The Mobile Economy

Middle East & North Africa

2020

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Contents

Executive Summary

Covid-19 underscores the importance of digital connectivity to society

The Covid-19 pandemic has demonstrated how fundamental digital connectivity is to societies and economies everywhere. With social restrictions put in place to curb the spread of Covid-19, many everyday activities, including work, learning, shopping and social interactions, have moved online. This has allowed separated families and friends to stay informed and connected, and enabled economic activities to continue during the crisis. Digital connectivity has also provided a platform for innovation, facilitating new ways to deliver many essential services remotely, including education and healthcare.

The mobile industry in the Middle East and North Africa (MENA) has largely risen to the challenge of sustaining social and economic activities in the region during the pandemic, despite the unprecedented growth in data traffic. By the end of 2020, nearly 280 million people in the region (45% of the population) will be connected to mobile internet. However, Covid-19 has highlighted the impact of the digital divide for the nearly 350 million people in the region still unable to connect to mobile internet. With digital connectivity expected to play an even more central role in society post Covid-19, it is more important now than ever before to address the barriers to mobile internet adoption and usage in the region.

Surpassing 400 million mobile subscribers

The number of unique mobile subscribers in MENA reached the 400 million mark during 2020, representing around 65% of the population. The mobile market in the region will reach several milestones over the next five years: half a billion mobile broadband connections by 2021, more than half of the population subscribing to mobile internet services by 2023 and 700 million mobile connections by 2025. These achievements will be underpinned by operators' continued investments in network infrastructure. Despite the economic uncertainty brought about by the Covid-19 crisis, operators in the region will invest $70 billion in infrastructure rollouts between 2019 and 2025.

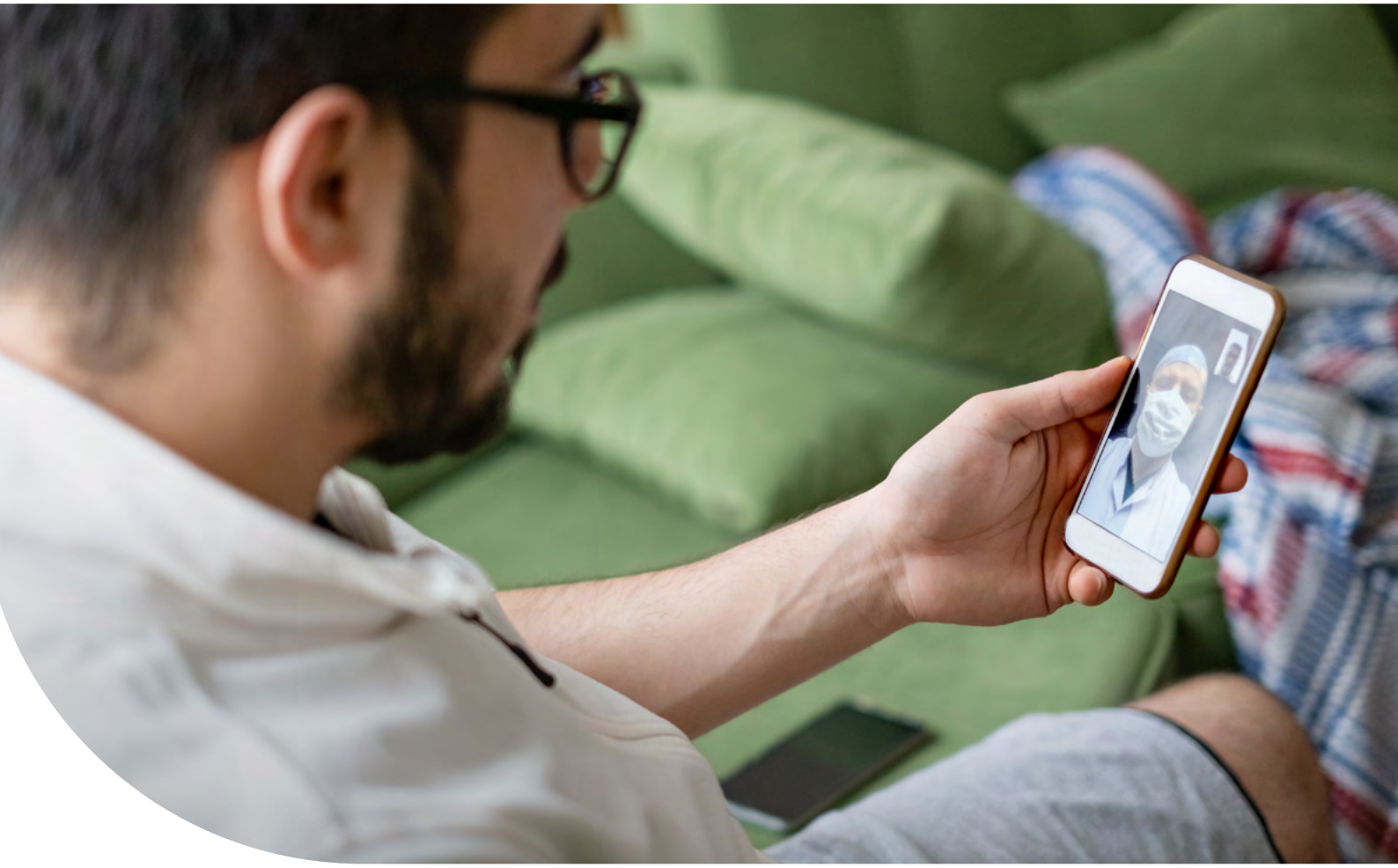
Smartphone adoption continues to rise rapidly in the region, reaching 66% of total connections in 2020, as cheaper devices have become available. Several operators have introduced affordable smartphones, some with financing options, to stimulate mobile broadband adoption. Over the next five years, there will be nearly 200 million additional smartphone connections in MENA, taking the total to 565 million by the end of 2025 – an adoption rate of almost 80%.

5G continues to make progress

New 5G networks were launched in three markets during the during the first nine months of 2020, taking the total number of commercial 5G networks in the region to 15 in seven markets. While Covid-19 appears to have slowed the deployment of 5G networks in non-GCC markets, the 5G leaders in the GCC Arab states have continued to invest in the technology: Etisalat, Ooredoo, STC and Zain have all stepped up their investments in coverage expansion to bring 5G to more users. 5G activities in non-GCC countries are expected to gather pace again from 2021 as economic activities rebound and as governments and businesses accelerate digital transformation plans to support new ways of working in a post-Covid-19 world.

By 2025, there will be just under 60 million mobile 5G connections in MENA, equivalent to 8% of total mobile connections.

Meanwhile, 4G adoption continues to build momentum across MENA; the number of 4G connections has tripled in the last four years to nearly 230 million in 2020. 4G adoption in MENA is driven by network expansion, especially in frontier markets across the region, and concerted efforts by mobile operators to migrate users to 4G networks as part of medium- to long-term plans to shut down legacy networks and free up spectrum for 4G and 5G services. 4G will overtake 3G in 2021 to become the dominant technology in MENA for the foreseeable future.



Mobile industry driving social impact and contributing to economic growth

In addition to providing much-needed connectivity during the Covid-19 pandemic, the mobile industry in MENA has actively engaged with businesses and governments on initiatives to alleviate the impact of the pandemic on citizens. From discounts on data tariffs for educational and health sites to cash and equipment donations to hospitals and humanitarian causes, mobile operators and other industry players have supported the most vulnerable in society during the pandemic while also contributing to economic recovery efforts.

Mobile technologies and services generated 5.7% of GDP in MENA in 2019 – a contribution that amounted to more than $244 billion of economic value added. The mobile industry also supported around 1 million jobs (directly and indirectly) and made a substantial contribution to the funding of the public sector, with $20 billion raised through taxation. The mobile industry's contribution will rise in the coming years as countries increasingly benefit from the improvements in productivity and efficiency brought about by the increased take-up of mobile services.

Policies for a sustainable digital future

Digital transformation is accelerating across MENA. Governments, public institutions, private sector players and development organisations are increasingly using digital platforms to improve lives and power economic growth in the region. It is essential for policymakers in MENA to implement policies and best practices that enable affordable services with world-class capacity and coverage.

Effective management of spectrum is key to maximising the opportunities that mobile connectivity can bring to society. The Covid-19 pandemic has not only shown how important connectivity is but also how mobile operators and policymakers can work together to improve mobile capacity and coverage by providing temporary access to much-needed spectrum, as demonstrated in countries such as Jordan, Tunisia and Saudi Arabia.

