TELECOMS INSIGHTS

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Welcome to the first edition of Analysys Mason's *Telecoms insights for the Middle East and North Africa*

Welcome to the first edition of Analysys Mason's newsletter for the Middle East and North Africa (MENA) region. This edition features five articles showing our experts' thinking on a range of topics that are relevant to operators in the region.

Networks. Operators and regulators in the Gulf region are preparing to launch 5G before 2020, despite ongoing questions about the business case. In this article, we review some of the recent announcements made with regard to 5G frequency and roll-out plans in the Gulf region and discuss the relevance of some use cases.

Customer satisfaction. According to our annual Connected Consumer Survey, telecoms operators in the MENA region often score poorly on customer satisfaction (measured using NPS). The growing adoption of 4G has helped operators to drive data consumption but that did not necessarily translate into improved satisfaction levels. We identify the most important factors that are affecting customer satisfaction and discuss how operators can keep their very high-data users happy.

Over-the-top services. Mobile operators in MENA have historically taken a strong defensive position to fend off the OTT threat. However, operators should consider a more proactive approach to monetising VoIP usage, for instance, by offering legal alternatives. We share some primary research on OTT usage in the region and discuss recent examples of bundling OTT voice services in the UAE.

IoT/M2M services. We present some of the IoT initiatives led by operators in the Middle East region, with a particular focus on the deployments of LPWA (low-power wide area) networks. We also provide an analysis of key trends and drivers of the IoT demand in the region, including the total addressable market per sector.

Digital experience. Many regional operators have made progress towards digitalising the customer experience. In this article, we introduce Analysys Mason's Digital eXperience Index (DXI), a tool that can be used to measure the degree of digitalisation of consumers' experiences. We also review some of the operators' customer experience digitalisation initiatives, from self-help apps to digital-first brands.

We welcome the opportunity to discuss your views on these and any industry key industry topics.

I look forward to hearing from you.

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2018 will be the first year for 5G deployments in the region despite lack of a clear use case

> " *Gulf operators will be among the first in the world to launch commercial 5G services.* "

Gulf operators are eager to use 5G to maintain their technology leadership in the MENA region.

The Gulf was one of the first regions to launch 4G services in 2011. Adoption accelerated thanks to the growing penetration of smartphones and extended network coverage. Many operators in the region have recently deployed 4.5G (LTE-A), but some forerunners, such as du, STC and Zain, have been planning for 5G infrastructure deployments and trials since 2017 (Figure 1).

Operators hope to gain a first-mover advantage and maintain their technology leadership by preparing for 5G.

5G undoubtedly comes with many unknowns and challenges: no clear winning use case, the device ecosystem is nascent, and regulators have yet to release suitable spectrum in most cases.

However, over the last 6 months, there has been some positive progress, globally and regionally, to address some of these challenges, which may enable the 5G vision to become a reality.

Figure 1: 5G plans for operators in Iran, Kuwait, Oman, Qatar, Saudi Arabia and the UAE (2018)

Country	Operator	Announcements
Iran	MTN Irancell	Tested 5G with Ericsson in late 2017.
	MCI	Signed an MoU with Nokia to develop 5G technology in 2017.
Kuwait	Zain	Zain successfully tested 5G in 2017, but has not yet announced a launch date.
	VIVA	Lab-tested 5G in April 2017. No launch date announced yet.
Oman	Omantel	Started testing 5G in November 2017 with Ericsson using 800MHz millimetre wave frequency band. Launch not expected before 2020.
	Ooredoo	Conducted a 5G demonstration in July 2017. It plans to deploy the network to enable fixed–wireless broadband and IoT services.
Qatar	Ooredoo	Ooredoo announced in May 2018 that its 5G NR network was 'live' in the 3.5GHz band after it acquired that spectrum in February 2018.
	Vodafone	Vodafone aims to be a fast adopter of 5G with services to be launched by end-2018.
Saudi Arabia	STC	STC started deploying its 5G network infrastructure in 2018 with the aim of commercialising the service in 2019. It has been working with Cisco, Ericsson and Huawei.
	Mobily	Mobily inked an MoU with Nokia and Huawei in 2018 to start testing 5G.
	Zain	Zain and Nokia signed an MoU to develop 5G technology in 2017.
UAE	Etisalat	Limited commercial fixed–wireless service launch planned for September 2018. Etisalat and Ericsson conducted a 5G trial using 800MHz of spectrum in 2017.
	du	du started field trials with Nokia in February 2018 with a plan to commercialise the service in 2019. Limited 5G service will be available before the end of 2018.

