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BACKBONE

Beyond optic(s): Airtel, Vodafone Idea, Jio must play round-robin on fibre

Telcos are hiving off their fibre assets, seeking billions of dollars in investment but unless they share fibre with each other, it'll remain sunk cost. As Jio's GigaFiber kicks off today, it's time to look at how big a competitive advantage is fibre and how long it will remain so

SEEMA SINGH, PRANAV BALAKRISHNAN

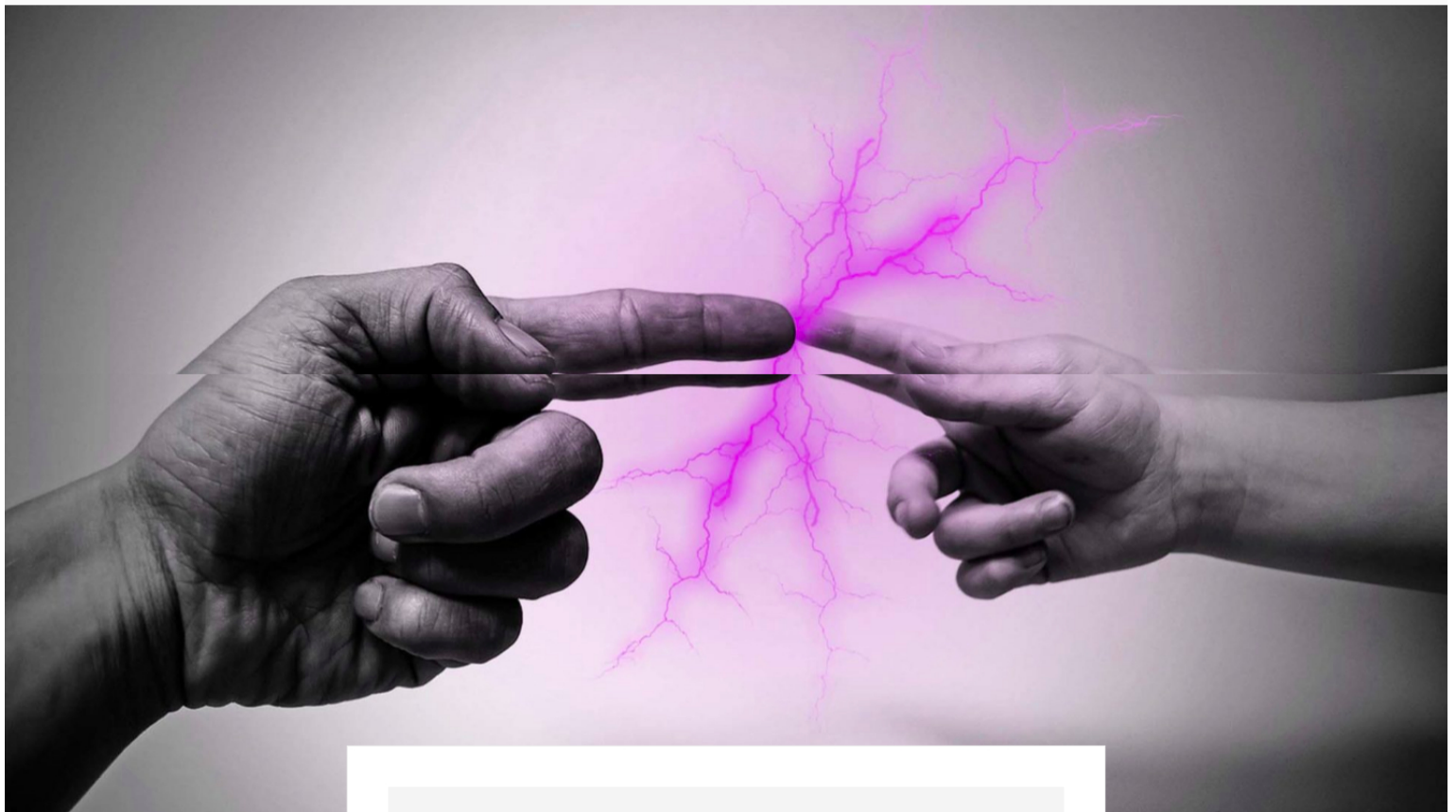
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Amid telcos and cable operators, India has 2.4M km of fibre. A lot of it is poor quality and wasted; nearly 30% is unlit (dark fibre)