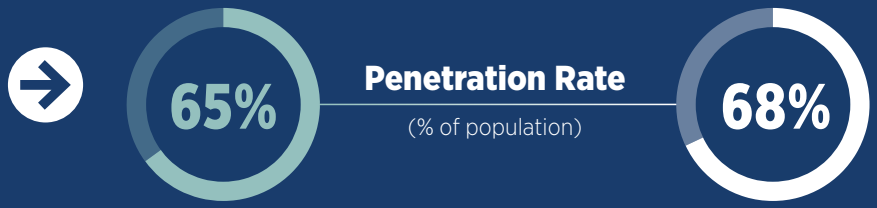
Mobile Economy MENA

UNIQUE MOBILE SUBSCRIBERS

2019-2025 CAGR: 2.5%

2019: 394m

2025: 458m

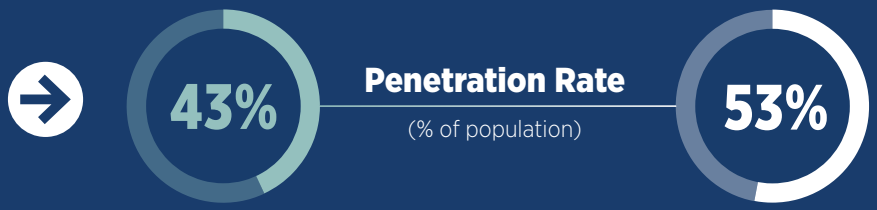


MOBILE INTERNET USERS

2019-2025 CAGR: 5.1%

2019: 264m

2025: 357m



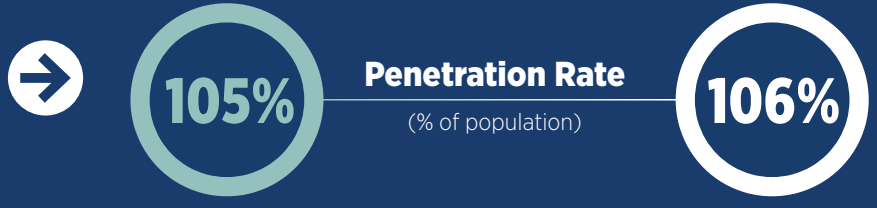
SIM CONNECTIONS

Excluding licensed cellular IoT

2019-2025 CAGR: 1.8%

2019: 636m

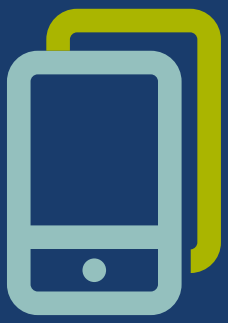
2025: 709m



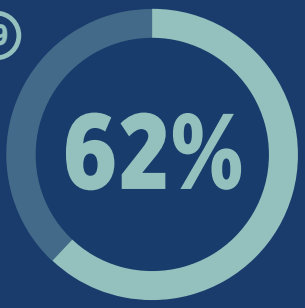
SMARTPHONES

% of total connections

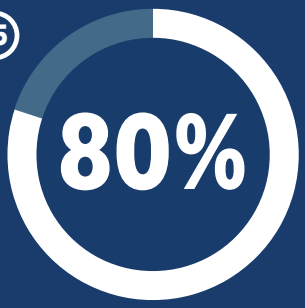
Excluding licensed cellular IoT



2019



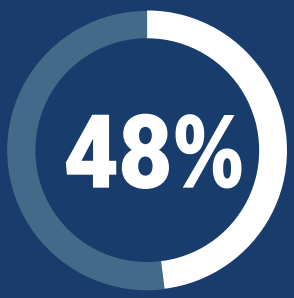
2025



4G

2019

2025



of total connections

Excluding licensed cellular IoT

5G

2025

58m connections

of total connections

Excluding licensed cellular IoT

OPERATOR REVENUES AND INVESTMENT

2019

Operator revenues

$63.1bn

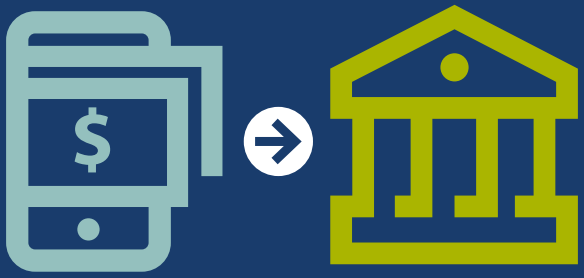
2025

Operator revenues

$65.4bn

Operator capex of $70 billion for the period 2019–2025

PUBLIC FUNDING



2019

$20bn

Mobile ecosystem contribution to public funding

(before regulatory and spectrum fees)

MOBILE INDUSTRY CONTRIBUTION TO GDP

2019

$244bn

of GDP

EMPLOYMENT

2019

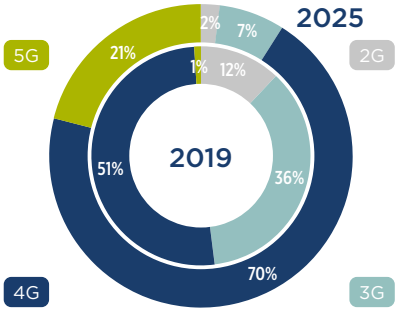
360,000

jobs directly supported by the mobile ecosystem

+640,000 indirect jobs

GCC Arab states

TECHNOLOGY MIX*



SUBSCRIBER PENETRATION

2019 — 2025

77% 80%

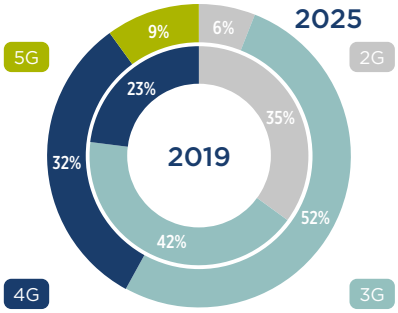
SMARTPHONE ADOPTION

2019 — 2025

79% 91%

Iran

TECHNOLOGY MIX*



SUBSCRIBER PENETRATION

2019 — 2025

72% 76%

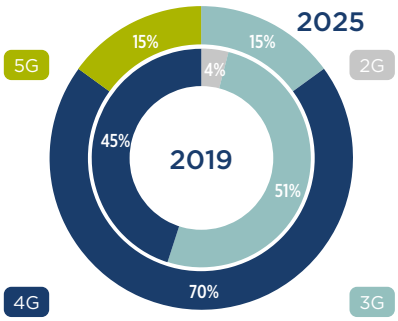
SMARTPHONE ADOPTION

2019 — 2025

61% 77%

Israel

TECHNOLOGY MIX*



SUBSCRIBER PENETRATION

2019 — 2025

73% 78%

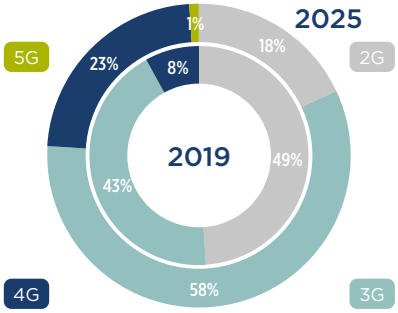
SMARTPHONE ADOPTION

2019 — 2025

78% 91%

Levant

TECHNOLOGY MIX*



SUBSCRIBER PENETRATION

2019 — 2025

56% 61%

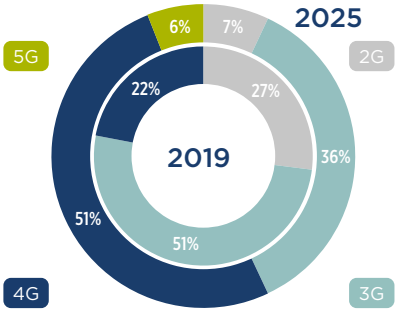
SMARTPHONE ADOPTION

2019 — 2025

61% 85%

North Africa

TECHNOLOGY MIX*



SUBSCRIBER PENETRATION

2019 — 2025

70% 73%

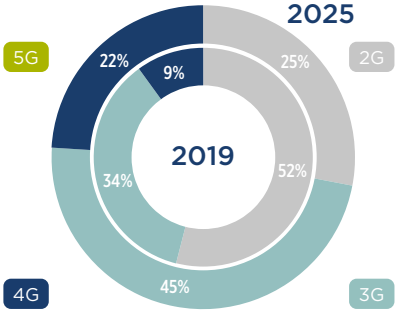
SMARTPHONE ADOPTION

2019 — 2025

54% 75%

Other Arab states

TECHNOLOGY MIX*



SUBSCRIBER PENETRATION

2019 — 2025

44% 49%

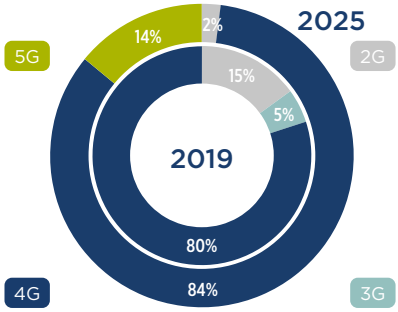
SMARTPHONE ADOPTION

2019 — 2025

45% 68%

Turkey

TECHNOLOGY MIX*



SUBSCRIBER PENETRATION

2019 — 2025

67% 70%

SMARTPHONE ADOPTION

2019 — 2025

82% 89%

** Percentage of total connections*

01

The mobile market in numbers

1.1
Growth continues at pace in MENA

Source: GSMA Intelligence

Figure 1

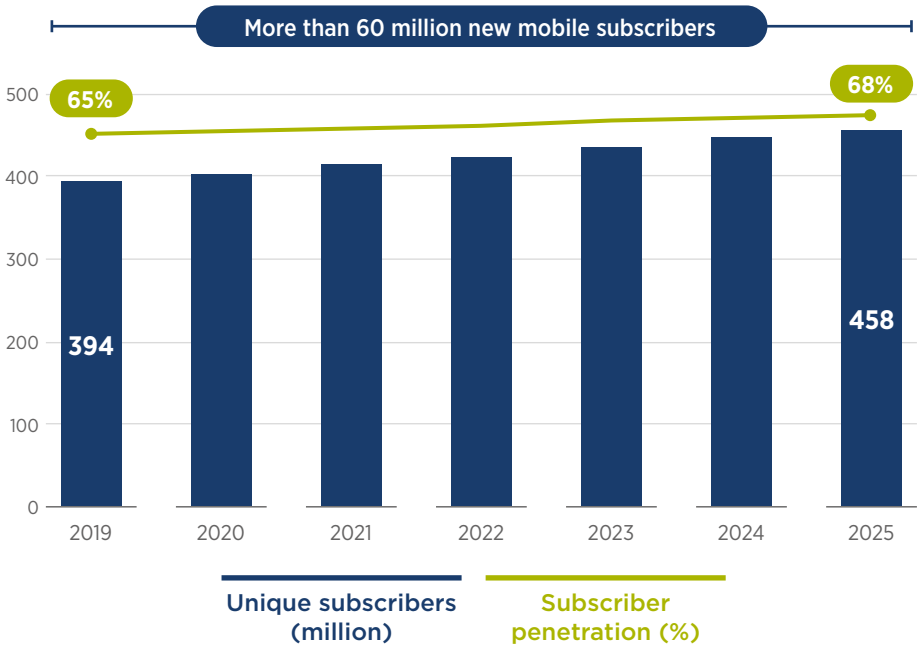
Key milestones over the next five years

	2020	2021	2022	2023	2024	2025
MOBILE SUBSCRIBERS	400 million mobile subscribers			Two thirds of the population subscribe to mobile services		450 million mobile subscribers
MOBILE INTERNET USERS			300 million mobile internet subscribers	Half of the population subscribe to mobile internet services		350 million mobile internet subscribers
CONNECTIONS		650 million mobile connections				700 million mobile connections
3G		3G is overtaken by 4G as the dominant technology		250 million 3G connections		
4G	4G accounts for more than a third of total connections	250 million 4G connections		300 million 4G connections		
5G			10 million mobile 5G connections		5G accounts for over 5% of total connections	Almost 60 million 5G connections
MOBILE BROADBAND (MBB)		500 million MBB connections			600 million MBB connections	MBB accounts for 90% of total connections
SMARTPHONES	400 million smartphone connections			500 million smartphone connections		80% smartphone adoption

Source: GSMA Intelligence

Figure 2

By 2025, more than two thirds of the population in MENA will subscribe to mobile services

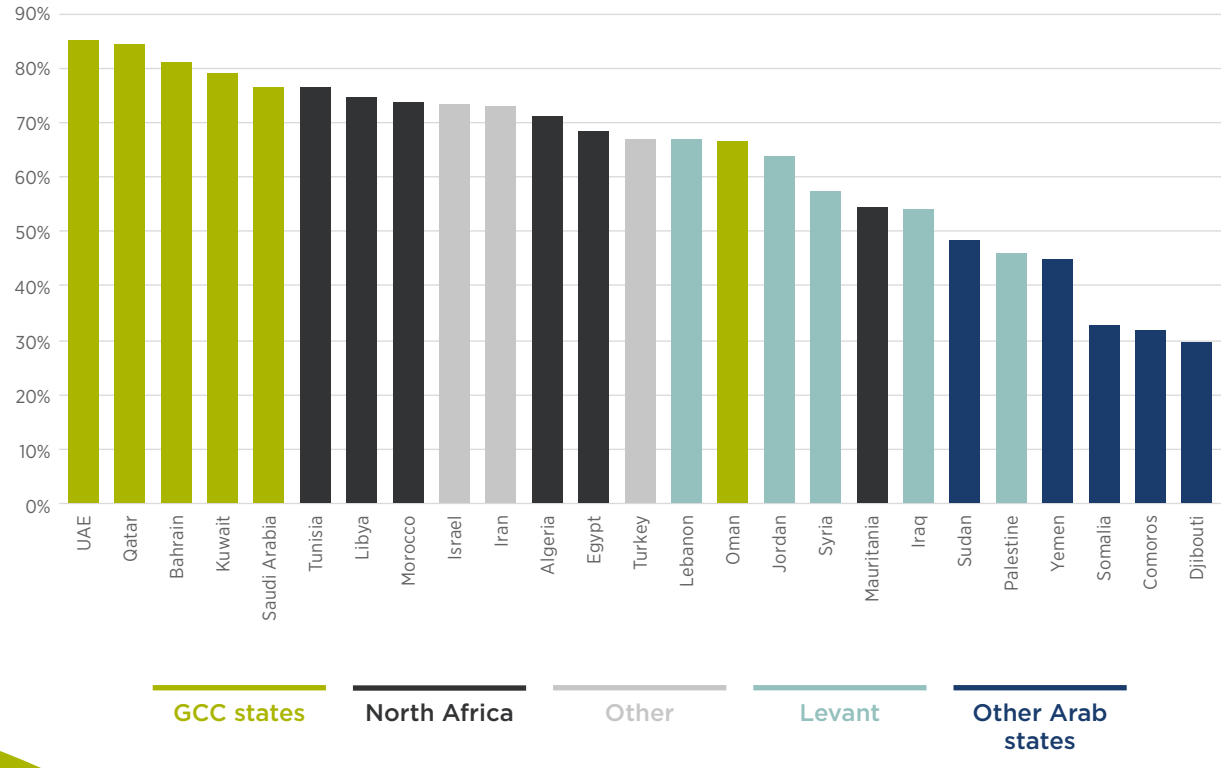


Source: GSMA Intelligence

Figure 3

Subscriber penetration is highest in the GCC states, followed by North Africa

Percentage of population (Q2 2020)