Source: Analysys Mason

Some regulators in the Gulf region are supporting operators' 5G initiatives.

Spectrum availability is a crucial precondition for help with pilot projects, trials and pre-standards deployment. A few Gulf-based regulators recently took steps to prepare frequency plans for 5G, driven by ambitious national ICT strategies, such as the New Kuwait Vision 2035, the Saudi Arabia Vision 2030 and the UAE Vision 2021.

- The CRA in **Qatar** announced that the 700MHz, 3500MHz and 26GHz bands are ready for 5G technology.

- **Saudi Arabia**'s CITC is set to issue temporary licences and grant spectrum in the 3.4GHz–3.8GHz and 3.8GHz–4.2GHz bands for 5G trials. Commercial 5G launch is expected in 2020.

- The TRA in the **UAE** is considering offering the 3500MHz band for 5G use. Both operators will start upgrading networks during 2018 ahead of 5G roll-out.

The most immediate 5G use cases in MENA will probably exploit its high capacity and bandwidth.

5G aims to improve nearly all aspects of telecoms and service delivery, in addition to offering higher capacity, high bandwidth and low latency.

The rapid increase in smart device penetration, larger data allowances offered to subscribers and the growing adoption of data-hungry video and audio streaming services have led to explosive growth of data demand in some MENA markets.

For example, Zain reported in its 2017 annual report that average monthly data consumption per subscriber, across the entire base, exceeded 18GB, 14GB and 15GB in Kuwait, Saudi Arabia and Bahrain, respectively.

4G and 4.5G speeds and capacity are probably sufficient for most users in the short to medium term, but operators must embrace 5G to keep up with growing demand for data in the long term, but that is not without risks.

Smartphones are relatively affordable, which encourages 4G adoption, and unlimited data plans are offered with a very high premium in markets like Oman, Qatar, Saudi Arabia and the UAE. Operators that want to position 5G as a 'super-enhanced' 4G service have at least three questions to answer:

- how to design 5G tariffs to accommodate the high bandwidth and high speeds supported

- how to deal with reduced upsell opportunities if more subscribers move to unlimited plans

- how to incentivise subscribers to upgrade to new, more-expensive, smartphones.[1]

There is also a strong case for 5G for fixed–wireless access – that is, using it as an alternative to fibre to provide enhanced mobile broadband to less dense areas. Fixed broadband markets in the region suffer from the dominance of the incumbent over the fixed infrastructure. Operators can bypass this limitation and offer an alternative solution that is more cost-effective than fibre.

Smart city-related projects also offer opportunities to use 5G's support for denser connections to connect homes, buildings and other devices. However, we have not yet seen a credible large-scale IoT use case that requires 5G.

Two other potential use cases for 5G have been widely promoted by vendors and discussed by operators in the region: autonomous cars and VR/AR content.

We believe that these two use cases are less dependent on telecoms network and they are still a few years away from being technically feasible and commercially viable.

- Autonomous vehicles will not depend on 5G connectivity.[2] 5G will only ever be used as a supplementary source of information.

- VR does not offer much opportunity for 5G given that it is more likely to use fibre. AR is more portable and may be more suitable as a 5G use case.

[1] Huawei, Qualcomm and ZTE have announced chipsets for late 2018 or early 2019.
[2] Autonomous vehicles: entertaining passengers may be the big opportunity for telecoms operators.

MENA operators score low on customer satisfaction compared to other regions

> " Our *Connected Consumer Survey* shows that incumbent operators often score poorly on customer satisfaction despite their advantages in network deployment. "

## Operators in MENA often score poorly on customer satisfaction.

Net Promoter Score (NPS) is a standard metric used to measure customer satisfaction. Scores for operators are relatively low in MENA compared to Sub-Saharan Africa and Europe according to our consumer survey results. There is also wide variation in NPS, with Vodafone Qatar having the highest score and Omani operators faring worst (Figure 2).

