

Why India has announced its 5G plans

Mumbai: Even with a fourth generation, or 4G, connection, making an uninterrupted cellphone call or surfing the internet on your mobile remains a challenge for many users. Especially if you are in a moving vehicle, a small town or village, or any area where there are fewer base stations and towers.

Regardless, India is readying to implement the fifth generation, or 5G, networks, by 2020 in a bid to speed up its “Digital India” and “Make in India” initiatives and keep pace with “global technology adoption” where the younger generation is used to connected devices like smartphones, smartwatches, other smart wearables, Artificial Intelligence (AI)-powered devices and are looking forward to driving connected cars.

On Tuesday, the government announced it has set up a 5G India 2020 Forum comprising secretaries, experts and academics. The government added it will create a corpus of Rs500 crore for an “early” 5G roll-out. India, according to the government release, is aiming at “a globally competitive product development and manufacturing ecosystem targeting 50% of the Indian market and 10% of global market over next five to seven years”.

The government hopes that this move to usher in 5G will help companies design and manufacture 5G technologies, products and solutions in India, thus developing some “essential IPR (intellectual property rights) in the 5G standard”, besides facilitating “accelerated deployment of next generation ubiquitous ultra-high broadband infrastructure with 100% coverage of 10 Gbps (gigabits per second) across urban India and 1 Gbps across rural India”.

What does this actually mean?

The telecom world has seen a new mobile generation roughly every 10 years since the first 1G system was introduced in 1981. The first 2G system started to roll out in 1992 while the first 3G system first appeared in 2001.

The 3G network is several times faster than the 2G one. Almost all telecom firms claim that they can provide speeds up to 21.1 Mbps on their 3G networks but real download speeds invariably fall when shared among users. Besides, most telecom firms have a “fair usage” policy wherein speed drops after reaching a specified download limit. 4G, at least technically, should have data speeds capable of reaching 100 megabytes per second while on the move, and 1GB per second when stationary.

However, 5G networks can increase download speeds to up to 10 gigabits per second. This implies that a full HD movie can be downloaded in a matter of seconds as opposed to a 4G network that can take more than an hour to do so.

5G is the next-generation mobile technology defined by 3GPP (3rd Generation Partnership Project)—the standards body that also overlooked the development of 4G LTE standards. A 5G user will be able to seamlessly use 5G, 4G (LTE), and wi-fi since 5G will interwork both with 4G and wi-fi, according to Qualcomm Technologies Inc.

Hence, for 5G to be successful, 4G has to attain maturity.

On the 5G devices front, experts expect customer premises equipment (CPE) to appear first, followed by tablets and terminals. 5G, say experts, will be able to handle more data, connect more devices, and significantly reduce latency—the time it takes for a packet of data to get from one

designated point to another. 5G also enables Multiple Input, Multiple Output (MIMO) and promises to improve network capacity, thus improving the quality of service (QoS).

Operators around the world, including India, are developing a 4G or long term evolution (LTE) footprint in a bid to provide better coverage to the consumer. 5G will not be an overlay network, it will work in tandem with 4G. So, for operators to be relevant in 5G, they would need to have a very good quality 4G network.

For instance, India's largest telecommunications service provider, Bharti Airtel Ltd is deploying India's first MIMO technology. Airtel is starting with the first round of deployment in Bengaluru and Kolkata and will expand to other parts of the country soon, the company said in a press release on Tuesday. MIMO technology expands existing network capacity by "five to seven times using the existing spectrum, thereby improving spectral efficiency", Airtel added.

Introducing 5G also has economic benefits.

These benefits, according to the Organization for Economic Cooperation and Development (OECD) Committee on Digital Economic Policy, include an increase in GDP, additional employment and faster digitization.

In his keynote speech on 14 September at the International Motor Show in Frankfurt, Germany, Qualcomm CEO Steve Mollenkopf cited the IHS 5G economic impact study, noting that the 5G mobile value chain alone could generate up to \$3.5 trillion in revenue in 2035, and support up to 22 million jobs. The study also forecasts that in the same period, the total contribution of 5G to "real global GDP growth is expected to be equivalent to a country the size of India".

5G, [according to Qualcomm](#), will also "natively support all spectrum types (licensed, shared, unlicensed) and bands (low, mid, high), a wide range of deployment models (from traditional macro-cells to hotspots), as well as new ways to interconnect (such as device-to-device and multi-hop mesh)".

5G is yet to be standardized, yet vendors are investing in 5G development efforts. Major companies that are involved in the development and deployment of these technologies include Alcatel-Lucent, Ericsson, Huawei Technologies, Nokia Solutions and Networks, AT&T Inc., Motorola Solutions Inc., NTT DOCOMO Inc., Samsung Electronics Co. Ltd., China Mobile and Verizon Communications.

In fact, on 28 June at Mobile World Congress (MWC) in Shanghai, China Mobile and Huawei jointly showcased the world's first 5G core network prototype on the service-based architecture (SBA). The prototype adheres to 3GPP's 5G SBA standard.

According to ReportsnReports.com, an online market research firm, 5G networks are expected to "generate nearly \$250 billion in annual service revenue by 2025".

Meanwhile, Asia-Pacific region countries, including South Korea, China and Japan, are teaming together to research on frequencies for 5G mobile telecommunications to secure early both 5G frequencies and their position as leaders in the technology, according to a 26 September [report](#) in BusinessKorea, an online Korean portal.

Chinese operators are on track to launch commercial 5G networks by 2020 and are expected to establish China as the world's largest 5G market by 2025, according to a [study](#) released on 28 June by GSMA Intelligence and the China Academy of Information and Communications Technology (CAICT).

Countries including South Korea, China, Japan, the US, the UK and Brazil are expected to roll out 5G networks by 2020. Even the Pakistan government in April [said](#) it will roll out 5G networks soon.

If India wants a truly connected future, it has its work cut out.

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