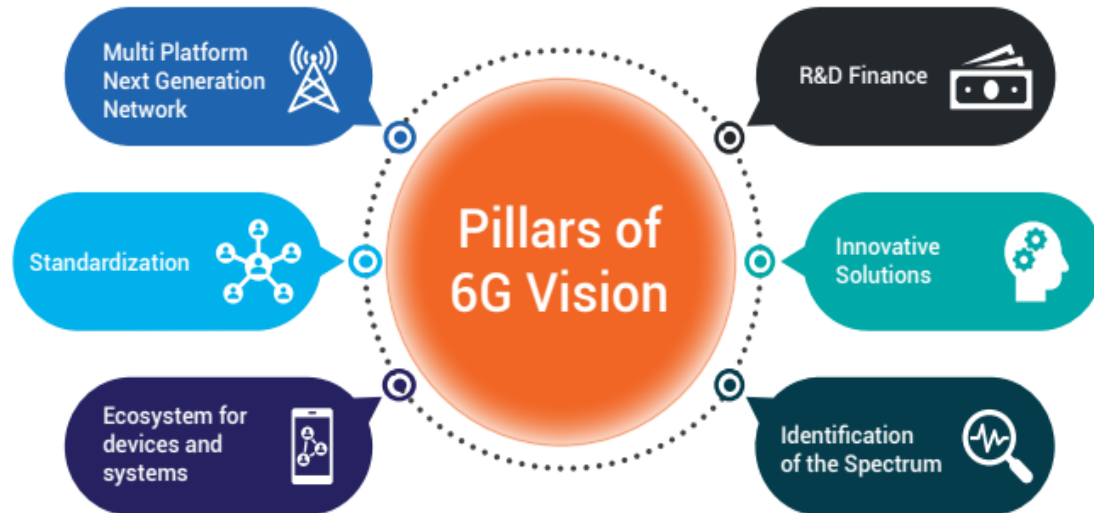


### **3. The Bharat 6G vision document**

**Prelims Syllabus:** Science and Technology

**Mains Syllabus:** GS-III Science and Technology - Awareness in the fields of it, Space, Computers, Robotics, Nano-Technology, Bio-Technology, Pharma Sector & Health Science



#### **Why in News?**

- The Prime Minister of India unveiled the Bharat 6G Vision Document in March 2023.

#### **Bharat 6G Vision Statement:**

- Through a 6G vision document, the government has made it clear that it wants to improve India's wireless data consumption and become a global leader in terms of setting up the standards for 6G.

#### **The key goals of the government are:**

- Guarantee every citizen a minimum bandwidth of 100Mbps
- Ensure that every gram panchayat has half a terabit per second of connectivity
- To blanket the country with 50 million internet hotspots, with thirteen per square kilometre.
- In order to achieve the intended goals, the government is looking to promote local manufacturing of telecom gear, support domestic companies and involve engineers in international discussions around standardisation.
- In the vision document, the government has also acknowledged the delays in the adoption of previous generations of telecommunication technologies in India and the government does not want to repeat the same. For example, 5G was adopted in India, years after countries such as South Korea and the U.S. had adopted it in their major urban centres.

- The government in the vision document has said that the spectrum has been congested currently, especially in the low and mid-bands. Such frequencies in 4G networks may not be able to keep up with the demand for traffic.
- More data can be transferred in higher frequencies.
- Apart from promoting greater participation in standardisation discussions, the government through the vision document also looks to extend financial support to research and development in order to advance connectivity goals, leveraging talent in academia and companies.
- As per the government, an apex body would be established to take Bharat 6G Vision forward for its implementation.

### **Difference between 6G and 5G:**

- The 6G technology ensures that the websites would load faster, videos look better, and files download faster.
- The 6G technology offers much lower latency, which is the time taken for a data packet to move from one place to another.
- 6G is anticipated to provide higher speeds as compared to 5G.
- Higher speeds and lower latency associated with the 6G networks will help deliver new-age innovations such as holographic communication, improved artificial intelligence, and expanded reality (XR).

### **Path ahead:**

- According to the vision document, satellite constellations will connect telecom towers and base stations, integrating networks and extending them to rural areas.
- Further, countries such as South Korea, Japan and Germany are working in mission mode to adopt 6G technology by encouraging the development of key original technologies and domestic production of core equipment.
- India must look to collaborate with such countries to fasten the adoption of 6G technologies in India.
- The Bharat 6G Vision statement also cites Europe's equivalent of the document which says that "the key vision is to ensure leadership in strategic areas and establish secure and trusted access to key technologies making Europe a sovereign, independent, and reliable source for 6G public and private network solutions and services."