



# The Mobile Economy Arab States 2015



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# Executive Summary

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The mobile industry in the Arab States has grown rapidly over the last few years, with 54% of the population subscribed to a mobile service as of mid-2015. At this point, the unique subscriber base in the Arab States stood at just over 200 million. However, subscriber growth rates will slow due to the declining potential of further subscriber growth in already highly penetrated markets, the challenge of growing penetration in the less developed markets, and unstable political and economic conditions in some markets showing little signs of improvement. As a result, subscriber penetration will only reach 57% by 2020, slightly below the global average.

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After a late launch, the region is now seeing an accelerating technology migration to higher speed networks and smartphones, facilitated by operator investments to extend network coverage. The number of mobile broadband connections will have increased from just under 20 million in 2009 to 182 million by the end of 2015, a nine-fold increase. By 2020, mobile broadband connections will reach just under 350 million and represent almost 70% of the total connection base.

4G rollouts are now accelerating across the region, particularly in the more technologically advanced Gulf Cooperation Council (GCC) states. There are currently 23 live 4G networks in 10 countries across the Arab States, with eight more in Algeria, Egypt, Iraq, Jordan and Libya set to launch over the next few years. The GCC states are also pioneering newer network developments such as deploying LTE Advanced and VoLTE. Consequently, mobile operator capital investment in the region is at its highest level for more than five years – almost 22% of total revenue, up from less than 16% at the beginning of 2013.

Smartphone adoption will also grow strongly over the next few years, driven by more affordable devices and growing demand for more advanced applications and services. The region is forecast to grow more rapidly than the global average: by 2020 there will be 327 million smartphone connections across the Arab States, accounting for around two-thirds of the total connection base. This growth represents a CAGR of 19% for the period 2014–2020, some four percentage points above the global average.

The Arab States has historically been one of the fastest growing regions in terms of revenue. However, slowing subscriber growth, increased competition and the deteriorating security and political situations in several countries across the region led to a reversal of this growth over the last two years. Recurring revenue declined by 2.4% in 2014 compared to 2013. Revenue trends are likely to return to growth from the end of 2015, driven by strong data traffic growth as mobile operators push data bundles and mobile broadband uptake continues, but growth rates are expected to be modest. Revenues are forecast to grow at a CAGR of 1.9% out to 2020.

Over the last four years, mobile operators across the Arab States have spent more than \$40 billion on capital investments, or approximately 18% of total revenues. Investments have focused on improving network coverage, increasing network capacity, and deploying higher speed mobile broadband networks. Results from the first half of 2015 indicate that investment levels are set to increase further, driven mainly by the accelerating pace of 4G network rollouts.

In 2014, mobile technologies and services generated 4% of GDP in the Arab States, a contribution that amounted to around \$115 billion of economic value across the 18 countries. In the period to 2020 we expect the mobile economy to grow at a slightly faster rate than the region's economies overall, accounting for 4.5% of GDP in five years' time. This analysis does not include a number of socio-economic impacts, such as improved access to education and health services brought about by mobile applications.

The mobile ecosystem supported 1.3 million jobs in the region in 2014. This includes workers directly employed in the ecosystem and jobs that are indirectly supported by the economic activity generated by the sector. In addition to the mobile sector's impact on the economy and labour market, it makes a substantial contribution to the funding of the public sector, with approximately \$13 billion raised in 2014 in the form of general taxation.

The mobile industry has a pivotal role to play in addressing social and developmental challenges in the Arab States, challenges that are becoming increasingly acute as a result of high unemployment levels, a youthful population, and ongoing social and political instability. In the less developed countries in the region, mobile is playing a role in digital inclusion (providing access to the internet where there are no other alternatives) and financial inclusion (providing financial services to the unbanked). Meanwhile, in the more developed markets, mobile operators are launching more advanced services such as those related to smart cities, mobile commerce and digital identity.

Mobile networks and services can play an important role in disaster response and crisis management, given their resilience and ability to facilitate critical communication between humanitarian agencies, affected populations and the international community. This is of particular relevance in the Arab States, given the humanitarian challenges facing a number of countries in the region. In 2014, Syria had the largest total number of displaced people of any country, with Iraq and Afghanistan also in the global top five. In the case of Syria, this represented more

than 50% of the country's total population, and accounted for almost a quarter of the world's total displacements. Mobile phones are increasingly used during emergency situations, for example to monitor population movements and to use this humanitarian data post-disaster. Operators across the region have been working with regulators and the UN, with support of the GSMA, to address the information and communications needs of displaced populations.

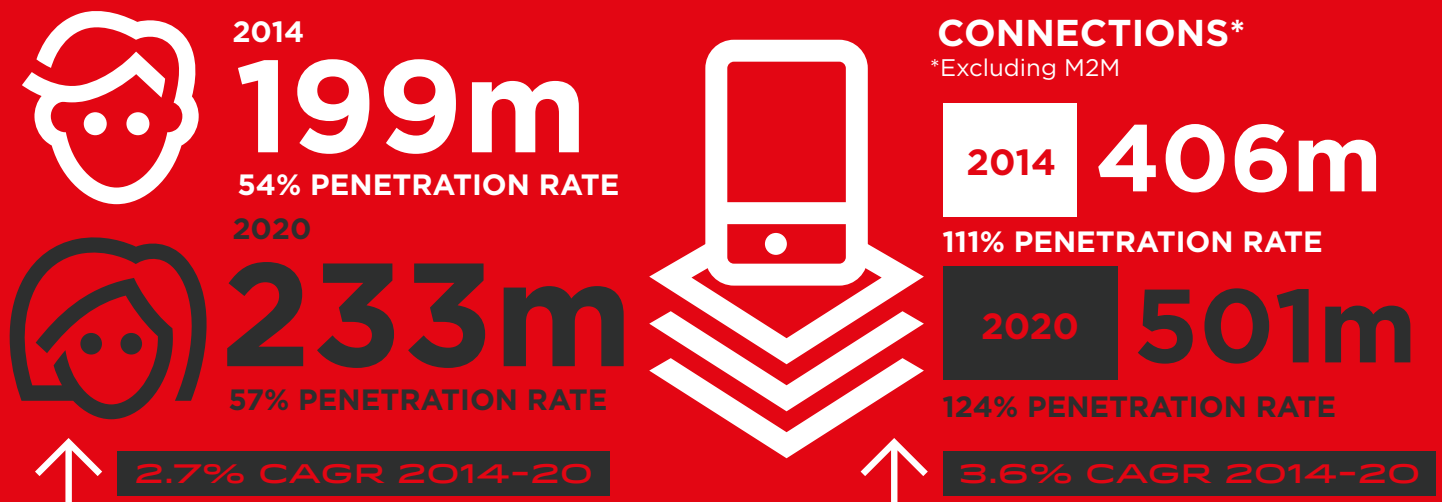
Given the high levels of mobile penetration in the Arab States, the growing availability of mobile money services and the amount of displaced people, there is an opportunity for mobile operators and other players to provide mobile money services to these groups. Government can work towards creating a favourable regulatory environment that allows non-banks to roll out mobile money services and does not block access to international mobile money transfer. Humanitarian organisations should continue to experiment with mobile money solutions for the displaced and ensure that these services are not only used to transfer money during the displacement, but are used as a financial instrument after the humanitarian programme has ended.

It is still early days for the mobile economy in the region. There are many steps policy-makers could take to expand access to broadband and the other valuable services enabled by mobile networks. Governments across the Arab world could help mobile operators address the fast growing demand for mobile broadband services by releasing more internationally harmonised spectrum. Policy-makers could also make it easier for mobile operators to deploy or gain access to the necessary infrastructure, including backbone networks and international gateways.

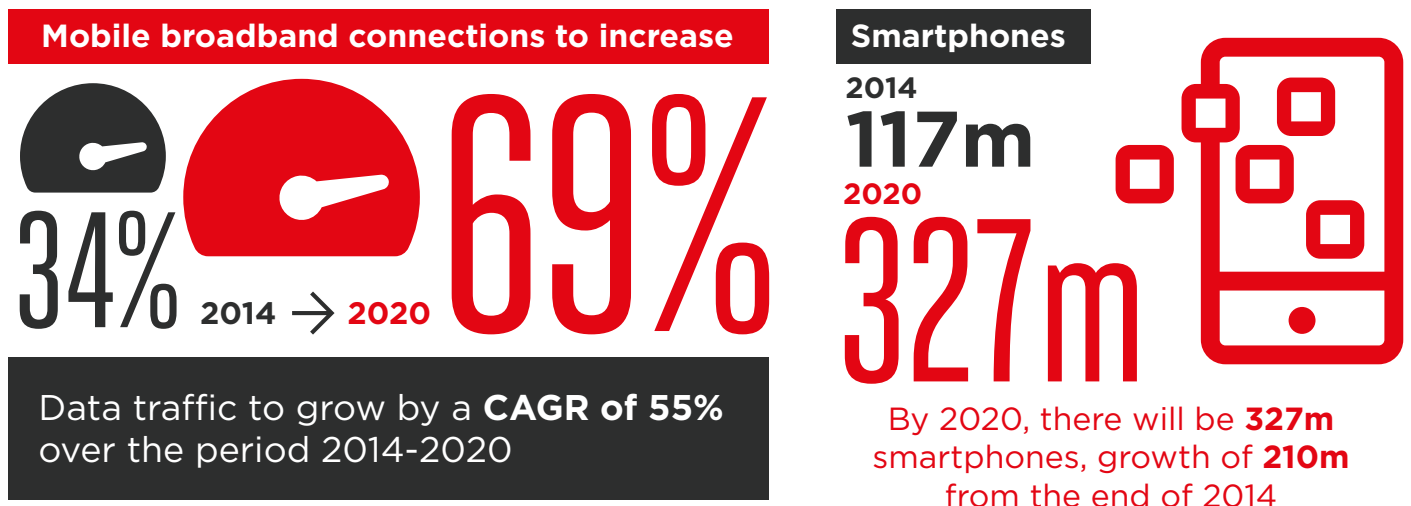
Many Arab governments need to review their taxation policies, as mobile-specific taxes are holding back economic growth and the resources available to both the public and private sectors. Policy-makers also need to ensure that their existing regulatory frameworks will facilitate the development of valuable new mobile applications relating to identification, education, health, financial services and other aspects of daily life. In particular, regulators need to be careful not to distort the market by favouring one technology or operating model over another. As the world moves deeper into the digital age, government policies should be designed to encourage, rather than curb, investment in broadband infrastructure.

# MOBILE ECONOMY ARAB STATES

## Unique subscribers and SIM connections



## Accelerating moves to mobile broadband networks and smartphone adoption



## Data growth driving revenues and operator investments



## Mobile contributing to economic and social development in the Arab States



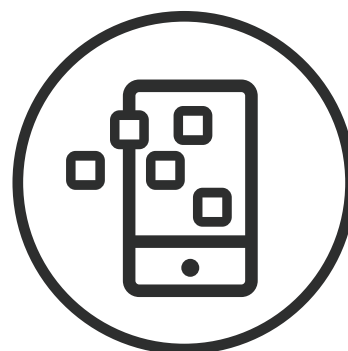
### Delivering digital inclusion to the still unconnected populations

Mobile internet penetration 28% in 2014, 42% in 2020



### Delivering financial inclusion to the unbanked populations

15 live services in the region as of June 2015



### Delivering innovative new service and apps

Number of M2M connections to reach 20m by 2020

## Mobile industry contribution to GDP



### Public funding



2014 **\$12.6bn**

2020 **\$14.3bn**

Mobile ecosystem contribution to public funding before regulatory fees

### Employment

Jobs directly supported by mobile ecosystem

**0.85m JOBS** 2014

**1.04m JOBS** 2020



Plus an additional **0.6m** indirect jobs supported by 2020



# 1

## The mobile industry in the Arab States



## 1.1 High penetration but slowing subscriber growth

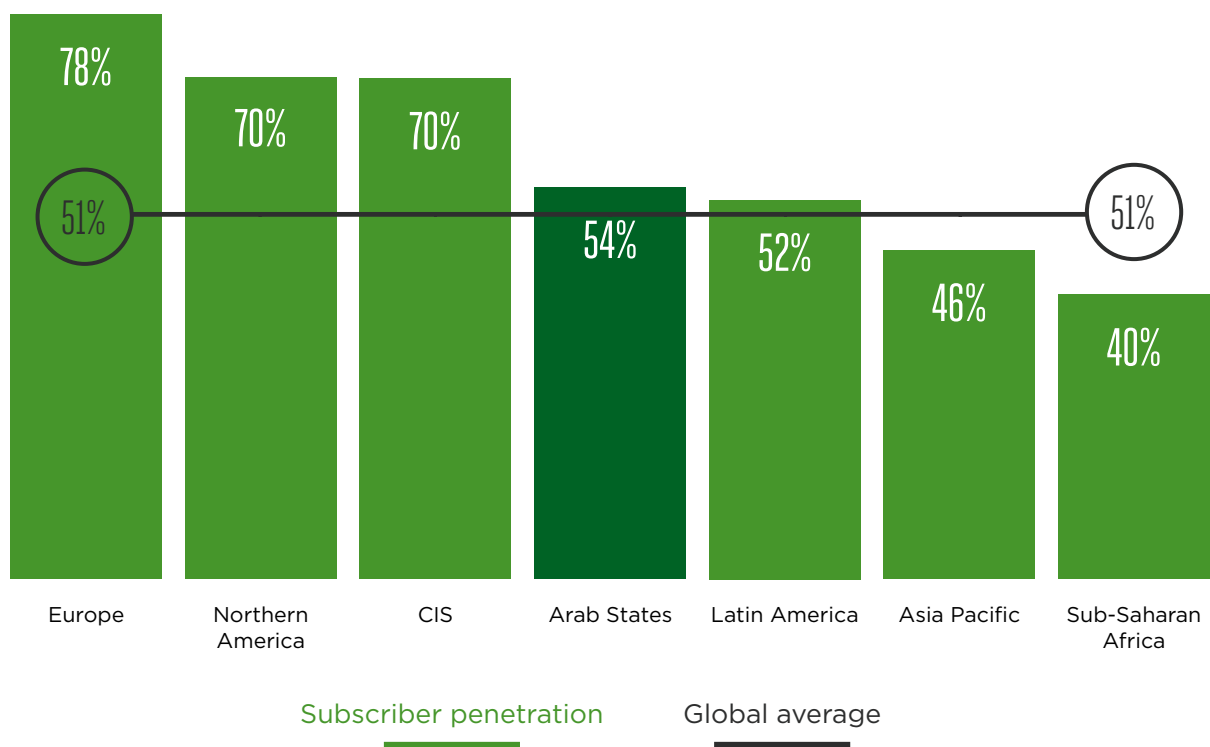
The mobile industry in the Arab States has grown rapidly over the last few years. Unique subscriber<sup>1</sup> penetration stood at 54% on average across the region as of mid-2015, which is higher than the global average of 51% and above other developing regions. High levels

of multi-SIM ownership among the region's subscriber base mean penetration in terms of connections<sup>2</sup> stood at 111% in the same period, much higher than the global average of 98% and above other regions such as Sub-Saharan Africa (74%) and Asia Pacific (92%).

Source: GSMA Intelligence

### Subscriber penetration by region

Q2 2015



1. Unique users who have subscribed to mobile services at the end of the period, excluding M2M. Subscribers differ from connections such that a unique user can have multiple connections.  
 2. Unique SIM cards (or phone numbers, where SIM cards are not used) that have been registered on the mobile network at the end of the period. Connections differ from subscribers such that a unique subscriber can have multiple connections.

