

NOKIA



India Mobile Broadband Index 2022

About

Nokia MBiT Index

Nokia MBiT Index is a report on mobile broadband performance in India. It aims to provide valuable insights, data and analysis on mobile broadband and traffic growth in India by co-relating these trends with various demand and supply-side drivers of the connectivity ecosystem such as handsets, devices, content and subscriber usage patterns.

01

As India is bracing itself for the rollout of 5G, demand for robust mobile and data connectivity amid COVID-19 pandemic has driven technologies such as fixed wireless access (FWA) to emerge as a cost-efficient broadband alternative pushing digitalization.

02

This release of the MBiT Index assesses 4G and overall data traffic growth trends at a pan-India and circle category level. It also captures data consumption per user. Furthermost highlights the current device ecosystem in India.

03

It highlights how 5G is gaining momentum with fastest growing segment in the wireless network and providing connectivity for billions of devices, especially in the sphere of digitalization, Industry4.0, Virtual reality (VR), Internet of things (IoT), and artificial intelligence (AI).

With CAGR of 53% in MBB¹ data traffic during 2017-21, India's data usage was amongst the highest in the world



Data traffic increase in 2021

31%
(y-o-y)

Growth in five years

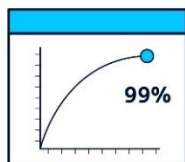
6.5x
4G data traffic



2.2x
MBB subscribers

4G data traffic contribution across all circle categories

99%



Active 5G devices in India

~10mn



Average monthly data traffic per user



CAGR growth over last five years

Dec 2021
17 GB
per user

Projected 5G services revenue



