

# Hype, hope, and hard truths

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5G Fixed Wireless Access is being touted as a saviour for 5G in India. But, the truth is it can only provide temporary succour

**ONE YEAR AFTER** the launch of 5G in India, it is an open secret that the technology does not provide business viability, this being couched in euphemistic terms as “inability to monetise 5G”. India is not alone in this finding; the global experience is similar over two years of operation. This is unsurprising since the experience everywhere is that the real use case of 5G today is only speed and, generally speaking, 4G speeds are more than adequate to provide good quality of experience for customers using smartphones. In fact, 10-15 Mbps speeds are enough to get good video streaming experience and satisfactorily handle most other applications in everyday use including casual online gaming. Advanced/specialised applications like AR, VR, immersive gaming etc would require higher speeds but such usage alone is not enough for business viability. Further, experts believe that 4G itself can deliver much higher speeds since Indian 4G speed has been only about half of international norms. Thus, customers are somewhat indifferent to 5G and only about 15% have upgraded from 4G.

5G FWA (Fixed Wireless Access) is now being hyped as the messiah—the saviour of the huge investments made and is envisioned as the ‘use-case’ to bridge the digital divide and provide fixed-like connectivity to remote/inaccessible locations, where years of effort

have not yielded results. In fact, the latest phase of BharatNet approved by the Cabinet and involving an outlay of ₹1.39 trillion includes the government’s plan to use both 5G FWA and Satcom to reach unconnected villages. Much, therefore, hinges on the success of 5G FWA.

In the above context, some facts need to be understood. Firstly, 5G FWA is neither a use-case nor a newly-discovered application; in fact, it is not an application but a rollout technique and an age-old solution at that. In the early 90s, before even the advent of cellular, DoT used to provide 8 MHz of CDMA spectrum to basic operators for WLL or Wireless in Local Loop to enable rollout of fixed line connections to inaccessible or “technically unfeasible” areas.

Second, even then, it was used only as a temporary solution until the copper, coaxial cable or OFC could be installed at the location. The reason was that wireless was significantly more expensive to operate as a long-term or permanent solution (temporarily, WLL morphed to become WLLM, but even that was short-lived). If the old CDMA WLL was costly, today’s 5G FWA based on expensive spectrum and networks is far more so,

and, that too, when tariffs are extremely low compared to the earlier days. Hence, 5G FWA would need to be replaced sooner rather than later with OFC and India would incur a double whammy in cost. Incidentally, such a replacement would become necessary since utilisation of 5G data-rich apps through FWA and external antennas would soon lead to network congestion and lower customer experience, as found by the US.

**5G FWA needs in-built modern WiFi technologies which work on licence-exempt 6 GHz; the latter would be essential even for 6G. India needs to act quickly on this**

Third, since FWA is not a use case, we are still looking for enough volume of high bandwidth applications. Some such use cases are becoming available, examples being advanced gaming, AR, VR, 8K video etc. While these can be conveyed by 5G in the outside network, there would be huge challenges in

taking them into buildings since 5G works on high frequencies having poor penetration into buildings. It may be noted that even 6G is planned for high frequencies (for example, India has proposed 7 GHz, 10 GHz and above). Therefore, these signals will have to be delivered to external rooftop/window antennas and conveyed to routers inside the building which provide modern high-quality WiFi, which

would be capable of handling the data-intensive signals. Only then could the benefits of 5G be delivered to the end-users in buildings, who consume about 80% of the data traffic. The current WiFi in India based on WiFi 5 or 802.11ac cannot cope with 5G’s data-intensive apps. We need to adopt WiFi 6E (802.11ax), which works on the 6GHz spectrum, to complement the power and benefits of 5G. Hence, for the commercial success of 5G, it is essential to upgrade our WiFi inside buildings to 802.11ax based on the full band of 1200 MHz of 6 GHz spectrum like leading broadband countries such as South Korea, USA, Canada, Brazil, and Saudi Arabia have done.

Fourth, while IMT cannot co-exist with current services of ISRO, private satellite operators, and the microwave backhaul of telecom operators in the 6 GHz band, WiFi operates at extremely low power and therefore 6 GHz WiFi can smoothly co-exist with the legacy services.

In essence, there is no commercially powerful use case with 5G and customer experience is limited by the form factor of smartphones. 5G FWA could give better results only temporarily and only through more investments. Moreover, 5G FWA has to be urgently supported by in-building modern WiFi technologies which work on licence-exempt 6 GHz; the latter would be essential even for 6G. India needs to act quickly on this.