

5G implementation: How the GCC nations leapfrogged the world

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The local governments' keen efforts to pioneer innovations with niche technologies helps GCC outdo the rest of the world in 5G deployment



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There is a lot of hype around the world with regard to the telecom players' 5G roll out plans and the intention of enterprises and countries to leverage the benefits of the technology. With regard to early 5G implementation, one region seems to have stolen a march over the rest of the world in terms of speed of execution and achieving the most mass coverage – the Gulf Cooperation Council (GCC) region. While China made 5G services available in a limited scale late this year, leading Middle East telecom operator Zain had first announced the launch of 5G services in Kuwait in June 2019.

In the world's most technologically advanced nation, the US, 5G fixed wireless broadband internet services from Verizon, C Spire, and Starry are available at a few locations and T-

Mobile, Sprint, AT&T and Verizon have made 5G services available for a few select customers in a few cities. In the US' chief economic rival China, three carriers launched wireless services on October 31, 2019, and again as in the US, 5G services are not widespread.

According to Zain, the company's commercial 5G services today cover 95 percent of Kuwait's populated areas with full coverage imminent. Moreover, in Saudi Arabia on May 10, 2019, Zain Saudi Arabia announced that it had completed one of the first 5G calls in the region on its network. It was one of the first 5G calls in the world without using voice-call apps.

Furthermore, on October 6, 2019, Zain Saudi Arabia announced the launch of 5G commercial services, with the first phase of the rollout being implemented through a network of 2,000 towers that cover an area of more than 20 cities in the Kingdom, which is probably the largest 5G network deployment in the region to date. The company said that it will be followed by a gradual expansion of the network to cover a total of 26 Saudi cities utilising 2,600 towers by the end of 2019.

In Qatar, telecom company Ooredoo claims to have been working on 5G implementation since 2016 and in May 2018, Ooredoo claimed a breakthrough with the launch of what it claimed was the world's first commercial 5G network. In a statement, the company said it had launched a live 5G network on the 3.5GHz spectrum band, effectively beating rival global operators to the call. In the UAE, 5G became available through local carrier Etisalat with the launch of the ZTE Axon 10 Pro 5G phone in May 2019. Earlier in March, the other local carrier in the UAE, du announced that it had conducted the first live 5G data call on its network while rolling out 700 5G sites across the country.

Zain's 5G network in Kuwait is available through the 5G Bolt router for home broadband internet. To use 5G mobile connections, users need 5G capable mobile phones. However, accurate information on the actual number of mobile 5G users in the region is still scarce.

An Ericsson spokesman told **International Finance** that although the number of 5G users in the Middle East can become really significant in five years, as a proportion of all mobile users the number will still be small. "In fact, all major service providers in the region are moving aggressively to launch 5G commercially. According to Ericsson Mobility Report MEA, 5G will reach 60 million subscribers in the Middle East and Africa (MEA) region by 2024 though that will represent 3 percent of all mobile subscriptions in the region," the Ericsson spokesperson said.

In 2019, Ericsson started the commercial roll out of 5G with leading operators in advanced markets and announced 5G commercial launches with Etisalat, STC and Ooredoo. Ericsson was also selected by Batelco to commercially deploy 5G across Bahrain. According to the GSM Association (GSMA), The UAE and the Gulf region are at the forefront globally in terms of 5G launches and plans. Operators in the Middle East and North Africa (MENA) – particularly in the GCC states – are among the first to launch 5G networks commercially. According to GSMA Intelligence, by 2025, there will be around 50 million 5G connections across MENA region, with around 20 million in the GCC Arab States alone.

What's behind the GCC's 5G advantage?

What is the reason for the lead that the Middle East has over other regions in 5G deployment? Zain Group CTO Hisham Allam told **International Finance** that “The region has definitely an edge in viable use cases to the extent in that we have good frequency which is the mid band 2.6 mghz and 3.5 mghz that provides for better coverage and is much more efficient, as opposed to millimetre wave spectrum elsewhere. Moreover, because access to fibre is very limited in the region, especially the markets Zain operates in, 5G will provide massive capacity and is the best alternative. In short, 5G is a perfect fit for region.”