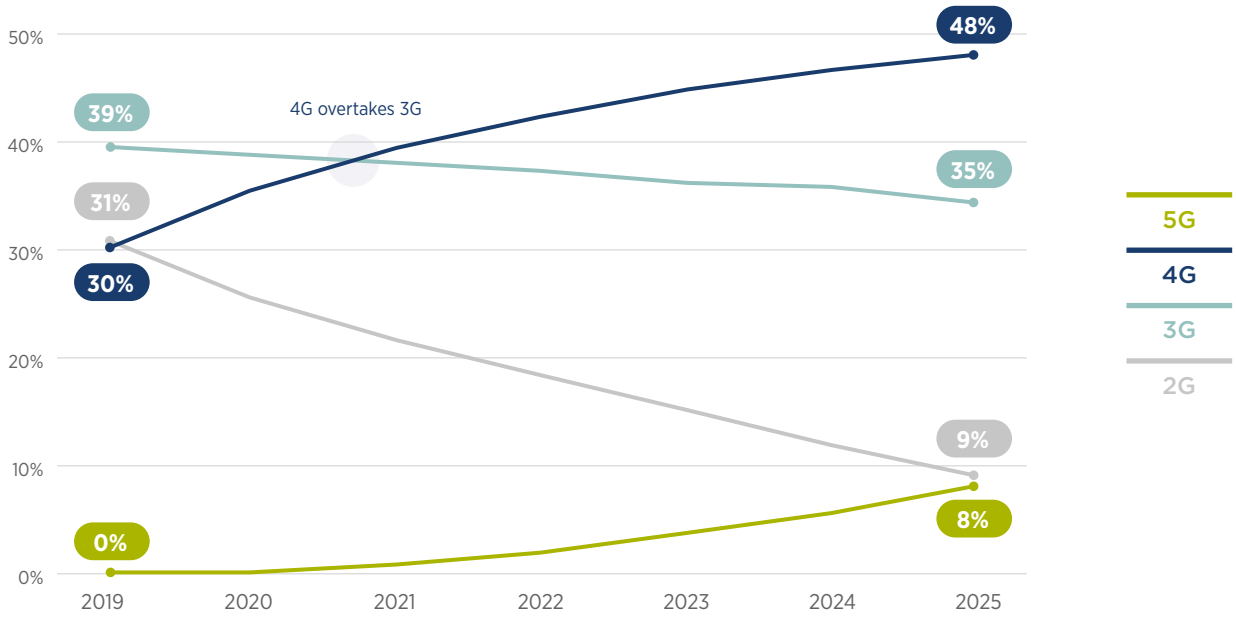
1.2
4G growth to continue as the 5G journey begins

Source: GSMA Intelligence

Figure 4

By 2025, almost half of connections will be 4G and close to 10% will be 5G

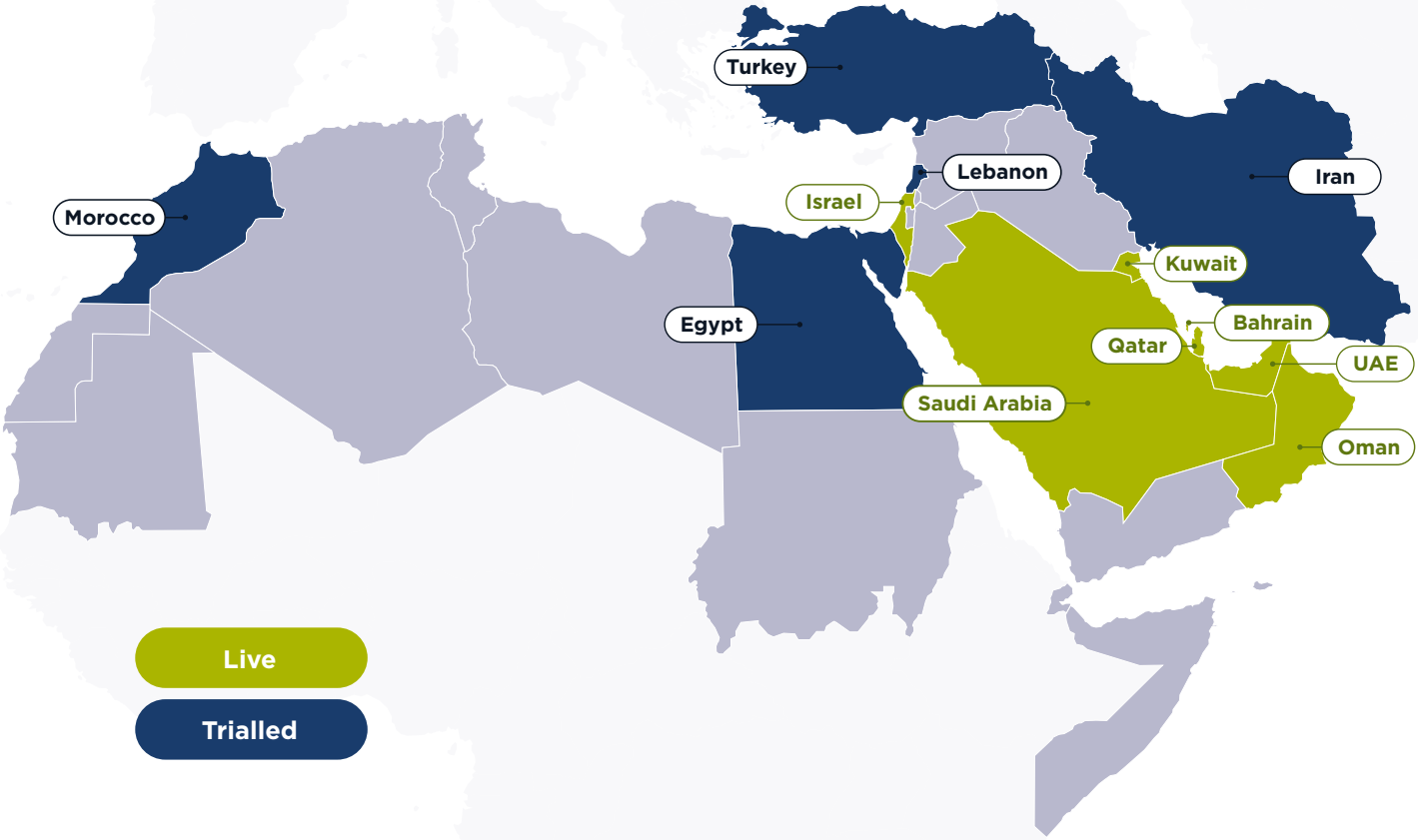
Percentage of connections (excluding licensed cellular IoT)



Source: GSMA Intelligence

Figure 5

5G activities set to gain momentum in non-GCC Arab states



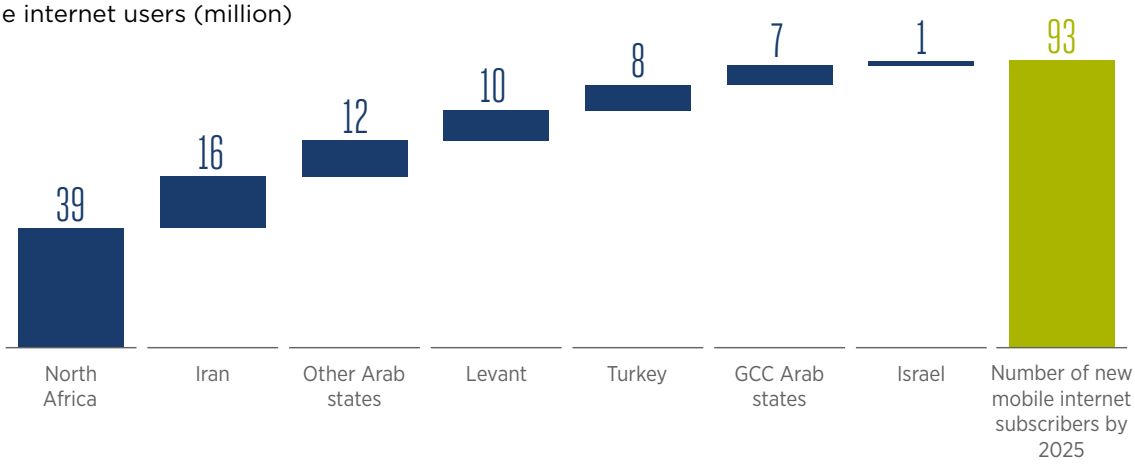
1.3
Evolution of the digital consumer

Source: GSMA Intelligence

Figure 6

North Africa will account for more than a third of new mobile internet users in MENA in 2019–2025

Mobile internet users (million)