Challenger operators tend to lead in customer satisfaction in MENA. They appear to be better able to target well-defined customer segments and to introduce innovative packages, which appears to compensate for relative weaknesses in network performance.

Some of the results worth highlighting.

- Orange took the lead in 2017 in Morocco thanks to a superior level of satisfaction with network coverage and customer services.

- Both operators in Oman had low NPS because of customer dissatisfaction with price and data allowances.

- Vodafone Qatar fared better than Ooredoo because its customers were slightly more satisfied with prices and data allowances than were those of its competitor.

- Zain had the edge in terms of NPS because its customers were happier with most mobile service attributes, such as customer service, than those of STC and Mobily.

Figure 2: NPS for major mobile operators in Morocco, Oman, Qatar, Saudi Arabia and the UAE
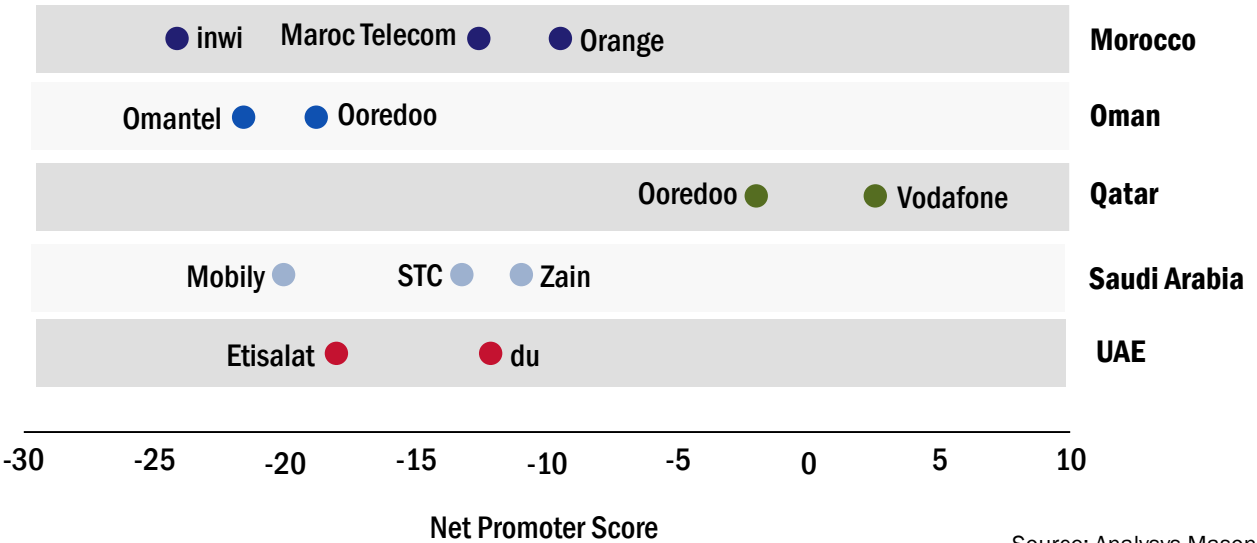
Source: Analysys Mason

Network coverage and price have the strongest overall impact on NPS.

Some aspects of mobile services have a greater impact on willingness to promote (and, therefore, on NPS) than others.

We ran statistical regressions to assess the effect that a one-point improvement in satisfaction rating for different service elements has on NPS, all other things being equal.

We found that network coverage was the strongest single factor in the region. Data speeds also had an impact, but a weaker effect on NPS outcomes.

Operators' poor levels of price satisfaction play a significant role in bringing NPS down but are less important overall than one might expect.

This reinforces the importance of addressing network issues to reduce the impact on customer satisfaction levels.

Operators struggle to increase satisfaction levels of their very high-data users.

Survey results also show that customers were reasonably satisfied, on average, with data speeds. This reflects the improved access to 4G networks and the availability of affordable 4G-enabled smartphones in the market.

While higher data allowances driven by access to a 4G network generally correlated with higher customer satisfaction, there were mixed satisfaction patterns for customers with very high data allowances (Figure 3).

High-data users may feel that they are not getting the value for money that they expected, especially as they pay a premium compared to other regions.[1]

It could also be related to the fact that some high-end tariffs had limitations such as fair usage policy and speed throttling. Customers

like the freedom to use popular apps without constraint and they respond better to approaches that give them control.

