

TV RAMACHANDRAN

## A WAITING GAME LIKE GODOT

While private 5G thrives globally, India's rollout is stalled, leaving industries in urgent need of digitalisation and competitiveness waiting for answers



**S**amuel Beckett is famous for his play Waiting for Godot, where two characters wait interminably for Godot, who never comes. So, it is in India with private 5G.

Although there is considerable acclaim for the globally fastest and largest rollout of public 5G, there is little or no sign of private 5G in India, even though the Union Cabinet passed a four-fold policy (based on TRAI recommendations) on 15 June 2022, more than two years ago.

Why is private 5G not happening in India while there is much global excitement?

### PRIVATE 5G IN EUROPE

As of May 2024, there were 109 private 5G networks in Europe, up from 94 reported just three months earlier in February 2024, according to the 5G Observatory. Notably, 36 of these were non-telco private networks deployed by companies such as Brussels Airport in Belgium, ADP Group (Hub1), Air France, Bosch, Panasonic, Rohde & Schwarz in Germany, Saab in Sweden, Paris Metro/

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Société du Grand Paris (SGP), the Port of Antwerp in Belgium, Onex (a shipbuilder in Greece), and Fiskarheden Sawmill in Sweden.

The European Commission has shown particular interest in the spectrum bands used across member states for private network deployments, observing that currently, only a limited set of frequencies is being used in some countries. For instance, Germany's regulator has allocated a dedicated 100 MHz portion in the 3.7 GHz to 3.8 GHz range for vertical industries, enabling the creation of 5G campus networks.

### PRIVATE 5G IN THE AMERICAS

While there is no specific public record of all private 5G network applications, it is well-known that organisations looking to set up private 5G networks typically apply for licenses to use certain spectrum bands, such as Citizens Broadband Radio Service (CBRS). It refers to unlicensed spectrum in the US that can be leveraged for private 5G or private LTE networks and consists of 150 MHz in the 3.5 GHz band (from 3.55 GHz to 3.70 GHz), also known as 'Band 48'.

In the USA, at least 11 major corporations, including Ford Motor Company, John Deere, General Motors, Honeywell, Walmart, Koch Industries, Phillips 66, UPS, Chevron, Cargill, and The Gale South Beach, are using private 5G networks across a wide range of industries, from manufacturing and agriculture to retail, energy, logistics, and hospitality.

Use cases include enhancing production and automation in factories, optimising operations, precision farming, inventory management and logistics, safety in industrial operations and oil fields, monitoring and automation in refineries, and improving supply chain management and production efficiency. At The Gale

South Beach resort, private 5G networks cover the property indoors and outdoors, offering 5G mobile coverage for guests visiting the hotel's dining outlets, rooftop pool, public spaces, and guest rooms.

Many large companies in Canada and Latin America have also deployed private 5G networks. These include Air Canada in aviation, Magna International in automotive, Nestle (Brazil) in food manufacturing, John Deere in agriculture, Petroleos Mexicanos (Mexico) in energy, Embraer (Brazil) in aerospace, and BMW Group (Brazil) in automotive.

### PRIVATE 5G CHINA AND OTHER COUNTRIES

China's progress in private 5G is nothing short of remarkable. Reports indicate that by the end of 2023, the country will have developed a staggering 31,600 5G virtual private networks, 2.2 times higher than the previous year's end. 5G industry applications evolved from point-to-point demonstrations to large-scale replication in some areas.

Overall, the number of 5G application cases in China is estimated to have exceeded 94,000, integrated into 71 of the 97 major categories of the national economy. These networks cover 70% of major industries and are replicated in sectors such as mining, electricity, and ports, spanning 31 provinces and all prefecture-level cities in China.

Globally, 55 countries have deployed private networks based on LTE or 5G or have been assigned 5G-suitable private network spectrum licenses. Additionally, private network installations can be found in offshore locations serving the oil and gas industries and on ships. Outside of China, Berg Insights projects that there will be 13,500 private wireless networks by 2026—a tenfold increase compared to 2021. According to Analysys Mason, the

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## IN BRIEF

- **Europe's surge:** Europe has 109 private 5G networks, with Germany leading in allocating dedicated spectrum for industrial 5G campus networks.
- **US growth:** Major US corporations like Ford and John Deere use private 5G for automation, logistics, and efficiency in various industries.
- **China's lead:** China boasts over 31,600 private 5G networks, covering 70% of key industries like mining, electricity, and ports, leading global adoption.
- **Global expansion:** By 2026, private 5G networks are projected to grow tenfold globally, with 55 countries already deploying LTE/5G networks.
- **India's delay:** Despite approvals, private 5G networks in India are lagging, hindering the country's competitiveness in manufacturing and digitalisation.

number of private LTE/5G networks worldwide is expected to exceed 60,000 by 2028.

## MAKING SENSE OF THE INDIA STORY

If private 5G networks are such a hot favourite worldwide, one wonders why India is missing out. This is despite TRAI recommending it to DoT and the approval by the Union Cabinet. This is indeed perplexing. It is not that private 5G lacks relevance for India—quite the contrary. In fact, it is arguably more important for India than for many other nations.

Given its size, capabilities, and strong democratic foundation, India faces high geopolitical pressure to become an alternative global hub for manufacturing and other sectors. However, while India has a large workforce and other key advantages, it lags behind other contenders, like Vietnam, due to lower efficiency and higher costs—caused mainly by outdated manufacturing tools and techniques.

India urgently needs to implement digitalisation across factories, enterprises, transportation, healthcare, and agriculture to stay competitive in terms of quality, costs, and efficiency. Introducing private 5G in these sectors would be critical in achieving this.

Of course, there are a few examples, such as Airtel's work with Bosch in Bangalore and partnerships with Tech Mahindra. However, these pale in comparison to the developments elsewhere in the world. India desperately needs private 5G across multiple sectors to drive digitalisation and remain globally competitive.

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*Views are personal.*

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