Telcos need fibre to upgrade their 4G networks and prep for 5G. But regulatory haze and messy permission processes are major bottlenecks

Vodafone Idea and Jio are seeking a premium on their fibre asset

But to make the investment economically viable for investors, they'll all have to share. Who could play spoilsport?



Summary

Expand

Five Annual General Meetings in corporate India elicit as much anticipation

few Annual General Meetings in corporate India elicit as much anticipation as Reliance Industries Limited's (RIL), whose telecom business has been a showstopper lately. Today, Reliance Jio Infocomm will reveal its cards vis-a-vis JioGigaFiber, a wired broadband service that has been in beta testing for over a year.

It's no improbable high-wire act. Instead, the industry expects a replay of Jio's wireless service launch of 2016—high data speeds at unbelievably low prices to kill some, if not all, competition. Except, according to some Jio field executives, the exuberance is more muted this time.

In the southern state of Kerala, for instance, Jio cut down its multiple-city GigaFiber rollout to just three big cities—Kochi, Calicut, Thiruvananthapuram. It even opted for cheaper modems that allow far lower data speeds than the promised 100Mbps.

Up north, after rolling out 300-400 feeder networks in some cities, Jio understood costs wouldn't justify the returns and shelved plans for 100% underground fibre. Instead, it has been deploying fibre aerially, too. Digging is expensive; getting right of way permission to dig is even more expensive—Rs 5,000 (\$70) to Rs 1 crore (\$14,100) per kilometre. And above all, the subscriber hit rate is only 25-30%. In other words, if the fibre crosses 1000 homes, only about 250-300 opt for the service, according to multiple industry sources.

The low hit rate explains why India's third largest telco by subscriber base, Bharti Airtel, has fibre access to 10 million homes but only 2.5 million broadband subscribers, and why Jio's promotional ad promises a quicker roll-out of GigaFiber in areas where it receives more requests for the service.

But this story isn't about how companies rushing for wired broadband will make money. Or whether, like its wireless services, GigaFiber is addressing a supply-constrained or demand-constrained problem. It's about optical fibre—the bundle of glass tubes in polymer sheaths that can be modulated to transfer high bandwidth light signals—which packs a huge punch for debt-ridden telcos and their stressed networks. As fibre to the curb, telecom tower, home or building, it is the only transport media scalable to current and future demands of data or content flow. No surprise why after hiving off their fibre assets into separate companies, Airtel, Vodafone Idea, and Jio are seriously seeking investments into them.

In late July, Vodafone Idea hired investment banks Morgan Stanley and Bank of America to sell its fibre assets for as much as \$1.9 billion. Earlier, in April, RIL hived off its fibre asset into Reliance Digital Fibre Pvt Ltd and set up an infrastructure investment trust (InvIT) called Digital Fibre Infrastructure Trust (DFIT). DFIT now owns 51% of Reliance's fibre company and is looking to attract investments, just like its fellow trust, housing Jio's telecom tower business, got \$3.7 billion from the Canadian asset management company Brookfield in July.

Ahead of these two telcos was Airtel. For a while now it has said it is open to sharing its fibre with Vodafone Idea or any other willing party, to create a common fibre pool which can lease or rent to users in a non-discriminatory manner and monetise everyone's fibre. More than 10 years ago, Airtel took the lead in creating a shared tower infrastructure with Indus Towers, a model which has been emulated in countries like China, Malaysia and elsewhere. Can it repeat that success in fibre?

"It doesn't matter what spectrum you have or how much bandwidth you have, it's the fibre backhaul that is most important for data surfing experience," says a veteran telco executive, who is consulting for one of the three private telcos. Whether it's improving the 4G network or prepping for 5G, fibre needs to replace microwave backhaul of cell towers, the connection from the tower to the core telecom network.