Some operators have explored alternative pricing structure to improve customers' perceptions of value, for instance, by zero-rating some services. For instance, Zain (Saudi Arabia) introduced 'Al Shabab' tariffs, which offer unlimited social media including access to YouTube. Our findings show that the adoption of these plans generally correlates with improved customer satisfaction KPIs.

Therefore, we believe that more operators in the region will move from a volume-based data pricing to a service-based pricing approach. This approach can bolster the perceived value-for-money of the tariff and potentially create additional revenue.

This can be achieved by incorporating content into their offerings, including zero-rating content streaming and OTT media bundles.

Figure 3: NPS by self-reported monthly data consumption and by country
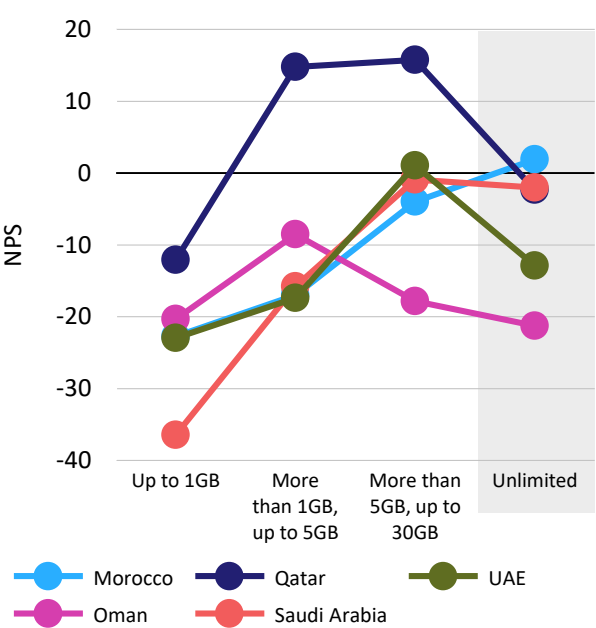
Source: Analysys Mason

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[1] Etisalat charges AED1000 (USD272) for a 50GB monthly data pack. Ooredoo and Vodafone offer an unlimited data pack for QAR500 (USD137).

OTT services remain very popular despite attempts to block them in the MENA region

"While OTT services pose a material threat to legacy revenue, operators should consider a more proactive approach to monetising VoIP usage by offering legal alternatives."

Usage of OTT communications services in MENA is widespread and fragmented.

The popularity of over-the-top (OTT) services in MENA has led mobile operators to adopt a protective approach to defend their voice revenue. Most operators in the region have attempted to neutralise the effect of VoIP services by banning them, often with the support of regulators.

However, their approach has proved less effective than expected as OTT services remain popular, according to a survey of 4500 smartphone users in Morocco, Oman, Saudi Arabia and the UAE conducted in 3Q 2017.

According to the survey results, the dominant application remains WhatsApp, with penetration ranging from 69% in Qatar to 78% in Morocco (Figure 4).

Other apps are also gaining traction, reflecting the diversity of the population.

- Facebook Messenger is a strong challenger to WhatsApp especially in Morocco, Qatar and the UAE.
- imo is in third position in most markets, which could be because the app manages to circumvent network restrictions.
- Skype remains very popular – 46% of respondents said they use the service – but it is less used in Oman where the service is blocked, at least in theory.

Given the ineffectiveness of operators' approach to counter the OTT threat, they should be looking for new ways to monetise the popularity of these services. This is important at a time when large numbers of consumers resort to workarounds to overcome usage restrictions.

Figure 4: Penetration of top four OTT communications apps among smartphone users, by country, 2017

