Mobile Operator 5G Capex Forecasts: 2018-2023

EXECUTIVE SUMMARY

Spectrum auctions intended to enable the launch of 5G services are hot news at the moment, given the large sums of money involved. The recently closed Italian auctions for spectrum at 700 MHz, 3600-3800 MHz and 26 GHz generated a massive $7.4 billion for the government. Sweden's auction for spectrum at 700 MHz closed in December 2018, raising SEK 2.8 billion ($310 million). Australia's auction of spectrum at 3.6 GHz also closed in December, raising AUD853 million ($604 million).

Now, all eyes will be on the U.S. auction of spectrum at 24 GHz and 28 GHz (underway as this report went to press), to see whether they will drum up the same level of financial enthusiasm. The value of provisionally winning bids on the 28 GHz spectrum alone had reached nearly $690 million by December 21, 2018, and was continuing.

But once these eye-watering sums of money have been paid, mobile operators will still be a long way from having an operational network. In order to provide 5G services, an operator must upgrade:

- Its base station infrastructure, in order to use the spectrum bands, and to cope with the new 5G air interface;
- Its core network and software systems – perhaps in two stages, to enable 5G non-standalone (NSA) mode and later 5G standalone (SA) mode;
- Its transport network, to cope with the expected increase in traffic from 5G devices; and finally,
- Its cell sites, in many cases needing to deploy thousands of new sites to host small cells operating at mmWave frequencies.

As with LTE deployments, these investments will be spread over years, and they are far from trifling, as recent announcements have shown:

- In October 2018, Docomo announced plans to spend around ¥1 trillion ($8.8 billion) on infrastructure between fiscal year 2019 and 2023 to support 5G services, following an increase of ¥10 billion ($88 million) this year to support pre-5G services. (Pre-commercial services are expected from September 2019.)
• U.K. operator Three has stated that it has committed investments of £2 billion ($2.57 billion) in getting ready for 5G – although this does include pre-5G spending such as the introduction of carrier aggregation to many of its sites, and the acquisition of 5G spectrum.

• The U.S. carriers have started to award very large multi-year contracts for 5G deployment. T-Mobile, for instance, has awarded multi-year contracts worth a total of $7 billion to Ericsson and Nokia.

Such initial contract announcements will be welcome. Vendors in recent years have suffered a softness in the market caused by operators waiting to work out what to do with virtualization and waiting for 5G standardization to get far enough along that they can start launching 5G networks. With some launches already announced – e.g., Verizon’s non-3GPP (but 3GPP software-upgradeable) fixed wireless access (FWA) 5G network, and the Korean operators’ initial 5G services – and various other large-scale launches imminent – e.g., AT&T – they will be hoping the dry period is over.

Mobile Operator 5G Capex Forecasts: 2018-2023 seeks to provide insight into how much might be spent, and where and when. It provides estimates and forecasts 5G capital expenditure (capex) by mobile operators, including investments made by those mobile operators in the fixed transport infrastructure to serve those networks. It includes estimates for capex split by region and network segment.

EXCERPT: FORECAST ANNUAL GLOBAL 5G CAPEX BY MOBILE OPERATORS

Total global mobile operator 5G capex is forecast to grow rapidly from a low base in 2018 to reach nearly $88 billion worldwide by 2023. At that point, it will still be on a strong upward trajectory, and global 5G rollout will be in full swing. Even markets where 5G is installed early will be adding sites to improve coverage and capacity for years to come.