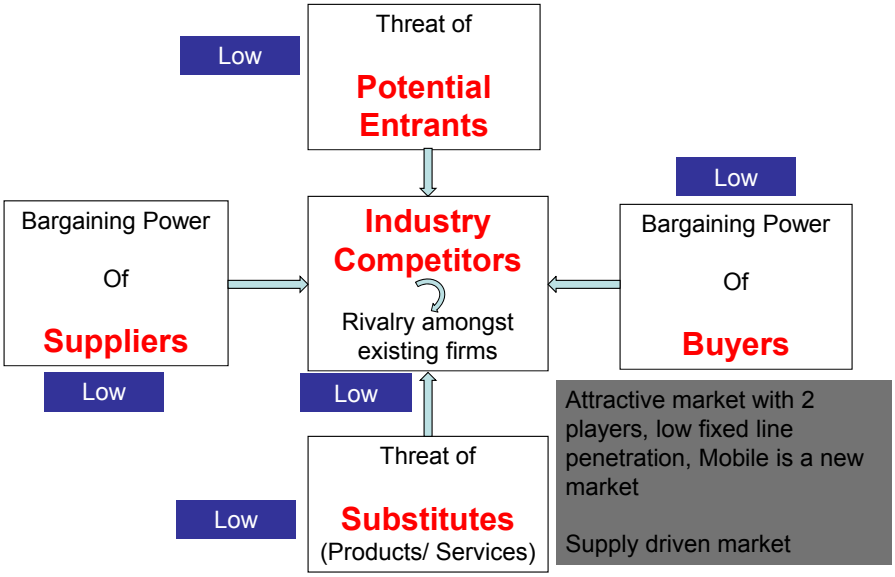
# Phases of Indian Telecom

## Supply led Growth in Phase I

- Duopoly in Fixed line and Mobile
- Network Coverage: Most critical requirement
- Devices: Customers have little choice
- Distribution Channels: Conventional
- Communication: Mainly awareness
- Services & Applications: Anytime, Anywhere Voice
- The Market: Huge demand (waiting list)
- Perceived Value
  - Aspirational, Status symbol (HNI)
  - Utility (LE, SME, High Income Households)

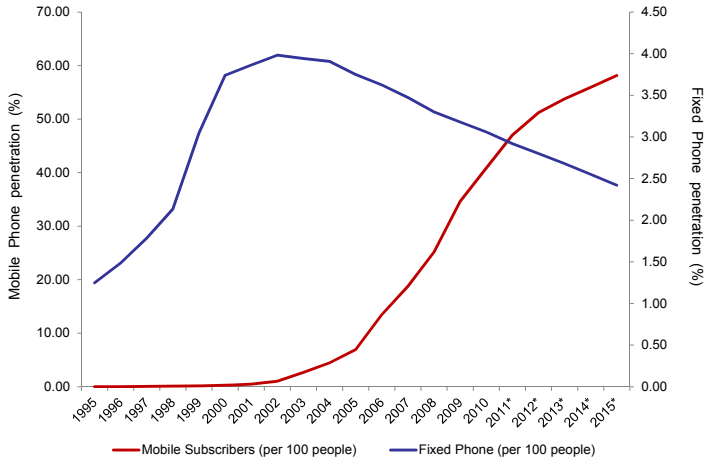
*HNI: High Networth Individuals LE: Large Enterprises SME: Small & Medium Enterprises*