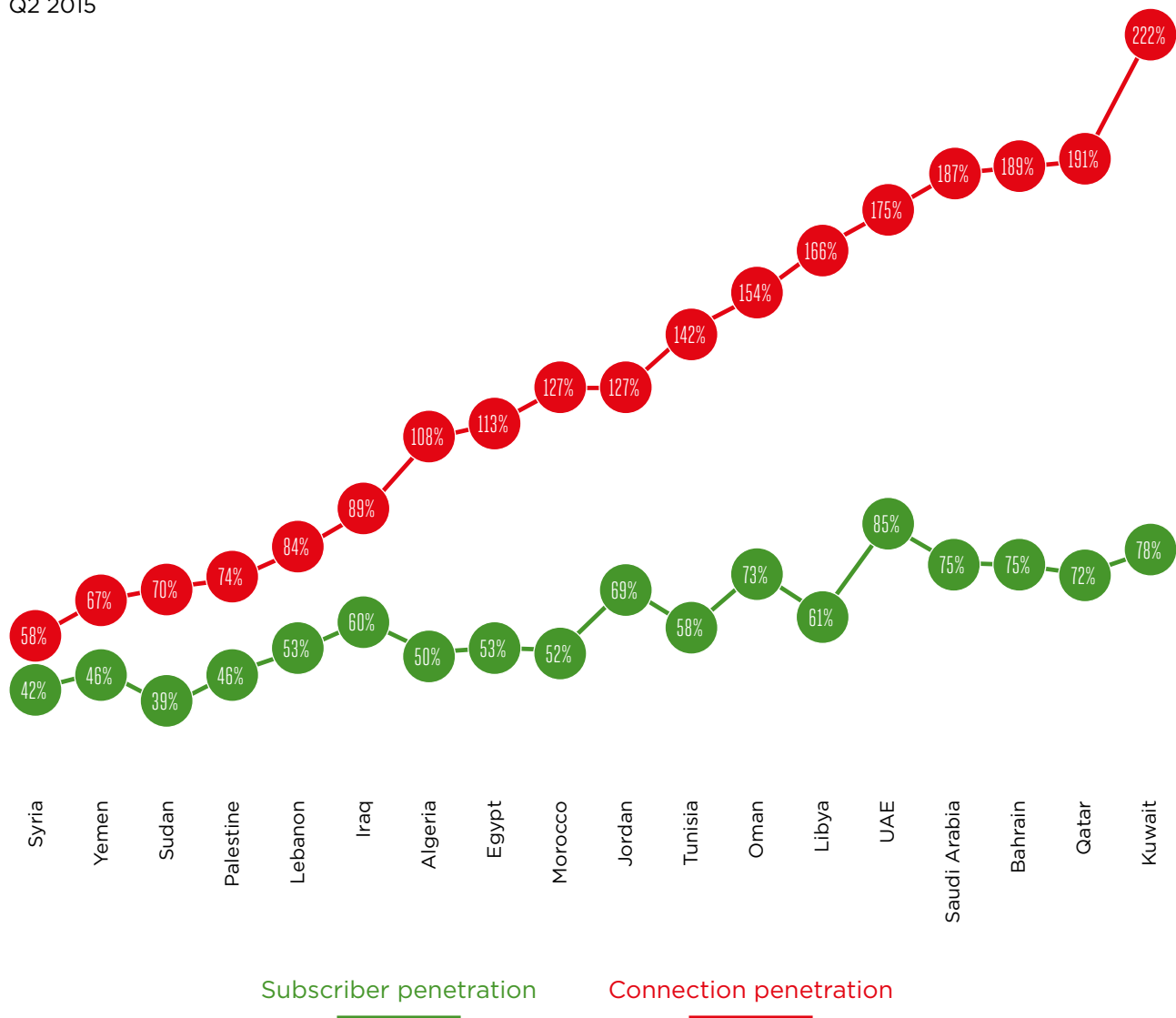
The Arab States region is one of the most diverse in terms of mobile development. It is home to four countries (Bahrain, Kuwait, Saudi Arabia and UAE) that have unique subscriber penetration rates above 75%, but is also home to five markets (Algeria, Palestine, Sudan, Syria and Yemen) with subscriber penetration rates below 50%. GDP per capita is an important factor

in this variation of penetration rates given the impact on the affordability of mobile services. On average, GDP per capita across the GCC<sup>3</sup> markets (which have the highest penetration rates of the region) is \$29,295, compared to \$3,365 in North Africa, providing the basis for the generally more advanced level of the mobile industry in the sub-region.

Source: GSMA Intelligence

## Arab States penetration by country

Q2 2015



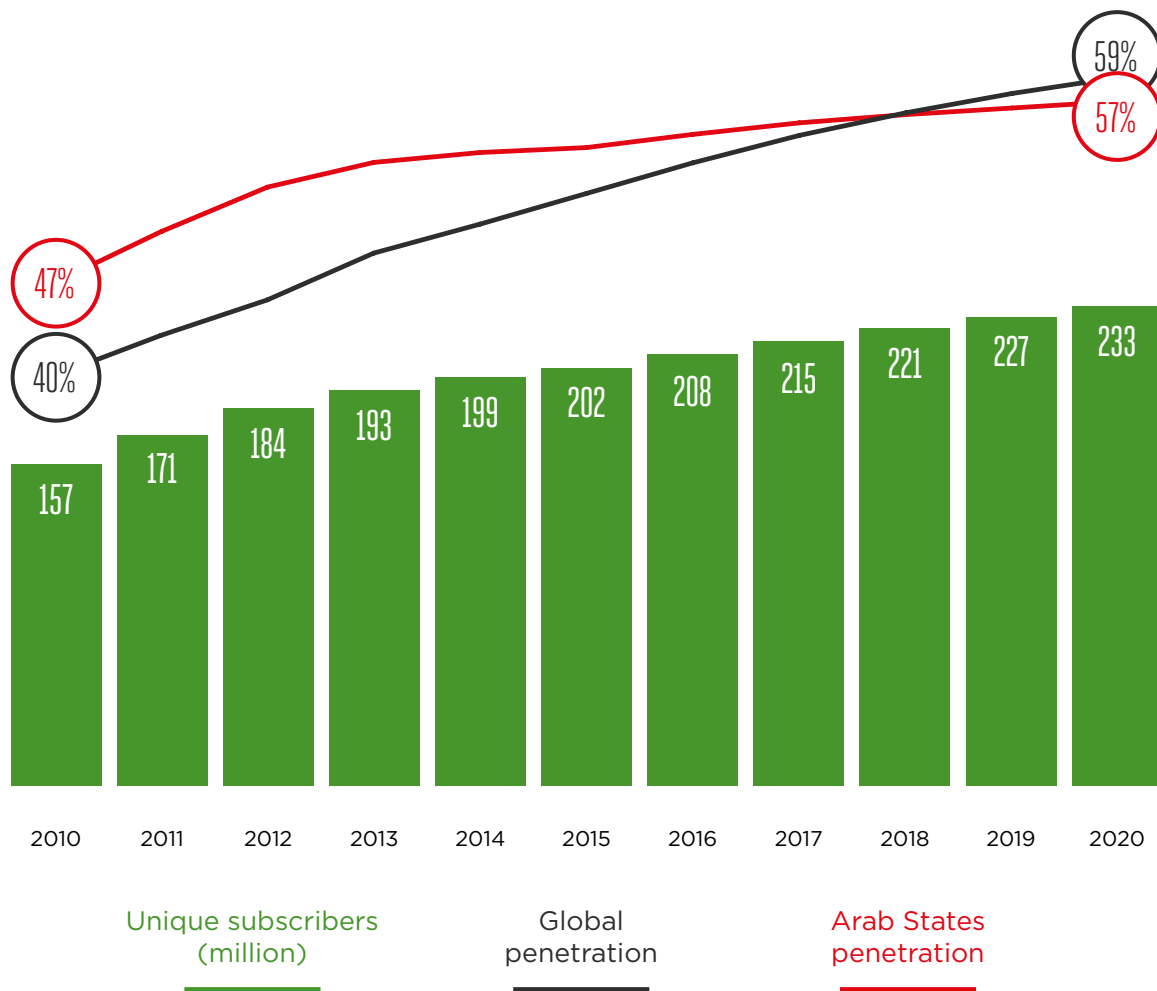
3. GCC markets are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE.

By the end of 2014, the unique subscriber base in the Arab States totalled 199 million, having grown at a CAGR of 7.0% over the last five years, in line with the global average. However, going forward subscriber growth rates will slow, with the total base forecast to increase to 233 million at a rate of 2.7% per annum out to 2020, below the global average of 3.7%. This slowdown is based on several factors: declining

potential of further subscriber growth in already highly penetrated markets, the challenge of growing penetration in the often lower income and rural-based groups in less developed markets, and unstable political and economic conditions in some markets showing little signs of improvement. As a result, subscriber penetration will only reach 57% by 2020, slightly below the global average.

Source: GSMA Intelligence

## Arab States unique subscriber growth



## 1.2 Mobile broadband and smartphone growth: GCC markets lead the charge

The region is seeing an ongoing technology shift to higher speed mobile broadband networks and smartphones, with growing uptake of data services by end users. The general lack of fixed broadband infrastructure in the region means that mobile networks, and particularly mobile broadband, play a crucial role in providing internet access. Many operators are therefore investing heavily in their mobile networks to take advantage of the growing demand for faster data speeds and new apps and services. 3G networks in particular are seeing widespread build-out over recent years. Since the start of 2011, mobile operators across the Arab States have spent more than \$40 billion on capital investments, or approximately 18% of total

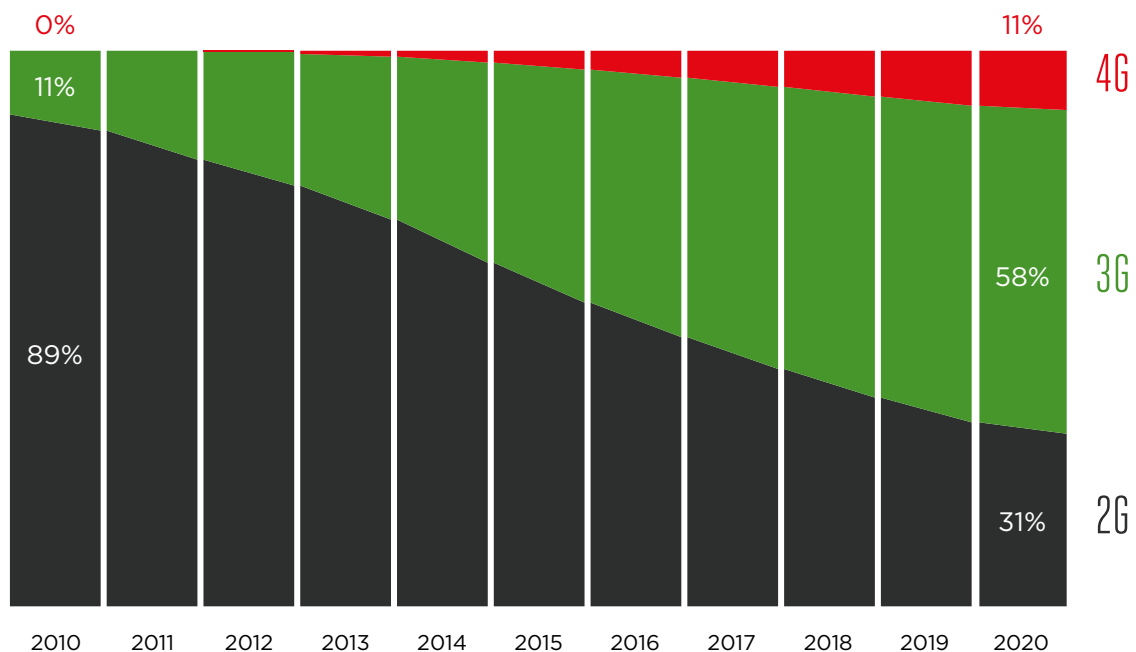
revenues. Q1 2015 saw the highest proportion of mobile operator capex for more than five years – almost 22% of total revenue, up from less than 16% at the beginning of 2013 – as 4G network rollouts accelerate.

The number of mobile broadband (3G and 4G) connections will have increased from just under 20 million in 2009 to 182 million by the end of 2015, a nine-fold increase. This represents an increase in share of the total connections base from 7% to 43%. By 2020, mobile broadband connections will reach just under 350 million, by which date they will represent almost 70% of the total connection base.

Source: GSMA Intelligence

### Arab States connection share by technology

(Percentage of connections)

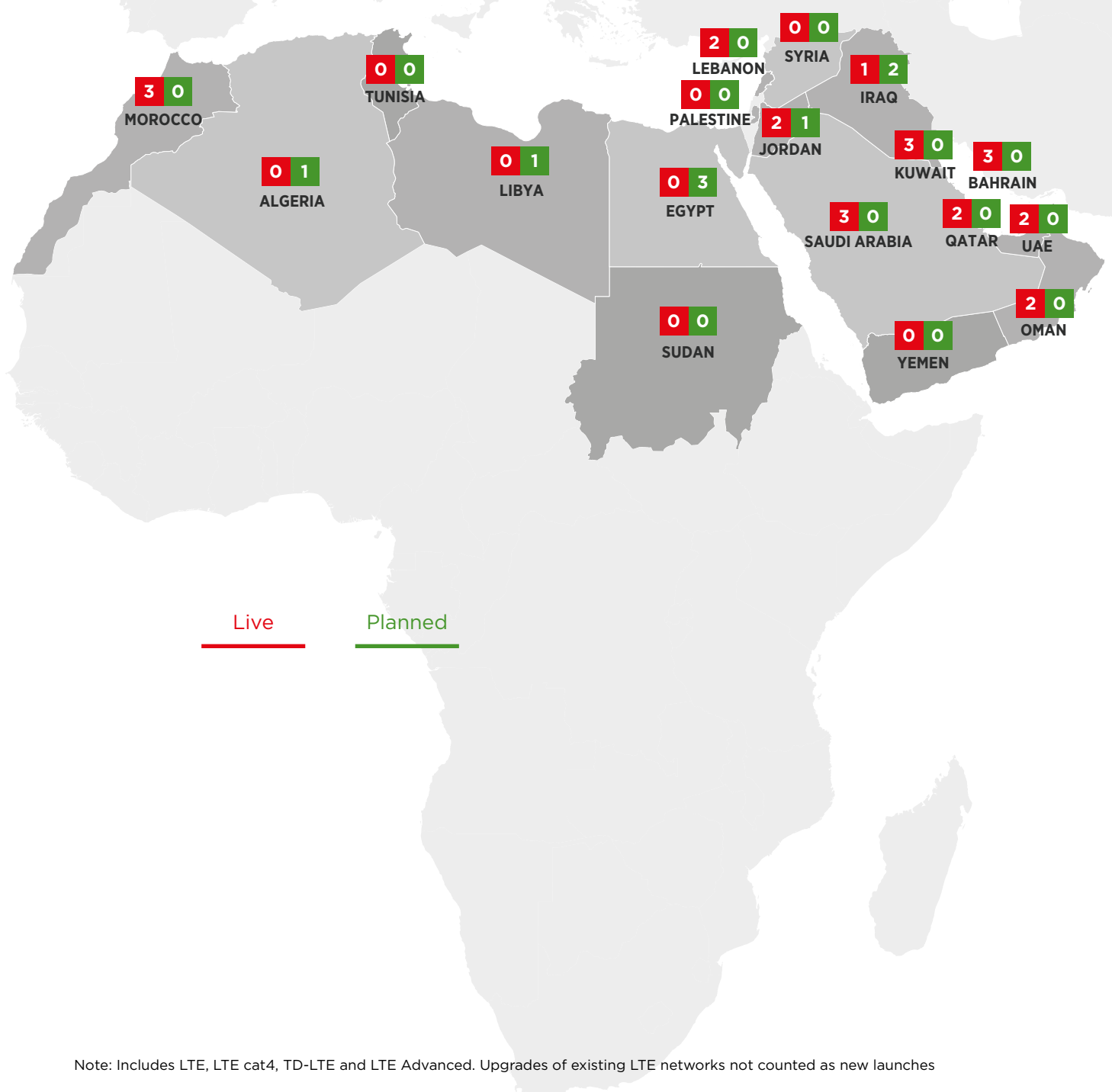


As most countries across the region have now rolled out 3G networks (all apart from Palestine), 3G will be the dominant technology by 2020, accounting for 58% of connections. However, the rate of 4G rollouts across the region is also now accelerating. There are currently 23 live 4G networks in 10 countries across the Arab States (all the GCC markets as well as Iraq, Jordan,

Lebanon and Morocco), with eight more in Algeria, Egypt, Iraq, Jordan and Libya set to launch over the next few years. With three live 4G networks, Kuwait has the highest 4G penetration rate in the region, with 4G accounting for 15% of total connections at the end of 2014.