Source: Analysys Mason
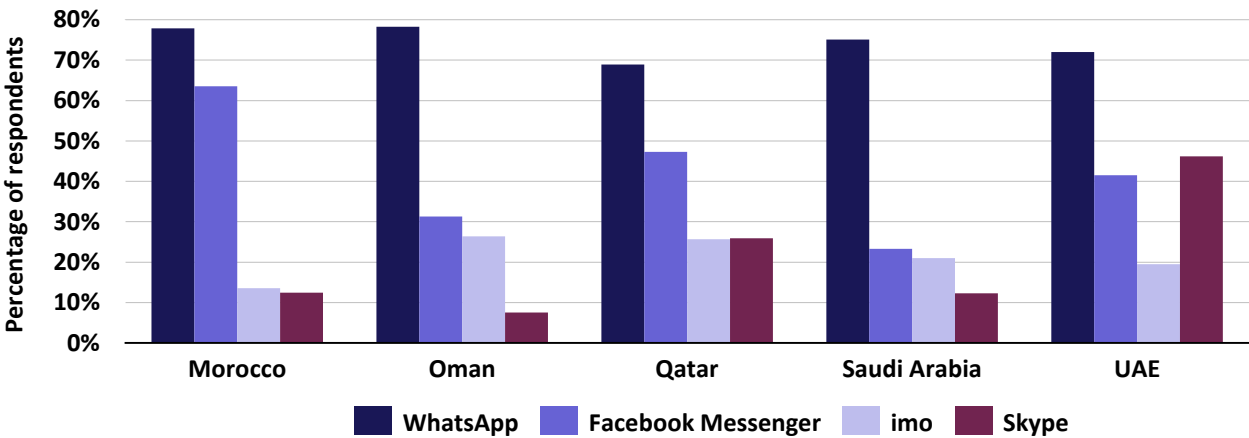
Most regulators and operators block or disrupt OTT voice services, but their position is slowing changing.

Operators in the Middle East have generally adopted a strong defensive stance against OTT players by blocking their services either partially or completely to limit the erosion of revenue from voice.

In recent months, operators have started to change their approach to OTT services and have either permitted some third-party OTT voice service providers or launched their own alternative voice apps (Figure 5).

Figure 5: Examples of regulators' and operators' approach to permitting or blocking OTT services.

Country	Approach
Morocco	The regulator withdrew the ban on VoIP over cellular in November 2016
Oman	Ooredoo launched its own OTT application, OoredooTalk, to target the blue-collar expatriate population
Saudi Arabia	The regulator lifted the ban on some OTT voice services in November 2017. This change resulted in a significant decline in international traffic and revenue
UAE	Etisalat and du announced new VoIP packages in partnership with OTT VoIP service providers. The telecoms regulator began negotiations that might unblock Skype and FaceTime.

Source: Analysys Mason

Operators in the UAE are partnering with OTT voice service providers.

Historically, mobile operators in the region have considered marketing partnerships with OTT messaging providers to capitalise on the popularity of these services and their branding to drive adoption of data tariffs.

However, this model did not extend to the voice features of those applications due to the threat to the large volume international traffic.

Operators attempted to protect international traffic by making international calls more affordable and by introducing phone cards with discounted rates for international calls. Etisalat UAE also launched its own proprietary OTT service in 2015 but it failed to gain traction, potentially due to VoIP calls being charged out of users' standard voice allowance.

At the beginning 2017, Etisalat and du in the UAE launched a new legal VoIP service a few days after they blocked Skype usage in the country. The service offers unlimited app-to-app voice and video calling but is restricted to two authorised third-party applications (BOTIM and C'Me). Both operators offer two tariffs:

- a monthly subscription for a single device for AED50 (USD13.6)

- a multi-device subscription for customers subscribing to the fixed broadband service for AED100 (USD27.2).

While the practice of bundling OTT services is common, especially for social media and messaging applications, offering a voice service as a standalone is relatively new in the region. Analysys Mason believes that Etisalat and du can achieve a much higher return per megabyte compared to standard (app-neutral) price for mobile data. Operators could also offer separate OTT voice packs on top of existing social packs.

Operators should consider introducing bundles to differentiate their services and appeal to consumers who have grown accustomed to using OTT services while the regulations are still protective. This new approach in the region, if successful, could serve as a blueprint for other operators to replicate.

Regional operators focus on the immediate opportunities presented by smart city projects

" Operators should foster the ecosystem around their preferred LPWA technology to enhance their chances of success. "

IoT applications have been mostly linked to smart city projects in the Middle East.

Countries in the Middle East are looking at ways to diversify their economies and reduce their dependency on fossil fuels. This, combined with the very high levels of urbanisation and the hosting of major international events (e.g. 2020 World Expo, Football World Cup 2022) have driven them to make their cities 'smarter'.