## Telecom Market … Phase I




*Ref: Porter Five Forces [6]*

## Fixed Phone and Mobile Penetration

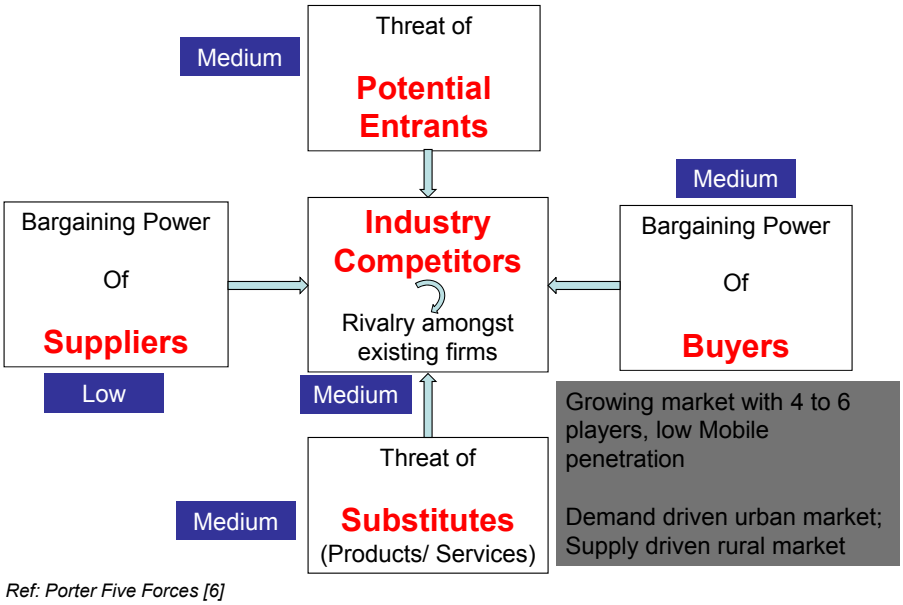



*Sources: TRAI and DoT (adjusted for multiple SIMs based on our estimates and analyst inputs)*
** Projections*

## Competition and Mobile Phones… Driver of Growth in Phase II

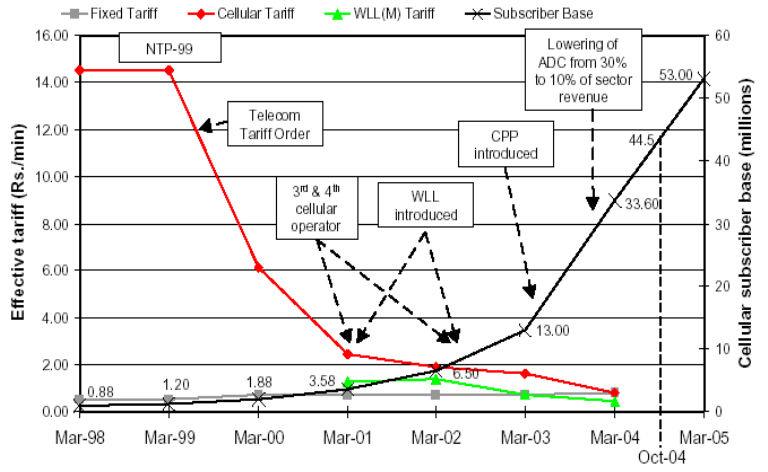
- Transition from Duopoly to multi-player Competition
- Ubiquitous Coverage in Urban areas. Increasing reach in rural areas
- Devices: Customers have lots of choices with new launches and falling prices
- Distribution Channels: Increasing width and depth
- Communication: Innovation across media
- Services & Applications: Voice, SMS, beginning of VAS
- The Market: Expands to cover all socio-economic categories
- Perceived Value: Utility (LE, SME, High Income Households)

