

LTE Profit Mantras 2014-2018

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Abstracts

Chanting the Innovative Ways of doing Business with LTE, Tariff mechanisms, Mobile Convergence; Overcoming Post-Deployment Challenges; Case Studies on Network Sharing/ Spectral Efficiency/ Interoperability & Roaming; alongwith LTE-Advanced Roadmaps, 2014-2018

“LTE Profit Mantras 2014 - 2018 is a tribute to TRL for its unique management vision of endeavouring to deliver what its clientele actually look for – Progressive ARPUs leading towards greater profits via NGN technologies, in particular LTE/ LTE-Advanced.” – Analyst Team, TeleResearch Labs

Executive Summary

Profits – That's what this research intends to deliver to mobile operators, infrastructure providers and device manufacturers worldwide.

Mantras (Vedic chants) – Not for any religious pursuits, but aimed solely towards realising profits.

So, what's the unique charm of LTE Profit Mantras 2014- 2018?

The purpose of our Report is to ensure profits from your LTE ambitions, but the solutions we propose are simple – and not complex.

LTE might not be right strategy for every operator right now, however, when you do move to LTE, how you do so could well decide whether you would continue to exist in business or not. Our Report will greatly help you in formulating your LTE roadmap.

Our study covers all 3 sets of mobile operators – Those who are currently in the

planning/ execution stages of LTE, those who have already launched LTE networks, and even those who haven't yet given LTE any serious consideration. Our experts have prioritised the various approaches for each set of operators and have also presented guidelines to help them ensure optimal return on investment.

As a mobile network operator you might have everything going for you – a great network, a range of device & service offerings, a substantial customer base, sufficient quantity & quality of spectrum. However, this isn't 2010, when LTE networks just started to bud. The telecom industry is at its most crucial phase now, and what the operators, infrastructure providers and device makers do or plan would decide if they actually manage to stay in business or not – forget about monetising LTE networks. Our Report offers a detailed analysis and solutions to help you in formulating strategies from pre-deployment to post deployment and monetisation of LTE network.

The Report begins by analysing the current state of LTE and the future revenue opportunities for network operators, device manufacturers, and infrastructure providers. In Chapter 2 - Evaluation of LTE Market Potential with Forecasts, we analysed the growth of LTE deployments across the globe and found that the number of LTE networks grew at much faster rate than HSDPA, HSUPA and HSPA+. Moreover, some of the early LTE launches have also witnessed substantial subscriber uptake. And, operators across the globe are now unanimous about the potential of LTE as a preferred option to deal with the future demand of mobile data services. The chapter further explores the future of mobile services in LTE environment and elaborates the role of LTE mobile technology in different industry verticals such as automobile, healthcare, railways, entertainment, and media. Apart from the services the chapter also gives an outlook of LTE ARPU trend for the next five years.

Chapter 3 is about Ideal CAPEX & OPEX Strategies. Rolling out an LTE network involves huge investments, posing really complex challenges for network operators. For network operators one of the major challenges is to prioritise the investment areas and decide the amount of capital allocation to maximise their return on investment (RoI) on rolling out the LTE network. The chapter covers the various investment areas with their relative importance in network monetisation and related CAPEX and OPEX strategies. The topics that are broadly covered in this chapter includes joint ventures and network sharing, various options of network sharing, cases on network sharing, estimates on CAPEX and OPEX saving through joint ventures and network sharing, Self Organising Networks (SON) and its impact on CAPEX & OPEX, smart use of Unpaired spectrum, Cloud Solutions to Reduce CAPEX/ OPEX, Evolved Packet Core (EPC), small cells, mobile backhaul options, various approaches of LTE deployment, integration of FDD

and TDD Networks, investments in LTE-Advanced, and the cost advantage of TDD networks. A separate section is provided on key LTE Enablers that includes the profiles and offerings of LTE Infrastructure Vendors, LTE Vendor Market Share, LTE Backhaul Solution Vendors, LTE EPC Solution Providers, Major Chipset Providers, and other players participating in LTE.

In Chapter 4 we have analysed the post deployment challenges in LTE and how those challenges can be overcome.

The chapter starts with analysis of top LTE issues. The LTE technology is still in its evolution stage and poses considerable challenges for mobile network operators. The major challenges encompassing the LTE network adoption can be sorted out as technical issues, regulatory issues, ecosystem related challenges and RoI (Return on Investment).

The next section explores the issue of spectrum harmonisation and its impact on interoperability, roaming, and QoS. LTE operators will face spectrum crisis as a major challenge in the coming years and are worried about controlling the cost of acquiring more spectrum to match the demand for high bandwidth services. However, spectrum refarming can offer a cost effective solution to this perennial problem. Operators can make significant cost savings, by re-using existing 2G and 3G spectrum for LTE network.

LTE can carry all types of traffic, be it voice, video or data. However, most of the LTE networks currently focus only on data, with voice services over LTE network still being in its infancy stage. One major reason for this trend is the unavailability of LTE handsets uniformly and existence of multiple standards for voice. The section covers various options for offering voice on LTE networks with their pros and cons.