Source: GSMA Intelligence

## LTE launches across the Arab States



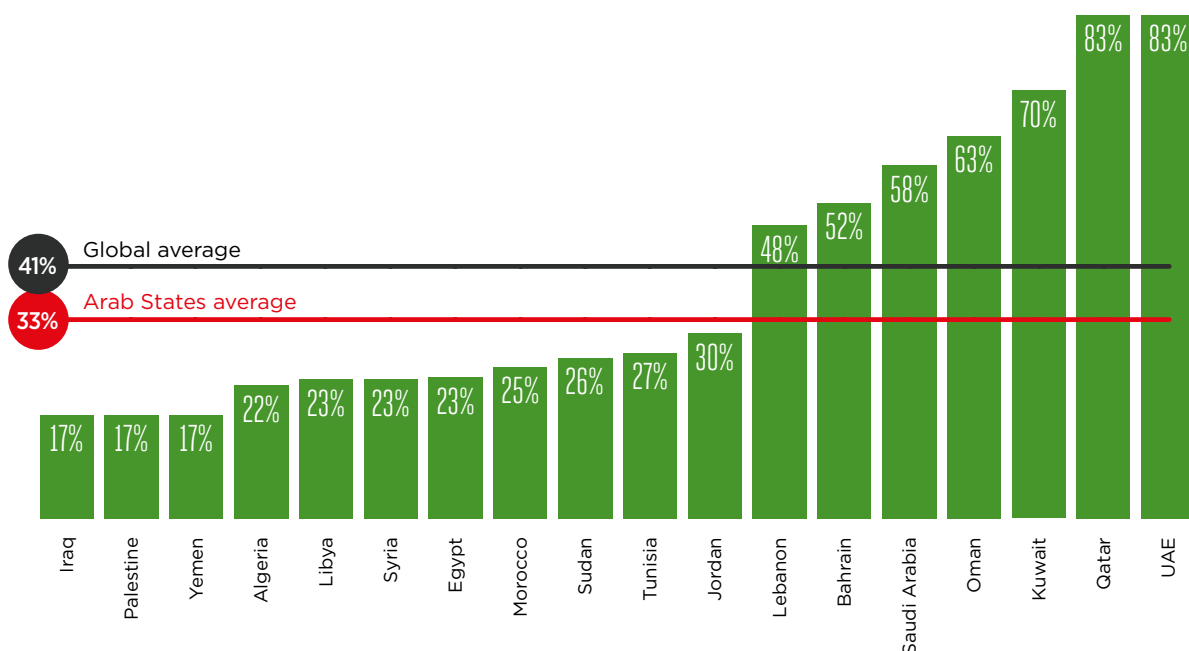
The number of 4G connections is forecast to grow at a CAGR of 37% between 2015 and 2020. Again, GCC markets will lead the way, with 4G adoption reaching 40% on average across the six markets by 2020, well above the global average of 32%. However, this is still some way below the global market leaders. Delays in service launches, slow rollout across most of North Africa, political instability and potential issues around affordability mean that 4G will still only account for 11% of region-wide connections by 2020. It should be noted that there may be a potential upside to these forecasts as more networks are launched and if governments and mobile operators can overcome some of the barriers to future growth.

Smartphone adoption has increased strongly over the last few years, with average annual growth of 55% between 2009 and 2014. Smartphones accounted for a third of connections across the region by mid-2015, below the global average of 41%. Much of this difference is due to North Africa, where the more limited deployment of mobile broadband networks means smartphones accounted for only around a quarter of total connections. In the GCC markets by contrast, smartphones accounted for 65% of connections, above the global average. The GCC is home to two markets (Qatar and the UAE) with the highest smartphone adoption rates in the world, accounting for 83% of connections as of mid-2015.

Source: GSMA Intelligence

## Arab States smartphone adoption

(Percentage of connections, Q2 2015)



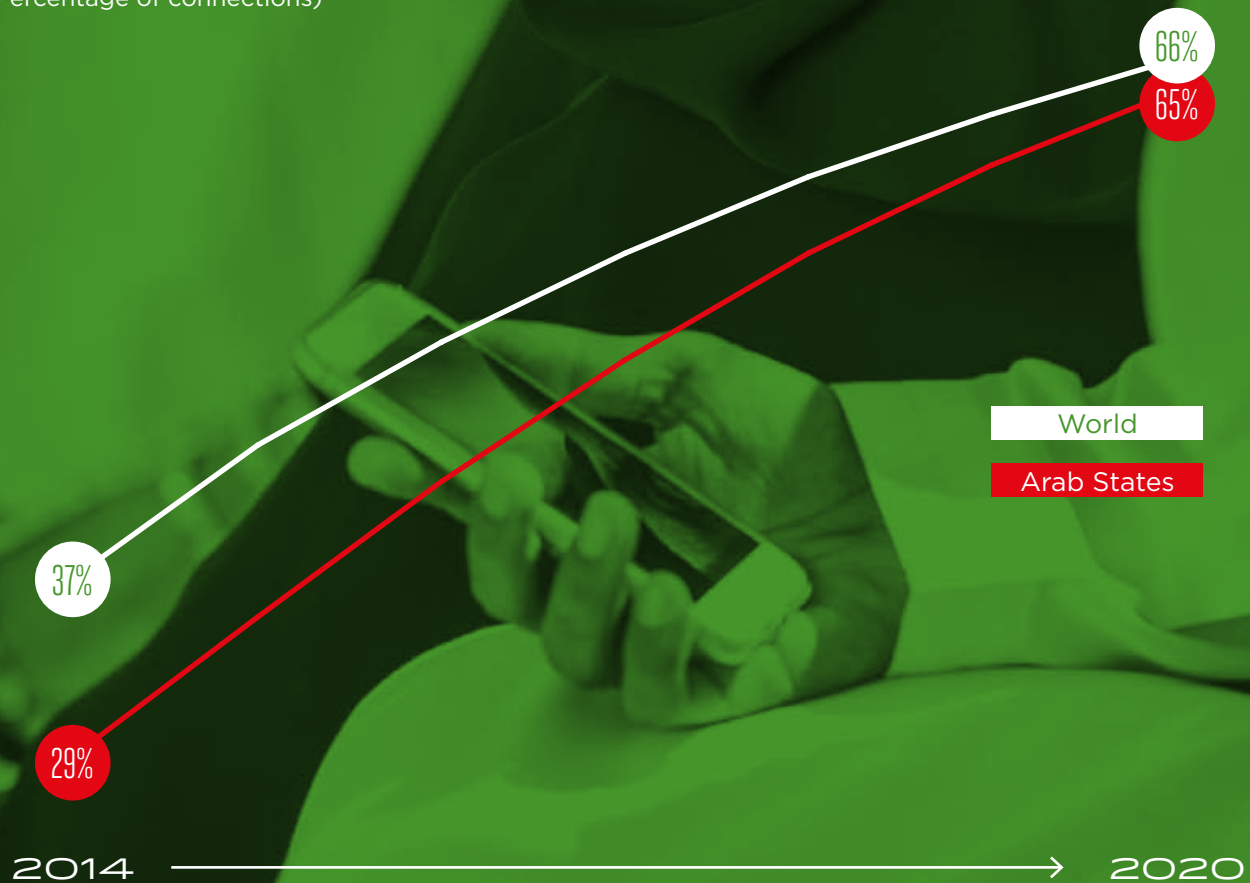
Smartphone growth will continue over the next few years as mobile broadband deployments increase, devices become more affordable, and demand for more advanced applications and services rises. The region is forecast to grow more rapidly than the global average: by 2020 there will be 327 million smartphone connections across the Arab States, accounting for around two-thirds of the total connection base. This

growth represents a CAGR of 19% for the period 2014–2020, compared to the global average of 12%. This rapid growth will see smartphone adoption in the Arab States catch up with the global average by 2020. Much of this growth will come from the North African markets, where smartphone connections will increase almost four-fold in the next six years (from 48 million to 183 million).

Source: GSMA Intelligence

## Smartphone adoption

(Percentage of connections)



Growing mobile broadband and smartphone usage is driving an explosion in mobile data in the region. According to Ericsson, mobile data traffic will grow 13-fold from 2014 to 2020 across the broader Middle East and North Africa region, from 130 petabytes per month in 2014 to 1,700 petabytes per month by 2020. This represents an average annual growth rate of 55%, much higher than the global average of 45%. The amount of data used monthly by each active smartphone will increase substantially from an average of 0.8 GB in 2014, to around 5 GB in 2020. A particular high-growth market is Saudi Arabia where, according to Cisco, mobile data traffic will grow twice as fast as fixed traffic between 2014 and 2019, and

where mobile data traffic as a proportion of total traffic (fixed and mobile) will grow from 11% to 30% over the same time period.

In addition to leading the way in terms of mobile broadband and smartphone growth, the GCC markets are also pioneering newer network developments such as LTE Advanced and VoLTE. Along with Morocco, four GCC countries (Kuwait, Qatar, Saudi Arabia and the UAE) have launched LTE Advanced networks, and Kuwait is also home to a live VoLTE network (launched in June 2015 by VIVA). In the next few years, there are two more LTE Advanced networks planned in Kuwait, and six VoLTE networks in five countries.

## 1.3 Market outlook – competition on the increase

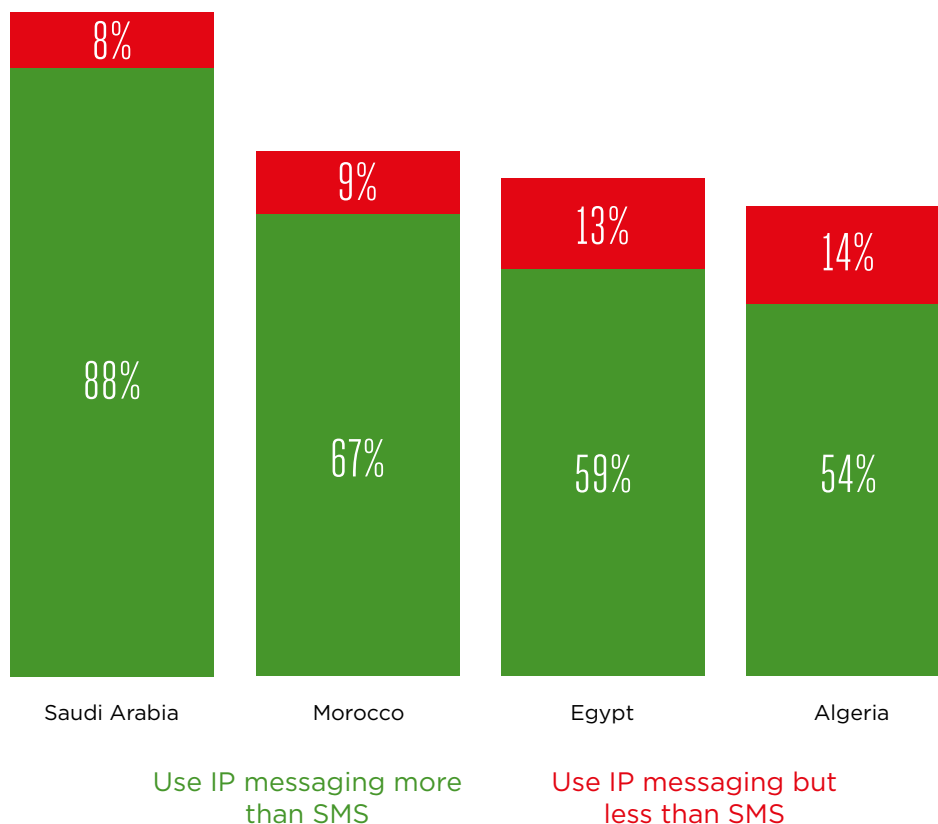
The increasing availability of faster mobile broadband networks, rising smartphone adoption and a large proportion of prepaid connections make the Arab States an attractive market for IP messaging services. In some cases, operators have partnered with these new entrants. Mobily in Saudi Arabia, for example, has a partnership with WhatsApp that allows users to access the service at nominal cost. Youthful populations with growing levels of smartphone adoption have

driven IP messaging in many countries in the region. A recent GSMA Intelligence survey showed that, in Saudi Arabia, 88% of respondents aged 18–24 claimed to use IP messaging more often than SMS, and a further 8% used IP messaging infrequently. Similarly, across some North African markets, well over half of 18–24 year-olds claimed to use IP messaging more often than SMS, increasing to over two-thirds if infrequent usage is included.

Source: GSMA Intelligence

### IP messaging usage in selected markets, 18–24 year-olds

(Percentage of respondents)





The impact of these new services on SMS is already evident across the region. According to Portio Research, SMS volumes declined by 2% across the Middle East and Africa region in 2014 – the first decline ever. In Egypt, Vodafone reported a 26% drop in SMS volumes in 2014 compared to 2012. At the same time, mobile operators throughout the region are seeing significant growth in their data revenues. Zain in Saudi Arabia reported that data accounted for 20.5% of recurring revenue in the final quarter of 2014, up from 7.1% in the same quarter of 2012. For Ooredoo in Oman data as a percentage of recurring revenue increased by 10 percentage points in the first two quarters of 2015 alone (reaching 43.9% in Q2 2015). For MTN Sudan data as a percentage of recurring revenue reached almost 20% in Q4 2014, up from 9.2% for the same period in 2013.

Despite high levels of adoption and usage of social media and messaging platforms, there remain concerns among some regulators and governments about their use, with action taken to block access to some sites. However, there are signs that attitudes may be softening. For example, in August 2015, an Egyptian court turned down a lawsuit calling for Facebook to be blocked, ruling that blocking the website would “infringe the constitutional rights” of the approximately 20 million Egyptian Facebook users – the largest number in the Middle East<sup>4</sup>.

With regulators looking to foster greater competition in the region, mobile virtual network operators (MVNOs) are starting to become more prevalent; there are currently 10 MVNOs operating in five countries, mostly in Oman (four) and Saudi Arabia (three). Fifteen more MVNOs are planned across the region, potentially playing an important role in further penetrating key segments, such as youth, migrant workers, and small to medium-sized enterprises.

- Oman is a particularly dynamic and competitive market in the region. It was one of the first countries in the region to implement mobile number portability back in 2006, and was the first country to launch an MVNO network in the region in April 2009. There are currently four MVNOs in operation, with an additional four planned.
- In Saudi Arabia there are three live MVNOs: Virgin Mobile, FRiENDi and Lebara. Two more MVNOs plan to launch in the next few years, targeting the large migrant community in the country, and those with relatives and friends abroad.
- In the UAE, the regulator has recently launched two initiatives with a vision to liberalise the market and enhance competition, paving the way for MVNO entrants in the near future. The first move was to launch mobile number portability; the second was to allow the country's two mobile operators – Du and Etisalat – to offer new prepaid mobile packages without prior regulatory approval. As a result, two MVNOs – Virgin and Axiom Telecom – plan to launch services in the near future.