Yet, India has the worst metrics. "Globally, the life of fibre is 15-20 years, in India, we find typically it's 6-7 years due to poor installation practices and

frequent fibre cuts,” says Ankit Agrawal, chief executive of Sterlite Technologies, a listed company that designs and builds data networks.

Telcos are placing a premium on their fibre as they seek investment, but it’s not a straightforward valuation like the tower business; nor is it a straight-up monetisation route. A reason to watch who blinks first.

Duc(t)s in a row

Vodafone Idea’s \$1.9 billion price tag was for close to 160,000 km of fibre. The average valuation norm, according to industry sources, is Rs 6-7 lakh (\$8,450-\$9,850) per km, a nearly 50% premium over Rs the 4-5 lakh (\$5,650-\$7,050)/km cost price. “Jio [as it aims to raise money for its DFIT] is trying to claim Rs 10 lakh (\$14,100)/km as the valuation. That’s steep, and they will struggle to make the use case believable. Who will use that spare fibre,” says a second telecom tech executive whose company doesn’t compete with Jio.

In the tower business, if at least two users share the infrastructure, it is economically viable. In fibre, it’s more complicated because viability depends on the amount of fibre available, its grade, refresh rate, latency, location, and so on. Logically, fibre either requires 2-3 users or 75-80% utilisation to be viable.

For the bread-and-butter cellular business of telcos, fibre is an absolute necessity as consumers use more data. Because only about 25-30% of telecom towers of Airtel and Vodafone have fibre as their backhaul, the rest use microwaves, which are unable to handle high data flow.

Jio, on the other hand, has 80% of its towers connected with fibre, but the business model it unleashed—with next-to-free data—has its network choked. The GigaFiber launch will, to an extent, help it offload the cellular network congestion to the wired broadband network, through wi-fi in homes. After buying cable companies Den and Hathway last year, Jio claims to have 700,000 km of fibre, intending to take this to 1.1 million km.

Vodafone Idea and Airtel have 160,000 and 260,000 km of fibre, respectively. They need funds to lay more fibre, where as much as 60% of the project cost is the right of way charges. It’s a messy process—neither transparent nor fast. “It’s a grey area. In cities, enormous amount of money exchanges hands for obtaining these permissions,” says the second telecom executive quoted above. Which explains why telcos are going slow on fibre; why some cities are perennially dug up, with no coordinated digging for different services—telecommunication, water, sewerage, electricity, TV. And, of course, why fibres are flung on trees, poor trade-offs notwithstanding.

“In south India, Sun TV group’s Cherrinet has laid underground cables while ACT and other players have primarily overhead cables. The latter is easily installed and scaled, gets quicker order to activation of services. Underground cabling, on the other hand, takes much longer but can sustain in floods and storms. Cherrinet was quick to restore service after the Chennai floods in 2015,” says Krishna Kumar, senior manager of digital transformation at Prodapt Solutions, a digital service provider in Chennai.

For all the news reports of Airtel and Vodafone Idea in talks to form a joint venture for a ‘fibre factory’, a Vodafone Idea spokesperson told *The Ken*, “We have made no such announcement about any JV or sharing. All we have said is we also have the opportunity to monetise our fibre assets. Our stance on sharing is that both passive (towers, ducts) and active (antennas, baseband units, and fibre) must be shared. Co-creation investment models must be introduced.”

“Co-creation” is the operative word here, even though not as prevalent as it should be. In towers, after initial resistance, Jio finally came around to sharing. It now leases from Indus Towers but doesn’t make its own towers available for sharing. In fact, it now competes with Indus and bids for tower businesses in the country. Such is the tenancy imperative of telecom



