

# Mobile data usage to multiply 4x in 5 years

But rapid rollout of white-label Wi-Fi infrastructure could curb data usage growth for mobile operators over long run



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## Overview

Mobile data consumption in India has grown 24 times in the past 5 fiscals. CRISIL Research expects that number to multiply four-fold in the next five years through fiscal 2022, given low penetration and an expected doubling of data subscribers to more than 900 million.

As a result, by 2022, mobile data subscriber penetration in India will have soared to 80% from less than 40% now, which means telcos will have to increasingly sweat per-subscriber usage to bolster incremental revenues thereafter.

Between fiscals 2012 and 2017, India's mobile data usage per subscriber rocketed at ~80% annually to around 1.25 GB per month on increasing adoption of 3G and 4G services, free data offered by Reliance Jio, and a sharp ~40% fall in tariffs in the past fiscal alone.

CRISIL Research expects mobile data usage growth to moderate to ~12% annually and touch 2-2.5 GB per user in the five fiscals through 2022, and stabilise thereafter.

Given the operators' quest for market leadership, the decline in mobile data prices could continue in the medium term as well, but at a slower pace. While not immediately but over the long run, data usage growth on mobile could stabilize for the operators, as Wi-Fi gains ground. A comparison of trends across countries indicates higher data usage is strongly linked to higher speeds, whereas India's current mobile data speeds on 4G are less than half that of say South Korea. The advent of infrastructure linked to Wi-Fi can reduce costs and increase speeds significantly for a user, even as investments continue to gradually improve mobile network quality.

CRISIL, therefore, believes rapid expansion in Wi-Fi infrastructure will cause a shift in data traffic to fixed lines after fiscal 2022, bringing the Great Indian Mobile Data Story under a cloud.

## Dizzying mobile data growth over long run

Mobile data consumption in India has grown 24 times in the past 5 fiscals. CRISIL Research expects that number to multiply four-fold in the next five years through fiscal 2022, given low penetration and an expected doubling of data subscribers to more than 900 million.

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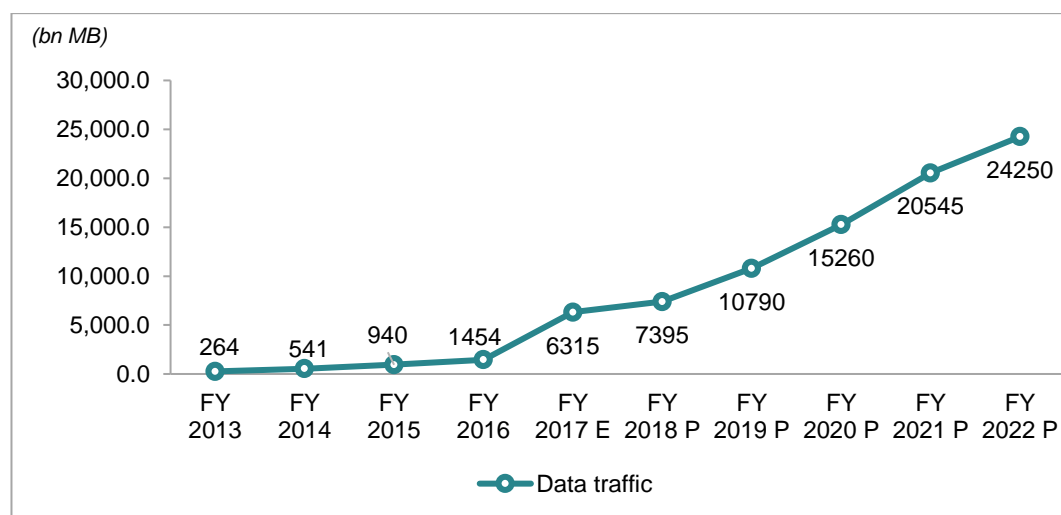
India’s mobile data usage per subscriber has also risen over 20-fold in the past 5 years, thanks to the launch of 3G-4G services – in particular, the rollout of free services by Reliance Jio in September 2016. Indeed, peak data usage for RJio reached 5-6 GB compared with 1.25 GB for the industry during the free services period.