4. Source: 'Egyptian court refuses to block Facebook', Middle East Monitor, August 2015

## 1.3.1 Mobile operator revenues are under pressure

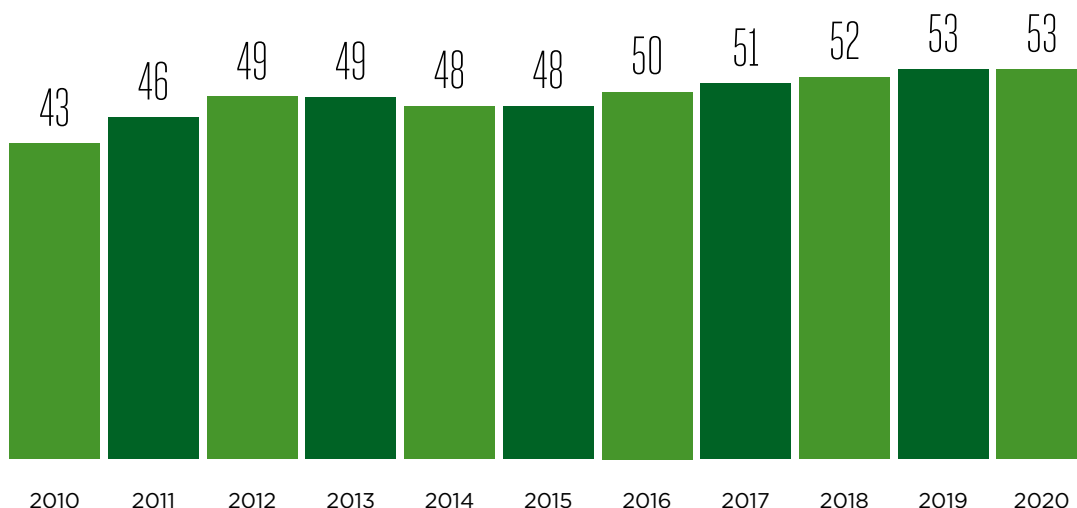
Fuelled by increasing subscriber penetration as well as the ongoing migration to mobile broadband and data, the Arab States has historically been one of the fastest growing regions in terms of revenues. However, 2013 and 2014 saw a reversal of this growth, with recurring revenue declining by 2.4% in 2014 compared to 2013. Slowing subscriber growth, increased competition and a more general slowdown due to political, economic

and social conditions across the region are the major factors behind this decline. The impact was particularly evident in Iraq, where a combination of a new-entrant operator and security issues across large parts of the country have led to a significant fall in revenues. As a result of these factors, recurring revenues in Iraq fell 12% between 2013 and 2014, which accounted for almost half of the total decline across the region.

Source: GSMA Intelligence

### Arab States operator revenue trends

(\$ billion)



Note: Pre-2013 adjusted to account for restating of Mobily Saudi Arabia numbers in Q3 2014

Revenue is likely to return to growth from the end of 2015, as mobile operators continue to monetise the strong growth in data traffic (for example by offering a range of data bundles) and mobile broadband uptake continues. However, growth will not return to the levels previously enjoyed in the region due to further slowing of subscriber growth, ongoing political and socio-economic instability, increasing competition and the

cannibalisation of traditional revenues by IP messaging platforms. The region is expected to see modest revenue growth, with a CAGR of 1.9% between 2015 and 2020. Mobile operators are therefore under pressure to diversify their revenue streams, implement new services and find effective ways to monetise the growth in data traffic to counteract the revenue squeeze.

# 2

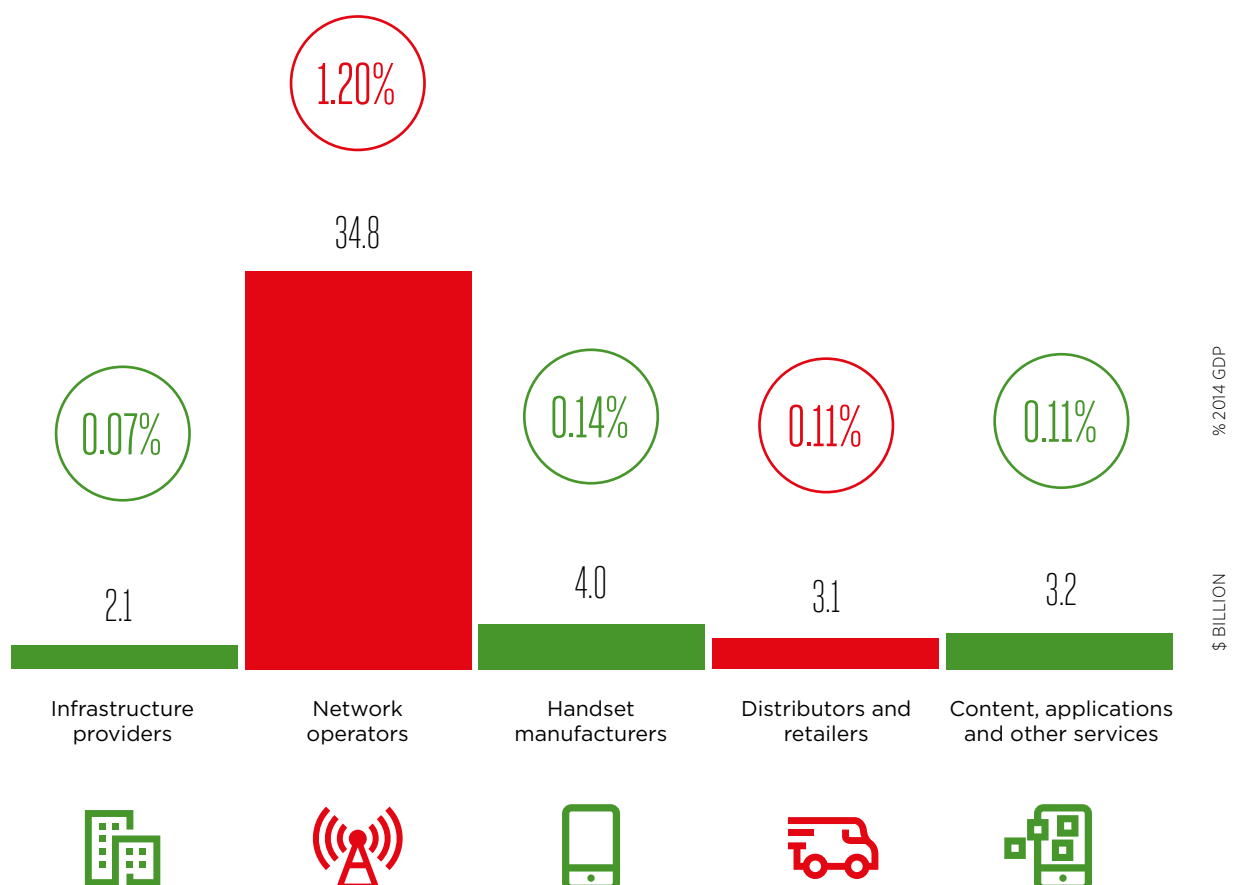
Mobile industry  
driving economic  
growth across the  
region

The mobile ecosystem consists of mobile network operators, infrastructure service providers, retailers and distributors of mobile products and services, handset manufacturers and mobile content, application and service providers. The direct economic contribution to GDP of these firms is calculated by measuring their value added to the economy, including employee compensation, business operating surplus and taxes. In 2014, the total value added generated by the mobile ecosystem was \$47 billion (or 1.6% of GDP), with network operators accounting for the large majority of this.

Source: GSMA Intelligence

## Arab States: direct GDP contribution of the mobile ecosystem

(\$ billion, percentage of 2014 GDP)



In addition to their direct economic contribution, firms in the mobile ecosystem purchase inputs from their providers in the supply chain. For example, handset manufacturers purchase inputs from microchip providers, and content providers require services from the IT sector. Furthermore, some of the profits and earnings generated by the ecosystem are spent on other goods and services, stimulating economic activity in those sectors. In 2014, this additional economic activity generated a further \$9 billion in value add (or 0.3% of GDP) in the region. The use of mobile technology also continues to drive improvements

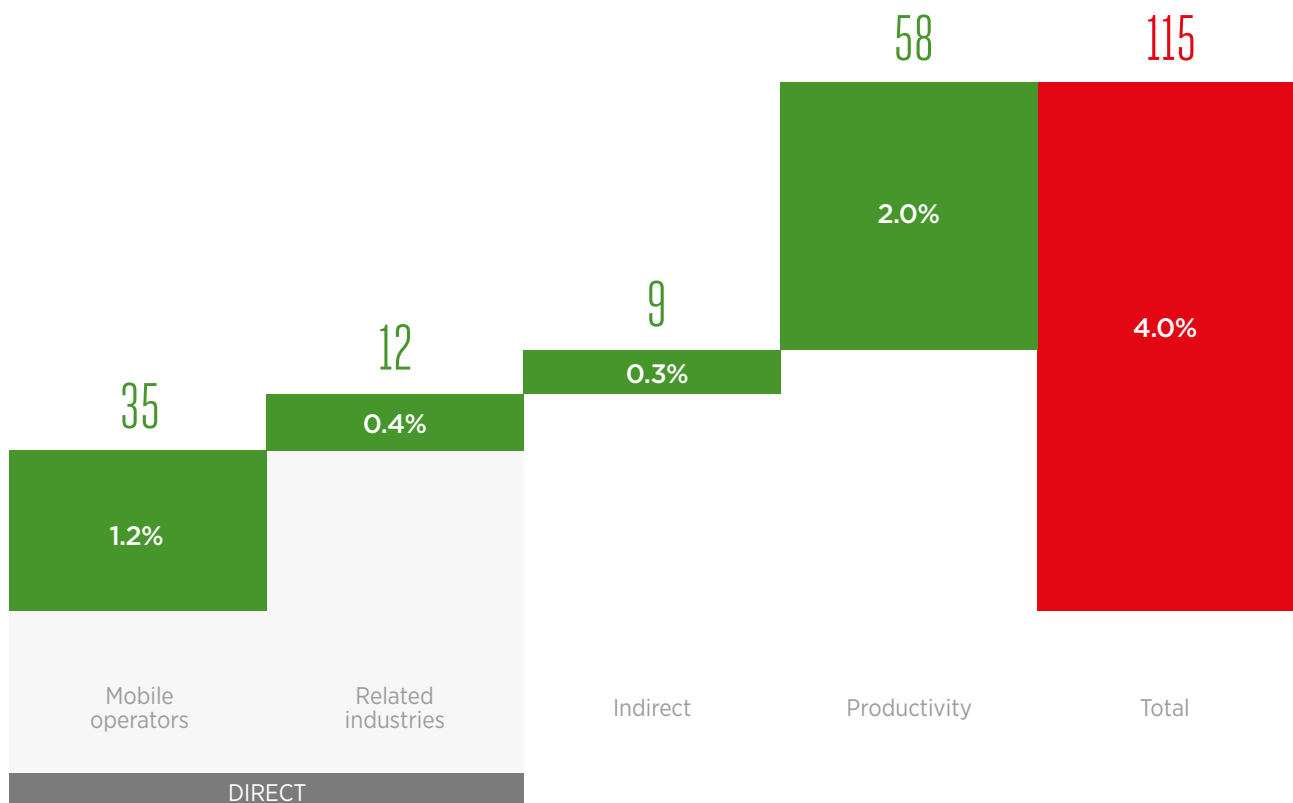
in productivity and efficiency for workers and firms. For example, it reduces unproductive travel time and facilitates improved logistics for businesses and workers in services and manufacturing. These productivity impacts were worth around \$58 billion in 2014 (or 2% of GDP) in the Arab States.

Taking into account the direct, indirect and productivity impacts, in 2014 the mobile industry made a total contribution of \$115 billion to the region's economy in value added terms, equivalent to around 4% of the region's total GDP.

Source: GSMA Intelligence

## Arab States: mobile industry total (direct and indirect) contribution to GDP

(\$ billion, percentage of 2014 GDP)



## 2.1 Mobile a key source of jobs and public funding

In 2014 mobile operators and the ecosystem provided direct employment to approximately 850,000 people in the region, with the majority of these working in the distribution and retail of mobile technology.

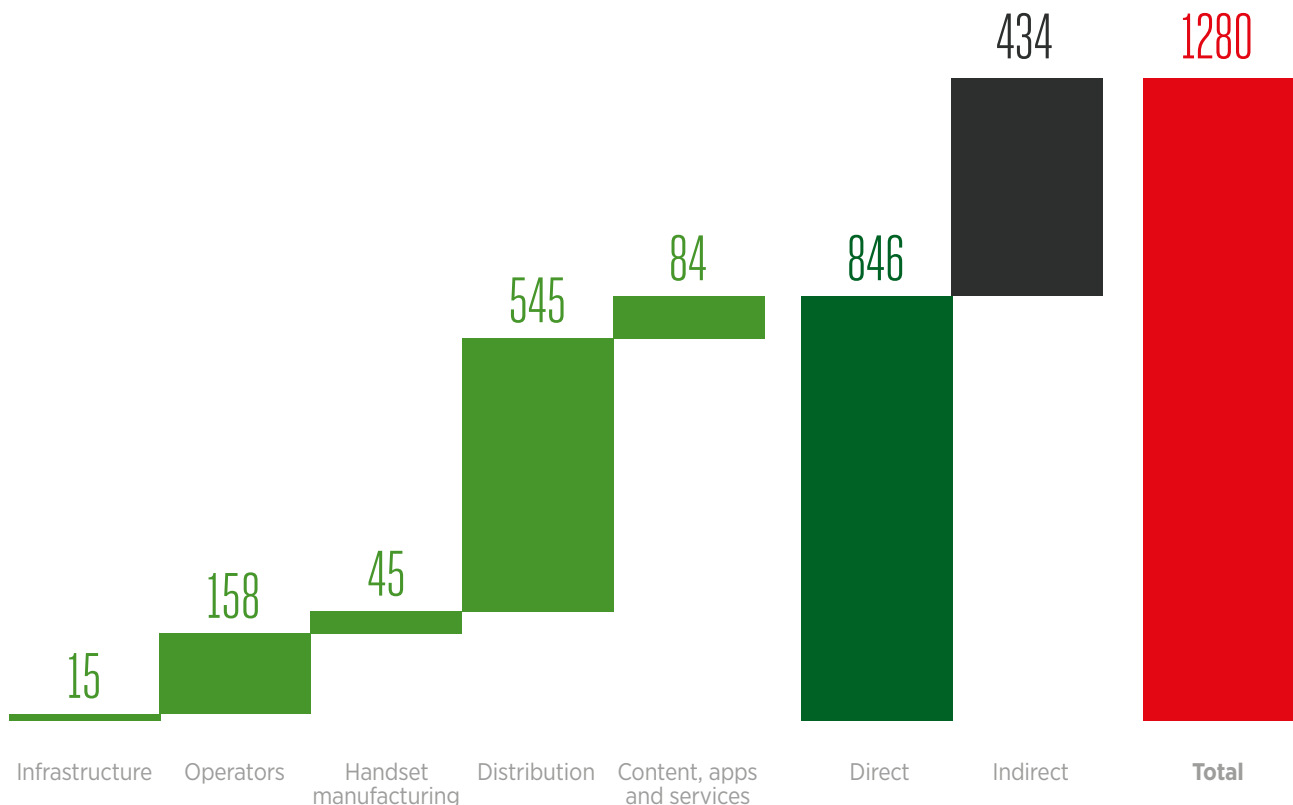
In addition to the mobile sector's direct employment, economic activity in the ecosystem generates jobs in other sectors. Firms that provide goods and services as production inputs for the mobile ecosystem will employ

more individuals as a result of the demand generated by the mobile sector. Furthermore, the wages, public funding contributions and profits paid by the industry are spent in other sectors, which provide additional jobs. In 2014, around 430,000 jobs were indirectly supported in this way, bringing the total impact (both direct and indirect) of the mobile industry to around 1.3 million jobs.