## Telecom Market … Phase II




*Ref: Porter Five Forces [6]*

# Policy led growth



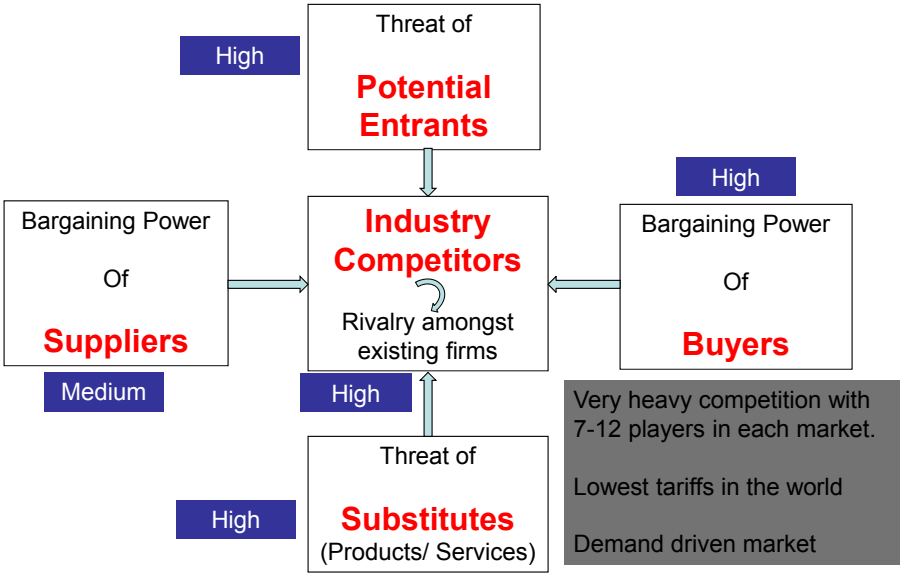

Note: Projected figure for Mar-05

Source: TRAI: Telecom Regulatory Authority of India [7]

## Phase III: Chaos and Uncertainty

- Heavy competition: 8 to 12 players in each market
- Coverage given. Capacity choking (4-10MHz spectrum per player). Scarcity of spectrum leads to lobbying/ regulatory mess.
- Devices: Customers spoilt for choices with ultra low cost handsets and Proliferation of Chinese / Indian brands making feature phones affordable. Smart phone demand picks up for data and internet.
- Distribution Channels: reaches everywhere; almost like FMCG
- Communication: No Uniqueness, Brands look alike
- Services & Applications: Increasing music and video VAS
- The Market: Urban density at 100% plus, Rural increasing
- Perceived Value: Necessity

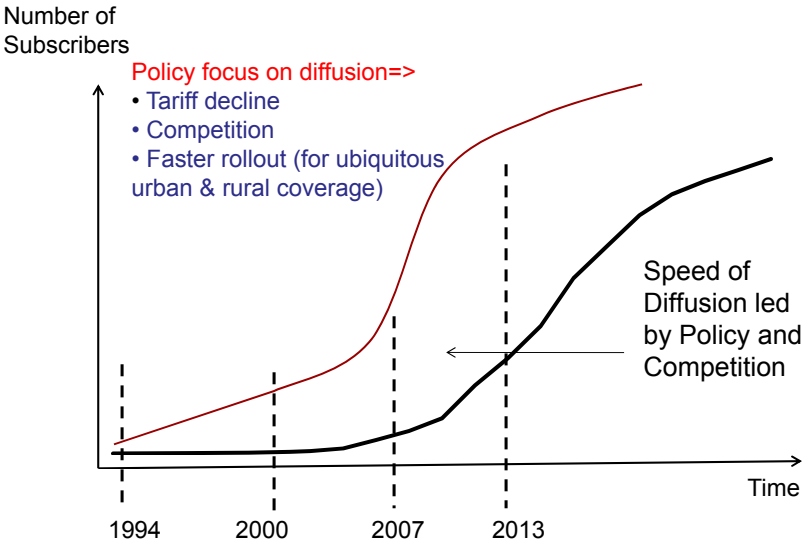
## Telecom Market … Phase III



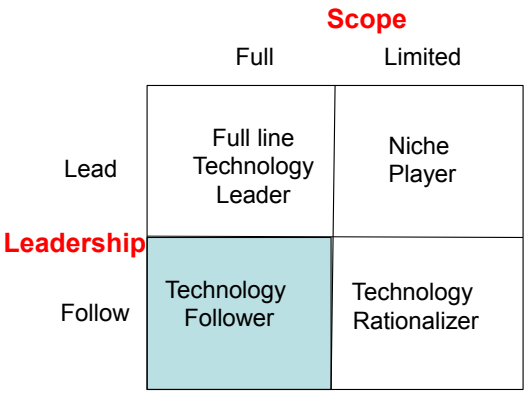

*Ref: Porter Five Forces [6]*

## Analysis & Findings

## Technology Diffusion [7]




## Technology strategy [7], [8],[9]




Indian Companies focused on deployment for faster diffusion.