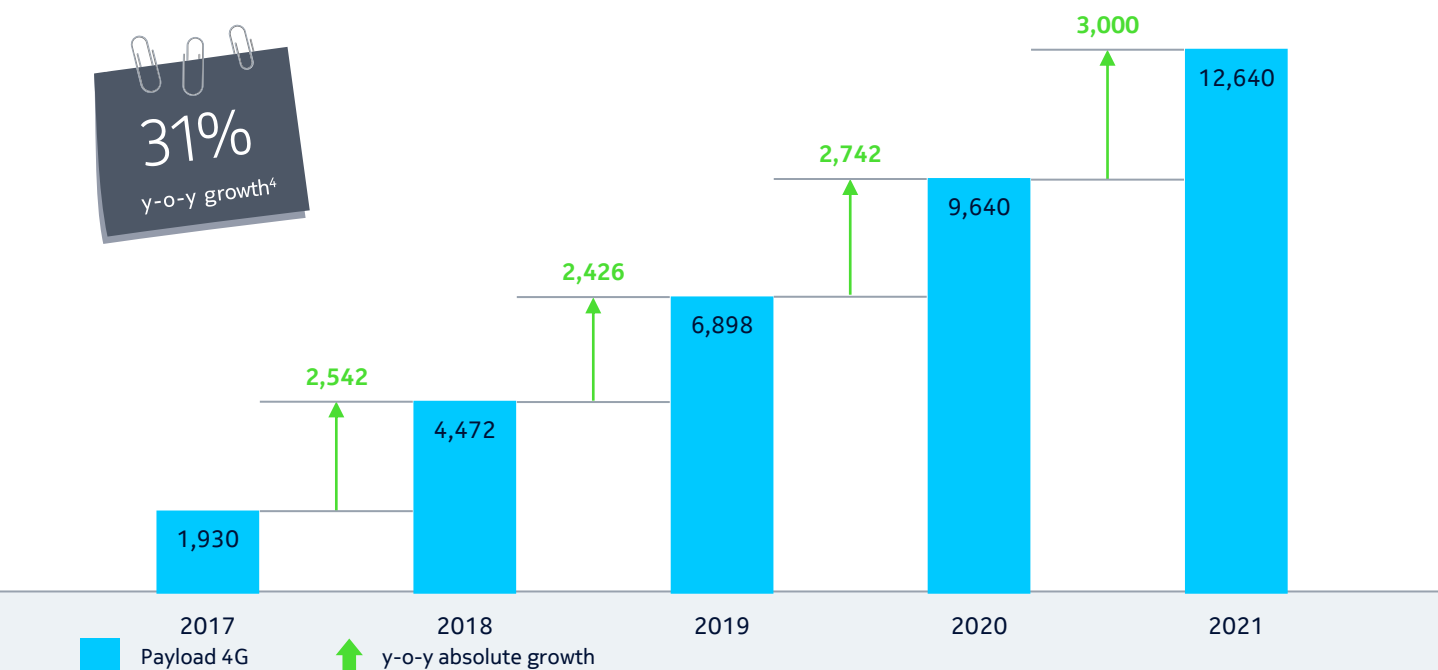
Per month 4G data traffic



12,640
Petabytes

4G data traffic increased by 6.5x while MBB subscribers grew 2.2x in last five years

Pan-India mobile data usage – in petabytes (PB³) per month, December



4G data share remained at ~99%.

4G expected to remain dominant over next few years.

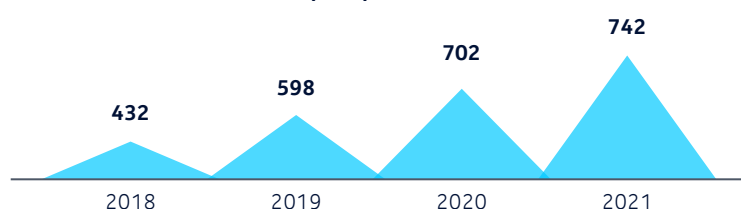
4G mobile data is grown by 31% however, 4G mobile data share is consistent at ~99%.

2021 marks the highest growth in MBB data in absolute numbers.

Upgradation of 2G subscribers to 4G continues. Re-farming of 3G spectrum for 4G services by CSPs.

MBB subscribers increased from 345mn to 765mn in five years.

4G data subscribers (mn)



40 million

4G data users added/ upgraded in 2021

Source: 1. Nokia Analysis 2. Operator Quarterly Reports, TRAI
3.1PB=1000 TB 4.Represents y-o-y growth for Dec-20 to Dec-21

31% growth in mobile data across all circle categories

4G payload by category

4G total payload (PB per month) ²	2020	2021
Metro payload	897	1,178
Category A	3,597	4,532
Category B	3,704	4,973
Category C	1,442	1,957
Pan India	9,640	12,640



2021 - 4G contribution %

Metro payload	99%
Category A	98%
Category B	98%
Category C	99%

2021- 4G y-o-y growth



- Mobile data usage continues to show strong growth with 4G contributing near 99% of the total traffic.
- Further data growth to be driven by migration of 2G subscribers to 4G and by 5G once introduced.

Category A & B circles constitute 75% of overall data in India.
In absolute terms, metros have shown 2x growth in 4G data; other categories showed similar y-o-y trends.

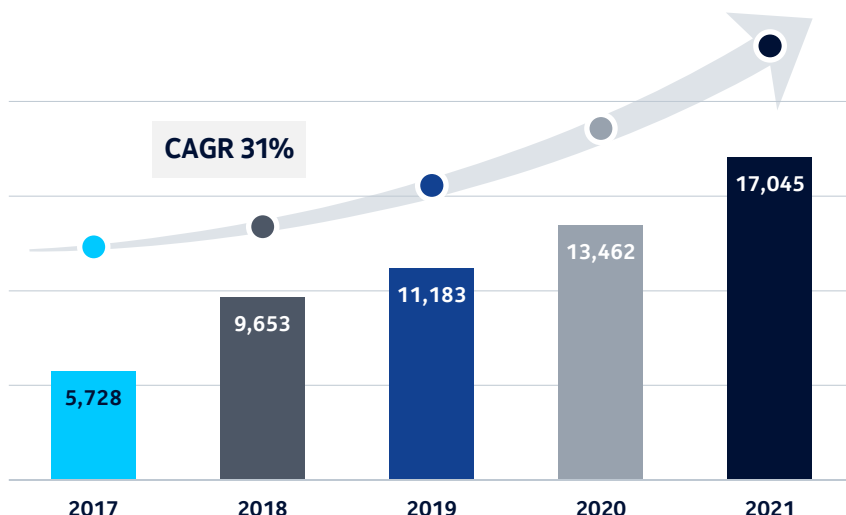
Source: 1. Nokia Analysis; 2. Payload in PB/ Month