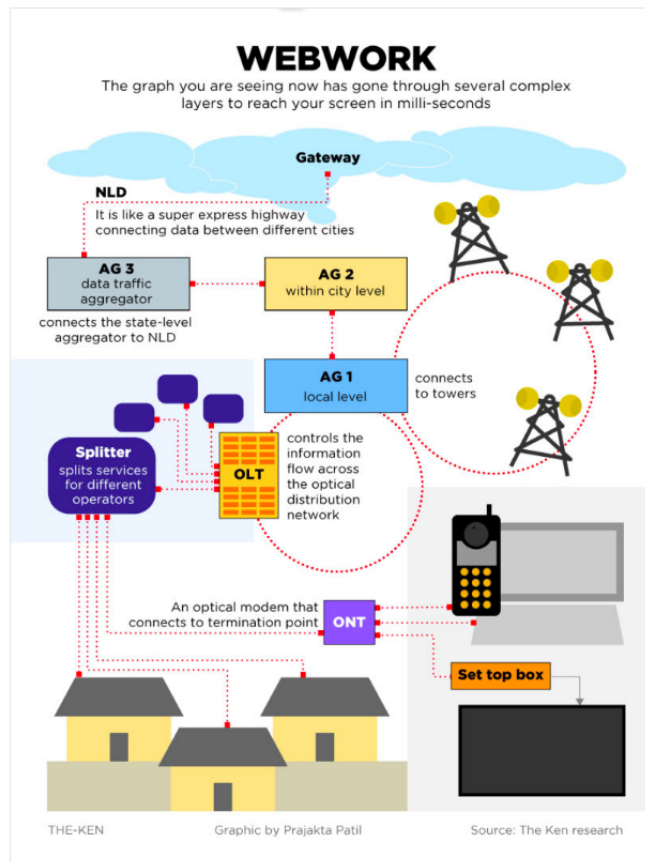
Fiber-nomics:

- Not installed in the right place at the right time
- 2-3X faster fiber network replacement cycle compared to global benchmarks
- Highest number of cuts in the world- intentional, unintentional
- Regulatory laxity: it's not an offense to cut fiber
- The US has legal safeguards; some others have made it a criminal offence

infrastructure. “The InvIT that it (Jio) has set up will not receive funding unless it shares its fibre,” said a third telecom executive, requesting to remain unnamed since he does business with all telcos.

Over and above the viability risk, there’s another challenge with these InvITs. Given its stretched balance sheet, RIL has worked out a structure that gives it liquidity at present and allows it to retain the ownership of the fibre asset. “It is entirely different from Bharti’s philosophy of not owning the asset. Reliance is saying that, ‘Hey, we don’t want to own the asset today, we don’t have the money. But hold on first for 20 years, we will give you a return on the asset!’,” says a telecom analyst in Mumbai.

Would a strategic investor want to invest in an asset which you don’t own for perpetuity? “Investors are not sure about owning the asset for 20 years and giving it back. Be it American Tower Corp. and Indus, the ownership of tower assets have been completely transferred to them,” he said. Then there’s the challenge of Reliance being present as a ‘counterparty’. “How reliable is this arrangement? Some institutional investors are wary because Reliance is leading the creation of a Master Service Agreement (MSA). They fear there might be some loopholes which could prove detrimental to investors in the long term.”



Some sharing happens, it's just not value accretive

For all these arguments, it's not that telcos don't share fibre. Sharing happens in National Long Distance (NLD) fibre. But it's either barter or under mutually agreed business terms which are not economically viable. Among Airtel, Vodafone Idea and state-owned BSNL, sharing is more common than with Jio.

“Wherever operationally needed, at the CTO level, not at the organisational level, sharing has been undertaken. State-level call is taken on barter basis to run the ops. But not on commercial basis. If you ask what percentage of the fibre is shared, I'd say minuscule,” said a senior executive at Jio.

In the tower business, parties formed an MSA early on which any new strategic investor relied on to see what it was getting into. “It was a

strategy... framework for the tower company to give access to a telco, specified the standards and basis on which rates were charged by the tower company. No such benchmark exists in the fibre business,” said a second analyst with a research firm in Mumbai. How do you gauge the value of 1 km of fibre laid in upscale Indiranagar in central Bengaluru versus somewhere in Mumbai? Moreover, unlike towers, fibre requires maintenance and has higher administrative costs.