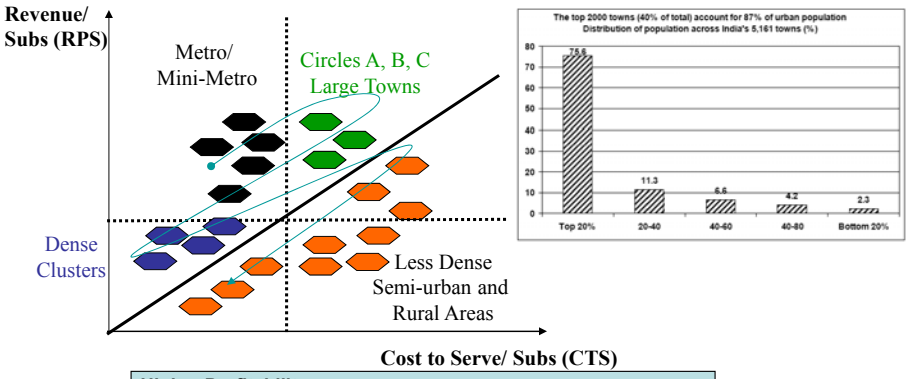
Technology Leadership strategy
- Development & Deployment in all the technologies in the competitive domain

Niche strategy
- Focused development on limited number of critical technologies

Technology Follower strategy
- adequacy in broad set of technologies, focus on deployment

Technology Rationalizer strategy
- adequacy in select set of technologies. Technology deficit compensated by other competitive strengths

## Strategy of Early Entrants



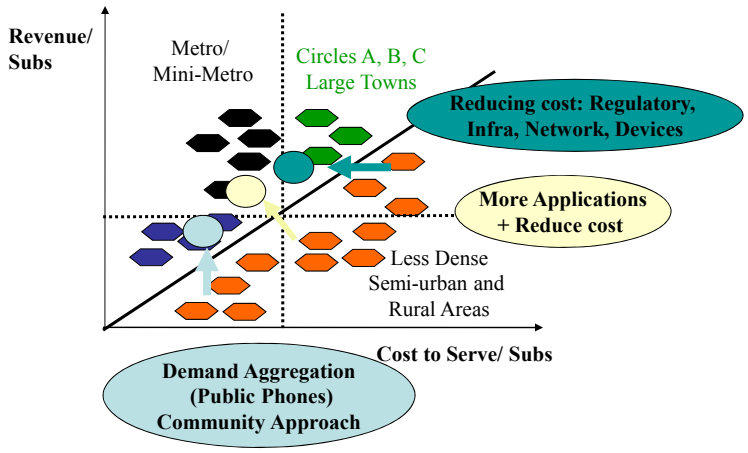

**Higher Profitability**

- Growing Industry, higher Subs growth than reduction in Tariffs
- Gradual build => Focus on top 1000 towns giving 75% market
  - Matching RPS and CTS
- As 1000 city network is profitable, move to next 1000 and so on …
- Follow classic "Acquisition => Usage => Retention" model

## Supply Driven Approach

- Increase Coverage & Capacity
  - More Towers, more Base Stations
  - Focus on Supply Chain Management
- Increase Channel
  - Width and Depth of Channel
- Focus on Customer Acquisition
  - Market Awareness => Large Brand Spend
  - Product Innovation limited to Voice
  - Value Added Services limited to SMS
  - Scale Up fast: Create Economies of Scale

## Phase II Rollout Strategy




## Demand Driven Approach [9], [10]

- Competitive Parity
  - Coverage & Capacity
  - Products and VAS*
  - Width and Depth of Channel
  - Customer Service
- Reduce Cost
  - Infrastructure Sharing (Passive and Active)
  - Shared Channel
  - Outsourced customer service delivery (fulfillment, call centre, resolution)
  - Managed Services (Network and IT*)
  - Disaggregation of Supply Chain


