ECONOMIST INTELLIGENCE | EIU

Technology and telecoms in 2022

A report by EIU

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Technology and telecoms in 2022: geopolitical tensions

Key forecasts

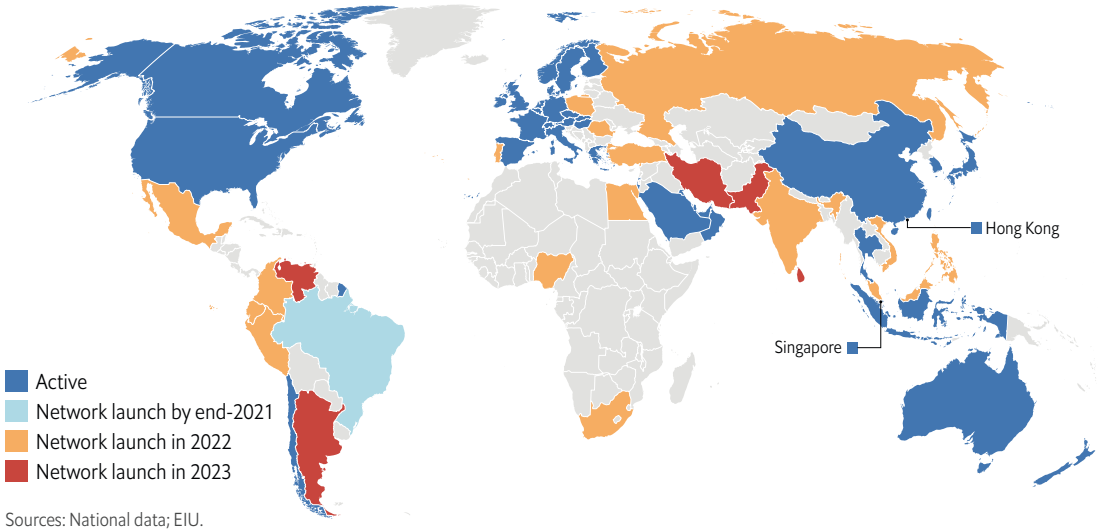
- Of 60 major telecoms markets, 16 will launch 5G services in 2022, but challenges in spectrum availability and pricing will cause delays.
- Technology and politics will continue to be interlinked. The semiconductor shortage will persist, making onshoring of chip production a strategic priority for countries.
- Governments will tighten regulations to boost cyber security, which will be the main short-term risk to digitalisation progress, but discrepancies between countries will often dilute the impact.

5G adoption will be a priority but will face challenges

The Covid-19 (coronavirus) pandemic derailed many countries' plans to roll out fifth-generation (5G) mobile networks in 2020-21, but the pace of digitalisation will force governments to get back on track. EIU expects 16 out of the 60 major telecoms markets to launch commercial 5G networks in 2022. Most of these countries have commenced 5G pilots in major cities, and operators are waiting for spectrum to be assigned. However, the path ahead will not be easy going, and many markets will struggle with spectrum availability, pricing and allocation.

Malaysia is a notable example, as it has opted for a single wholesale network (SWN) for 5G, as opposed to the more popular licensing-framework strategy. This means that the country's telecoms operators will not be able to purchase spectrum bands, which will instead be owned by a government

Sixteen countries will switch on 5G in 2022



Sources: National data; EIU.

entity. Historically, SWNs have led to delayed launches, low customer adoption and financial losses for the public entity that owns the network. Such challenges pose significant risks to the country's 5G roadmap.

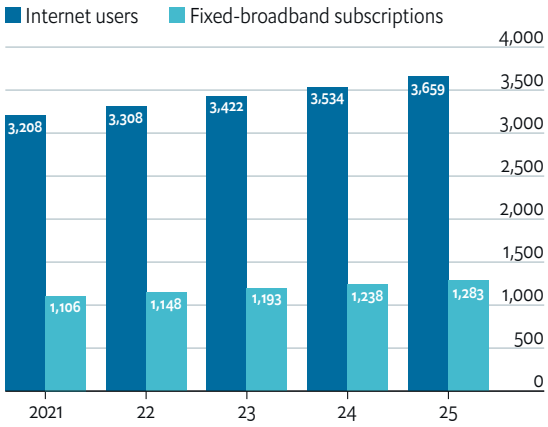
Russia is another country where the planned launch of 5G in 2022 faces hurdles. The unavailability of mid-band (3.5-GHz) spectrum, which is currently used for satellite services in the country, and the decision to create its own encryption algorithm for 5G devices (which will differ from globally accepted 3rd Generation Partnership Project (3GPP) standards) will have significant implications for network operators, as well as chip and smartphone manufacturers.

Satellite internet will be used to try to solve rural connectivity challenges

Non-terrestrial infrastructure will play a key role globally in bridging the digital gap—a policy priority in 2022. Owing to better latency and high network speeds, low-earth orbit (LEO) satellites can be used in remote areas (expanding into which is often not financially viable for traditional telecoms operators), or even in regions prone to natural disasters that can lead to failure of terrestrial infrastructure. Two companies—Elon Musk's Starlink and Bharti Airtel-backed OneWeb—are likely to start off the new year with a little under 2,000 LEO satellites deployed between them. Starlink plans to launch satellite-based internet services in India by end-2022, while OneWeb will look to the Arctic region (which includes Alaska and parts of Canada), as well as India.

While many developing countries will turn to satellite internet technologies to address rural-connectivity problems, adoption will be limited in the short term owing to high costs. Further hold-ups can arise from the need to secure multiple regulatory approvals, owing to national-security concerns related to satellite technology.

