Reinventing the telecom equipment industry
What Network Equipment Providers Need to do to achieve profitable growth
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Sustaining the pace of innovation, for both operators and equipment vendors alike, remains an ever present challenge for the industry. To derive more value from their R&D spend, Equipment vendors are turning their attention to the return on their R&D capital. R&D, innovation, expertise and capital participants are much more distributed in nature today than in the past era of the large-scale centralized R&D departments. So what can be done to maximize the returns on R&D spend in this new era of distributed R&D. This paper highlights opportunities for profitable alternatives.

A dynamic decade - reshaping the communications industry

The last decade has without doubt been one of the most exciting periods of time in the history of Information Communications Technologies. As the OECD Science and Technology Scoreboard 2011(1) notes, growth in Global IP traffic over the period 2005 – 2010 was almost tenfold, exceeding 20 Petabytes per month by 2010. Open standards based and high performance communications networks have enabled a plethora of new services, business models and revenue streams.

It goes without saying, that growth in network traffic has fundamentally been facilitated by rapid and effective innovation in the underlying technologies which have underpinned the core infrastructure of network operators. Whether we look at end mile mobile access or the transmission systems which provide the core connectivity, we have seen a rewriting of the cost / benefit model of communications technologies. The benefit of these innovations is clearly visible for consumers and business alike in social networks and media networks along with enhanced business agility. However, sustaining such a pace of innovation, for both operators and equipment vendors, remains an ever present challenge.

Operators recognized very early on, specifically after the dot com bubble burst, that opening this particular challenge up to the widest degree of participation would maximize likelihood of commercial success. A relentless focus on standardization, innovation, commoditization, transparency and collaboration has provided the industrial platform to drive cost out of the underlying infrastructure whilst increasing the utility of the network.

The results have been clear, a reshaping of the vendor landscape, and an enormous pace of innovation. Opening up network architectures to such intellectual and productive competitive intensity has driven feature, cost and performance enhancements from within in an environment of declining absolute R&D spend – implying that equipment vendors are turning their attention to the return on their R&D capital employed. Whilst it is clear that within the telecommunications equipment vendor market we have witnessed a specific reduction in R&D capital expenditures, we must now take into account that as networks themselves have become a platform for service innovation, we must

Competitive Landscape

![Competitive Landscape Graph](image)

Size matters when looking for Revenue Return on R&D spend but not necessarily profitability (see figure 2 above). Using collaborative methods, organizations could seek to leverage the investment in skills and resources of partner organizations to achieve equivalence in scale.
Successful commercial execution of specialist technologies in the Telecommunications Equipment Vendor (TEV) market will no doubt depend on bringing an increasingly complex network of new and unfamiliar participants together to rapidly execute into fast moving destination markets.

The Changing Innovation and R&D landscape

Business is looking towards a much wider community of participants to undertake the longer term fundamental research. Businesses in countries such as Germany and China are looking to spend R&D capital with specialized academic institutions whilst they focus on the process of commercialization.

TEVs have clearly focused on an iterative developmental approach to satisfying customer demand for flexibility in product portfolios. A “wide ear” for understanding the pain points faced by operators and their critical success factors has been achieved through building tight, in territory relationships. Thus R&D in TEV organizations has been trending towards Development, Optimization and Implementation rather than systematic experimental development.

However, operators and vendors must seek to leverage global talent as part of the creative process to solve real-world problems. Indeed, as the OECD 2011 scoreboard shows, inventive and creative collaboration with BRICS countries has almost quadrupled in the last decade.

BRICS economies typically face the challenge of engineering solutions with scale and cost in mind from the outset (see figure 1 above). Whether it is telecommunications or pharmaceuticals, it is no surprise that there is an increasing trend in co-creation of IP. With talent from these economies, organisations are equipped to leverage these specific insights, thereby increasing profitability from their inventions and innovations.

Specializing in the development of technologies, process and people, some vendors have become focused, agile production centers. They have been key in extracting value from technology for operators as consumers and businesses innovate on the network. Others specialize in offering a wide range of end to end services, innovating in customer experience in areas of delivery, operation and support. Still there is steady flow of new start-ups with bright ideas, new inventions and enthusiasm despite the competitive intensity.