Matthew Reed, Practice Leader for Ovum, Middle East and Africa notes that some of the Gulf markets – the UAE, Kuwait, Saudi Arabia, Bahrain – were among the first in the world to launch commercial 5G services.

Part of the background to those early 5G launches is that the governments of some of those countries are keen to show that they are technologically advanced. They are also keen to show their ability to use a new technology to support their broader national development plans, including economic diversification, Reed told **International Finance**.

The intention on part of the local governments to roll out niche technologies before others and to develop viable use cases fast is definitely one reason behind the Middle East leapfrogging the rest of the world in 5G deployment. Jawad Abbasi, head of Middle East and North Africa (MENA) at GSMA corroborates this fact. “The GCC Arab States have been quick to establish the foundations for global leadership in the deployment of 5G technology moving rapidly from trials to early commercialisation. This has been achieved by proactive government support and close collaboration between mobile operators and businesses,” Abbasi told **International Finance**.

Abbasi notes that intention was followed with action because the governments ensured that there was an emphasis on creating a regulatory environment that allows 5G to flourish by releasing sufficient spectrum so that businesses and citizens can fully enjoy the innovative new services that 5G will deliver.

Bernard Najm, head of Middle East market unit at Nokia, MEA, also backs this observation. “While we see a strong initial appetite for 5G in the US, China, South Korea and Japan, we also see a strong acceleration of 5G launches in the Middle East region in this year. The Middle East has a strong top-down approach, driven by local governments, to adopting new and smart technology for its citizens and residents and we see that this tends to sometimes help these countries leapfrog into new technologies before the rest of the developing world,” Najm told **International Finance**.

In the region, Nokia has worked with telecom operators including du (UAE), Saudi Telecom Company (STC), Zain KSA (Saudi), and Ooredoo Qatar on 5G implementation. From the industry to the government there seems to be clear understanding of the value proposition of 5G in terms of higher mobility. “We see this understanding and awareness of the advantages that mobility brings a society as one of the driving advantages in the Middle East, which has led to the region continuing to have the motivation to invest in and roll out of nascent technologies such as 5G,” Zain’s Hisham Allam told **International Finance**.

5G: GCC will be ahead of the global average

The GCC region will be among the top 5G players, according to GSMA. The GCC states will be slightly ahead of the global average in 5G usage by 2025, with 16 percent customer 5G adoption, compared to 15 percent globally, according to GSMA. 5G progress in the region is mainly driven by mobile operators and governments with the support of mobile technology partners. “Certain GCC countries have ensured that both consumers and businesses will have instant access to 5G as soon as the service becomes commercially available and they installed 5G towers across the country,” Joe Lahham, General manager, TBWA/RAAD, in charge of du told the **International Finance**. “5G progress in the region is also driven by the governments, with 5G set to have a profound effect on each country’s economic performance and GDP. GCC governments are playing an active role in creating the right environment to drive 5G growth,” adds Lahham. 5G innovation and deployment are also part and parcel of the regional governments’ ambitious vision for a technology-driven future.

“In Saudi Arabia, for example, the sheer size of the population and implementation of national policies such as Saudi Vision 2030 will no doubt have a direct impact on rollout plans for 5G, although other countries in the GCC, especially Kuwait and Bahrain where Zain operates, have similar imperatives,” says Hisham Allam of Zain.

Zain KSA recently inaugurated its 5G network at the Neom Bay Airport, an area regarded as Saudi Arabia’s futuristic gateway. Zain KSA also showcased some technologies the 5G network will enable during the inauguration ceremony of the Kingdom’s new ‘welcome the world’ tourist visa. In Saudi Arabia, 5G will be essential to the country’s flagship new city project (Neom). Dubai has also announced that by 2030, autonomous vehicles that will leverage 5G should account for 25 percent of journeys within the emirate.

Which are the first popular 5G use cases in the GCC?