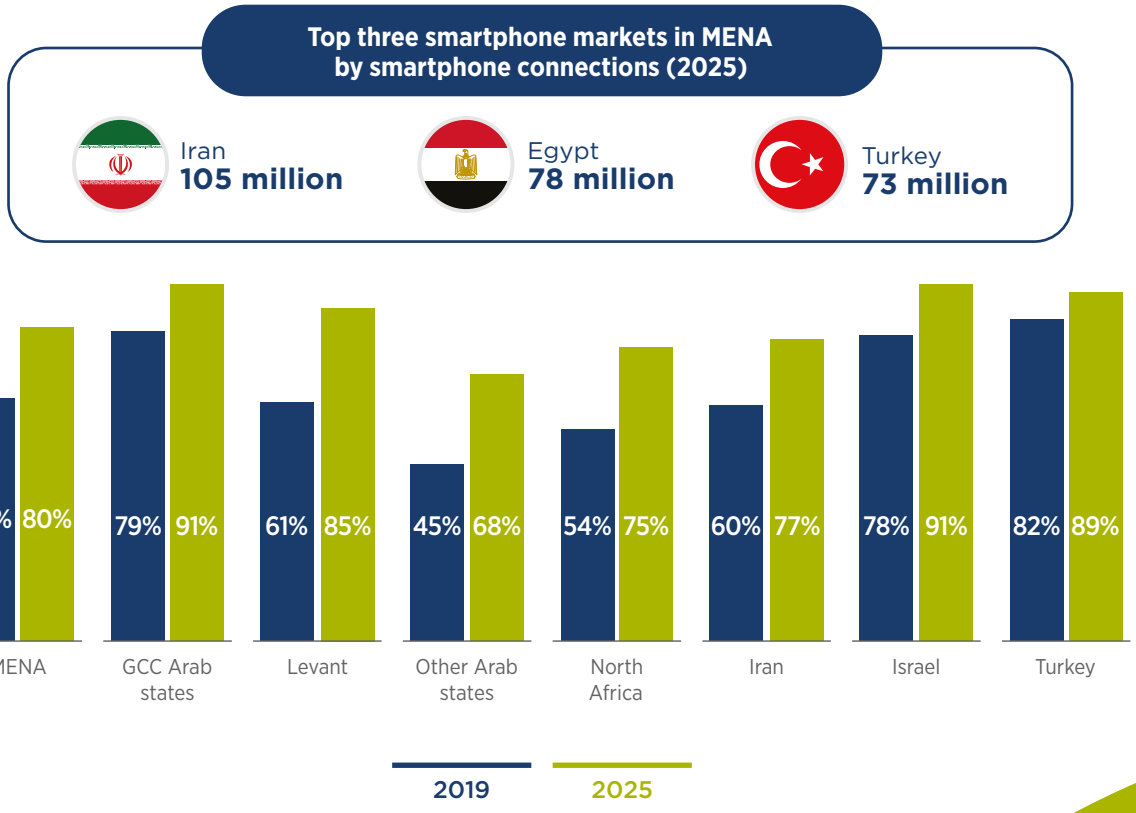


Source: GSMA Intelligence

Figure 7

Smartphone adoption will rise across MENA over the period to 2025

Smartphones as a percentage of connections (excluding licensed cellular IoT)

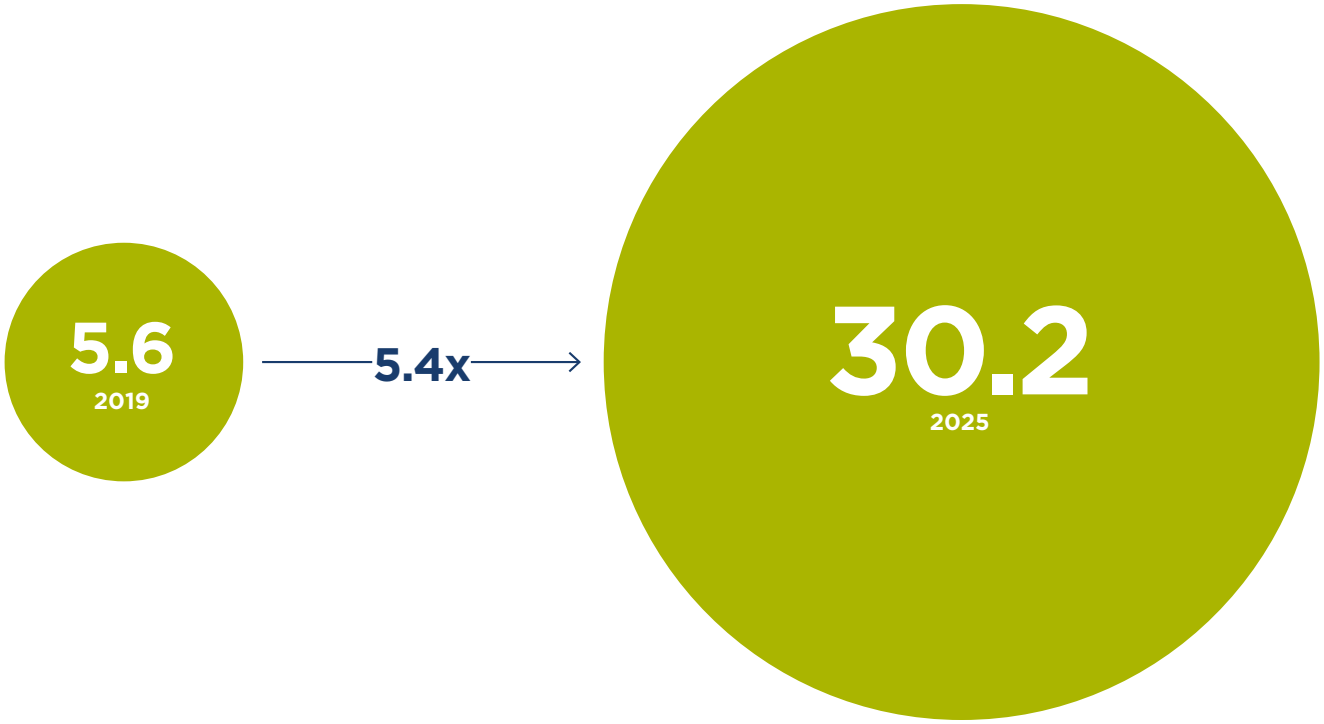


Source: Ericsson Mobility Report 2020

Figure 8

Mobile data consumption in MENA will grow more than fivefold by 2025, driven by the rollout of high-speed networks and rising smartphone adoption

GB per subscriber per month



The rise of video streaming in MENA

There is growing demand for streaming services, particularly video and music content, in the MENA region. The streaming landscape is becoming increasingly competitive, with both global and homegrown service providers present in the region, including Netflix, Spotify, Deezer, Anghami and StarzPlay. Anghami reported 10 billion music streams in 2019, while StarzPlay, the leading subscription video on demand (SVOD) service in MENA, reported a 141% increase in the number of unique users during April 2020, the peak of the Covid-19 outbreak in the region. At the same time, traditional pay-TV operators are moving into the streaming space to maintain a foothold on the media and entertainment market. In April 2020, satellite broadcaster OSN unveiled an on-demand streaming service to take advantage of the growing trend.

Mobile operators have an instrumental role to play in the rise of streaming culture in MENA, primarily through the provision of high-speed mobile broadband networks. More recently, operators have begun providing content as well. In Egypt, Etisalat Misr launched a streaming service, Etisalat TV, offering English and Arabic content; and in the UAE, Etisalat launched SwitchTV, a streaming service available to local consumers irrespective of their service provider. In late 2019, STC partnered with Deezer, allowing its subscribers in Saudi Arabia to subscribe to Deezer Premium through their prepaid or postpaid mobile plans. The growing popularity of streaming will be helped by rising 4G and smartphone adoption, as well as the expansion of 5G networks in the coming years.

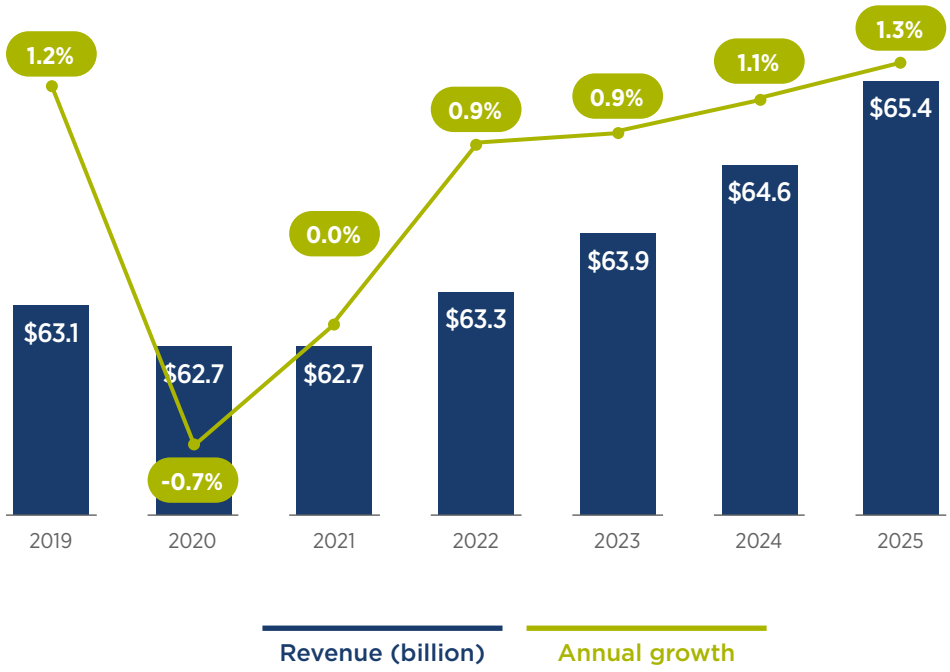
1.4
Operators' financials take a hit from Covid-19

Covid-19 has had a significant impact on the financial performance of the mobile industry in 2020. Mobile revenues declined sharply in most markets in the MENA region, reflecting the discounts that operators offered on mobile data and other services to support consumers during the pandemic. Other factors at play included the shift to fixed broadband connectivity during lockdown and the reduction in consumer spend as the slowdown in economic activity led to job losses, especially for large numbers of workers in hospitality and the informal sector. Markets with a high proportion of prepaid customers were particularly vulnerable to reduced spend. However, the slowdown in revenue growth will likely be short-lived. Revenue growth is expected to return to positive territory, albeit in low single digits, in the coming years, as economic activities recover post pandemic.

Source: GSMA Intelligence

Figure 9

Covid-19 has impacted the top line, but a return to revenue growth is expected in 2021

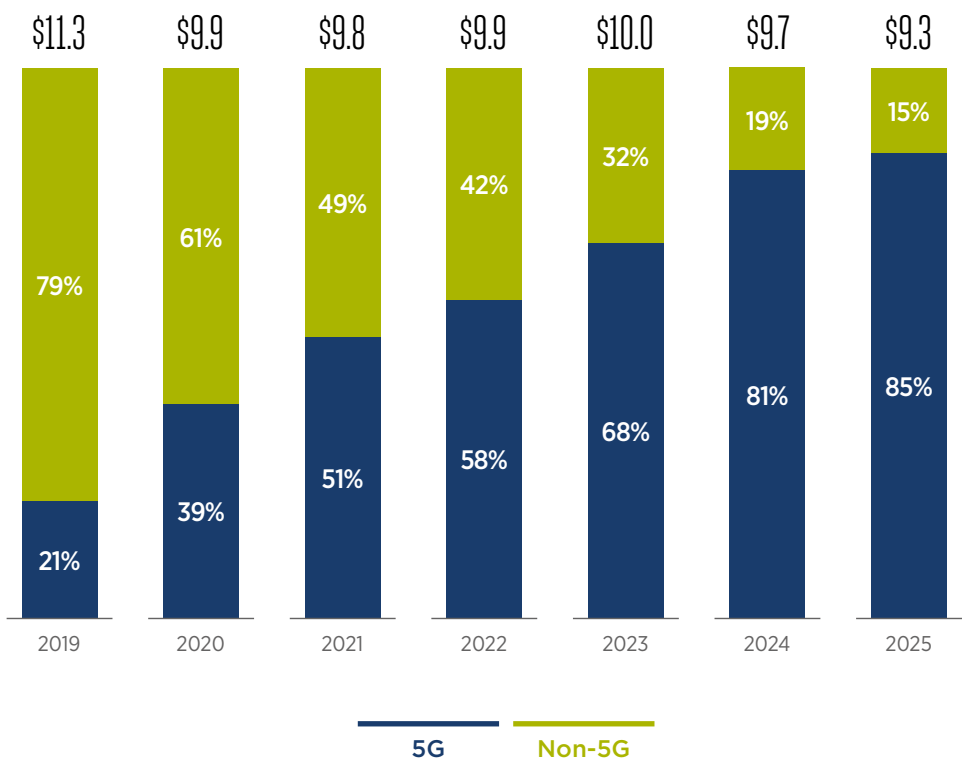


Source: GSMA Intelligence

Figure 10

Despite economic uncertainty, operators will continue to invest heavily in mobile networks; 5G will account for the majority of capex from 2021

Capex (billion)



2019–2025 total spend: **$70bn**

2019–2025 spend on 5G: **$40bn**

02

Key trends shaping the digital landscape

Digital technologies have become integral to everyday life in MENA. They increasingly impact the way consumers work, learn, shop, play and communicate, and present new opportunities for enterprises and governments to reshape the way they operate in order to drive productivity and efficiency. We highlight three trends that will shape the region's digital landscape: the growth of 5G, eSIM and IoT.