Rising consumption of data on smart mobile devices is increasing traffic on a regular basis and is causing a concern for operators to manage it. Launching LTE and expanding network capacity would not always be sufficient to manage the network traffic. Thus mobile data offload has become a focus area of all mobile operators. Apart from managing traffic data offloading also reduces cost and increases service revenues. Wi-Fi, with more Wi-Fi in-built devices and more Wi-Fi hotspots, performs the major role of data offloading as of now. Femtocells, which are another option for data offloading, act as a cellular base station at homes and business places. The chapter covers the smart application of Wi-Fi and femtocell to efficiently manage the data traffic.

Operators are currently offering a wide range services/ applications over their networks. Each service/ application has different charging and billing system and is being offered in different forms making them more complex. The integration of these complex charging and billing functions is really a major challenge for mobile network operators. The chapter explores how policy management can be used to manage network traffic, ensure QoS in LTE environment, and monetising the services at its best. The chapter covers policy management and PCRF/ policy server in detail.

Apart from these major issues, some other important issues like various backhaul costs and options, the challenges of All-IP Network architecture, and LTE handset availability and compatibility issues are also covered.

Chapter 5 focuses on LTE Business Models & Charging Mechanisms for 2013 – 2018. More than 200 LTE networks are already launched and several others operators are engaged in trias and feasibility studies. However, most of the LTE launches have failed to seize the real potential of LTE and are now burdened with huge Opex as they need to carry the legacy networks as well. LTE operators are experimenting with their strategies and few have been able to crack the “LTE Profit Mantras”. We have analysed here the launch, strategies and uptake of several LTE networks to find out – What prompted them to launch LTE? How have they fared so far? What are the various business models that are evolving in the context of LTE? And how other MNOs can have a better LTE program?

For example, Verizon Wireless initially had a hard time in convincing its 3G subscribers to upgrade their devices and move onto its LTE network. Consequently, the adoption was quite sluggish, and the telco had just 8 million LTE subscribers in the first quarter of 2012. To bolster its LTE adoption, the operator announced in January 2012 that going forward all its smartphones will be LTE-enabled. In the first quarter of 2012 the operator sold almost 3 million LTE devices, and now it's drawing upon its retail distribution network to offer a range of LTE devices. Such initiatives have really helped Verizon to increase its LTE subscriber base to over 35 million by the end of Q2 2013.

In June 2012, Verizon launched 'Share Everything' family plans for data, phone calls and text messages. The new plan changed the way consumers used to pay for wireless services. The plan allows users to choose types of devices and amount of data to be shared. The users get unlimited talk and text for all devices on the account (up to 10) and can also enjoy mobile hotspot on all capable devices. To construct a plan, subscribers need to pay a monthly fee for each device, which also varies depending on what devices are connected to the data plan. And then they can select a data plan

based on how many gigabytes a month they plan to use across all devices on the plan. The introduction of shared data plan came with criticism from customers as well as from the media barons like Forbes and CNET. However, the response and result were above the expectations of Verizon Wireless. 13% of Verizon Wireless' customer base was on the new plan within 5 months of launch. And its EBITDA service margin increased to 50% in Q3 2012 from 49% in Q2 2012 as more customers opted for the new data plan. Not only this, the new data plan also boosted the sales of LTE equipped modems and tablets.

Several other business models such as wholesale LTE and LTE MVNO are also covered in detail in the chapter. Operators across the globe have been experimenting with LTE pricing for quite some time. However, our study reveals that even after trying variety of options (time based, usage based, unlimited, application based), operators have not been able to tap the entire pool of data users and there is enough scope for experimentation. The section explores the various ways to charge LTE services in a dedicated section LTE Pricing Strategies 2013-2018. At the end of this chapter, we have outlined ideal LTE strategy for late entrants as how they should move further.

Chapter 6 covers latest update on Key LTE Operators. The chapter discusses various LTE operators one by one with focus on their LTE launch timelines, LTE investments, LTE infrastructure, LTE service positioning, Tariff plans, Device strategy, Subscriber uptake, Revenue, ARPU, Achievements/ Setbacks, and their future strategies/ roadmaps. This chapter offers an extensive round-up on LTE operators from across the globe.

Chapter 7 offers Key Findings and Strategic Guidelines for securing future LTE profitability. This chapter highlights the key areas that operators need to have a fresh look at. Besides, the chapter also provides guidelines for mobile device manufacturers and LTE infrastructure providers.

Methodology

Our preliminaries included a study of various other research works on the subject across the globe. We took into our ambit the past few years and for this particular study we regionally explored some of the prominent mobile operators, device makers, infrastructure providers and interviewed several telecoms experts, C-level and mid-level executives.

Information Sources: Major sources include both face to face and telephonic interviews

with telecom industry experts and consumers. It also includes various surveys that were conducted in different regions of the world. Other sources comprise of organisations' websites and financial reports, books, trade journals, magazines, white papers, industry portals and numerous government sources.