Many are betting the overall industry usage will gradually reach RJio’s peak levels. However, CRISIL Research believes there are bottlenecks and the average data usage per user will more likely be around 2.3 GB by fiscal 2022. Post that usage is expected to stabilise. Given the continued growth in data subscribers, overall mobile data traffic could multiply 4-fold through fiscal 2022. Though healthy, this would be significantly lower than the 25-fold jump over the past 5 fiscals. After fiscal 2022, as data subscriber penetration improves sharply, telcos will have to sweat per-user data consumption to boost incremental volume growth and that’s when usage could stabilise with Wi-Fi infrastructure also expanding simultaneously.

### But average usage set to moderate

Average data usage per month (MB)	FY 2012	FY 2017E	FY 2022P
2G	67	72	~70
3G	22	723	~730
4G	-	2,935	~3,050
Blended	61	~1,300	~2,300

### Mobile data traffic to continue growing



## Content share is an evolving theme...

Data from operators show that videos contributes nearly 80% to total data traffic (direct and indirect) in India. This is similar to China, where videos contribute 77%, though in some evolved markets such as South Korea, online gaming is also a large contributor.

Further, the video viewership is dominated by regional languages – nearly 60% in Hindi and some 35% in other regional languages. Evolution of content in regional languages will play a pivotal role as rural subscribers grow faster.

Time spent by Indians is already in line with evolved markets. On average, Indian users are on their mobiles for 3 hours, bulk of it on social media and messaging apps. The usage is already in line with adult US mobile users who spend 3 hours and 20 minutes on non-voice mobile services. However, surveys indicate that US mobile users spend less than 30 minutes on social networking sites and 30 minutes on videos.

Given that both time spent and content are around global levels, the quality of services would be critical to a rise in data usage going forward. However, a number of other factors can also deter mobile data usage from growing in line with past trends.

CRISIL Research believes a number of factors could contribute to moderation of usage. These include:

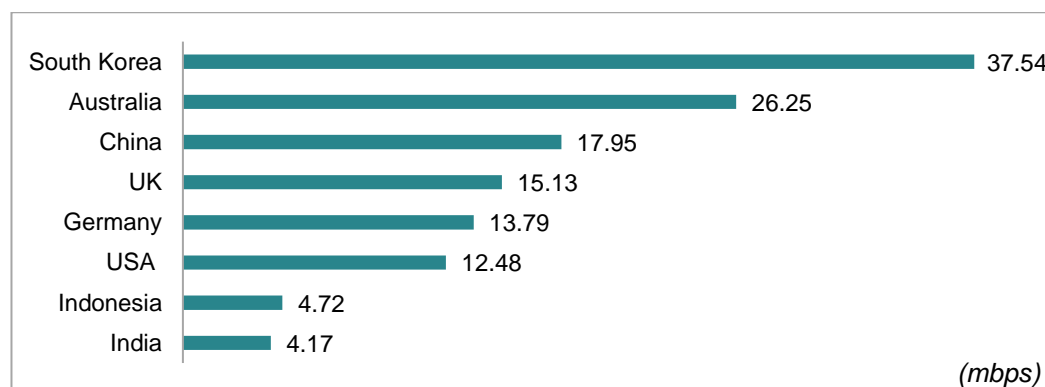
- Quality of services, especially mobile services, where there is a lot of room for improvement
- Development of a significantly faster and cheaper alternative – Wi-Fi
- Stabilisation of mobile data prices

## ...but data speeds disappointing

One reason for the slow pick-up in data services is low mobile broadband speed, which hampers the overall experience for the consumer. India's data speed is one of the lowest among the countries that have launched high speed 4G services.

Speeds are expected to improve as networks are expanded and the process carrier aggregation completes. In fact, over the next 5 years, Rs 2.7 trillion is expected to be spent on network improvement alone – including small cell sites, fiberisation of towers and expansion of network coverage. Considering the time this would take, any new alternative could cause a fast shift of usage patterns.