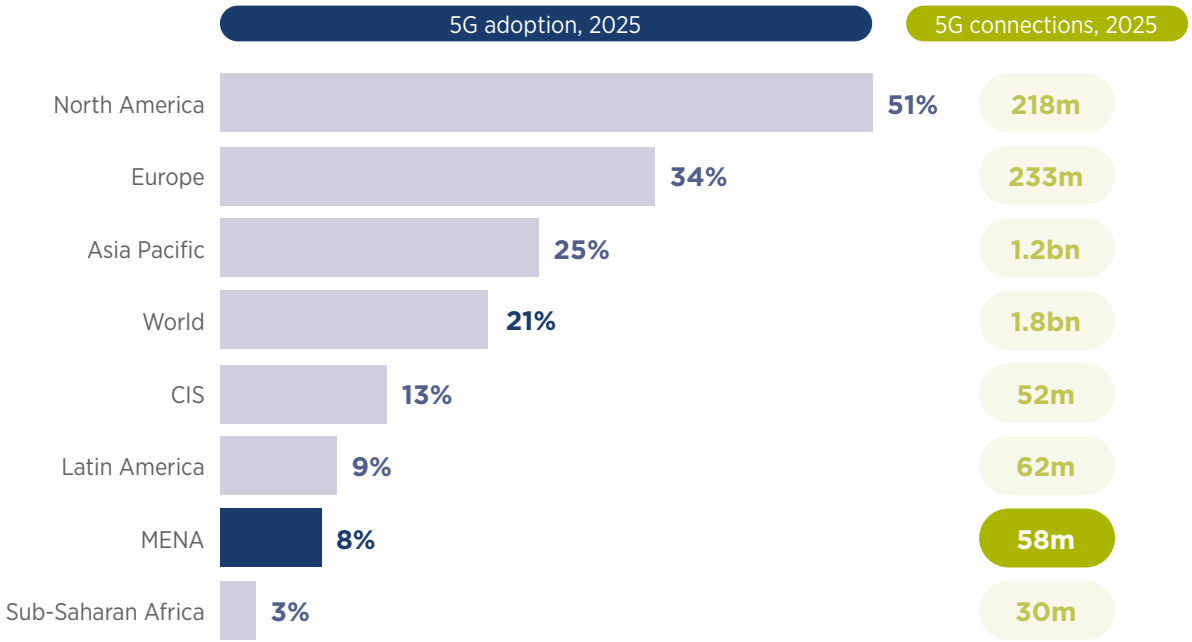
2.1
5G: a focus on FWA

Progress in 5G around the world has continued in 2020. However, Covid-19 has affected the pace of this progress in various markets. For example, a number of operators in Sweden and South Africa were allowed to launch 5G early to ensure that sufficient capacity was available during the Covid-19 crisis, while the pandemic has delayed the spectrum auction in India to at least 2021 and led to interruptions in 5G rollout in other markets, including Greece and Portugal. A total of 45 operators launched commercial 5G services during the first nine months of 2020, taking the total number of 5G operators to 107 in 47 markets around the world.

Source: GSMA Intelligence

Figure 11

5G global outlook



MENA is home to some of the leading 5G markets globally, following the first phase of commercial 5G launches in the region in 2019. Covid-19 appears to have slowed down the number of new network launches in 2020, with only Ooredoo (Oman), Zain (Bahrain) and Pelephone (Israel) having launched new commercial 5G services as of September 2020. However, 5G activities continue to gather pace in the first-mover countries. In Qatar, Ooredoo announced that its 5G mobile network coverage has reached more than 90% of populated areas in the country. In Saudi Arabia, Zain has expanded its 5G footprint to 38 cities, while STC deployed a 5G standalone and '5G voice over new radio' service on a live network. In the UAE, the telecoms regulator said that it expects all inhabited areas of the country to be covered by 5G networks by the end of 2025. This follows the allocation of 24.25–27.5 GHz mmWave spectrum to Etisalat and Du to complement their existing 3.5 GHz spectrum.

Fixed wireless access (FWA) is a prime use case for 5G in MENA, and this will likely remain the case for the foreseeable future given the growing demand for enhanced broadband connectivity to the home in the wake of the pandemic and the potential for 5G FWA to help bridge the gap in fibre-to-the-home (FTTH) connectivity. To date, there are 15 commercial 5G FWA networks in seven countries in the region. In addition to the consumer segment, operators are increasingly exploring 5G opportunities in the enterprise segment. 5G hardware based on Release 16 will be commercially ready by 2022, which will enable operators to go to market with a richer set of offerings. This grants operators a window of opportunity to seek out industrial vendors and systems integrators to capture early movers in Industry 4.0.

2.2
Telco of the future: eSIM

Momentum for eSIM in smartphones is building quickly around the world. Apple, Huawei and Samsung (which together represent more than half of the global smartphone market) have launched eSIM smartphones, while more than 160 mobile service providers, spanning nearly 70 countries across all regions, already offer eSIM service for smartphones. A GSMA Intelligence smartphone survey, covering 100 mobile operators worldwide, revealed strong expectations for eSIM adoption because of its potential to help consumers connect multiple devices remotely. We forecast eSIM smartphone connections to reach 2.5 billion globally by 2025, equivalent to 35% of total smartphone connections. Europe and the US will lead in the early days of eSIM adoption, but China will be the largest market by 2025.

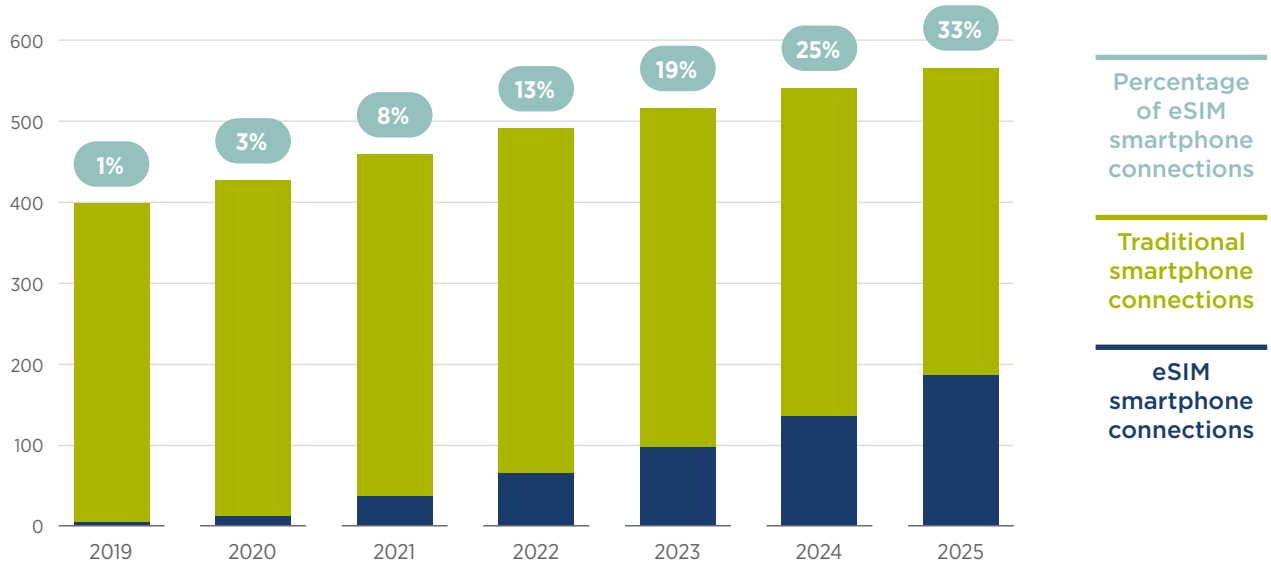
In MENA, at least 20 mobile operators in nine countries now offer eSIM service for smartphones. The GCC Arab states are leading the shift to eSIM: the service is now available in all six GCC markets; Jordan, Lebanon and Turkey are the other countries in the region where operators also provide eSIM service for smartphones.

Source: GSMA Intelligence

Figure 12

eSIM smartphones will account for a third of total smartphone connections in MENA by 2025

Smartphone connections (million)



Beyond smartphones, eSIM has made cellular connectivity for other devices possible, including laptops, tablets and smartwatches. eSIM offers the opportunity to increase the adoption of these devices by linking them to a main subscription plan, typically a smartphone plan. A key benefit of this is that it allows operators to add companion devices and associated connectivity services to a consumer's main data plan more easily than with traditional SIMs. Mobile operators in several other markets in MENA, including Egypt and Israel, have introduced eSIM plans for smartwatches, an important step towards providing eSIM service for a broader range of devices.

The importance of ecosystem alignment

There is widespread agreement within the mobile ecosystem that adopting a single approach on global standards and specifications is key to driving eSIM to scale. The GSMA eSIM specifications are seen as the most viable option considering their international recognition and benefits in terms of security and compatibility. Such alignment helps the ecosystem to overcome industry fragmentation and drive market acceptance worldwide. It also ensures that smaller operators, OEMs and providers of IoT services continue to have equal access to market opportunities. More than 130 mobile industry players – including mobile operators, SIM vendors, OEMs, network equipment vendors, semiconductor manufacturers, technology companies and end-user enterprises from different verticals – support the GSMA project to define and maintain eSIM specifications. As a result, most eSIM consumer devices available on the market use the GSMA eSIM specifications.

2.3
IoT: smart city initiatives

The results of the GSMA Intelligence Enterprise in Focus Survey 2019 showed that the majority of enterprises around the world (52%) view IoT as transformational to their company and wider industry.[1] The role of IoT is becoming even more crucial, following the Covid-19 outbreak, as governments and enterprises adopt digital technologies, including IoT solutions, to revive economic output and boost operational resilience and efficiency. In Turkey, 81% of companies use IoT applications, with the hospitality, healthcare and finance sectors seeing the most significant rise in IoT usage in 2019, according to a survey by cybersecurity provider Kaspersky.[2]

Globally, total IoT connections will nearly double to 24 billion connections in 2025, driven by faster adoption of enterprise solutions in the medium- to long-term from digital transformation initiatives. The IoT market in MENA will follow a similar trajectory to reach 1 billion connections by 2025. IoT applications in MENA are mainly centred around smart city solutions, as governments aim to improve the quality of urban living. The region is home to several major smart city initiatives, including purpose-built cities, such as Neom in Saudi Arabia and Egypt's new administrative capital, and existing cities, such as Abu Dhabi and Muscat. In March 2020, Oman's Ministry of Technology and Communications launched a pilot project for smart cities at the Knowledge Oasis Muscat in partnership with Omantel and the Public Establishment for Industrial Estates (Madayn).