IoT has been presented as a key enabler for smart city initiatives. To this end, regional operators have run pilots and introduced products and services that support this vision across different verticals including transport (e.g. fleet management), utilities (e.g. and smart meter solutions) and city management (e.g. smart parking, street lights).

LPWA (low-power wide area) network have been trialled for smart city application across the region for at least two years (Figure 6).

The most popular LPWA networking technologies are Sigfox and LoRaWAN, which are proprietary standards and are mainly deployed in unlicensed spectrum, and NB-IoT and LTE-M, which are 3GPP standards and require licensed spectrum.

While the majority of operators have selected a single technology, a few have adopted multiple technologies. This approach enables them to meet the requirements of different use cases and to increase the chances of selecting the winning technology.

LPWA-based applications present a number of business challenges such as the limited market awareness and the uncertainty on how to successfully commercialise these solutions.

Indeed, most regional operators use LPWA demos to showcase their larger networking infrastructure investments in smart cities, rather than standalone commercial propositions. In these demos, there was limited involvement of other parties from the value chain such as developers and hardware manufacturers.

For operators to become serious about commercialising LPWA solutions, they should invest in fostering this ecosystem through partners and develop their expertise to instil confidence in this new market. They should also leverage their broader IoT capabilities such as device management, app enablement platforms and analytics, to target key verticals.

Figure 6: Key LPWA trials and deployments in MENA, April 2018

Technology	Operators/markets
NB-IoT	Etisalat (UAE), STC (Saudi Arabia), Zain (Saudi Arabia)
LoRaWAN	Ooredoo (Tunisia), Libatel (Lebanon), Ogero Telecom (Lebanon)
LTE-M	Etisalat (UAE), Mobily (Saudi Arabia)
Sigfox	Iran (with Parsnet), Oman (with Omantel), Tunisia (with IoT Tunisie), UAE (with iWire)

Source: Analysys Mason

The total addressable IoT market in MENA region could be worth over USD7 billion by 2022.

IoT has the potential to affect many sectors of the economy and society in the Middle East and North Africa, beyond smart city applications such as smart parking, streetlights and bins.

However, demand for IoT is uncertain in some verticals in part caused by several barriers to adoption in the enterprise sector, including lack of awareness and cost. Even the UAE, which is considered among the most advanced nations in terms of IoT, there are still significant barriers to IoT – according to a survey of enterprises conducted by Analysys Mason, over 60% of enterprises are unsure about, unaware of, or not interested in, IoT.[1]

We believe that this will slowly change as a growing number of proof points demonstrate its potential. We forecast total addressable market to more than double between 2017 and 2022 to USD7.0 billion (Figure 7).[2] Yet, it remains small compared to the overall telecoms revenue (USD72.1 billion in 2022).

The transport sector, including fleet management and freight monitoring, will provide the most significant opportunity for IoT in the region. The sector benefits from a well-stablished business case and a tangible benefits to end users.

The total market revenue in the transport sector will more than triple in revenue from USD774 million in 2017 to USD2.4 billion in 2022. It will overtake the smart buildings sector (which includes cameras, alarms and connected white goods) in terms of revenue in 2019.

Retail (including PoS systems, digital signage and vending solutions) and manufacturing also offer promising growth potential as they take advantage of digitalisation and automation initiatives in the region.

Regional network operators have already invested in the network infrastructure, software platforms and cloud services to support some of these IoT applications. The key question for them is to define what role they want to play in the IoT value chain and what other capabilities need to be developed or acquired to deliver successful IoT solutions.

We believe that regional operators must focus on select verticals that fit both their existing strengths, such as established relationships, and are nationally bound or heavily regulated.

Once the key verticals have been identified, operators will need to decide on whether to develop, acquire or partner to build solutions that address the demand of that local market.

In some sectors, they will also need to build an expertise if they want to pursue an end-to-end strategy and capture most of the addressable market in that vertical, beyond connectivity.