The fact is, telecom is on its way to becoming an utility and utilities only make money if they are regulated or run efficiently at scale.

For that, it’s important that fibre at all levels must be shared, though some believe the last mile—fibre to the base stations and fibre to the home—are not amenable to sharing. “Technically speaking, the last mile up to the home is difficult, but up to the base station is possible. And that itself is a big deal,” said the Jio executive quoted above.

However, Sanjay Nayak, CEO of Tejas Networks, doesn’t believe there are any technical issues that prevent such fibre sharing. A public company, Tejas makes telecom network products. “In the core and inter-city networks, such sharing is already happening, using technologies such as DWDM (Dense Wavelength Division Multiplexing) and OTN (Optical Transport Networking). In the metros and access networks, GPON (Gigabit Passive Optical Networking) can easily be used for last mile access technology.”

The investment saved by sharing fibre infrastructure could be better utilised for making more investments in the electronics required to build higher capacity and deeper transmission and access networks, says Nayak.

Sane words there, but that’s now how the industry works. Especially if one looks at the theatre of the absurd enacted in the last decade—from the spectrum allocation **mess** to **massive** consolidation to the Jio **onslaught**.

“Now what is in the works is how will the profit and loss account of a fibre asset company will look like. At the end of the day, the business plan will show whether the capex is lucrative or sharing opex is lucrative”

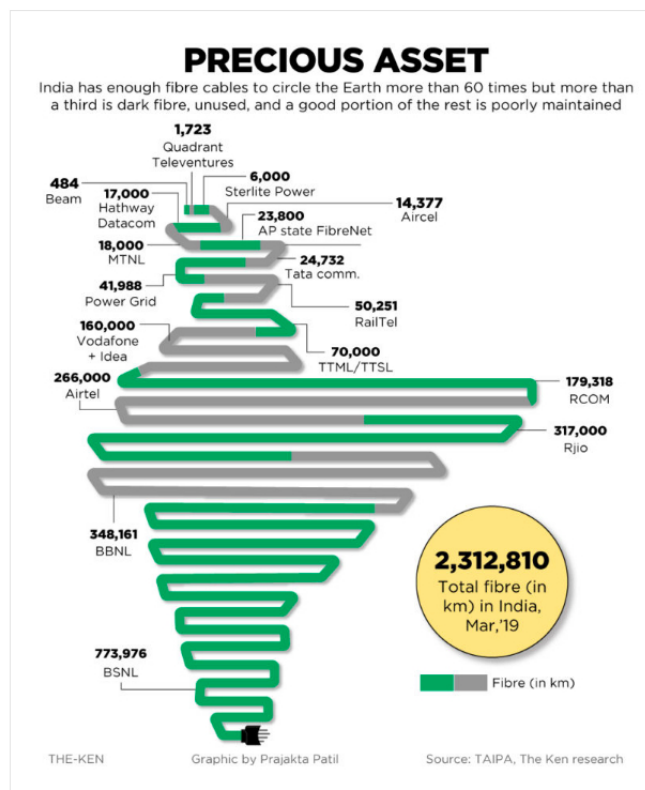
— NEERAV DALAL, ANALYST, MAYBANK KIM ENG SECURITIES

“Telecom operators are leaving the infrastructure platform. I, as an infra provider, should be allowed to own the fibre, not just provide the service. We need regulatory reforms”

TILAK RAJ DUA, DIRECTOR GENERAL, TOWER AND INFRASTRUCTURE PROVIDERS ASSOCIATION

Vodafone Idea has been **losing** market share; incurring losses quarter on quarter. If this continues for three-four more quarters, say industry veterans, the company could well be up for sale. “Even a zero-cash deal where it may handover its keys and move on,” said a senior executive at a

rival firm. That's an extreme view, but Indian telecom is witness to many. Cable companies could be next. With Den and Hathway now in Jio's kitty, the risk for the remaining standalone cable companies is high. Small companies who can't offer telcos' planned triple play of internet, TV and broadband, would like to monetise their fibre at least. Provided the industry reaches a master agreement on sharing.