Average data per user per month grew 3x in last five years

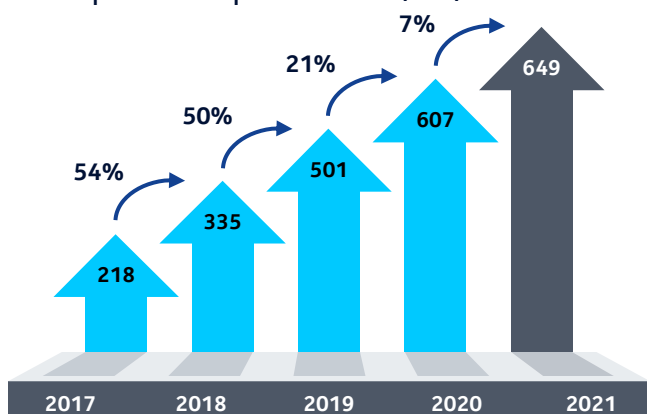
Active 4G capable devices crossed 80%, ~10 mn active 5G devices in India.

Average² monthly data traffic per user grew 26.6% (y-o-y) in 2021.

- With CAGR of 31% in the last five years mobile data consumption reached 17GB per user per month.
- 5G introduction will further boost the data traffic growth.



4G capable unique devices (mn)



4G capable device base in India

After a decline in 2020 due to Covid restrictions, 2021 has seen the highest ever shipment of Smartphones (> 160 mn) in India.

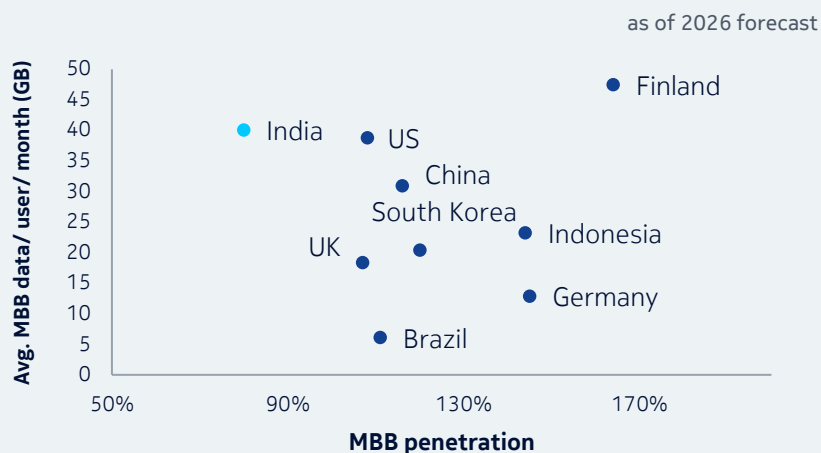
~ 30 mn 5G devices shipped in India.

~604 mn VoLTE capable devices (93.1% of 649mn 4G capable device base).

Avg. mobile data/ user/month vs mobile broadband (MBB) penetration

India's forecasted MBB penetration ~80% with avg. usage of 40 GB³.

The usage is expected to grow exponentially with 5G.



