G7 Digital and Tech Track Annex 2
G7 Vision for future networks in the Beyond 5G/6G era

1. In the Beyond 5G/6G era, the increasingly digitalised environment is paving the way for real-time and interactive activities, particularly mission-critical operations such as automation and telemedicine. We share a common vision for future networks with the following elements to realise the potential of the digital environment in the Beyond 5G/6G era.

2. **End-to-End High-capacity and Ultra-low latency**
    To realise end-to-end high capacity and ultra-low latency services, not only radio access network but also the whole network architecture should be considered in designing and developing critical technologies and standards for future networks. This element may lead to higher network connectivity and data rate in high-speed trains or other mass transport systems.

3. **Energy Efficiency and Environmental Impacts**
    In order to minimise the energy consumption and environmental impacts associated with increased data traffic, a significant reduction in overall network power consumption and development of eco-designed network equipment are essential factors for a sustainable digital society.

4. **Multi-layered network**
    Network connectivity should be enhanced through developing and deploying multi-layered networks with terrestrial networks, submarine cables, and non-terrestrial networks (NTN) such as Low Earth Orbit (LEO) Satellites and High-Altitude Platform Station (HAPS), and we recognise the importance of seamless interoperability between these networks. In particular, NTN is expected to provide new options to build cost-effective and reliable digital infrastructure, especially empowering developing countries to realise universal digital connectivity.

5. **Frequency Efficiency**
    With smaller cell diameters in the same spectrum a higher frequency reuse rate can be achieved. This may reduce the energy consumption of mobile networks, such as Beyond 5G/6G networks. Also, it will significantly increase the date rate and bandwidth utilisation.

6. In addition to the above elements, we recognise that openness, interoperability, and modularity are important elements of future networks in the Beyond 5G/6G era.