Source: GSMA Intelligence

### Arab States: employment impacts of the mobile industry

Jobs (000s)



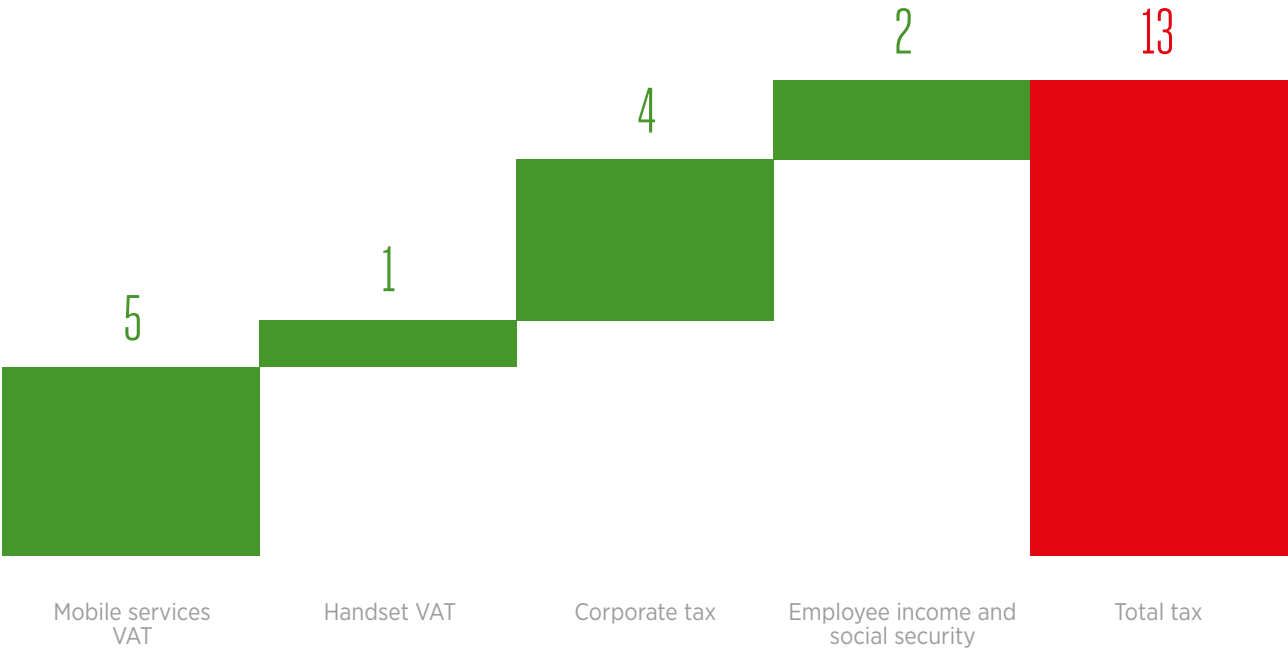
The mobile ecosystem also makes a significant contribution to the funding of public sector activity in the region through general taxation. For most countries, this includes value added tax, corporation tax, income tax and social security from firms and employees. The ecosystem made a total tax contribution to the public finances of the region's

governments of approximately \$13 billion in 2014. In addition to tax contributions, mobile network operators generate public funds through the payment of fees for spectrum. In 2014, the allocation of spectrum licences in Iraq and Jordan generated approximately \$920 million and \$340 million for their respective governments.

Source: GSMA Intelligence

## Arab States: contribution to public funding by the mobile industry

(\$ billion)





## 2.2 Outlook and trends to 2020

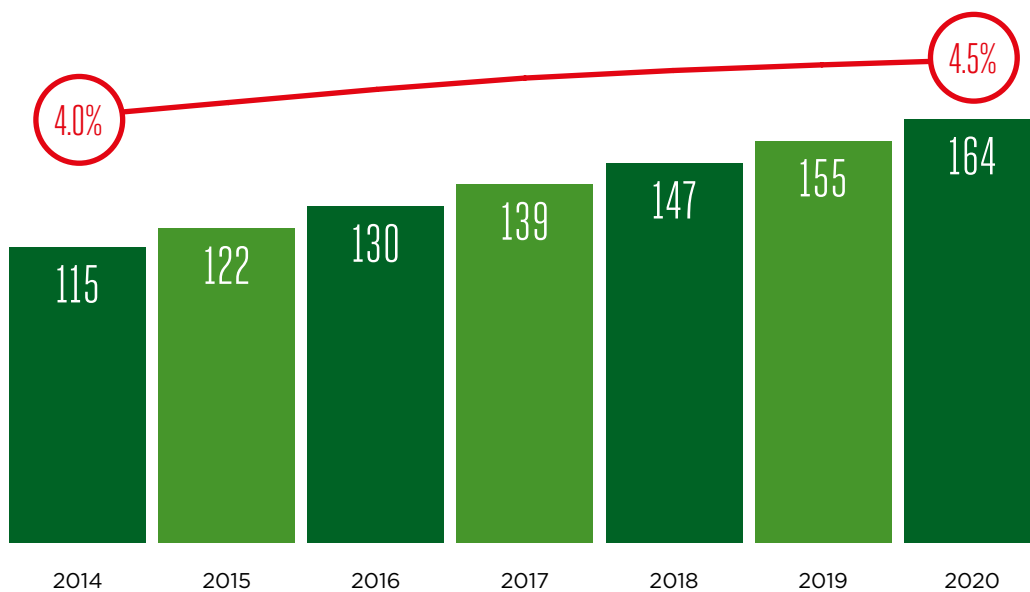
The economic contribution of the mobile industry in the Arab States will continue to increase in both absolute and relative terms, although such forecasts are invariably uncertain given the political situation and security challenges in many of the region's countries. In value-added terms, the ecosystem will generate more than \$160 billion by 2020, equivalent to 4.5%

of GDP. The majority of this growth will be driven by improvements in productivity and efficiency, as mobile technologies connect previously unconnected populations to the internet and enable a more efficient use of resources. However, as the number of subscribers continues to grow there will also be an increase in the direct contribution of the ecosystem.

Source: GSMA Intelligence

### Economic impact: outlook to 2020

(\$ billion, percentage of GDP)



The total number of jobs supported by the ecosystem will also grow. The number of employees in the mobile sector will increase to more than 1 million by 2020, while the number of jobs and the number of employees indirectly supported will increase to more than half a million. There will also be growth in the public funding

contribution of the mobile ecosystem, which will pass \$14 billion in real terms by 2020, assuming that tax rates and regulatory fees rates remain at current levels. This figure does not include contributions from licence and regulatory fees or spectrum auction payments.



# 3

## Mobile enabling innovation and developing digital societies

The mobile industry has a pivotal role to play in addressing a number of the pressing social and developmental challenges in the Arab States. In the less developed countries in the region, mobile is aiding digital inclusion (providing access to the internet where there are no alternatives) and financial inclusion (providing financial services to the unbanked). In the more developed markets, mobile operators are launching more advanced services around initiatives such as smart cities and digital identity.

The Arab States has seen several developments in the innovation space. The number of companies founded after 2010 has increased by over 200% compared to pre-2010, with a significant proportion located in the UAE. There has also been increased start-up activity in Egypt, Jordan and Lebanon. The main focus area for these new companies is e-commerce, followed by software, advertising, education, social media and games. The total amount of funding in Arab States companies has increased rapidly, growing by 130% between 2013 and 2014.

With the rapid increase in smartphone adoption in the past few years, apps have become increasingly more popular. Half of smartphone users in Egypt, Lebanon, Saudi Arabia and the UAE downloaded more than five (paid and free) in June 2015, with gaming and social media the most popular application types. Most customers who paid for apps have also made in-app

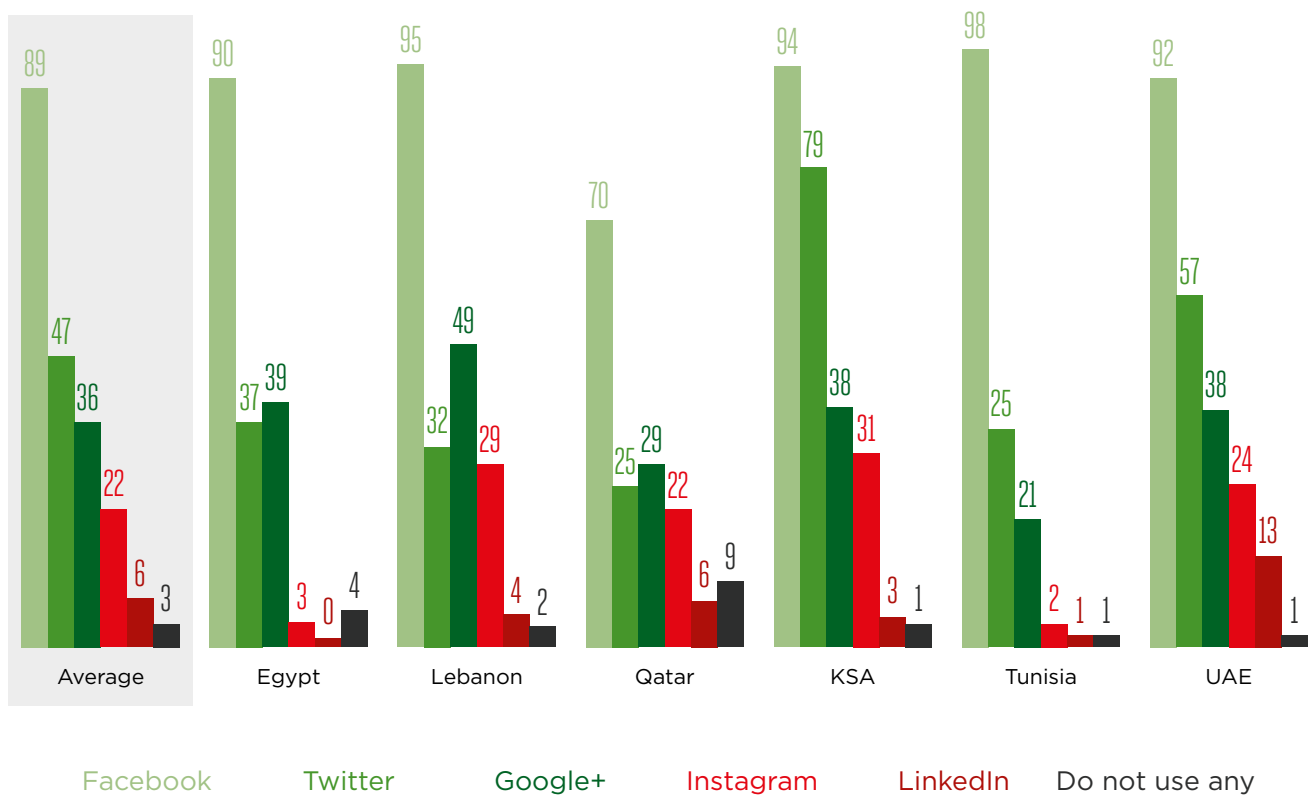
purchases. One of the main reasons preventing the remaining half of smartphone users in the region from purchasing apps is a lack of the right apps. In particular, there is strong demand for applications in Arabic language<sup>5</sup>.

Many countries have high levels of social media usage, with most of this access occurring over mobile devices. Facebook dominates social network usage in the Arab States, with 74 million users. Egypt has the largest number of Facebook users, approximately 20 million. Sixty-five percent of Facebook users in the region access the site via a mobile phone. The second most popular social media network is Twitter. Saudi Arabia is the dominant market in the region, accounting for 40% of tweets. The third social network in the region is Instagram which, according to Etisalat, is the social network that generates the most traffic across the region.

Source: "Social Media in the Middle East: The story of 2014", Damian Radcliffe, January 2015

## Top five social networking sites used

(Percentage of internet users)



5. Source: 'Tapping the App market', Gulf Business, 2015

## 3.1 Internet of Things showing potential

The Internet of Things (IoT) has the potential to offer a range of innovative solutions to challenges facing communities and governments across the region. Issues in a number of countries have become particularly pressing, with high levels of population growth, a youthful population and political insecurity and conflicts affecting a growing number of countries.

Many of the connected devices that will deliver IoT services will use short-range wireless technologies, rather than cellular connectivity. However, mobile will continue to play a crucial role as an enabling

technology for IoT, acting as an aggregator or hub to connect a range of devices, and offering wide-area connectivity. Machine-to-machine (M2M) is an integral part of the IoT, which describes the coordination of multiple machines, devices and appliances connected to the Internet through multiple networks. These devices include everyday objects such as smartphones, tablets and consumer electronics, and other machines such as vehicles, monitors and sensors equipped with M2M communications that allow them to send and receive data.

### 3.1.1 Machine to machine

The M2M market is still in its early stages of development in the Arab States, with 5.4 million connections as of mid-2015, representing just over 1% of the total connection base in the region. The total number of cellular M2M connections is expected to increase at a CAGR of almost 30% between 2014 and 2020 to almost 20 million, by which time M2M will account for nearly 4% of the total connection base.

In 2020, nearly half of the total M2M connections in the region will come from just two countries, Saudi Arabia and the UAE, with Egypt also making a large contribution. However, in terms of number of M2M connections as a proportion of total connections in each country, the GCC countries will see the biggest increases in share up to 2020.

Some of the main areas of focus for M2M deployments to date have been smart cities, automotive (including fleet management and connected cars), smart metering and security (including building security). Smart city initiatives are central to the development strategy of many countries in the GCC states. Most state-owned mobile operators in the region are involved in smart

city initiatives as connectivity providers as well as being involved in the project implementation. Examples of smart city projects across the region include the following:

- **Qatar: Doha and Lusail.** These smart city plans are aligned with the development of the 'Qatar National Vision 2030', and focus on delivering efficient and sustainable services to residents and businesses. Ooredoo has been the leading provider for smart cities in Qatar.
- **UAE: Dubai.** Dubai's smart city plan includes 100 initiatives for transport, communications, infrastructure, electricity, economic services and urban planning. Du and Etisalat have contributed to this smart city project by providing Wi-Fi connectivity and supporting data sharing initiatives.
- **Saudi Arabia: King Abdullah Economic City.** This is one of the most important economic projects run by the private sector in the region and the largest among the four planned economic cities in Saudi Arabia. Mobily was selected to develop and run telecommunications in the city.

Automotive and smart metering have also seen increased activity and new service launches in the region. Both areas are strong M2M growth drivers. Recent initiatives launched include the following:

- In **Bahrain**, Nissan and Infinity are offering new car buyers the option of VIVA's broadband car Wi-Fi LTE technology. This allows passengers to connect their smart devices to 4G LTE Internet while on the move.
- In **Qatar**, Ooredoo has partnered with Q3SMART to launch a new smartphone app that allows drivers to activate their car's air conditioning to cool vehicles before using them.
- In **UAE**, the General Authority for Regulating the Telecommunications Sector (TRA) has announced that it has considered the implementation of the new 'eCall' system. This system enables vehicles to automatically call emergency services if involved in a car accident. UAE will be the first country to implement eCall in the region.
- The **Qatar** General Electricity and Water Corporation (Kahramaa) has leveraged the widespread use of IT to launch a smart meter project. All analogue meters will be replaced, starting in Doha where all will be replaced by 2016. This is part of the government-approved smart meter program launched earlier in 2015. The new smart metering systems will use GPRS as the communication method.
- In Amman, **Jordan**, an initiative was launched in May 2015 by the Jordan Water Company (Miyahuna). Itron, a technology and services company for electricity, gas and water utilities, will install 123,000 residential smart water meters by the end of July 2016.

## 3.2 Mobile commerce on the rise

The Arab States region has seen increasing demand for digital commerce, with online sales expected to reach \$15 billion by the end of 2015. This is driven by just over 4 million online shoppers, mainly in Saudi Arabia, Kuwait, UAE and Egypt. In November 2014, UAE's online retailer Souq.com introduced Black Friday<sup>6</sup> to the region, selling more than 250,000 units and generating 10 million visits to its website.

UAE has been leading the growth of digital commerce in the Middle East, both in terms of sales and digital infrastructure. It has the highest smartphone and internet penetration rates in the region. The share

of e-commerce sales of total retail sales is expected to triple between 2014 and 2019. The second largest market in the region is Saudi Arabia, where mobile commerce<sup>7</sup> has the highest potential according to a consumer survey carried out in 2014<sup>8</sup>; more than two thirds of online shoppers purchase through their smartphone<sup>9</sup>. In the GCC states, more than half of the population shops via their mobile phone; the top mobile purchases are airline fares, products from the app store and consumer electronics. Forecasts from Statista show mobile commerce spend in 2015 will increase to \$3 billion in the Middle East and North Africa, up 67% from the previous year.