Figure 7: Total IoT value chain revenue by sector, Middle East and North Africa, 2013, 2017 and 2022
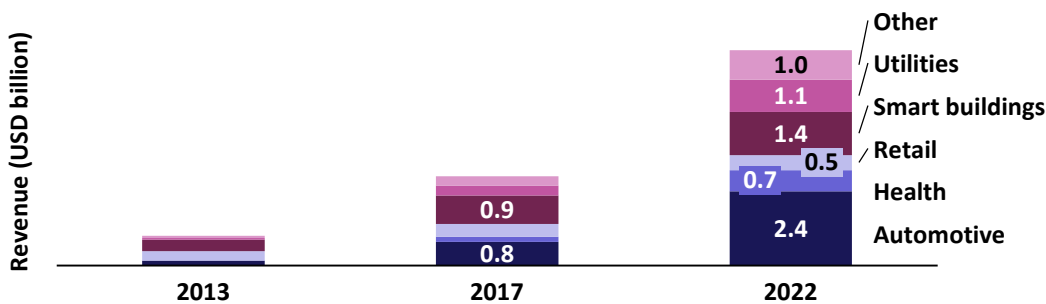
Source: Analysys Mason

[1] Enterprise survey 2017: United Arab Emirates country report

[2] This includes hardware, installation, connectivity, applications and support for services that use cellular or LPWA networks.

Regional operators have made great strides to improve digital customer experience

> " Determining the relative importance of digital experience compared to other business priorities is a first step in the digital transformation journey. "

Revamping the interaction with users is an important step towards digitalisation.

The customer experience that operators in the MENA region provide to consumers has traditionally been poor, with NPSs often in the negatives. The rise of digital-first players like Careem and Souq have raised consumers' expectations for frictionless commerce to a level far beyond that provided by most operators.

One of the critical aspects for operators is digitalising the interaction with the users for both their traditional and new services. An excellent consumer digital experience should encompass instantaneous, transparent and personalised interaction; services should be contextualised to user's preferences; and users should feel in control.

Analysys Mason has developed a tool to measure the level of digital experience.

Most measurement methodologies for customer experience (such as NPS) are based on KPIs and only measure the final result of actions.

In contrast, Analysys Mason's Digital eXperience Index (DXi) provides a way of measuring the experience a consumer has in dealing with an operator during the entire customer lifecycle. It helps to identify one's position relative to competitors in providing a digital experience and to measure progress.

DXI results show that many operators, including those in MENA, have made progress in digitalising customer experience but there are many areas for improvements (Figure 8).

Figure 8: Simplified results of the Analysys Mason Digital eXperience Index 2Q17, per operator.
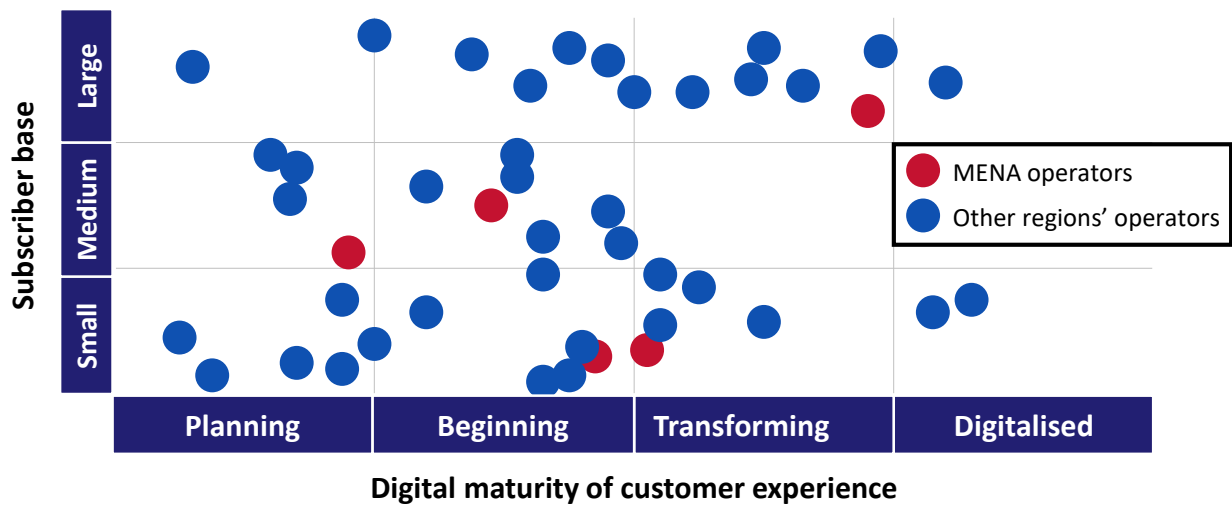
Source: Analysys Mason

Operators have made good progress with digitalising customer experience.