### India slowest among top LTE markets



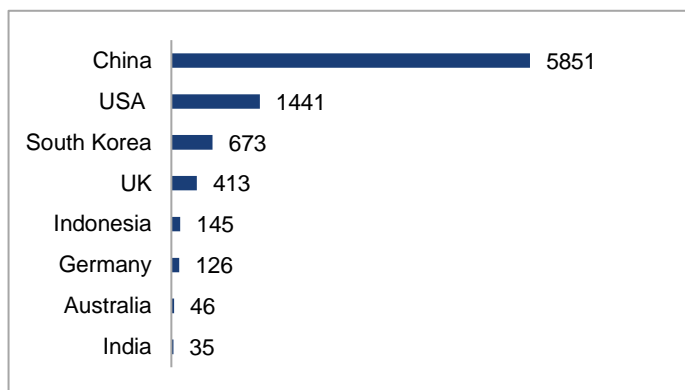
Source: Open Signal (Aug'16, Feb'17)

## Poor Wi-Fi infrastructure keeps mobile networks busy

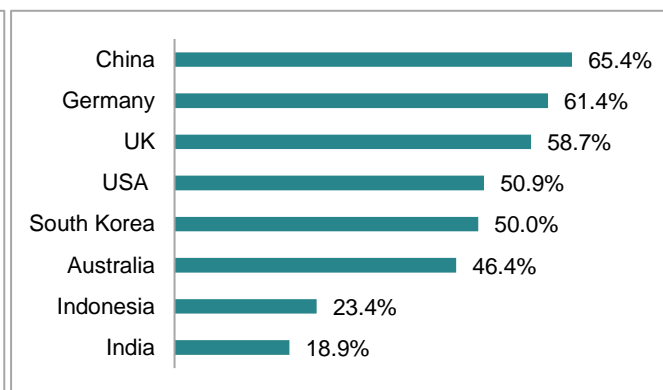
One reason mobile traffic has been able to sustain despite the fact that service levels of Indian mobile networks are not at par with international standards is poor Wi-Fi infrastructure. India lacks in Wi-Fi hotspots, which is reflected in the time spent on surfing internet over Wi-Fi being a low 18% compared with 50% in the US.

This puts enormous pressure on mobile networks, which carry the bulk of internet traffic. To be sure, the proportion of data traffic consumed on mobile is high in India, way above 6-7% globally. If one even looks at offload data proportion for mobile networks it stands at 60% globally indicating most large data markets offload large proportion of data to Wi-Fi (fixed line linked) networks. India needs to catch up significantly with close to 35,000 Wi-Fi hotspots.

**India lacks significantly in Wi-Fi hotspots ('000) (August 2016)**



**Percentage of time spent on Wi-Fi connection (February 2017)**



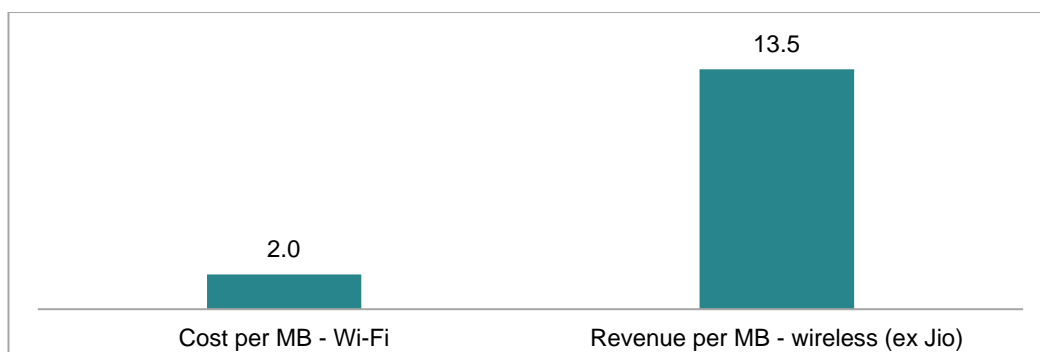
Source: Open Signal

## Wi-Fi can change the game, both in speed and cost

The cost of offering internet services on Wi-Fi is significantly lower than that on mobile networks. The Wi-Fi cost per MB is ~2 paise on average, or a seventh of that for mobile internet.