6. Black Friday is the Friday following Thanksgiving Day in the US. This is considered the beginning of the Christmas shopping season. Most major retailers open very early and offer promotional sales.

7. E-commerce or electronic commerce is the process of buying and selling goods, products and services over electronic systems such as the internet. M-commerce or mobile commerce is the process of buying and selling products and services through wireless handheld devices such as mobile phones or tablets

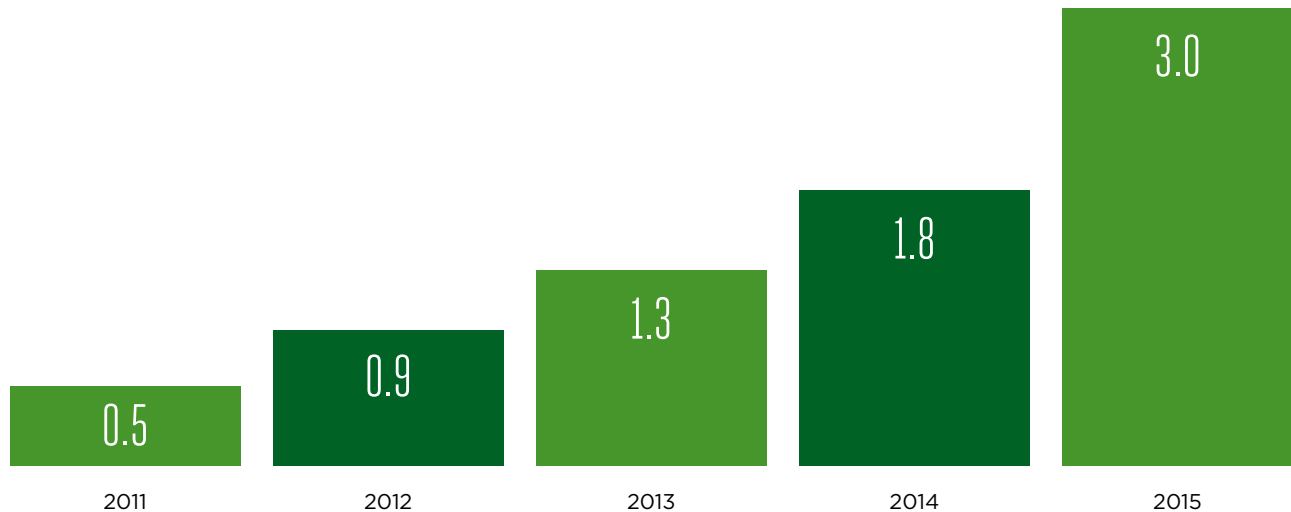
8. The survey was carried out by Research and Markets

9. Source: 'Middle East B2C E-Commerce Market 2015-2019', PR Newswire, 2015

Source: Statista

## Mobile commerce in the Middle East and North Africa

Annual m-commerce volume (\$ billion)



There are several challenges that need to be addressed for mobile commerce to reach its full potential:

- **Cyber security:** there is a lack of confidence regarding security of data and funds in the region. Mobile payments can play a role in addressing concerns around fraud and the lack of credit cards.
- **Strong mall culture:** malls are much more than just for shopping; they offer dining, leisure and entertainment. In the UAE in 2014, retail sales reached \$33 billion, while online retail and mobile commerce accounted for only \$0.5 billion and \$122 million respectively.
- **High demand for cash on delivery (COD):** this is driven by low credit card penetration and a lack of trust in online transactions. COD accounts for approximately 80% of online transactions in the region.

There is a clear opportunity for mobile payments to address some of these challenges and stimulate growth of mobile commerce in the Arab States. Mobile operators and a range of other ecosystem players have shown interest in becoming involved in the mobile payments space, but so far solutions have been fragmented. For example, Etisalat has partnered with MasterCard to offer a range of products, including a mobile wallet and the Mobile Cashier service which converts a merchant's smart device (tablet or smartphone) into a mobile point of sale terminal. A number of mobile payment platforms have been launched in the region, including 'T-pay' by Arpu Plus. This is currently available in 12 countries across the region and allows mobile subscribers to charge their online and digital purchases to their phone bills through direct carrier billing.

### 3.3 Mobile money driving financial inclusion

Mobile payments are in a more advanced stage in more developed countries in the region, particularly the Gulf States. In the less developed countries in the region, particularly in parts of North Africa, mobile money solutions have been driving financial inclusion.

Across the broader region, in 2014 the percentage of adults with a bank account at a financial institution was 26%. This means 170 million adults are financially excluded. However, there are differences within the region between more developed and less developed countries. In some countries more than 70% of adults have an account with a financial institution (UAE,

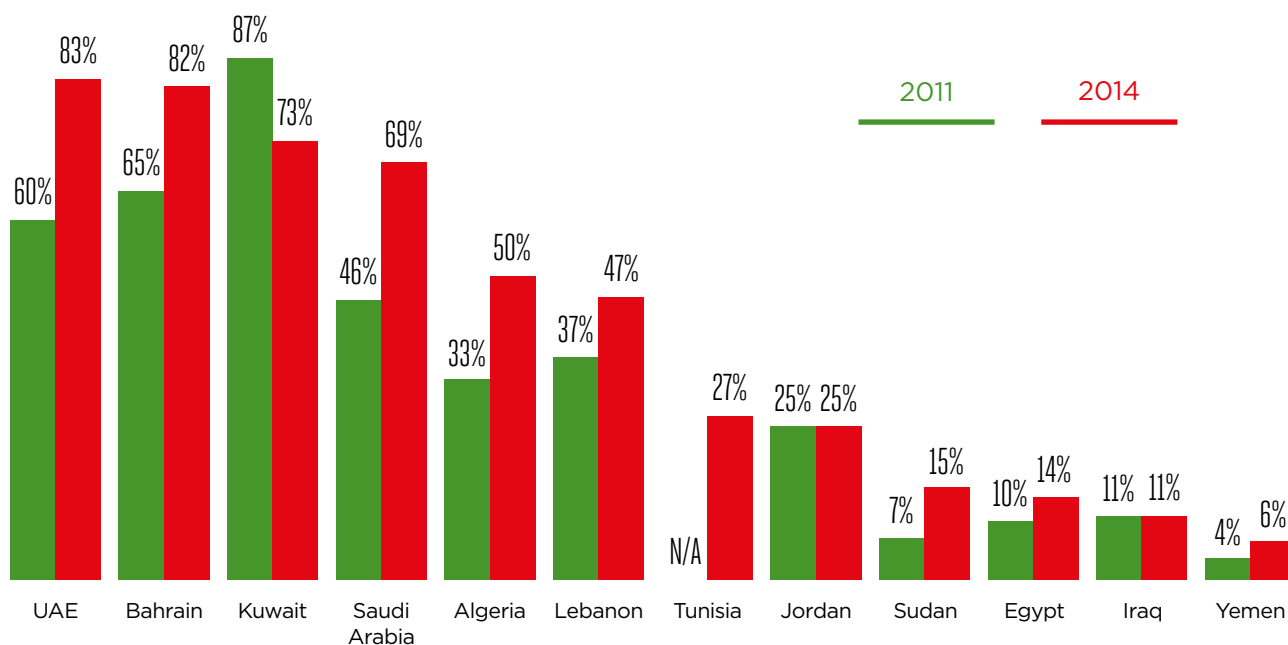
Bahrain, Kuwait and Saudi Arabia), while in others penetration is less than 30% (Tunisia, Jordan, Sudan, Egypt, Iraq and Yemen)<sup>10</sup>.

The lack of access to financial services is a particular issue among certain groups such as women, migrant workers and refugees. Mobile money can be a key tool to bring access to financial services to these groups. For example in Qatar, Ooredoo's mobile money service has been largely aimed at migrant workers, who have used it to remit money back to their home countries in Asia or Sub-Saharan Africa.

Source: World Bank Global Findex

#### Account at a financial institution

(Percentage age 15+)



10. Source: World Bank Global Findex (data for 2014; data not available for Morocco, Oman, Qatar, Syria)





As of June 2015, there were 15 live mobile money services in the region, and a similar number of planned services. Although this represents a small percentage of the 260+ live services globally<sup>11</sup>, there is growing interest in deploying mobile money services.

A major barrier to the development of mobile money in the region has been the lack of enabling regulation. In most countries in the region, financial sector regulators have not yet enacted reforms to allow non-banks to launch mobile money services. These are the same reforms that have allowed other countries worldwide to expand the availability of payment services and other financial services and foster the development of more efficient and inclusive financial sectors. There are, however, some early signs of progress. Jordan was the first country to allow this in early 2014. More recently in 2015, a new banking law was approved in Morocco that provides an enabling regulatory framework for non-banks to become payment service providers and offer mobile money services.

Service providers and policy-makers should also work together to understand different types of interoperability, including the benefits, costs and risks. Unfortunately, in several countries in the region,

regulators have mandated interoperability without conducting proper analysis of the costs and benefits for implementing interoperability with service providers<sup>12</sup>.

As the number of mobile money services continues to grow, cross-border mobile money services are emerging as the next opportunity for mobile operators and other service providers. These cross-border mobile money services can be intra-operator (customers of the operator in one country can transfer money, using an existing mobile money account, to a customer of the same operator in another country) or inter-operator (this involves co-operation between different operators, enabling them to reach countries that are outside their footprints). Today most of the examples of cross-border services are in West Africa<sup>13</sup>, though the region can act as a template for the development of these services in the Arab States.

There is therefore an opportunity for mobile operators in the Arab States to leverage their presence in multiple countries in the region and to scale payment services, in both mobile money and commerce, across the broader Africa and Middle East region.

11. GSMA Mobile Money for the Unbanked

12. Opportunities and challenges for mobile money in the Middle East and North Africa: What the data is telling us, GSMA, 2015

13. Mobile money crosses borders: New remittance models in West Africa, GSMA, 2015



## 3.4 Digital identity gaining momentum

As more people come online both in the developed and the developing world, there is growing demand for better security and safety when accessing the Web. Mobile devices play an important role in the lives of individuals, and this will likely increase as more people gain access to smartphones and the mobile internet. It is therefore necessary to have convenient, secure and privacy-protecting digital identities.

Mobile identity offers the potential to extend access to a range of different services, including banking, commerce, retail and other identity-based digital services. Mobile identity is not a new initiative, with several live services around the world. The operator industry is now building momentum around offering a standard solution for secure and convenient mobile authentication. This will then lead to additional services such as data attribute share for automatic form fill, fraud prevention, reduced check-out attrition, authorisation services for online commerce, more secure authentication services for bank grade transactions and e-government digital identity management.

One area of particular focus in the Arab States relates to access to public and government services. In some of the less developed countries in the region, there is a lack of basic infrastructure to allow individuals to establish and manage their identities, while in more developed economies governments increasingly need to develop new and secure ways of engaging with their citizens. Some examples of government-led initiatives include the following:

- **UAE:** The Telecommunications Regulatory Authority linked ID cards to mobile phones through a Trusted Services Management (TSM) network in 2013. It was the third country in the world to develop this network<sup>14</sup>. The Emirates Identity Authority (EIDA) is planning to extend the eID cards programme to public services and e-businesses.
- **Saudi Arabia:** The Ministry of Interior has mandated all Saudi operators to ensure that the mobile phone owner is the actual holder of the phone. The SIM will be validated using multi-factor authentication<sup>15</sup>.

14. Source: 'Linking ID cards to mobile phones in 6 months', Emirates Identity Authority, 2013

15. Multi-factor authentication is a security system that requires more than one method of authentication from independent categories of credentials to verify a user's identity for login or transactions



## 3.5 Mobile delivering digital inclusion

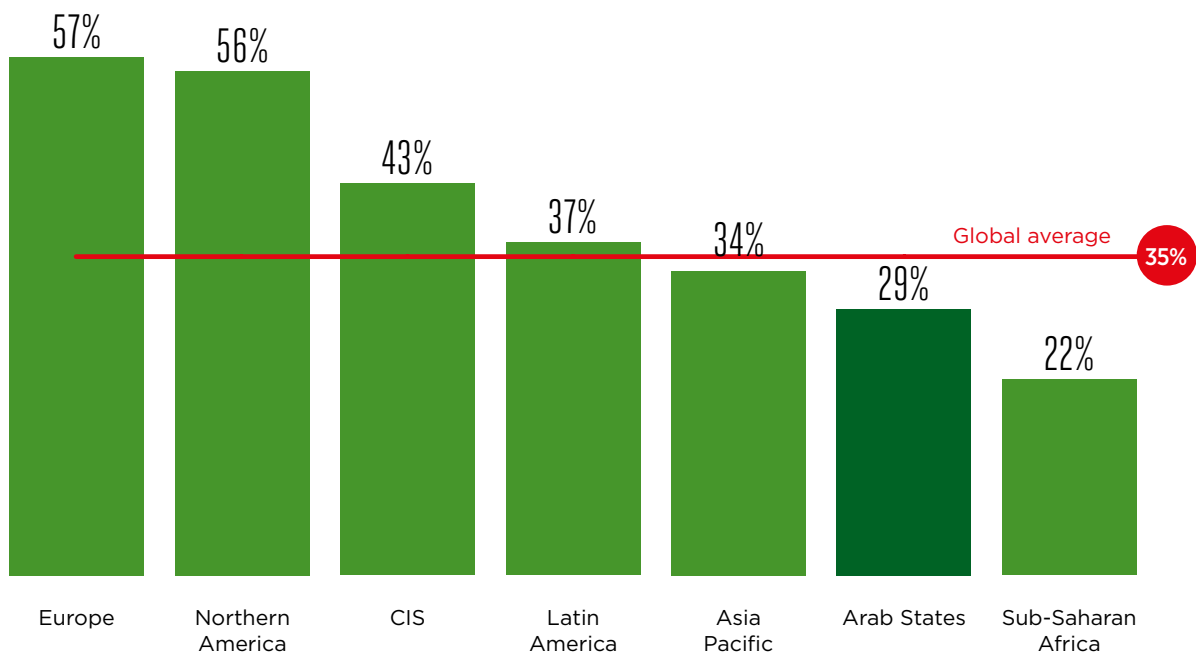
Mobile remains the key technology for connecting the still unconnected populations across the region to the internet and the broader digital economy, particularly in the more developing countries where there is a lack of alternative infrastructure. In most countries across the Arab States, limited fixed infrastructure means that fixed broadband penetration is less than 15% of the population. There is limited appetite to build out further fixed infrastructure in the region, and countries such as Egypt have seen fixed penetration rates fall over recent years due to the substitution effect of cost-effective mobile broadband services<sup>16</sup>.

As of mid-2015, almost 30% of the population in the region were using mobile devices to access the internet, equivalent to almost 110 million people. The number is set to increase to 172 million by 2020, by which time 42% of the population will have mobile internet access. Despite the high growth, the region will still trail behind the developing world average of 45%. With more than half of the region's population still unconnected, the scale of the remaining digital inclusion challenge is clear.

Source: GSMA Intelligence

### Mobile internet penetration by region

Q2 2015



16. The Economic and Social Impact of Mobile Broadband in Egypt, GSMA, 2014

The GSMA launched its Digital Inclusion programme to expand global connectivity and increase mobile internet adoption. The programme aims to work with mobile operators, governments and other ecosystem players to address the three key barriers to mobile internet access and adoption:

- **Network infrastructure and policy:** increasing network coverage to currently unserved areas.
- **Affordability and taxation:** the combination of low incomes, the cost of the device, charging fees, and data plan payments creates an affordability barrier to accessing the mobile internet. This issue is compounded by government taxes and fees, such as airtime and handset taxes.
- **Digital literacy and local content:** Illiteracy, digital illiteracy and lack of internet awareness are consumer barriers to mobile internet adoption. The availability of content that is both in the local language and locally relevant can play a vital role in the adoption of mobile internet.