Wait, watch, weigh them all down?

Fibre is going to be a fundamental part of 5G mobile and fixed access networks. There is a market opportunity as the world moves towards a converged and shared infrastructure. If one has to dig to deliver bandwidth, fibre is the place to start—upgrade the electronics, get 100X speed.

“Airtel and Vodafone Idea have held talks of forming a fibre factory but Jio would like to be standalone for a while, maybe 12-18 months. It gives them a competitive edge; fibre is the most critical differentiator in the market and it'll try to juice it up. Jio will try to establish in the market as a better network and maybe, over next three years, agree to share fully,” says the first telecom executive quoted above. “For now, you will have an equivalent of Indus in fibre which will try to buy out smaller operators.”

Jio has mapped out all major towns with households more than Rs 200,000 (\$2815) in annual income. It believes future digital content consumers will emerge from these users—entertainment customers, to be more precise. According to its internal guidelines, one feeder network, at a project cost of Rs 1.5 crore (\$211,148), is giving away 2,000-2,500 home passes, a little less than the full capacity of 3,000 home passes/per feeder network. It's deliberately leaving capacity for future demand. In locations with no high-rises, the number reduces to 1,700-1,800 homepasses. The fibre-laying costs are therefore higher in tier 2-3 towns.

If you are not using the fibre, you do not

If you are not using the fibre, you do not know where it is. There's a lot of wastage today"

TILAK RAJ DUA, DIRECTOR GENERAL, TOWER AND INFRASTRUCTURE PROVIDERS ASSOCIATION

If their old plan holds, Jio's play in so-called smart cities will begin in greater earnest now with GigaFiber, say industry insiders.

"They had guys working on a slew of things—from smart traffic management, solid waste management... which I suspect, may all be ready now for a rollout," says a startup founder in Bengaluru. He adds a caveat, though. "I've been following the India **Smart Cities** program quite closely, providing some Internet of Things tech to a couple of System Integrators, and am very surprised I haven't seen Jio respond to any RFPs (request for proposals) thus far. That coyness is rather curious. I know they have capacity that's larger than just FTTH/FTTK (fibre to the home/fibre to the curb) use for commercial/consumer use. And yet, they've let BSNL walk away easily as the backbone connectivity provider in many Smart City projects."

There's an overall lull, no doubt. In July, telecom regulator data **showed** broadband subscriber growth slumped for the first time in 17 months. But that shouldn't stop interested parties from untangling the fibre clutter.

He who awaits much can expect little.

"Fibre sharing has to happen. Nobody can stop that," says the Jio executive quoted above. Which fibre to be shared, that is the question. Because every tower can be useful to everyone, but the same can't be said of every fibre.

Sterlite's Agarwal is "very hopeful about the state-led BharatNet model because once states get involved, then multiple local issues related to fibre, like right of way, get resolved. Agarwal is referring to the State Wide Area Network (SWAN) that states like **Uttar Pradesh, Madhya Pradesh** and Maharashtra are adopting. "The chief ministers have to get involved and make it their personal agenda to improve broadband connectivity in their states."

Still, says Agarwal, the best model for India, going forward, would be if the three ministries of power, road and railways decide at the planning stage itself to lay fibre alongside the new infrastructure they put up. Along national highways or roads, railways and power transmission lines. The best part about these ministries is that they have complete right of way and can make fibre available on an open access basis, he says.

The sooner the sharing happens, the better for the **debt-laden** industry. Because from here, Indian telecom's leverage will transfer from telcos to the government, both in the states and in New Delhi.



Wishlist:

- A Central Right of Way policy in line with RoW rules in states
- An infra bank (with USOF) to lend to telcos, infra providers for laying fibre
- Mandate sharing of fibre to the tower

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Airtel	Broadband	Fibre	Gigafiber	Hathway Datacom	Jio	Reliance Industries
Telecom	TRAI	Vodafone	Vodafone Idea	Vodafone India		

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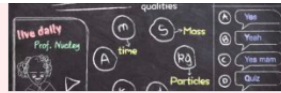
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