Profiting from Innovation

Whilst Open network architectures and increasing standardization have increased the utility of the telecom network infrastructures, the scale of the technological platforms, the talent, intellect and capital resources required to bring solutions to market still remain a challenge in a market with such “Innovation Intensity” for equipment vendors to build clear investment cases.

Co-inventions with BRICS countries, 1991-2009

As a percentage of total patents filed by countries

Using a diversity of products as a proxy indicator for innovation it is clear that the market is clearly creating value for those who are able to innovate and deploy their solutions to market in an effective manner. Scale effects come into play, increasing the return on R&D capital employed as revenues and portfolio breadth increases.

So how can companies with smaller portfolios achieve similar levels of profitability? Gaining access to resources in order to “Virtually Scale Up” (Outsource) or to “Virtually Scale Out” (Collaborate) by accessing shared talent, technologies and information should certainly help.

**Achieving profitable growth**

Efficient, structured processes for capturing and nurturing requirements with rapid, agile delivery to adapt to changing real world requirements of equipment vendor clients have provided the platforms for successful execution, thereby maximizing ROI.

Whilst the product and service innovation cycle is shorter than R&D cycle for fundamental advances, the processes and tools to manage both are equally systematic and can have dramatic improvements in the ROI for shorter lived cycles. A platform based approach to build products for multiple technologies or to serve multiple markets can help shorten R&D cycle and at the same give higher quality and profitability.

Similarly, standardizing on processes for ‘design to cost’ taking into consideration the macro economic factors of various geographies rather than trying to retrofit a product for all geographies can be the path to profitable growth and increased market share. The key focus areas for organizations to achieve a profitable growth are summarized below-

- Execution is key – deliver your product not your idea,
- Be agile – rapidly adapt your product to relevant customer needs,
- Build and maintain access to a broad network of resources, the host ecosystem for telecom products is constantly changing,
- Invest in places to co-operate with a broad range of stakeholders close to your market,
- Focus on working practices (be collaborative & Open),
- Innovation isn’t just the beginning; focus on Whole Lifecycle management, re-engineering for profitability right through maturity to sustenance,
- Look at the supply chain; is it cost of doing business or a profit enhancing centre?

Working with a wide variety of partners to complement in-house expertise can help to accelerate time to market, advancing revenues thereby increasing ROI (see figure 3 above). Collaborating to efficiently re-engineer throughout the product lifecycle gives potential access to wider markets, growing revenue whilst simultaneously improving margin.

**Collaboration is the platform for profitable Innovation**

In today’s increasingly competitive telecommunications industry, market leaders need to create and capitalize on the market potential of new innovations in an efficient and timely manner. As capital pressures intensify, we must look to systematically extract maximum value from R&D expenditure. Success depends on a close understanding of market requirements, a detailed insight into the technological landscape and a thorough appreciation of how to effectively deliver the innovation into the target ecosystem to maximize ROI.

A collaborative approach bringing talent from many areas of industry provides a platform where specialization can be leveraged for mutual benefit. This approach is most likely to yield results in:

- Complex solution & system analysis to evaluate and identify the core competencies required to deliver new applications or services – machine to machine, mobile banking. An example here might be to draw on knowledge and experience not only in Telecom but to blend this with skills from within IT, BPO / System integration across many markets and verticals,
- Co-Creation, incubation and development of new concepts,
- Best practice – translating successful approaches in one industry to another, whether that is in customer care solutions or testing and verification.
Whatever the challenge, collaborative approaches drawing on the widest pool of intellectual DNA is likely to have the greatest likelihood of success in bringing profitable, efficient innovation to life.

**In conclusion**

Partnering with skills that can extend your core competence not only increases the likelihood of successful execution but also opens up a wealth of potential for further value creation. Bringing together, complex software products and practices vertical sector knowledge such as banking and retail with TEV solutions opens up the potential for “Value Added Service Creation” for network operators.
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References / Citations


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