** VAS: Value Added Services (Beyond Voice)* *IT: Information Technology*

## What Outsourcing did - Positives

- Telecom service providers' costs become linear as they entered in "pay as you grow" and "Erlang based" models. Cost in line with revenue allowed them to manage their cashflows better and profitability improved
- As they hived off their telecom infrastructure assets to separate company/ JV*, asset utilization improved that further improved their profitability
- Listing of infra assets provided a source of capital and allowed for monetizing with separate category of investors looking for stable long-term returns
- Telcos could focus on market expansion and understanding the needs of customers from newer markets. Revenue grew and with cost in control, EBITDA* significantly expanded
- Ease of upgrades and Hedge against Technology Obsolescence

** JV: Joint Venture* *EBITDA: Earning before Interest, Tax, Depreciation and Amortization*

## What Outsourcing did - Negatives

- Capex was substituted by Opex and over a period of time as traffic grew, EBITDA started contracting
- With telecom infrastructure assets in a separate company but controlled by same management/ shareholders, conflict ensued with other customers of infra who are competing in market place on services
- Investors for infra assets are finding it difficult to exit as the valuation of these companies shrink. This has led to funds drying up for expansion
- Telcos are completely dependent on Network and IT service providers for upgrade and configuration change that led to slow response to customer needs hence dissatisfaction and missed revenue opportunities.
- Telcos look alike to customers on network quality that used to be a differentiator earlier

## What Outsourcing did - Negatives

- Most of the technology managers and developers moved to vendors as part of these contracts to further reduce cost
- Telcos retained some senior managers to monitor KPIs* and enforce service levels but they were increasingly dependent on OEMs* for all solutions
- Since OEMs were interested in selling more of their “boxes”, cost optimization on network was a conflict
- Good technology managers left Telcos as they see no future for them. This created a huge challenge when these Telcos moved Global and wanted to replicate low-cost model there.
- OEMs had no incentive to create differentiation amongst their customers and Telcos had no internal competence to do so!

* KPI: Key Performance Indicators  OEMs : Original Equipment Manufacturers

## Technology Management for Telcos

- While technology is owned by telecom equipment manufacturers as far as IP and Patents are concerned, it is very important for telecom service providers to focus on technology management from following perspectives -
  - Radio Frequency planning
  - Network architecture
  - Site selection & tower erection
  - Choice of technology for Core & Radio Networks and for Transmission
  - Configuration of sites for optimal cost and best customer experience
- The technology ownership not only provides the bargaining power, but also the handle for technological innovations, which could often be translated into hefty cost advantage, service differentiation and business creation [11]
- Outsourcing has diminished this aspect of technology management for Telcos

## Key Learning & Concluding remarks

## Key Learning…

- Indian telecom market has shown tremendous growth in last 20 years
- First decade post liberalization witnessed focus on growth and capability building with emergence of market leaders
- Very favorable and forward thinking Regulatory regime in Phase II helped the growth of telecom sector
- Second decade saw fierce competition and tariffs declining to lowest in the world. Companies in their desire to continue growth and expand the market, kept dropping prices and cost reduction became the key driver.
- Some leading Telcos outsourced their Network and IT to manage cashflows and cost; move that was hailed as the biggest business model innovation of Indian telecom market

## …Key Learning

- Technology management that was important for some firms and that could have led to capability-building, gave way to outsourcing of infrastructure with Telcos' focus shifting to branding and marketing
- Policy was aimed at fostering competition to make services affordable to masses but this created scarcity of spectrum, fierce lobbying and low focus on differentiation
- Telcos started to look alike with little differentiation on network quality and services within Indian market
- Cooperative strategies amongst players on Network and Infrastructure sharing have helped their financials but lack of in-house capability has made it difficult to replicate their success in international markets
- Twin effect of diffusion led policy and low focus on technology management has led to even leading firms choosing opportunity-based rather than capability building path.

## Concluding Remarks

- Government Policy often focuses on diffusion as their main aim is to take services to masses and improve the productivity
- If Industry also responds without focusing on long-term capability building, this impacts the competitiveness of the companies and often the sustainability of the sector is questioned
- Government and Industry need to work together to balance the opportunities leading to "Diffusion" and "Capability building" to ensure long-term sustainability of the sector
- Factors leading to balance of Diffusion and Capability building needs to be studied and explored further…

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# Thank You

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