However, penetration of fixed broadband services has been limited – at 18.24 million fixed broadband subscribers, it works out to ~7% of total households. This is significantly lower than in developed markets such as the US, where fixed broadband penetration is 83%. Thus, Wi-Fi can play an important role in increasing the reach of broadband internet quickly.

### Cost of offering services on Wi-Fi significantly lower



Source: TRAI, CRISIL Research

## Wi-Fi penetration on the rise

Independent players have started offering Wi-Fi services in India. Ozone Networks alone has over 6,000 Wi-Fi hotspots spread across 23 cities, helping coffee shops and other business users enjoy high speed internet services and also offer them to their customers. Around 200 Café Coffee Day shops offer internet services for free for the first 30 minutes and then at Rs 15 per 1 GB for the next 30 minutes. Ozone plans to scale up Wi-Fi hotspots to 200,000 over the next 4-5 years.

Large telecom players who are moving towards integrated service solutions would want customers to be on their network, whether at home, on the go, or at public places like railway stations, malls, gardens or theaters. At times they would also want to offload traffic during peak hours to networks without additional investment in their own networks. This would push them to support Wi-Fi, as reflected in the deal Bharti Airtel struck recently with Facebook for 20,000 Wi-Fi spots, with talks for a similar deal also on with Google.

It is also clear that since video is the largest viewed content on internet, internet usage will be increasingly positioned as entertainment to aid faster growth in usage.

CRISIL Research believes government initiative such as Digital India, BharatNet and Smart Cities will aid the growth of public Wi-Fi infrastructure and eventually push for offtake of commercial Wi-Fi as well. Google, for one, is trying to make a payment model successful for public Wi-Fi infrastructure on stations. Even globally the mobile data offload strategy is evident.

China is a strong example of Wi-Fi infrastructure. China Mobile, the largest telecom player with xx million subscribers, has average data usage per user of less than 1 GB. This is despite more than 60% of its mobile users being on 4G networks. This also reflects in China having the largest number of Wi-Fi hotspots in the world with 65% of the time spent on Wi-Fi connection by its mobile users. On the other hand South Korean telecom operators have themselves set up a number of Wi-Fi hotspots to enable offloading for its users. This is line with players offering unlimited data plans and Wi-Fi enabling heavy usage on the same infrastructure by reducing loads during peak hours or peak access locations.



### Plans for public Wi-Fi infrastructure

Name of the entity	Plan	Period
<b>BSNL</b>	Extend its Wi-Fi internet facility across 1,227 locations by installing 2,505 Wi-Fi hotspots	May 2016
<b>Techno Sat Comm and PING Network</b>	Public Wi-Fi service in Delhi metro across all stations including 222 trains, 187 stations	April 2016
<b>Firefly Networks</b>	Wi-Fi internet access at Delhi's Karkardooma Court Complex.	April 2016
<b>Paytm</b>	offering free Wi-Fi service as a pilot project	April 2016
<b>Karnataka State Road Transport Corporation</b>	To launch Wi-Fi at 144 major bus stations across the state	February 2016

In partnership with RaiTel, Google has already installed Wi-Fi hotspots on 100 railway stations with plans to cover 400 railway stations where first 30 minutes of usage is free. Under another plan, 'Railwire Saathi', Wi-Fi will be rolled out on 7,000 stations.

Google also wants to move beyond railway stations and use malls, transit areas and other large public gathering places such as cafes and universities for its Wi-Fi service extension. In fact, the company has won its first city Wi-Fi deal in collaboration with companies such as IBM, Larsen & Toubro and RaiTel from Pune Smart City Development Corporation.

That said, we are at the beginning of a rapid transition of data traffic from mobile to alternative networks. Hence, the mobile data party has a higher probability of stabilising than continuing at the current pace.

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