The first popular use case of 5G in the GCC is likely to be the consumption of digital content on 5G devices. “We believe early on, access to digital content at a must faster rate will be the first popular use case powered by 5G. Customers will be able to access videos and exchange content at much faster rates than they do over current mobile networks, and that will prove popular,” says Zain’s Hisham Allam. Allam says that 5G low latency use cases will be rarely applicable in the industrial sector in the region. “However, in the energy industry, 5G will support new levels of industrial safety as technicians remotely control mining and oil drilling equipment,” he adds.

Nokia’s Bernard Najm says that companies in the region are developing many interesting use cases that could transform society and industries in the region. For specific examples already being planned for the Middle East he cites the following:

- Low-latency, ultra-reliable connected cars are expected to be developed in Dubai.
- High level of government and public safety use cases, building on previous 4G public safety networks and taking it to the next level.
- Fully replacing the need for fibre to the home (FTTH) with equal or better fixed wireless connectivity.
- Enabling digital top-quality education across the Middle East, with full classroom interactive experiences for remote schools by interactive HD Virtual Reality (VR) projections.

- Fully automating, monitoring, and controlling shipping and container ports across the Middle East with high bandwidth and highly secure low-latency 5G networks.

Ericsson has identified four industry verticals that form the primary focus of the addressable 5G business potential opportunity in the Middle East and Africa. According to an Ericsson spokesperson, regional service providers not only have established expertise in these verticals, but they also offer clear opportunities for 5G use cases. The verticals include oil and gas, mining, transport and automotive, public safety, critical infrastructure, and manufacturing.

A highlight was the innovative 5G solutions Nokia brought to Hajj this year. Nokia together with Zain Saudi Arabia brought 5G-enabled VR (Virtual Reality) advanced use cases in the Mashaer area and the Holy Mosque area in Makkah. It allowed visitors to experience Hajj remotely as if they are present on site. And with STC, Nokia deployed the first-ever 5G-based volumetric 3D hologram communications during Hajj. This innovative solution was used to provide educational and awareness services to the pilgrims about Hajj rituals. The visitors were able to talk, meet, and interact with a 3D hologram which made them aware of Hajj provisions.

What are the 5G innovations that can happen in the short term and long term in the GCC region? According to Mathew Reed of Ovum, over the next couple of years one can expect to see the development of 5G use cases in vertical markets, such as for automation and remote monitoring in the oil and gas sector or more advanced video services for transport management systems. He says that 5G smartphones will become more widely available from 2020 onwards. The 5G quick-win use case in the Middle East has been the rollout of 5G primarily for broadband.

The next big step for 5G is high data rates and very low latency that are expected to enable a range of new applications and services. “As a long-term objective, the region’s 5G application is expected to emerge in entertainment, health, retail and education, oil and gas, and mining. Governments and operators are collaborating on smart city initiatives to address population-related challenges and deliver socioeconomic benefits,” says TBWA/RAAD’s Lahham.

“Users will experience smart cars that are capable of communicating with traffic lights; augmented reality and 360-degree immersive gaming and movie experiences; and transmitting touch and texture to realize the tactile internet. Truly, the IoT applications that 5G will help enable is limitless,” the Ericsson spokesperson added. Looking at the expected innovations in the next two to three years, Etisalat is expected to demonstrate 5G technology and services including streaming video from drones to VR goggles during Expo 2020. Ooredoo is looking into using 5G in smart-city developments (Lusail), and is working with tech vendors to develop applications for the 2022 World Cup.

5G: GCC still has spectrum challenges to overcome

What are the immediate challenges for the GCC’s 5G plan? The most pressing challenge facing 5G implementation in the GCC is the availability of necessary radio frequencies, including those known as ‘millimetre wave’ frequencies that will deliver ultra-high capacity and ultra-high-speed services.

GSMA's Abbasi told **International Finance** that 5G mmWave spectrum will be identified at the World Radiocommunication Conference 2019 (WRC-19), which will take place in Egypt from 28 October to 22 November 2019. WRC-19 is the only opportunity for years to come for countries to identify mmWave spectrum for 5G use. "The MENA region stands to benefit from better healthcare and education, as well as new benchmarks in industrial productivity, entertainment services and smart transport, but only if we can secure the needed spectrum," adds Abbasi.