

### Current status and potential opportunities

Currently, less than 15 per cent sites in India are connected on fibre. Broadband penetration continues to be the lowest amongst developing countries, with a speed of up to 512 Mbps still termed “broadband”. Further, there is no standardisation and coordination on fibre roll-outs and each operator follows its own specification and roll-out process. Right of way (RoW) is the most difficult aspect. Furthermore, innovative and cost efficient models such as trench sharing are still uncommon in India.

That said, the increasing demand for higher bandwidths is bringing fibre to the x (FTTx) to the mainstream. Operators are chalking out huge expansion plans for deep-fibre penetration. They are looking for companies/investors that can build and own fibre networks and lease dark fibres on a need basis. In fact, companies can even explore alternative models such as dark fibre as a service and bandwidth as a service for faster and quality roll-out. Further, build-your-own models can be considered where typically cable and network operators can build their own infrastructure and lease the capacities to users/operators. This could either be in the form of an outright duct or a dark fibre lease to operators on an indefeasible right-of-use basis. Alternatively, a fibre-grid model can be explored wherein the fibre assets of all owners are aggregated to build a one-stop shop for dark fibre on a pan-Indian basis. These owners together can operate and maintain the entire pool of fibre assets and drive planned expansions. Finally, there is the build-operate-transfer model, which is an alternative commercial model to the traditional capex model. In this, a specialist can build and manage the capacities, and decide on revenue sharing on a per-byte bandwidth delivered, or on a per-home connect basis.

Going forward, there is a need to build smart buildings/homes simultaneously with smart cities, which would require municipalities and resident welfare associations (RWAs) to build smart fibre utility corridors for both in-building and outside access. 4G/3G sites will be the key drivers for the growth of FTTxpenetration. Networks will be built around base transceiver sites. Aerial installation in distribution/drop networks will be the key to success. Further, RWAs will play a significant role in future and such associations would have to invest in open passive networks.

Ericsson currently has an MS footprint of 192,000 km (Reliance Communications), 47,000 km (Vodafone India) and around 7,200 km (Sterlite). Further, Ericsson’s FTTx footprint currently spans 100,000 homes passed and 30,000 homes connected.

### Opportunities and Challenges

As per the FTTH (fibre to the home) Council, India had 828,400 FTTH/B subscribers and 2,636,000 FTTH/B homes/ buildings passed as of December 2015. These numbers are likely to go up as operators and service providers tap into various opportunities offered by the FTTH segment. The government already has major roll-out plans for rural broadband using fibre under the BharatNet project. Andhra Pradesh has taken the lead in this space and other states are expected to follow. Leading internet service providers are also gradually shifting from the traditional DOCSIS towards GPON-based FTTH technology. Many builders and developers have also started independent deployment of FTTH in their existing and upcoming projects. India will also witness increased fibre rollouts for mobile backhaul for LTE technology.

Despite the high potential, FTTH roll-out in India continues to be dismal. This is on account of several factors, such as a limited application ecosystem for ultra high speed broadband; low ARPUs that impact returns on investment; threat from local cable operators and service disruptions; increased focus of key telecom operators on wireless technologies; challenges in obtaining RoW; lack of a uniform RoW policy; delays in obtaining permission from RWAs for network roll-out; very high RoW rates in some states; lack of a policy for building access and for telecom infrastructure; no policy clarity on cost-effective roll-out like overhead fibre and micro-trenching; no incentives from the government for high capex FTTH equipment and services; and lack of skilled manpower for fibre-related works.

Going forward, the issues in the fibre infrastructure space need to be addressed in order to expedite roll-outs. Sterlite is one of the largest FTTx operators in India, with about 170,000 connected homes. The network has been rolled out in the top six metro cities.

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