Source: 1. Nokia analysis, Press, GlobalData, GSMA Intelligence

2. Avg. data per user/month (MB) 3. Opengovasia

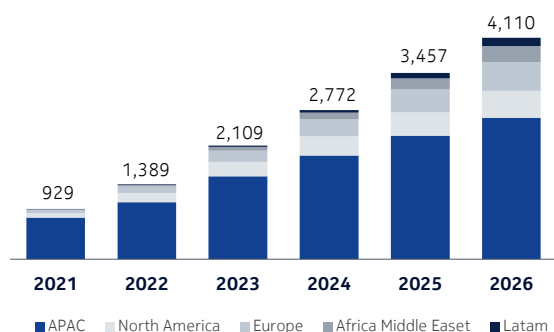
India's mobile 5G services revenue forecast to grow at a CAGR of 164% between 2022-2026

5G is gaining momentum around the world and is projected to contribute up to 1% of global GDP, or US\$ 1.3 tn in revenue by 2030, driven by multiple sectors from health care, utilities, next-gen media applications, manufacturing, to smart cities*.



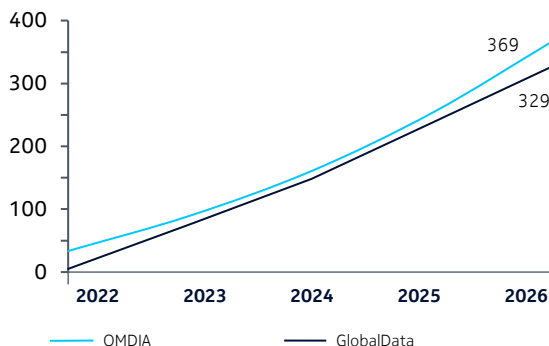
5G subscription data¹: GlobalData, OMDIA

Global regional 5G subscriptions (mn)



By 2026, Global mobile 5G subscriptions will reach 4.1 bn, equivalent to 37.1% of total mobile subscriptions.

India 5G subscriptions (mn)

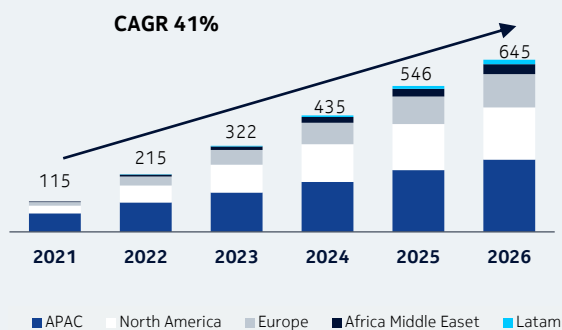


India 5G subscriptions expected to grow at faster rate in next few years. Different analysts have projected the pace of 5G subscribers growth with different attributes.



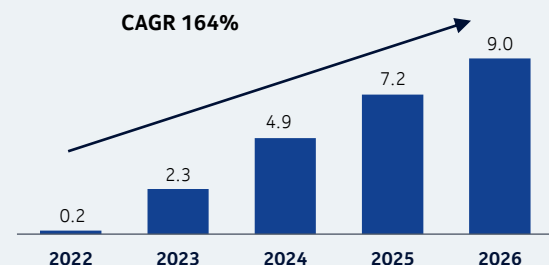
5G revenue trends¹: GlobalData

Global regional 5G revenue (US\$bn)



Globally, by 2026, mobile 5G services are expected to generate US\$645 bn, equivalent to 64.0% of total mobile service revenue worldwide.

India 5G revenue (US\$bn)



In India, by 2026, mobile 5G services are forecasted to generate US\$9.0 bn, equivalent to 37.7% of total mobile service revenue.

Source:1. GlobalData, OMDIA

*By 2025, the total number of mobile 5G subscriptions will reach 3 billion globally. Asia-Pacific will remain the largest mobile 5G market throughout the forecast period, with 2 billion subscriptions by year-end 2025.

5G ecosystem – the digital haven of opportunities

Globally, operators have been developing use cases for their 5G networks as they look to begin monetizing their investments.

The wave of 5G use cases relates to the improved connectivity and bandwidth afforded by 5G as well as an increased focus on providing private 5G networks for mission critical sites and develop go-to-market. solutions specific for manufacturing.