There is a gender dimension to the connectivity gap in the region. The GSMA Connected Women programme estimates that approximately 1.7 billion females in low- and middle-income countries across the world still do not own a mobile phone. On average women are 14% less likely than men to own a phone, and even if they do have a phone there is a gender gap in usage, which prevents them from reaping the full benefits of mobile phone ownership. In North Africa and the Middle East specifically, 48% of women, roughly 84 million, are unconnected. The main challenges to ownership and usage that women face in markets such as Egypt and Jordan are cost, network quality and security.

## 3.5.1 Addressing the coverage gap

Many of the still unconnected populations in the region live in rural and remote areas, where network deployments are often challenging in terms of both the physical geography and operator economics. A recent report by the GSMA<sup>17</sup> analysed three broad strategies to address the coverage gap: network sharing, government support and alternative technologies. The first two of these are of particular relevance to the Arab States; a number of operators have, for example, announced their intention to co-operate on network-sharing initiatives.

The use of government support, specifically universal service funds (USFs), played a central role in addressing coverage issues in parts of Saudi Arabia. Three mobile operators in the country were awarded subsidies to extend mobile coverage in remote provinces and villages in the kingdom. These initiatives have driven an increase in unique subscriber penetration from 54% in 2006 to 74% in 2012 and 3G population coverage from 32% to 96%<sup>18</sup>.

17. Closing the network 'coverage gaps' in Asia, GSMA, 2015

18. Rural coverage: strategies for sustainability, GSMA Intelligence, 2015

## 3.5.2 Addressing affordability

Although providing coverage is important, the take-up of mobile services is limited by cost. One of the factors affecting this is taxation on mobile consumers and operators. In Jordan for example, mobile operators have been investing heavily to provide network coverage; 3G population coverage increased from 50% in 2010 to 98% in 2014. However, unique mobile internet penetration is only at 30%. Recent analysis by GSMA and Deloitte found that mobile consumer and operator taxation in Jordan is among the highest worldwide. For consumers, taxation accounts for nearly 40% of the total cost of mobile ownership<sup>19</sup>. This stems from a set of taxes applied specifically to the mobile sector:

- Mobile services, including calls, SMS and mobile broadband bundles, are subject to a specific tax of 24% (the Special Tax), in addition to the General Sales Tax (GST) of 16% applied to most goods and services.
- Mobile operators in Jordan pay a revenue share to the government equivalent to 10% of their operating revenues. This is in addition to a 24% corporation tax on profits. While other sectors in Jordan are subject to varying levels of corporation taxes, only the mobile sector is also subject to the 10% revenue share.

## 3.5.3 Local content and digital literacy

Two additional barriers to digital inclusion are availability of local content and digital literacy. The availability of content that is both in the local language and locally relevant can play a vital role in the adoption of the mobile internet. A factor preventing smartphone users buying apps is the lack of apps in Arabic language. Arabic is the fifth language in the world by number of native speakers and is the first language for more than 240 million people<sup>20</sup>. Nevertheless, less than 1% of websites in the world are in Arabic<sup>21</sup>. Creating local Arabic content requires local talent, so there is clearly an opportunity for local developers, local service providers and local entrepreneurs to develop apps that meet the needs of these customers.

To drive access and usage of the mobile internet, it is also important for people to be digitally literate. Digital literacy refers to the skillset to use internet services and content, combined with the confidence in internet security and privacy. According to a recent report from the GSMA Connected Women programme, the percentages of male and female mobile phone owners who reported they need help using mobile internet services are 25% and 29% in Egypt and 22% and 29% in Jordan respectively<sup>22</sup>. Mobile operators and governments have a role to play in increasing both digital literacy and local content and helping new and existing customers overcome the barriers to accessing and using the internet. By doing this, consumer uptake and engagement in the mobile internet will increase and ultimately result in the creation of more locally relevant content through user-generated sources.

19. Digital inclusion and mobile sector taxation in Jordan, GSMA, 2015

20. Source: Ethnologue

21. Source: W3Techs

22. Accelerating Digital Literacy: Empowering women to use the mobile internet, GSMA, 2015

## 3.6 Disaster response presenting opportunities

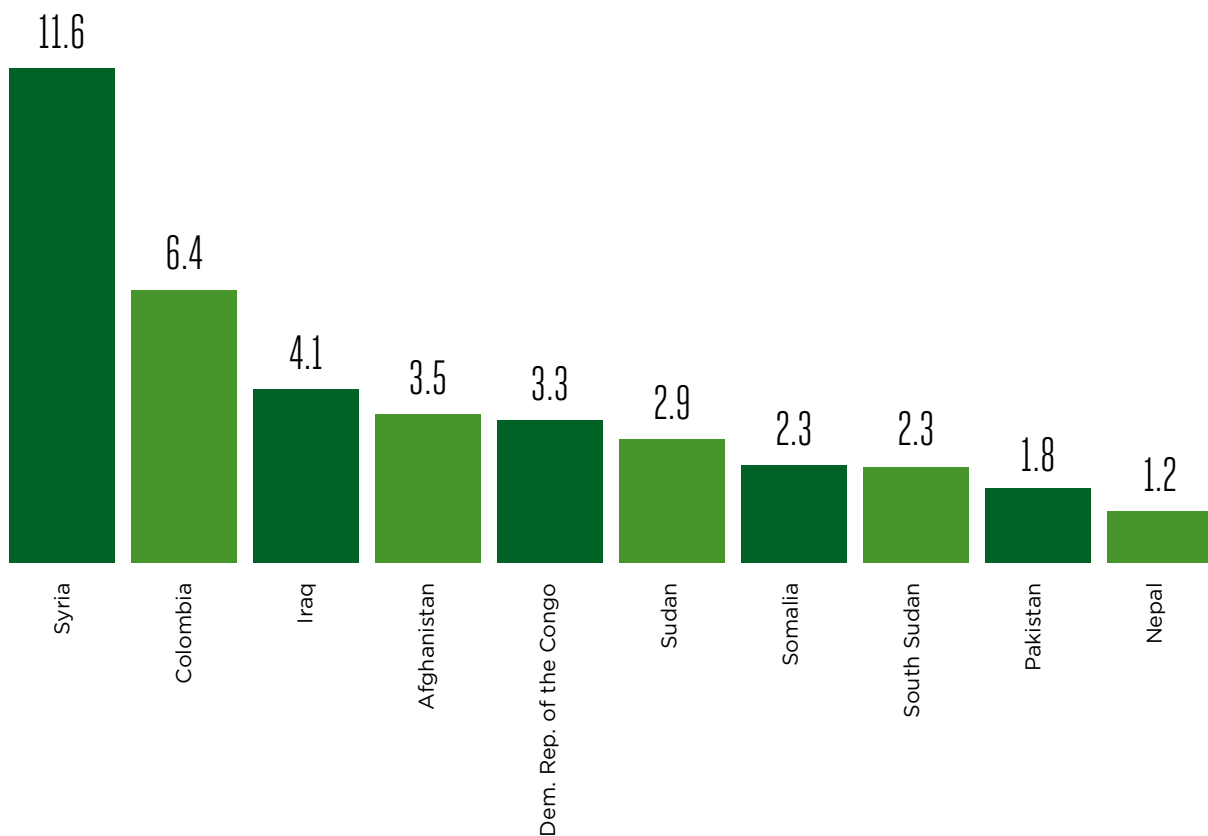
In 2014, more than 48 million people worldwide were forcibly displaced as a result of conflict and persecution<sup>23</sup>. In 2014, Syria became the country with the greatest number of people displaced, with Iraq

and Afghanistan also in the global top five countries. The number of people displaced in Syria represents more than 50% of the country's total population, and accounts for 24% of the world's total displacements<sup>24</sup>.

Source: UN High Commissioner for Refugees (UNHCR)

### Top 10 countries for displaced populations, 2014

(Millions)



23. This includes refugees, internally displaced and asylum seekers

24. Source: UNHCR



Mobile phones are increasingly used during emergency situations, to monitor population movements and to use this humanitarian data post-disaster. For example, in the Syrian refugee camp in Jordan, Souktel worked on a mobile supply management system as it was becoming increasingly difficult to get food, water and medical supplies to the right people. The system included a mobile inventory management tool that records incoming and outgoing shipments, and smartphone applications to track packages via satellite and report back on their status and GPS coordinates in real time. The end result is a faster, more efficient aid supply chain<sup>25</sup>.

Another growing trend has been to provide displaced populations with mobile money services, as money is increasingly being used as a form of humanitarian assistance. The expansion of mobile money services for displaced populations has grown because of the demand from the displaced populations, the mobile operators' recognition of the opportunities that this can bring, and the recognition from humanitarian organisations of the benefits for displaced populations. Examples include Save the Children working with UNHCR and Airtel to transfer mobile money to

approximately 312 refugee households in Niger, each of which was provided with a mobile phone and SIM card.

Given the high levels of mobile penetration in the Arab States, the growing availability of mobile money services and the amount of displaced people, there is an opportunity for mobile operators and other players to provide mobile money services to these groups. However, to fully take advantage of this opportunity, the mobile money infrastructure needs to be strengthened. In particular, mobile operators need to identify gaps in network coverage in at-risk areas and provide training to mobile money agents working in displaced contexts. Government can work towards creating a favourable regulatory environment that allows non-banks to roll out mobile money services and does not block access to international mobile money transfer. Lastly, humanitarian organisations should continue to experiment with mobile money solutions for the displaced and ensure that these services are not only used to transfer money during the displacement, but are used as a financial instrument after the humanitarian program has ended.

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25. Disaster Response: Mobile Money for the Displaced, GSMA, 2015

## 3.7 The GSMA programme activities

The GSMA has identified four key growth areas that present both significant opportunities and benefits for consumers, as well as providing clear opportunities for mobile operators to collaborate and play an active role in delivering these future opportunities and benefits.



### CONNECTED LIVING

The GSMA, through its Connected Living programme, aims to further develop the IoT market, both within the Arab States and at the global industry level. The initial focus of the Connected Living programme is to accelerate the delivery of new connected devices and services in the M2M market through industry collaboration, appropriate regulation, optimising networks and developing key enablers to support the growth of M2M in the immediate future. The ultimate aim is to enable the IoT, a world in which consumers and businesses enjoy rich new services, connected by an intelligent and secure mobile network.

Working with its partners across the ecosystem and key verticals, the GSMA is active in a number of areas to drive forward this initiative:

- **Remote SIM provisioning for M2M:** the GSMA's vision is to unite all stakeholders behind a single, common and interoperable global embedded SIM specification to help accelerate the growing M2M market.
- **IoT business enablers:** the GSMA is working to create a sustainable M2M regulatory and policy environment that enables operators to unlock the consumer and business benefits of the IoT.
- **Secure IoT networks:** the GSMA is working to establish security requirements for how machines should communicate via the mobile network in the most secure way.
- **Mobile IoT:** the GSMA is working with mobile operators and ecosystem partners to assess solutions for low power, wide area connections to enable further scaling of the IoT.



## NETWORK 2020

The GSMA's Network 2020 programme is designed to help mobile network operators in the move to an all-IP world and help them deliver global interconnected all-IP communications services to consumers such as voice over LTE, video over LTE (ViLTE), voice over Wi-Fi (VoWi-Fi) and RCS. Operators are in a unique position to offer secure, ubiquitous all-IP solutions with reach, reliability and richness. The transition will allow them to deliver an enhanced customer user experience that when interconnected with other operators offers truly global reach and scale. The programme is already helping operators from around the world to migrate from circuit-switched technology to an all-IP infrastructure while helping them maintain service continuity.

The first phase of the programme focuses on helping networks deploy VoLTE and conversational video calls over LTE, VoWi-Fi and encouraging the RCS ecosystem to help operators prepare for and launch RCS-based interoperable solutions and VoLTE roaming architectures for their customers around the world.

Additionally, the Network 2020 programme will work with operators to determine the technical and commercial specifications for operator-to-operator quality of service (QoS) for IP services, and encourage them to incorporate the QoS philosophy into their customer solutions. The Network 2020 programme also aims to help catalyse commercial implementations for IP interconnect solutions between operators and service/content providers.

Finally, until such time as the industry requirements and definition of 5G have stabilised, the GSMA will focus on improving the overall sustainability of the mobile telecoms sector, allowing more networks to achieve greater connection numbers by enhancing the business model for expanded coverage and offering connectivity to those in the world that currently have no connectivity at all.



## DIGITAL COMMERCE

Working with mobile operators, regulators, banks, retailers, transport operators and other service providers both in the Arab States and across the globe, the GSMA's Digital Commerce programme is active in driving the mass adoption of SIM-secured digital commerce services globally.

The GSMA engages regularly with key government and regulatory bodies, providing advice and guidance on how to harness the potential benefits of SIM-based services in transport, retail and other sectors of the economy, and developing industry positions on aspects of policy, highlighting the impact of regulation and informing regulators' decision-making processes.

The programme is also focussed on developing Mobile Connect as an enabler for digital commerce use cases. (See Personal Data for more information on Mobile Connect.)

As the number of commercial mobile commerce services around the world rises, the GSMA continues to promote the use of common standards to enable the global interoperability of services and generate economies of scale, liaising with other relevant stakeholders to ensure the consistency of the overall set of specifications involved in mobile commerce deployments. Covering many topics, these specifications set out a common framework of requirements to ensure interoperability and efficient and consistent development and deployment of mobile commerce services.

Two areas of focus for the Digital Commerce initiative are as follows:

- **Tokenisation:** the Digital Commerce programme is working with operators from around the world to provide a tokenisation-based framework that will allow banks to put their payment cards in non-Apple phones, with a bank onboarding model that includes the SIM playing a role as the secure element.
- **Remote payments:** the GSMA is working with operators and industry partners to improve the user experience when using mobile devices for remote payments. In addition to being technically secure, solutions need to be simple and widely distributed.





## PERSONAL DATA

The GSMA's Personal Data programme is working with mobile operators that have launched identity services across the globe. The mobile industry needs to deliver common and consistent interfaces to a range of digital service providers, which at the same time need to offer seamless and convenient solutions to consumers.

The use of standards and interoperability are therefore key, in particular the need to create a common, industry-wide set of identity related application programming interfaces (APIs). The GSMA is working closely with operators to establish a uniform set of APIs to underpin key mobile identity services.

Mobile Connect is a fast, secure login system that enables people to access their online accounts with just one click or less, and provides different levels of security from low-level website access to highly secure bank-grade authentication. People subscribed to a participating operator know that when they click on a website's Mobile Connect button they can log in to any service or activity without the need to remember complicated username and password combinations.

The GSMA recently announced that Mobile Connect trials are now under way in all regions of the world, with 17 mobile operators in 13 countries having launched the service. There are plans for additional launches and beta trials over the course of the current year.



# 4

## Delivering a supportive policy environment in the Arab States

Access to mobile broadband can drive economic growth, create jobs and raise living standards – key objectives of governments across the Arab States. Broadband makes it easy for individuals and organisations to interact, enabling new services, reducing costs and improving productivity. Mobile broadband can also deliver many important social benefits, with mobile technologies and services improving access to healthcare, education, financial services, transport and other high-priority services.

There are a number of ways that policy-makers can support the adoption of mobile broadband in the region and the development of valuable new mobile applications relating to identification, education, health, financial services and other aspects of daily life. At the same time, policymakers need to ensure that their existing regulatory frameworks will facilitate the supply side and the infrastructure and investment needed to meet these objectives.

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## 4.1 Meeting demand for broadband

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Given the relative scarcity of fixed line connections in the Arab States, mobile networks play a pivotal role in bringing broadband to homes and offices. Mobile operators need more spectrum, and in particular, access to internationally harmonized spectrum on reasonable terms that will enable them to roll out mobile broadband infrastructure quickly and efficiently.

Globally, the ITU estimates that between 1,340 MHz and 1,960 MHz of spectrum will be required by 2020 to meet demand for mobile data traffic. In the Middle East and North Africa, an average of just 206 MHz spectrum is available to mobile, compared to 460 MHz in Europe.