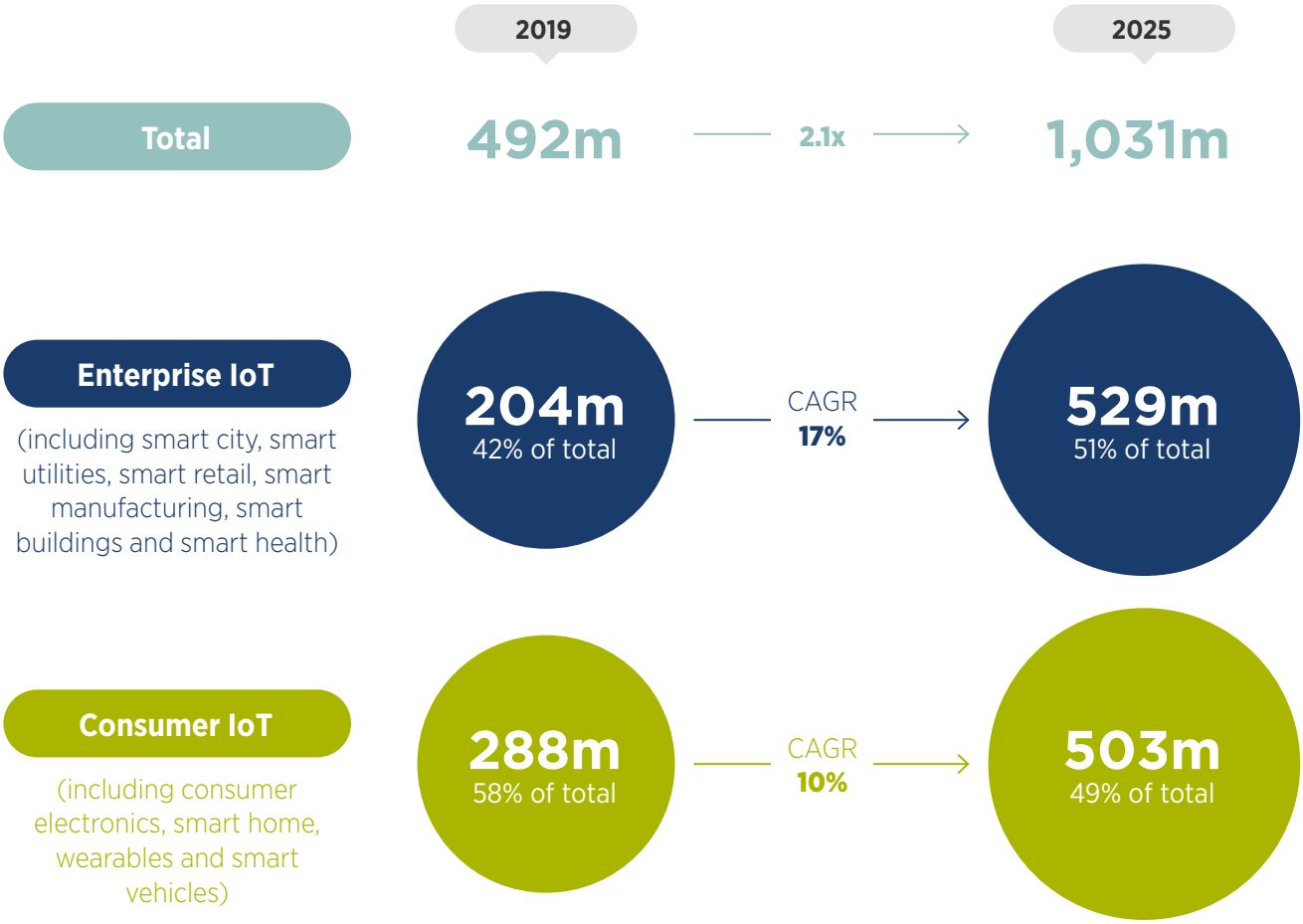
Mobile operators play an increasingly prominent role in the rapidly expanding IoT ecosystem in MENA. As of August 2020, four mobile operators in three countries – Saudi Arabia, Turkey and the UAE – had launched licensed low-power wide-area (NB-IoT and LTE-M) services. Licensed cellular IoT is an important part of the IoT ecosystem, supporting devices that require longer battery lives and services that require lower data throughputs.

1. IoT in business 2020: The enterprise voice on IoT adoption, GSMA Intelligence, 2020
2. "More than 80% of companies in Turkey utilize internet of things", Daily Sabah, 2020

Source: GSMA Intelligence

Figure 13

Total IoT connections in MENA will double by 2025, driven by growth in the enterprise segment, particularly for smart manufacturing and smart building solutions



Beyond connectivity, operators in the region are scaling up IoT capabilities, in many cases through partnerships, to provide services higher up the value chain. In the UAE, Du has partnered with German company Software AG to provide a subscription-based licensing model for IoT services for enterprise customers, targeting public services, healthcare, utilities, manufacturing, transport and automotive, while Etisalat has selected Silicon Valley–based Roambee to provide an out-of-the-box IoT service that bundles readily deployable sensor hardware, IoT connectivity, actionable analytics and round-the-clock monitoring to mitigate business risks.

03

Mobile contributing to economic growth and social progress

3.1
Mobile's contribution to economic growth

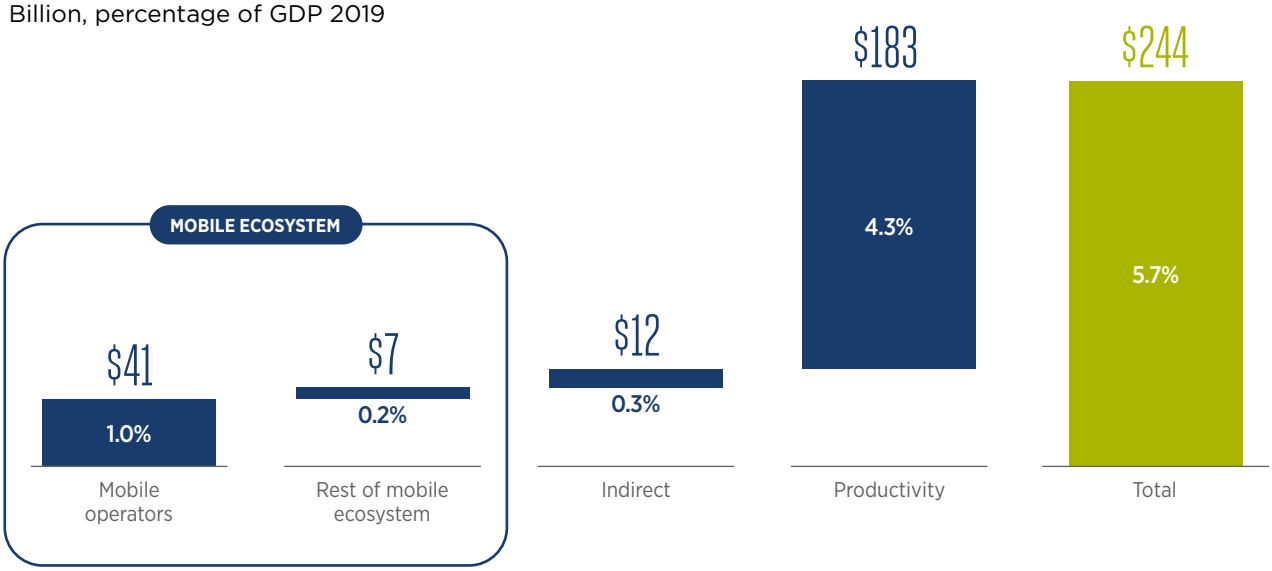
In 2019, mobile technologies and services generated 5.7% of GDP in the MENA region, a contribution that amounted to $244 billion of economic value added. The mobile industry also supported almost a million jobs (directly and indirectly) and made a substantial contribution to the funding of the public sector, with almost $20 billion raised through taxation.

Source: GSMA Intelligence

Figure 14

Additional indirect and productivity benefits bring the total contribution of mobile to MENA's economy to $244 billion

Billion, percentage of GDP 2019



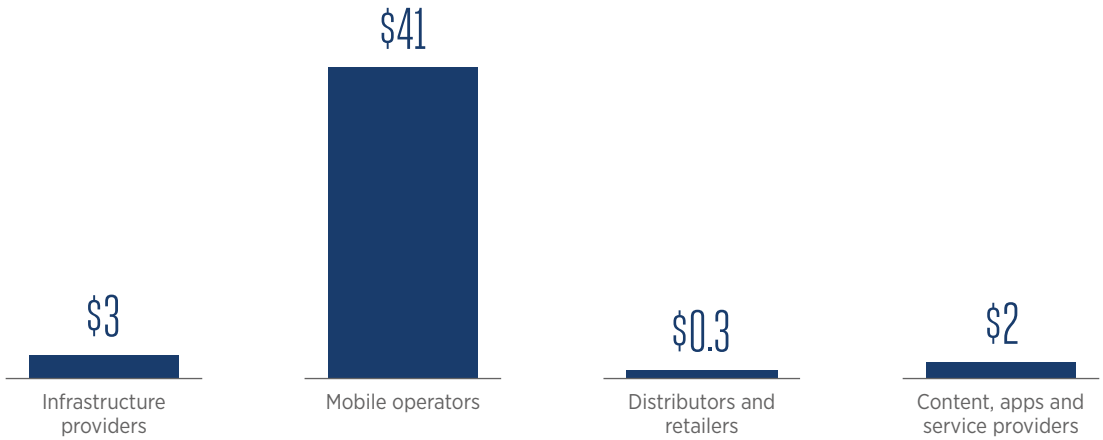
Note: totals may not add up due to rounding