Number of internet users globally will rise to 3.6bn by 2025
(m)



Source: EIU.

Cyber security will pose the biggest risk to digitalisation

Technology is becoming increasingly intertwined with geopolitics, as governments see the former as a national strategic priority. This means there will be increased competition around tech regulations, as major jurisdictions such as those of the US, the EU and China, seek to establish their rules as the global standard. Tensions have already risen around privacy, content, antitrust and artificial intelligence (AI), but we expect cyber security to be at the centre of regulatory debate in 2022.

Several major attacks have happened in 2021; more will happen in 2022, posing significant risk to business continuity as more sectors and infrastructure (such as power grids and fuel pipelines) become connected to digital networks. Governments will take a more proactive role, raising their cyber-security budgets. This will include telling companies to implement a basic level of security, as well as air gapping and separating critical parts of the network. Regulators will also introduce basic standards (making

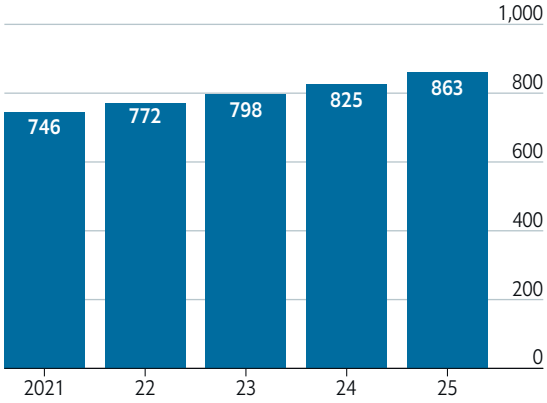
security by design a mandatory requirement) and will ask companies for timely reporting of breaches to the relevant authority. There will, however, be discrepancies between countries and industries, which will often weaken the impact of these rules.

Efforts to onshore semiconductor production will continue

Semiconductors will be a strategic priority for governments in 2022, as the shortage will continue into the latter half of the year, further fuelling geopolitical tensions. Governments will aim to bring production facilities for industries such as automotive, for which the shortage has had a particularly damaging impact, closer to the location of final assembly.

As IT spending rises, so does the risk of cyber attacks

(spending on information technology; US$ bn)



Source: EIU.

China will continue with its protectionist, self-reliant approach, looking to control every aspect of the supply chain so as to avoid any sanctions stemming from the use of foreign products. Despite having engaged in discussions, the US and the EU will compete with each other to offer subsidies to companies and strengthen their chip supply chains. However, unlike in China, some foreign companies will be welcome to build plants in the US or Europe. This trend of onshoring production will be visible for a range of consumer electronics products as well, especially in Asia. Countries such as India and Vietnam have been offering tax and other incentives to expand their domestic electronic manufacturing sectors.

What to watch for in 2022

Tech regulation in the US and EU: 2022 should be a major year for technology regulation on both sides of the Atlantic. In the US, the focus will be on implementing infrastructure plans contained in the multiple bills presented to Congress in 2021. In the EU, the legislative process will continue for the Digital Services and Digital Markets Acts, while the Commission will introduce new laws focusing on semiconductors and cyber security.

Nvidia/ARM deal off: When Nvidia bought ARM in September 2020, it gave itself 18 months to complete the deal. The deadline will be missed, but the stakes will rise in 2022. If the deal is not completed by the end of the year, Softbank can activate a break-up clause. We expect one of the major regulators—EU, UK, US or China—to veto the deal before that.

3GPP Release 17: The next 5G standard, Release 17, will be frozen by September 2022. It will provide improvements in terms of New Radio (NR) and network slicing, but the major changes will come in the areas of industrial internet of things (IoT) and ultra-reliable low-latency communications, enabling new verticals such as Vehicle-to-Everything (V2X) communications.

3nm semiconductors: In the second half of the year, TSMC will start producing the latest generation of semiconductors, based on 3 nanometre (nm) technology. This will improve density and speed, and reduce power consumption. These chips will go into both mobile and high-performance computing applications.

Delays in India's 5G Auction: Indian telecoms regulators are planning a 5G auction in March 2022 for spectrum across mid- and millimeter wave bands. This timeline will be pushed back to the end of the year, as the process in India involves multiple regulators and there is still no consensus on spectrum pricing, a process that typically takes 4-5 months.

New technologies

The rebranding of Facebook's holding company as Meta points to the growing importance of **extended reality**— which includes both augmented and virtual reality (AR/VR)—to underpin the next computing platforms. Devices such as the Ray-Ban Stories smart glasses have already hit the market, and we expect more to do so in 2022, including the first major AR device from Apple. All major tech companies are focusing on XR, partly to consolidate future growth in the face of intense competition, but also because it should avoid the increased regulation that is affecting their core businesses.

A decision by the European Commission (EC) to mandate one common charger, using USB-C technology, by 2023, will lead to greater focus on **wireless or induction charging**. This will be particularly the case for Apple, the only major manufacturer not using USB-C as a charger. Instead of adding it to its devices, it will improve the current technology and stop offering wired charging, leading its competitors to do the same.

Low-code/no-code (LC/NC) will allow smaller companies, which lack the resources to have big IT departments, to take advantage of digital technology. LC/NC will still require developers, but can be used by many businesses without requiring highly skilled programmers.

Quantum computing will continue to be in the news, even if it does not become a practical reality. Many countries are investing in the technology, and introducing national quantum strategies. Combining ultra-fast processing speeds with lower-energy usage would be a gamechanger in terms of computing.

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