

**THE DEVELOPMENT OF 5G DIGITAL  
INFRASTRUCTURE IN CHINA**

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## Executive Summary

1. In January 2022, China adopted the *Plan for the Development of the Digital Economy* following the release of the 14th Five-year Plan in 2021 and other initiatives to develop innovative high technology for digitalising the Chinese economy. The plan proposed constructing fifth generation (5G) mobile communications networks with high data speeds and quick response time (low latency).
2. The context for the development of the 5G infrastructure is related to the concept of new infrastructure launched at the Central Economic Work Conference in December 2018. As much as RMB17.5 trillion (about US\$2.47 trillion) will be invested in new infrastructure from 2020 to 2025, from public and private capital.
3. China's government allocated licences for the 5G spectrum in the mid-band frequency range to three state-owned mobile operators in 2018 to prepare for 5G services launch in 2020. The Chinese market for 4G smartphones had saturated in 2019 and the launch of 5G services will persuade customers to upgrade their mobiles, with 266 million units of 5G mobile phones shipped at the end of 2021.
4. Thus, the rollout of 5G networks in China was already in full swing in 2019, and by end 2020, China boasted access to 690,000 5G base stations. By end December 2021, China had 1.43 million 5G base stations, or over 60% of the global total.
5. China hopes to integrate digital and real economies, including utilising the 5G network to develop applications of the industrial Internet of Things (IoT); in early 2021, the Ministry of Industry and Information Technology (MIIT) released an 2021-2023 action plan to build 30 “fully connected” 5G factories in 10 key industries.
6. China also hopes to move to the forefront of 5G and IoT applications the same way it will transition to the new Internet protocol version 6 (IPv6). The Cyberspace Administration of China has announced a plan for IPv6 to occupy 50% of Chinese

internet traffic in 2023, 70% in 2025 and in all industries and economic and social sectors by 2030.

7. Chinese telecommunications equipment producers have eagerly developed indigenous intellectual property related to 5G, led by Huawei with a declared 13.53% of global 5G patent families. The Standards-Essential Patents (SEP), where Huawei also occupies a leading position, has 23.18% of 5G technical contributions approved by the international standards-setting organisation 3GPP.
8. Under development globally is the 6th generation wireless systems, which embrace a wide range of systems, including integrating terrestrial wireless with satellite systems. In June 2019 the MIIT set up the IMT-2030 (6G) promotion group, bringing together all aspects of the industry, academia and research to fully deploy 6G requirements.
9. Much however depends on the development of innovative applications that can encourage mobile consumers to benefit from the new capabilities of 5G networks and in turn help industries introduce IoT hardware and software to enhance productivity and economic growth. As the cooperation of both public and private actors is needed, it is too early to tell if China will gain from its 5G infrastructure.