Source: GSMA Intelligence

Figure 15

The direct economic contribution is driven primarily by mobile operators

Billion



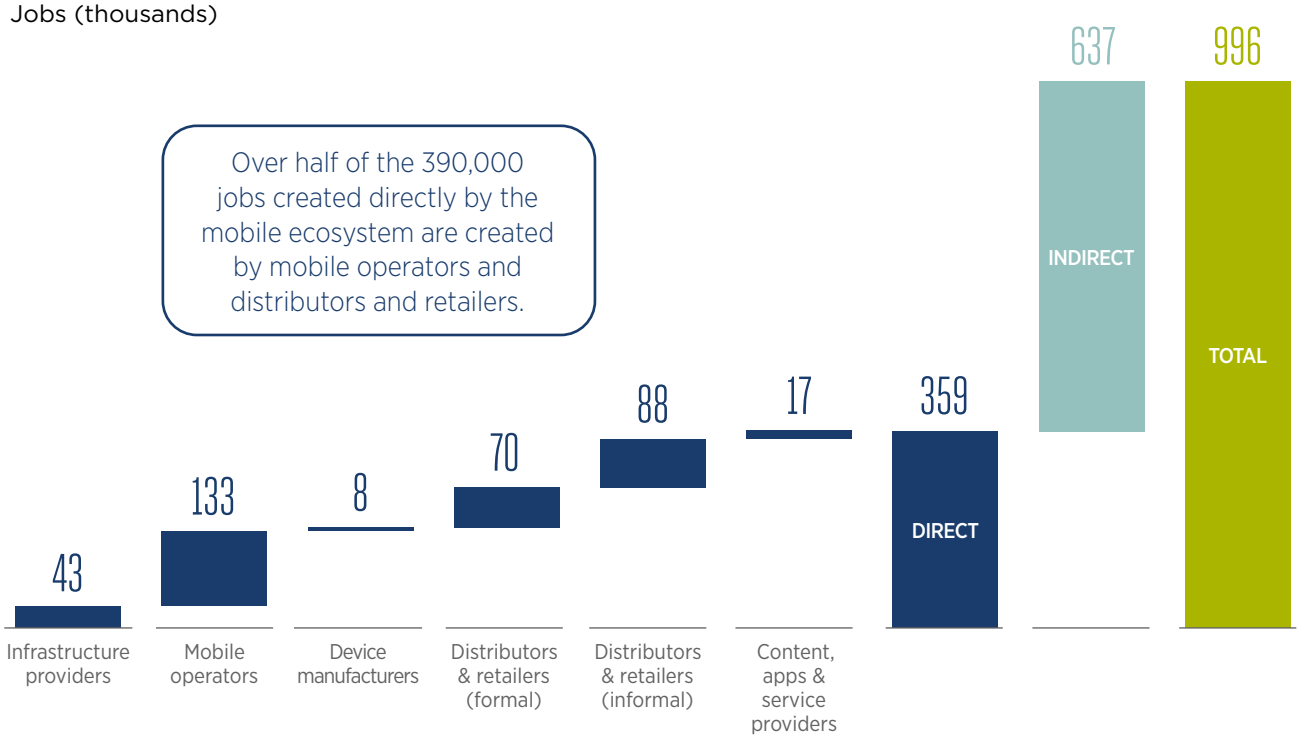
Note: totals may not add up due to rounding

Source: GSMA Intelligence

Figure 16

The mobile ecosystem directly employs around 360,000 people in MENA, and supports a further 640,000 jobs indirectly

Jobs (thousands)



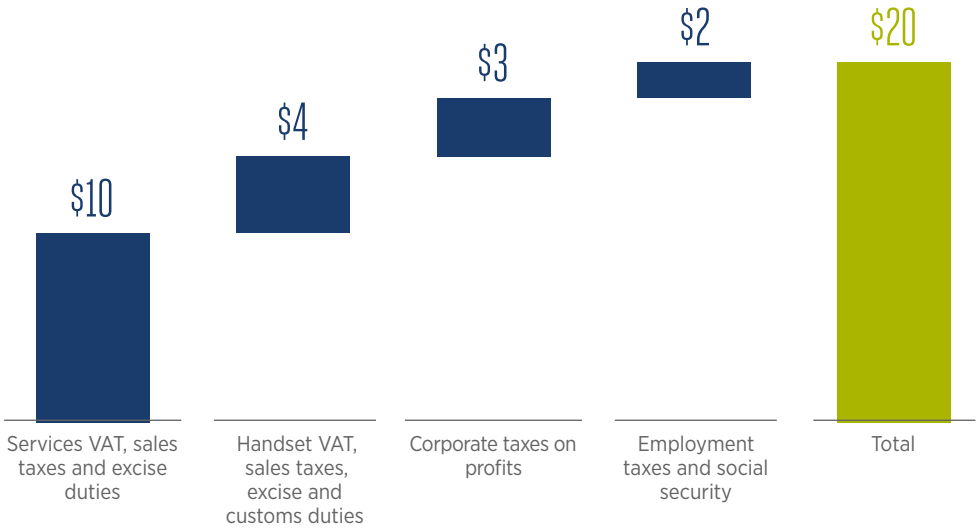
Note: totals may not add up due to rounding

Source: GSMA Intelligence

Figure 17

In 2019, the mobile ecosystem contributed around $20 billion to the funding of the public sector through consumer and operator taxes

Billion



Note: totals may not add up due to rounding

3.2
Mobile bringing more people online

The Covid-19 pandemic has further emphasised the importance of connectivity for the social and economic wellbeing of society. Restrictions on movement and gatherings to curb the spread of the virus mean that there is a much greater need for universal access to fast, reliable and continuous access to high-speed connectivity and the associated socioeconomic benefits. It also highlights the need for a broad range of relevant digital content and services to address the requirements of local users.

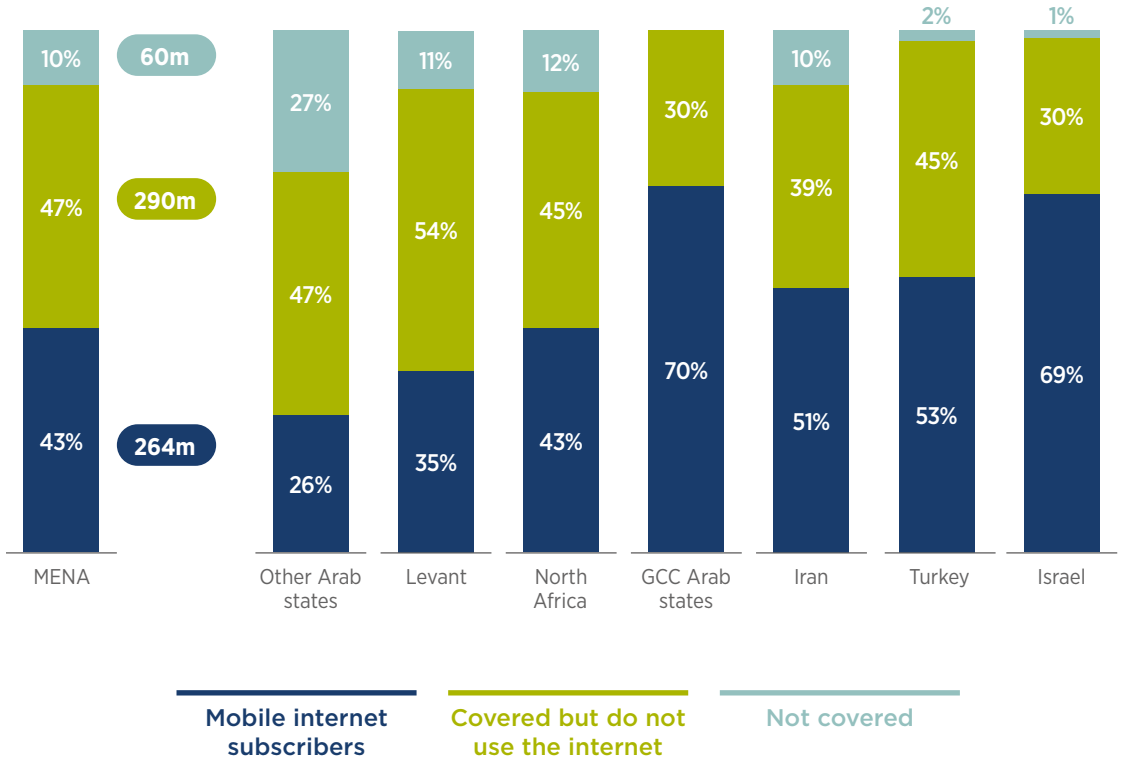
In MENA, mobile technology continues to be essential for providing access to connectivity and facilitating the creation, distribution and consumption of digital services. At the end of 2019, 264 million people across the region were connected to mobile internet, an increase of 18 million on 2018. However, nearly 350 million people remain offline and excluded from the digital economy in the region. A tenth of the population is not covered by a mobile broadband network, but a far greater proportion of people (47%) are not subscribed to a mobile internet service because of a variety of non-infrastructure limitations, including a lack of digital skills and affordability.

Source: GSMA Intelligence

Figure 18

Nearly half of MENA's population is covered by a mobile broadband network but does not subscribe to mobile internet due to consumer-related barriers

Percentage of population (2019)



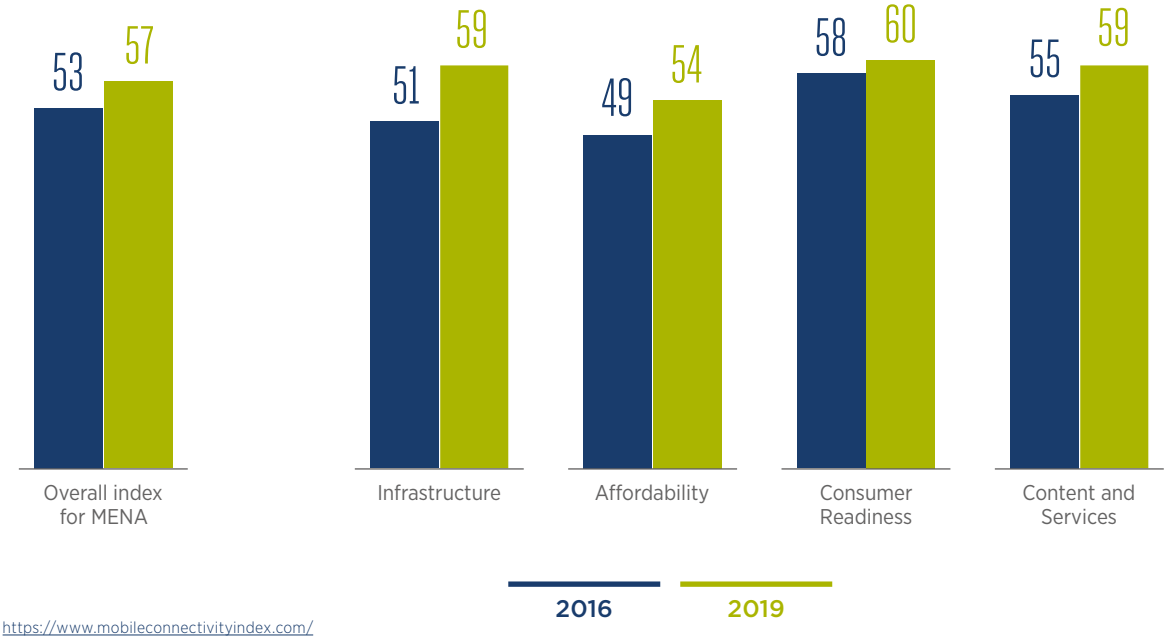
In recent years, MENA countries have made moderate progress in the GSMA Intelligence Mobile Connectivity Index,[3] with the region's overall score rising by 4 points between 2016 and 2019. However, there is more to do to ensure that nobody is left behind in the emerging digital economy. As digital technologies become more central to everyday life, the urgency to close the digital divide has never been greater.

Source: GSMA

Figure 19

Infrastructure has seen the biggest improvement in MENA as operators ramped up investment in 4G networks, but more needs to be done to improve affordability

GSMA Mobile Connectivity Index scores



3. See https://www.mobileconnectivityindex.com/

3.3
The mobile industry's response to Covid-19

The mobile industry in MENA has largely risen to the challenge of keeping individuals and businesses connected during the Covid-19 pandemic, despite the change in data consumption patterns. This reflects the continued investments made by operators in resilient network infrastructure. In Qatar, for example, Ooredoo enhanced its network to cope with increased demand for data-centric services, including an 11,000% increase in video calls, a 3,500% rise in online learning sessions and a fivefold increase in the number of gamers taking part in online contests, during the lockdown period.