5G – Global deployed use cases examples¹

Use cases	Example operators	Geographies
Fixed Wireless Access	Optus, Globe, Verizon	USA, Australia, Philippines
Private 5G	NTT, Vodafone, AT&T, Verizon	UK, Germany, USA, Japan
5G Factory/Manufacturing	SKT, China Mobile, AIS, NTT	South Korea, China, Thailand, Japan
Corporate WAN	Telstra, AIS, AT&T	Australia, Thailand, USA
5G for Video Analytics	Telstra (1H 2022)	Australia
AR/VR content for 5G	EE, LGU+, Vodafone	UK, South Korea, Spain
5G MEC	SKT, Singtel	South Korea, Singapore

*List is not exhaustive



Key 5G use cases – India perspective¹

Sustainability

- **Environment Monitoring** (e.g., Flood Detection; Regulatory Compliance; Energy Management (e.g., smart utilities, grids, smart lighting).
- Fieldworker safety (e.g., **alerts and notifications, health monitoring, location tracking**), health & safety (e.g., temperature, PPE).
- **Resource Management** (e.g., water purity, flood detection, etc.).

Digitization

- **5G becomes part** of a multi-service capability (example fixed wireless access) not necessarily a substitution. Technology becomes part of a layered WAN architecture.
- Enabling the **Remote Workforce**
- Ability to support **IoT at scale**. Thousands of endpoints within a 4G cell.
- Also use cases for **connected fleets; Day-1 Connectivity**, such as pop-up locations, when fibre and other solutions are not readily available.

Innovation

- **Smart Sensors:** very popular for contact tracing, remote temperature checking.
- **Asset tracking:** includes areas such as fleet management, improving visibility across the supply chain.
- **Digital and Connected Products:** Embedding SIMs and other solutions into products (appliances, clothing, equipment, machinery, health care devices).
- **Smart Video Analytics:** People & Vehicle Tracking, distance detection, Virtual Classroom, Video gaming.

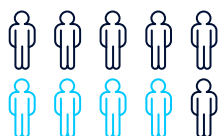
- The two most immediate areas seen as 5G use cases are **smart surveillance and public services as well as smart transportation**.
- **Smart grid and smart environmental protection** (driving more efficient resource usage through deployment of IoT and automation of systems).
- **Smart health and smart education**.

Source: 1.GlobalData



~40%

Smartphone users



Short Videos

~40% of Smartphone users are already using Shortform apps in CY 2021. It is expected that the user adoption will increase to ~60-75% of the smartphone user base by CY 2025.

High

Adoption in rural India



Smartphones

The next wave of smartphone adoption is happening in **rural India** which will change the way content is consumed across the internet.

8hrs/day

Online



Millennials & GenZ

The tech savvy generation perceives technology as the means to information and empowerment. Indian Gen Z spends an average of **8 hours** per day **online**.

~40%

Time on regional videos



Regional content

Consumers spend ~40% of their time on regional videos on digital platforms. 90% of internet users in India prefer to consume content in their local language.

The Shortform video segment has the potential to account for 20% of India's digital ad market, which is estimated to reach \$25-35 billion by the end of 2030.

1

India is progressing to become a \$1-trillion digital economy by 2025 and 5G will play a major role.

5G is 5th G for humans and 1st G for machines.

2

3

5G uptake will be driven by consumers and enterprise businesses.

5G lays the foundation for a connected society and a greener economy.

4

5

5G will bridge digital divide for an inclusive digital economy.





Nokia India
7th Floor, Building No 9A, DLF Cyber City, DLF Phase III
Gurugram -122002, Haryana, India
Tel. +91 124 4504000

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With our commitment to innovation and technology leadership, driven by the award-winning Nokia Bell Labs, we deliver networks at the limits of science across mobile, infrastructure, cloud, and enabling technologies.

Adhering to the highest standards of integrity and security, we help build the capabilities we need for a more productive, sustainable and inclusive world.

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