Offering a superior customer experience is a top priority for most operators in the region. This entails using digital channels deliver services and support, and offering a seamless experience across the different interfaces. Digitalising customer journeys also help with customer retention and costs, for example, by reducing call centre calls.

While the majority of regional operators still have a long way to go to implement global best-practices, a few have developed more advanced digital experience capabilities:

- **Etisalat** has a strong vision of its digital future with advanced channel support. It has taken initiatives, such as analytics-driven campaign management solution, and an advanced self-help app, to deliver personalised customer experience.

- **Ooredoo** promotes the use of self-service among its customers through self-care apps. It is also developing its big data and analytics capabilities across the opcos.

- **STC** has invested in a few digital initiatives, such as Jawwy, the digital-first brand, and revamped its customer contact centre platform to enable omnichannel customer experience.

- **Vodafone Qatar** has greatly simplified the onboarding process, allowing customers to select a number, submit documents online and get the new SIM delivered.

- **Zain** is working towards a vision of becoming a digital lifestyle operator. It is seeking to expand its operations beyond self-service to include omnichannel support and automation.

New mobile digital-first brands have been introduced to target the youth segment.

In increasingly saturated mobile markets across the Gulf regions and growing competition from web-scale companies, STC, Etisalat and du (EITC) launched sub-brands (Jawwy, Swyp and Virgin Mobile, respectively) to better target the youth who are already digitally-engaged.

This approach enables the operators to address the needs of niche segments without impacting significantly market ARPU.

These second brands are part of the wider digital transformation programmes undertaken by the operators. These sub-brands integrate with the parent's network but operate an independent IT stack. They aim to deliver telecoms services with a digital customer experience comparable to internet players, unlike the typical low-cost MVNOs in other markets.

That means that service activation and account management are app-based; tariffs can be tailored and adjusted; customer care is digital through self-help and social media.

These initiatives are unlikely to materially change the UAE or Saudi market structures. However, they can help consolidate the parent company's position in the market.

More importantly, it allows them to experiment with radically-different digital models while minimising the risk if that venture fails. Operators can then either progressively migrate their legacy systems and operations to the digital brand after massively scaling it up, or, more realisticly, bring some of the digital experience capabilities and processes to their opcos.

Further reading

Topic	Title	Author(s)
Networks 5G reality check	Unlocking 5G	Federico Torri and Joan Obradors
	MWC 2018 will showcase 5G again, but the telecoms industry should focus on issues other than speed	Roberto Kompany
	5G standards are looming and MNOs must work with partners to resolve business case challenges	Roberto Kompany
	Network implications of 5G	Lim Chuan Wei
Customer satisfaction Customer satisfaction drivers	Connected Consumer Survey 2017: mobile customer satisfaction and churn in the Middle East and North Africa	Karim Yaici and Stephen Sale
	Connected Consumer Survey 2017: mobile services and devices in the Middle East and North Africa	Karim Yaici and Aris Xylouris
	Unlimited mobile data plans: evaluating impact and developing best practice	Aris Xylouris and Stephen Sale
Over-the-top services Addressing the OTT challenge	Connected Consumer Survey 2017: OTT and digital economy services in Middle East and North Africa	Enrique Velasco-Castillo and Giulio Sinibaldi
	Communication services in the Middle East and North Africa: trends and forecasts 2017–2022	Stephen Sale and Giulio Sinibaldi
IoT/M2M services IoT opportunities beyond smart cities	IoT value chain revenue: worldwide trends and forecasts 2016–2025	Michele Mackenzie
	Operator approaches to IoT: from connectivity to platforms and full solutions	Tom Rebbeck
	Enterprise survey 2017: United Arab Emirates country report	Terry van Staden
Digital experience Measuring digital experience	Digital eXperience Index: measuring the digitalisation of consumer experience	Mark Mortensen and Atul Arora
	CSPs' self-assessments for digital transformation: worldwide trends in CSP-to-DSP transitions	Atul Arora, Don Alusha and Mark Mortensen
	Focusing on customer engagement: CSPs and vendors must expand their customer care strategies	Atul Arora

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