Forecasting Methodology: We used extensive database of macroeconomic and sector specific data to generate industry forecasts. We used Judgment based methods like the Delphi method and Extrapolation; Time series methods like Exponential smoothing, Cyclical and seasonal trends and Statistical modeling, as well as the Survey method. The initial baseline projection is computed with the most recent market data. After an initial baseline forecast, all probable future macroeconomic and industry specific occurrences and assumptions are taken into consideration to generate the final forecast.

Key Questions answered:

What are the appropriate LTE deployment, pricing and product positioning models to accomplish profit from shortest turnaround?

What are the various pre/ post deployment LTE issues operators are facing, and how to work around them?

What are the mechanisms to optimise LTE CAPEX and OPEX?

How best to integrate LTE TDD and LTE FDD?

What are the key global LTE operators' future strategies?

What should be your right timing for LTE deployment?

What are the ideal strategies for late LTE entrants?

What new business models can device makers work upon in collaboration with operators to mass-customise LTE services?

How can operators in under-developed/ developing economies turn the very disadvantages into their strengths vis-à-vis LTE deployments?

How best should MNOs handle the device subsidies issue?

What are the innovative and non-traditional business models for operators to make LTE bundling & branding viral (like various QoS/ value-based offerings etc.)?

What are our recommendations for effective business collaborations amongst operators and vendors?

Key findings:

USA, South Korea and Japan have established themselves as the early leaders in LTE. With large scale LTE roll out, Verizon is currently leading the LTE marketplace both globally and in the USA. However, the developing and underdeveloped markets in Asia and Africa hold huge business potential for LTE.

MVNOs have not been able to leverage the 2G/ 3G data services to its optimum level. However, the worldwide deployments of LTE networks and a number of factors such as availability of feature rich smartphones, ever growing demand for data and value added services are creating great proposition for MVNO business model.

Operators have been working on network sharing and MVNO business models for several years now. However, the LTE wholesale business is in its nascent stage and it will evolve over time. Wholesale operators are coming to the market with their own business model. However, it remains to be seen what works and what doesn't - but it's certain that more players will foray into the market as wholesale LTE operators in the coming years as new spectrum gets auctioned.

LTE service providers have been offering unlimited data usage as an introductory offer to attract more customers. This has helped in migrating customers from their existing networks; however, it has resulted in overloaded core network and loss of revenue from non-LTE services. As a result, the operators have started scrapping unlimited data plans and they are either charging for excess data consumed or throttling down the speeds beyond the usage limit.

LTE Network Coverage, Efficiency Enhancing Solutions (such as small cells,

caching and self organizing networks), Commercial Contracts, Product/ Service Portfolio, and R&D/ Patents are the top five areas that have the maximum impact on operator's return on investments.

During 2013 and 2018 LTE operators' CAPEX and OPEX savings through SON implementation will be US\$3.26 billion and US\$5.8 billion respectively.

The ever growing demand for mobile broadband services is driving a large number of LTE network deployments worldwide. Spurred by the demand for LTE services, the global LTE service revenue is projected to cross US\$500 billion in 2018 from US\$78 billion in 2013, exhibiting a CAGR of 46% during this period.

By 2018 year-end, North America, Western Europe and Asia Pacific will account for around 90% of the global LTE service revenue. Asia Pacific will represent the largest LTE market in terms of service revenue closely followed by Western Europe and North America. Of the remaining 10% market, Africa & Middle East and Central & Eastern Europe will enjoy roughly equal share, while Latin America will have minimal share of the market by the end of 2018.

The global LTE subscriber base reached 62 million in 2012, exhibiting a year-on-year growth of over 370%. With more number of LTE networks as well as rise in the number of LTE smartphones in the market, LTE subscriber base will grow at faster pace during the forecasted period (at a CAGR of 40% during 2013-2018) and will cross 1 billion by the end of 2018.

LTE FDD has been globally adopted in majority of LTE deployments till now and will remain a major LTE technology in the coming years as well; however, LTE TDD is also being adopted by several major operators. LTE TDD technology has been widely adopted by operators in Asia Pacific, the Middle East, and Europe. All of the major license holders in India have chosen LTE TDD technology for their network deployments. In 2012 Bharti Airtel rolled-out the first ever LTE network in Indian market based on LTE TDD technology. With growing number of LTE TDD commercial deployments across the globe, the LTE TDD subscribers are expected to account for 33% of the total LTE market by the end of 2018.

Driven by premium pricing and higher uptake by enterprise users, LTE market is currently witnessing high ARPUs. The monthly average global LTE subscriber ARPU was around US\$86 in 2012. However, as the LTE services move beyond

early adopters and operators start offering the services to masses (especially in rural and semi-urban areas), LTE ARPU will face downward trend from 2013 onwards, reaching US\$40 by 2018.

Mobile network operators have been subsidising devices to attract more customers to their network and reduce customer churn as consumers often must sign contracts to qualify for the device subsidies. However, device subsidies are putting heavy burden on operators' profit margin and this strategy would not be sustainable in the long run.

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