Mobile operators in the region have also engaged with businesses and governments on initiatives to alleviate the impact of the pandemic on vulnerable individuals and communities. Covid-19 response measures implemented by operators include data tariff discounts and zero-rating for education and health sites, and cash donations to purchase personal protective equipment and essential goods.

Source: GSMA Intelligence

Figure 20

Selected operator response measures to the Covid-19 pandemic in MENA

Market	Initiatives
Algeria	Djezzy, Mobilis and Ooredoo provided free access to government websites and the '3030' phone helpline dedicated to concerns related to Covid-19. Djezzy also delivered medical supplies to the Algerian health ministry.
Bahrain	Zain Bahrain introduced the Be Safe initiative to encourage customers to use digital channels to complete their services in a secure manner, in line with the government directives to stay at home during the Covid-19 crisis.
Egypt	Etisalat, Orange, Telecom Egypt and Vodafone partnered with the National Telecom Regulatory Authority and the Ministry of Health and Population to grant 3,000 minutes and 10 GB of data per month for free to doctors, nurses and administrative staff working in isolation hospitals for Covid-19 patients nationwide. Free access was also provided to customers for online learning platforms.
Jordan	Zain partnered with Unicef to offer the Learning Passport in Jordan. The virtual scheme allowed people to continue their studies and skills development at home.
Kuwait	Zain launched Zain Health, a digital healthcare platform for corporate customers, enabling doctors, nurses and other medical treatment providers to monitor patients remotely using smart devices over Zain's network.

Market	Initiatives
Lebanon	Ogero doubled the data consumption limit and speed for unlimited packages at no extra cost, to support users working and learning from home.
Morocco	Inwi offered students free and unlimited access to training sites deployed by the Ministry of National Education.
Oman	Ooredoo Oman partnered with the Ministry of Education to launch an e-learning platform for the academic year 2020–2021. Virtual classrooms allowed students to learn remotely and enabled discussion forums for teachers and administrators to share best practices and monitor progress.
Qatar	Ooredoo and Vodafone doubled mobile data allowance for residential and business customers, free of additional charges, and facilitated online collaboration tools for businesses.
Saudi Arabia	Mobile operators STC, Mobily and Zain offered free access for health (Soha application) and educational (Ain, Unified Education System) platforms, as well as discounts on mobile and fixed data packages. Furthermore, Saudi Arabia's government sent more than 5 billion awareness messages using the operators' SMS platforms.
Somalia	Hormuud Telecom partnered with the Somali Ministry of Health to counter fake news and disinformation by creating a free hotline and call centre solution for citizens, assisting in the broadcasting of public health announcements through social media platforms and creating free voice messages for up to 3.5 million mobile users to highlight safety and hygiene measures that can be implemented to prevent the spread of Covid-19.
Sudan	Zain sent 60 million SMS and 200,000 automated messages to spread awareness of preventative measures and communicate advice provided by the Ministry of Health.
UAE	Etisalat enabled at least 1 million students to get free access to distance learning websites and partnered with the Ministry of Education and the Telecommunications Regulatory Authority to provide free mobile data to over 12,000 students without internet access at home.
Yemen	Yemen Mobile donated a cash sum to support the state-owned cloth factory in producing face masks to be distributed to citizens.

3.4
Driving social impact through mobile: spotlight on humanitarian cash and voucher assistance in Jordan

According to the UN Refugee Agency (UNHCR), Jordan hosted around 747,000 people of concern, as of 31 December 2019. Syrian refugees remained the largest refugee group, accounting for nearly 654,700 people. The influx of Syrian refugees into Jordan has left the humanitarian community in need of an efficient and effective payments mechanism to deliver cash and voucher assistance (CVA). This would allow the predominantly urban refugee population to manage their money as they move around the country. The vast majority of CVA in Jordan is disbursed through UNHCR and the World Food Programme (WFP). The WFP delivers CVA through unrestricted cash transfers, which allow recipients to withdraw assistance as cash at ATMs and as restricted food vouchers redeemable at WFP-contracted shops. In September 2019, the WFP supported approximately 480,000 refugees through cash-based transfers.

There are several operational mobile money providers in Jordan, including services provided by mobile operators Zain and Orange. Until recently, mobile money had only been used for CVA distribution in small pilot projects. However, humanitarian organisations in Jordan are enthusiastic about the potential of mobile money: both UNHCR and the WFP report that they would like to offer CVA distributions through mobile money in the future as part of their respective CVA delivery models, and the Common Cash Facility[4] (CCF) is planning to use refugee-owned mobile wallets to transfer assistance. Mobile wallets offer some financial services to an otherwise unbanked population.

A mobile money account offers an opportunity for refugees to manage their finances more securely and opens the door to formal financial services in a context where access is either limited or non-existent. However, with little public awareness of what a mobile money account is and the potential benefits of using it, the impact of mobile money will remain limited. As such, there is an opportunity for humanitarian organisations planning to use mobile money to disburse CVA to work collaboratively with mobile money providers in order to raise awareness of the potential benefits and increase use through other strategies, such as community sensitisation campaigns and digital and financial literacy training. It is crucial for strong partnerships to be developed between mobile money providers and humanitarian organisations for mobile money to be leveraged to its full potential.

4. A consortium of five UN agencies, 15 international NGOs and seven Jordanian government departments, in collaboration with Mahfazti , a mobile money provider in Jordan

© UNHCR/Warrick Page

04

Policies for a sustainable digital future

Digital transformation is accelerating across MENA: governments, public institutions, private sector players and development organisations are increasingly using digital platforms to improve lives and power economic growth. It is essential for policymakers in MENA to implement policies and best practices that enable affordable services with world-class capacity and coverage.

Effective management of spectrum is critical to maximising the opportunities that mobile connectivity can bring to society. The Covid-19 pandemic has not only shown how important connectivity is but also how mobile operators and policymakers can work together to improve mobile capacity and coverage by providing temporary access to much-needed spectrum, as demonstrated in countries such as Jordan, Tunisia and Saudi Arabia.

4.1
Encouraging long-term investment through stable and predictable policies

To help attract investment to improve capacity and expand coverage, governments should put in place stable and predictable spectrum policies. Below, we highlight what this entails.

A well-designed spectrum roadmap

Successful licensing of mobile spectrum starts with a spectrum roadmap that provides a schedule for forthcoming releases to meet the government's broadband plan and other spectrum demands. In particular, a roadmap is an important way of ensuring sufficient spectrum will be available to meet the requirements driven by changing technology and user demand. Information on future spectrum release is critical for businesses to prepare investment plans, for operators to secure financing for network upgrades and for the rollout of new technologies.

The certainty of long licences and presumption of licence renewals

The longer the duration of a licence, the greater the certainty provided for operators to make long-term investments. Investors would be reluctant to undertake large network projects if the licence ran for a shorter period than the expected payback period. Uncertainty over whether the licence will be renewed can also have a negative impact. Putting a presumption of licence renewals in place helps to avoid investments being delayed because of any doubt over future rights. The use of indefinite licence terms beyond the minimum period, and the presumption of renewal, can further enhance predictability. A decision not to automatically renew a licence should only be made where there is a reasonable prospect that the benefits from reassigning spectrum would exceed the costs. Given the large number of licences approaching the end of their current term, timely renewal decisions (ideally 3–5 years in advance of licence expiry) would help facilitate ongoing network investments and enable planning that ensures service continuity for end users.

Fair spectrum prices

Maximising revenues from spectrum awards should no longer be a measure of success, as seeking to maximise state revenues from spectrum can have negative socioeconomic costs. These include competition potentially being undermined in the communications market and a risk of higher retail prices and lower network investment levels. Recent studies demonstrated that higher spectrum prices had a significant effect on slowing the rollout of next-generation mobile networks and reducing the network quality experienced by consumers, in addition to being associated with higher consumer prices in developing countries. Best practice includes:

- assigning spectrum to users that will be able to extract the most value from this scarce and finite resource for the benefit of society as a whole
- setting reserve prices conservatively to allow the market to determine a fair price and to reduce the risk of leaving spectrum unassigned
- limiting ongoing charges to recovering the cost of spectrum management, in cases where spectrum is auctioned.

Further, any subsequent fees associated with licencing renewals should not prevent reasonable returns being earned on risky investments because this discourages technological innovation.

Technology- and service-neutral spectrum licences

In the past, technology-specific spectrum assignments were the norm, but most markets have since adopted a technology-neutral spectrum licensing approach. This enables efficient use by mobile operators rather than spectrum being tied to existing technologies and services. The most important development is the ability to 'gracefully refarm' bands so that they are used for several technologies simultaneously – including 4G and 5G. This facilitates the introduction of newer technologies in line with increasing mobile broadband demand while also supporting legacy users. For regulators, this means that they no longer have to worry that refarming will leave legacy users unserved.

4.2
Setting the stage for 5G

In MENA, the GCC Arab states have become 5G pioneers, with governments and regulators awarding spectrum, and mobile operators deploying some of the world's first and fastest 5G networks. We expect the technology to spread to the rest of the region over the course of the next decade, and it is important that policymakers start planning now. By making sure the needed spectrum resources are available under the right conditions when the time is right to launch, this will lower mobile broadband costs, increase coverage and boost connectivity.

5G requires a significant amount of new harmonised mobile spectrum. Ensuring the timely availability of prime bands – including those requiring defragmentation – should be prioritised. Regulators should aim to make 80–100 MHz of contiguous spectrum available per operator in prime 5G mid-bands (e.g. 3.5 GHz) and around 1 GHz per operator in high bands (e.g. mmWave spectrum). Lower bands (e.g. 700 MHz) are also key to allow 5G to reach more people, due to their larger coverage capabilities.

Mid-range frequencies are being used as the basis for the first commercial 5G networks all over the world. This initial focus, particularly on the 3.5 GHz band, produces the scale needed to bring down the cost of network equipment and mobile devices. Harmonisation has always played a key role in the success of mobile networks and the same holds true for 5G.

More spectrum beyond 80–100 MHz will be required as 5G demand increases. Reusing 4G bands and extending the 3.5 GHz range are important steps – but adding new bands is equally important. For this, mobile operators agree that the 6 GHz band holds great potential. Mobile operators are making the case for the 6 GHz band, which is already used for backhaul, to be used in their 5G networks. Part of the band is also up for discussion at the 2023 World Radiocommunication Conference (WRC). Therefore, discussions regarding the band's future need to focus on the maximisation of its value and the balancing of different uses.

Momentum behind mmWave spectrum is also growing. At WRC-19, countries supported a harmonised identification of 26, 40 and 66–71 GHz for ultra-high-speed and ultra-low latency consumer, business and government services.

The result means that national governments around the world now have the opportunity to consider mobile assignments across the identified mmWave spectrum. In doing so, they will help deliver long-lasting socioeconomic benefits. The financial impact in MENA by 2034 is expected to equal $15.4 billion, representing a 1.1% increase in GDP.[5]

Once assigned, mmWave can enable ground-breaking new 5G services in areas such as manufacturing, transport, healthcare and education. While mid-band spectrum is the birthplace of 5G, mmWave spectrum will power the most innovative 5G services. Still in their infancy, the first commercial mmWave networks are already capable of gigabit speeds.

5. Study on Socio-Economic Benefits of 5G Services Provided in mmWave Bands, GSMA, 2018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