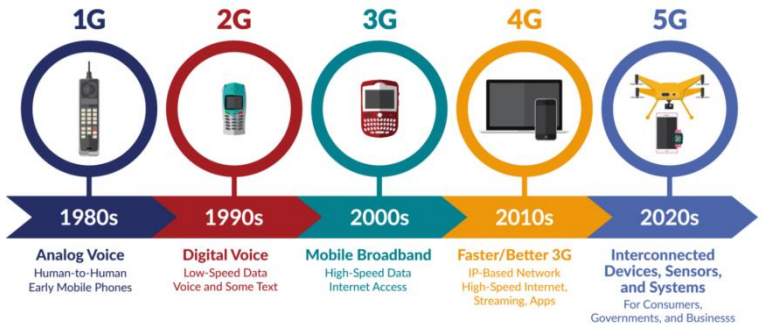
5G: The Fifth Generation Technology for Cellular Networks

Cellular networks deliver communications services by radios and associated antennas that broadcast in various licensed radio spectrum. Users can move or be mobile and maintain the connection to the network, as long as they have a compatible portable device like a cell phone, tablet or laptop.

The technology supporting this continues to evolve. 5G technology, or Fifth Generation, is the upcoming technology and it is the planned successor to the current 4G (LTE) technology.

What is 5G and How Does It Work?

5G refers to the next generation cellular networks.



Like its predecessors, 5G networks are cellular networks, in which the service area is divided into small geographic areas called cells. All 5G wireless devices are connected to the internet and telephone network by radio waves through a local antenna in the cell. Unlike previous generations, however, 5G technology can use higher spectrum bands, which allows for large data capacity.

The main benefits of next generation networks are:

1. fiber-like speeds over 1Gbps;
2. lower latency enabling near real-time communications; and
3. the capability to connect massive numbers of devices, including IoT devices and remote sensors.

To achieve the promises of 5G, not only do you need the next generation of technology to be deployed on networks, but you also need a 5G-enabled wireless device. 4G devices will be able to connect to 5G networks but won't be able to access the new 5G functionalities such as the faster access speeds and downloads.

The modernization of cellular networks typically starts in urban areas and is progressively rolled out to rural areas. It is possible that cellular networks rely on lower frequencies in rural areas because data transmitted on higher frequencies don't travel over long distances.

Health Concerns

There is a long history of fear and anxiety linking 5G to harmful health effects. They center on claims that non-ionising radiation poses dangers to human health. Health Canada has safety guidelines for exposure to radio-frequency fields in its Safety Code 6 publication. Safety Code 6 is a document that sets out recommended safety limits for human exposure to radio-frequency fields in the frequency range from 3 kHz to 300 GHz.

Industry Canada requires all radiocommunication and broadcasting operators to comply with the regulatory standards established in Safety Code 6 at all times.