To increase access to mobile internet and improve network quality of service (avoiding dropped calls, buffering video and other symptoms of network congestion), the Arab States will need to make far more efficient use of spectrum than they do today. Moreover, more spectrum will enable the mobile industry to support governments' ambitions to develop smart cities, driverless cars and connected energy management. In various markets in the region, some frequencies have been licensed to mobile operators but on a fragmented basis. Limited amounts of spectrum impact the quality of service for consumers and operators' ability to deploy advance technologies such as 4G LTE.

## 4.1.1 Extending and improving coverage

Low frequency spectrum is key to achieving the broadest possible mobile broadband coverage in the Arab States as it enables operators to cost effectively extend the reach of their services both in rural locations and deep indoors. Today, some low frequency spectrum in the Arab States is used for terrestrial digital television broadcasting. However, the spectrum below 1 GHz could also be used for mobile broadband, generating significant socio-economic benefits throughout the region.

Identified as internationally harmonised bands for mobile services, the 800 MHz and 700 MHz bands are already playing a pivotal role in extending mobile broadband coverage in many countries of the world, especially in deploying LTE services. However, many Arab governments have yet to release these bands for mobile services, curbing the growth of their digital economies. One of the reasons for the delay has been an overestimate of demand for broadcasting capacity in the region, according to research by Plum Consulting for the GSMA.

The number of viewers of terrestrial television in many Arab countries is relatively low, with consumers choosing to watch television over satellite, cable and, increasingly, online. Two digital multiplexes would be sufficient to accommodate the number of analogue television channels available in most of the countries in the region, while three multiplexes would be enough to cover all countries, according to the Plum study. As a result, all the spectrum between 582 MHz and 1 GHz could potentially be released for other services, including mobile broadband, while still supporting all current and projected terrestrial TV requirements in the region.

Coverage in the Arab World could also be improved by harnessing the L band (1350–1400 and 1427–1518 MHz) for mobile broadband services. This band, which is significantly underused in most Arab countries, could benefit from global harmonisation, low-cost devices and widespread roaming. Studies by the ITU show that mobile services could operate in the band without causing interference to any existing users of the band, if appropriate measures are taken.

## 4.1.2 Boosting capacity to meet burgeoning demand

In many of the densely populated cities in the Arab region, mobile networks are becoming increasingly congested despite operators' ongoing efforts to improve efficiency. Many urban areas' reliance on mobile networks for broadband services means there is an urgent need for more high frequency spectrum, which is ideal for increasing network capacity.

Around the world, 90 countries, including 11 in the Arab region, have already allocated 3.4–3.6 GHz spectrum (part of the C-band) to mobile services. Over time, the entire C-band could become available as incumbent satellite operators migrate to higher frequency Ka and Ku bands to serve the evolving needs of their consumers. There would be significant benefits from further harmonising and extending the mobile allocation to 3.6–3.8 GHz.

In the Arab States, the economic benefits of allocating the C band to mobile services would be between \$5

billion and \$11 billion (on a purchasing power parity basis), while the costs would be between \$100 million and \$600 million (related to relocating existing satellite services using this band), according to a study by Frontier Economics for the GSMA.<sup>26</sup> Egypt is a good example of an Arab country where the C-band spectrum could be intensively used for mobile in densely populated urban areas, while the UAE and Saudi Arabia both need the band to meet fast rising usage of mobile broadband services.

Arab governments could further alleviate the capacity crunch in their countries by releasing the 2.7–2.9 GHz band for mobile broadband. This band is thinly utilised across much of the region, with only a small number of fixed radar systems in some cases. ITU studies show that the band could be made available for mobile without causing interference for existing users if appropriate exclusion zones and guard bands are deployed.

### Why WRC-15 matters so much

The World Radiocommunication Conference (WRC-15) in November 2015 will make pivotal long-term decisions on which spectrum bands should be internationally harmonised for mobile services. The GSMA has proposed that WRC-15 consider four frequency ranges within which new mobile broadband identifications could be found.

- **Sub-700MHz** (470–694/698 MHz)
- **L-band** (1350–1400 and 1427–1518 MHz)
- **2.7–2.9 GHz**
- **C-band** (3.4–3.8 GHz and 3.8–4.2 GHz)

Mobile operators need the combination of low frequency and high frequency bands to meet the fast rising demand for mobile broadband coverage and capacity across the Arab World. The bands proposed by the GSMA could also be widely harmonised around

the world, enabling manufacturers to produce low-cost devices, facilitating roaming and minimising cross-border interference.

In the long-term interests of the region, the Arab Spectrum Management Group (ASMG) needs to support the identification of these bands for mobile services at WRC-15, including sub-700 MHz frequencies that are crucial to expand affordable mobile broadband connectivity to remote and underserved communities. The identification of the four bands referenced above would help the mobile industry to generate global economies of scale, while still giving individual governments the flexibility to decide on the optimum time to reallocate the spectrum to mobile services, in line with local demand.

If action is not taken now, it will be more difficult for regulators to release additional spectrum for mobile until as late as 2030 or beyond – an unnecessary and avoidable outcome.

26. The economic benefits of a C-band mobile allocation in the Arab States, GSMA, 2015

## 4.2 Improving access to networks

Mobile networks depend on backhaul and backbone infrastructure to connect individual base stations into the broader telecoms infrastructure. In some Arab States, the development of this essential infrastructure is being held back by unnecessary regulation, harming the service available to consumers and companies. In some cases, a single company is allowed to supply this infrastructure, creating a monopoly and a bottleneck, which artificially inflates the cost of mobile connectivity, curbing usage and limiting the associated socio-economic benefits.

### 4.2.1 Increasing supply, lowering prices

Allowing mobile operators to invest directly in the infrastructure they need makes economic sense: it increases the diversity of supply, making for a more competitive ecosystem and reducing costs (and thus make services more affordable for end users). Similarly, allowing mobile operators to invest directly in international gateway services can rapidly improve global connectivity, and bring competition and fairer prices to international services.

In Iraq, for example, both mobile Internet usage and international traffic are being constrained by the cost and quality of the supporting fibre infrastructure, microwave and fibre backhaul and international gateway services. Amending mobile operators' licences to allow them to actively invest in new investment in

fibre deployment and international gateway services would increase the quality and the resilience of Iraq's connectivity.

More broadly, all Arab governments need to ensure their regulatory frameworks are not creating damaging infrastructure bottlenecks. They need to encourage competition in the backhaul, backbone and international gateway markets to ensure citizens and businesses benefit from fairly priced and good-quality services. The end result will be substantial socio-economic benefits – in terms of GDP growth, employment, and access to new services to support health, education and security in the country.

## 4.3 Making mobile more affordable

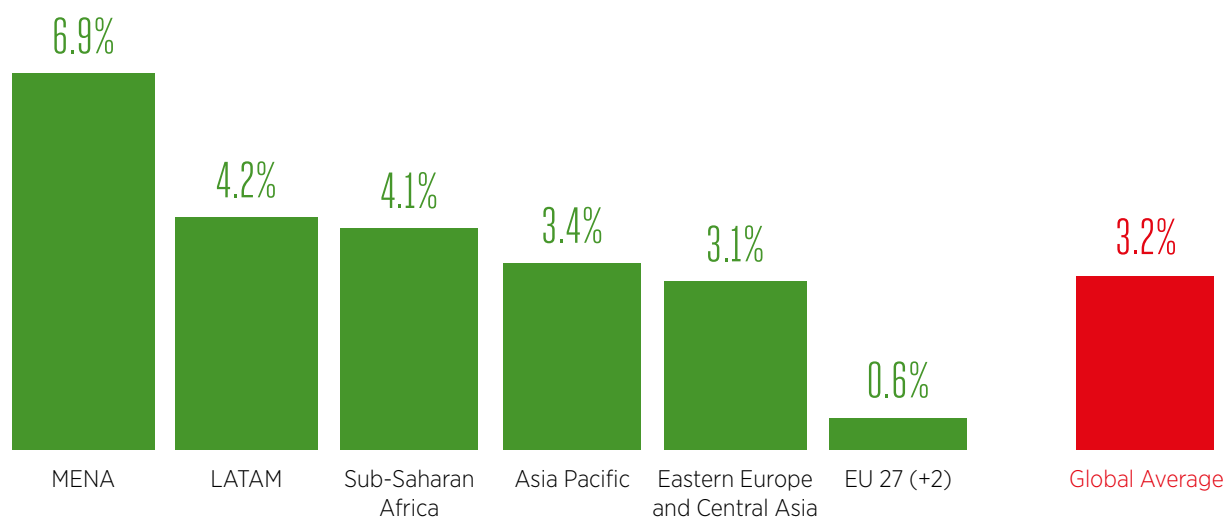
### 4.3.1 Counterproductive sector-specific taxes

As discussed earlier, mobile-specific taxes can be a major barrier to digital inclusion in the Arab States. Whereas such taxes account for an average of 3.2% of the total cost of mobile ownership (TCMO) globally, that figure rises to 6.9% in the Middle East and North Africa region. That implies that many Arab governments are taxing mobile services as if they were

a luxury item or potentially harmful product, such as tobacco. On the contrary, it is now well established that access to mobile services can drive economic growth, while enhancing people's lives by providing access to health, education and information services that might otherwise be too expensive.

Source: Deloitte analysis based on GSMA Intelligence database and operator data

#### Mobile-specific taxes on consumers as a proportion of TCMO by region, 2014



In some Arab countries, mobile services are subject to higher taxes than fixed-line services even though mobile networks are the primary delivery mechanism for broadband. In Saudi Arabia, for example, mobile operators have to pay 15% of their revenues as a Communications Services Offering (CSO) fee, while fixed line services pay 10% of net revenues as a CSO

fee. In Saudi Arabia, mobile operators pay 11 different royalties, levies and regulatory fees, contributing a total of \$3.4 billion to various authorities each year. Reducing the mobile-specific taxes, fees and levies could have a very positive impact on the Saudi economy and ultimately government revenues.



## 4.4 Creating a modern and flexible regulatory framework

To fully benefit from the ongoing advances in mobile technologies, the Arab States need forward-looking and flexible regulatory frameworks that encourage innovation and the adoption of new technologies. Policy-makers can play a lead role in ensuring that the Arab States harness the capabilities of mobile technologies to extend and improve authentication, identification, healthcare, education and financial services.

To help the region's digital economy achieve scale, Arab governments should also pursue international harmonisation where possible. At the same time, policy-makers need to ensure that equivalent services are subject to the same rules, to encourage both competition and investment in network infrastructure. Furthermore, Internet governance needs to remain decentralised, facilitating the development of a wide range of business models and services.

### 4.4.1 Delivering digital identities

To build a vibrant and robust digital economy, both citizens and organisations in the Arab States need a reliable means of identification and authentication. Mobile operators have well-proven authentication capabilities, which can enable consumers, businesses and governments to easily interact in a private, trusted and secure environment. Mobile identity services based on operators' authentication capabilities are enabling smooth, seamless and secure interactions across multiple devices, platforms and organisations.

The mobile industry is working with governments and other stakeholders in the Arab region to achieve widespread adoption of innovative and interoperable mobile identity services and maximise the positive impact on the economy and society. In particular, policy-makers need to identify and address legal, regulatory and policy challenges and barriers that

hinder the development of mobile identity services. Ideally, each country will have a digital identity plan that acknowledges the central role of mobile technologies and services in the digital landscape.

Regulation should encourage the adoption of identity authentication standards that are easy to use, fundamentally secure and private, and facilitate interoperability and the establishment of trust. The development of applicable open standards and best practices will also enable identity solutions to be used across national borders, facilitating international trade and economic growth. With appropriate government support, mobile identity services can help build trust among all parties interacting and exchanging information within the digital economy.

## 4.4.2 Harnessing the Internet of Things

Faced with key challenges, such as security, traffic congestion, waste management and energy efficiency, policy-makers across the Arab world need to ensure that government services are harnessing the full capabilities of mobile technologies. The emerging Internet of Things, in particular, could have a major impact on the efficiency and effectiveness of the public sector.

Some of the Arab States have aspirations to lead the world in deploying smart city technologies and services that use connectivity to improve and enrich city life. However, smart city services need to be underpinned

by appropriate systems and practices to ensure the privacy of individuals is respected and their personal information protected.

Mobile authentication solutions, as described in the previous section, could play a pivotal role in enabling citizens to access government services easily and securely. Mobile operators' identification capabilities could also be used to enable citizens to securely share specific attributes, such as their age, address or email address, to meet the specific needs of a public sector service.

## 4.4.3 Pursuing international harmonisation

International harmonisation of policies and regulation can bring major benefits. If rules are consistent across national boundaries, international businesses and their customers can benefit from economies of scale. Conversely, if each country in the region develops digital regulation independently, the result could be a patchwork of confusing rules that hinder cross-border trade and increase costs for service providers and, ultimately, end users.

Both the US and the EU have recognized the need to ensure their digital economies are not held back by fragmented rules and regulations. The EU, for example, is moving to create a digital single market that will harmonise digital regulation across its Member States. In a similar vein, the GCC and the Arab Regulators Network of Telecommunications and Information

Technologies (AREGNET) could play an important role in coordinating regulatory harmonisation across the Arab States.

International bodies could identify potential areas for harmonisation of digital policy and then act as a focal point for debate around what the most appropriate regulatory/legal approach should be. To give the emerging digital economy the flexibility it needs to develop, regulators should only consider new rules if they are necessary to achieve regional coordination. Moreover, economic and cultural differences between countries need to be taken into account. The overriding goal should be to keep the entire communications and Internet sector competitive and attractive for investment.

## 4.4.4 Governing the Internet

The continued health and vitality of the Internet is clearly crucial to the success of the digital economy both globally and within the Arab region. Effective Internet governance requires the input of diverse stakeholders, relating to their interests and expertise in technical engineering, resource management, standards, policy issues and other areas. The multi-stakeholder model for Internet governance and decision-making should, therefore, be preserved and allowed to evolve to address a wide range of issues and challenges more flexibly than traditional government and intergovernmental mechanisms. To facilitate innovation, experimentation and economic activity,

the decentralised development of the Internet needs to continue, without being controlled by any particular business model or regulatory approach.

Whereas technical aspects related to the management and development of internet networks and architecture need to be addressed through standards bodies, such as the Internet Engineering Task Force (IETF) and the Internet Architecture Board (IAB), economic and transactional issues, such as internet interconnection charges, are best left to commercial negotiation, consistent with commercial law and regulatory regimes. This approach has enabled the Internet and the broader digital economy to flourish.

## 4.4.5 Ensuring regulatory neutrality

Fair and healthy competition is the best way to stimulate innovation and investment that benefits consumers and fuels economic growth. To that end, regulators need to apply the principle of 'same service, same rules'.

In many markets, mobile network operators face mounting competition from internet-based service providers governed by different, laxer rules. This unfair competition can impact mobile operators' revenues and ability to invest. All equivalent consumer voice and messaging services should be subject to the same regulatory and fiscal obligations, regardless of the underlying technology, geographic origin or whether they are delivered by a mobile operator or internet-based service provider. Applying the 'same service, same rules' principle would improve consumer confidence and trust in using internet-based services

by ensuring a consistent approach to issues such as transparency, quality of service and data privacy. Consistent application of regulatory obligations will also support legitimate law enforcement and national security activities.

Although the same rules should apply to the same services, these are not necessarily the rules that apply today to telecommunications services. There is a need for a forward-looking regulatory framework fit for a digital world. This framework must be driven by clear policy requirements around consumer protection, innovation, investment and competition. In the digital economy, the intensifying competition between different types of service provider means rules can be lighter touch than those applicable in less competitive environments.





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**GSMA HEAD OFFICE**

Floor 2  
The Walbrook Building  
25 Walbrook  
London EC4N 8AF  
United Kingdom  
Tel: +44 (0)207 356 0600  
Fax: +44 (0)20 7356 0601