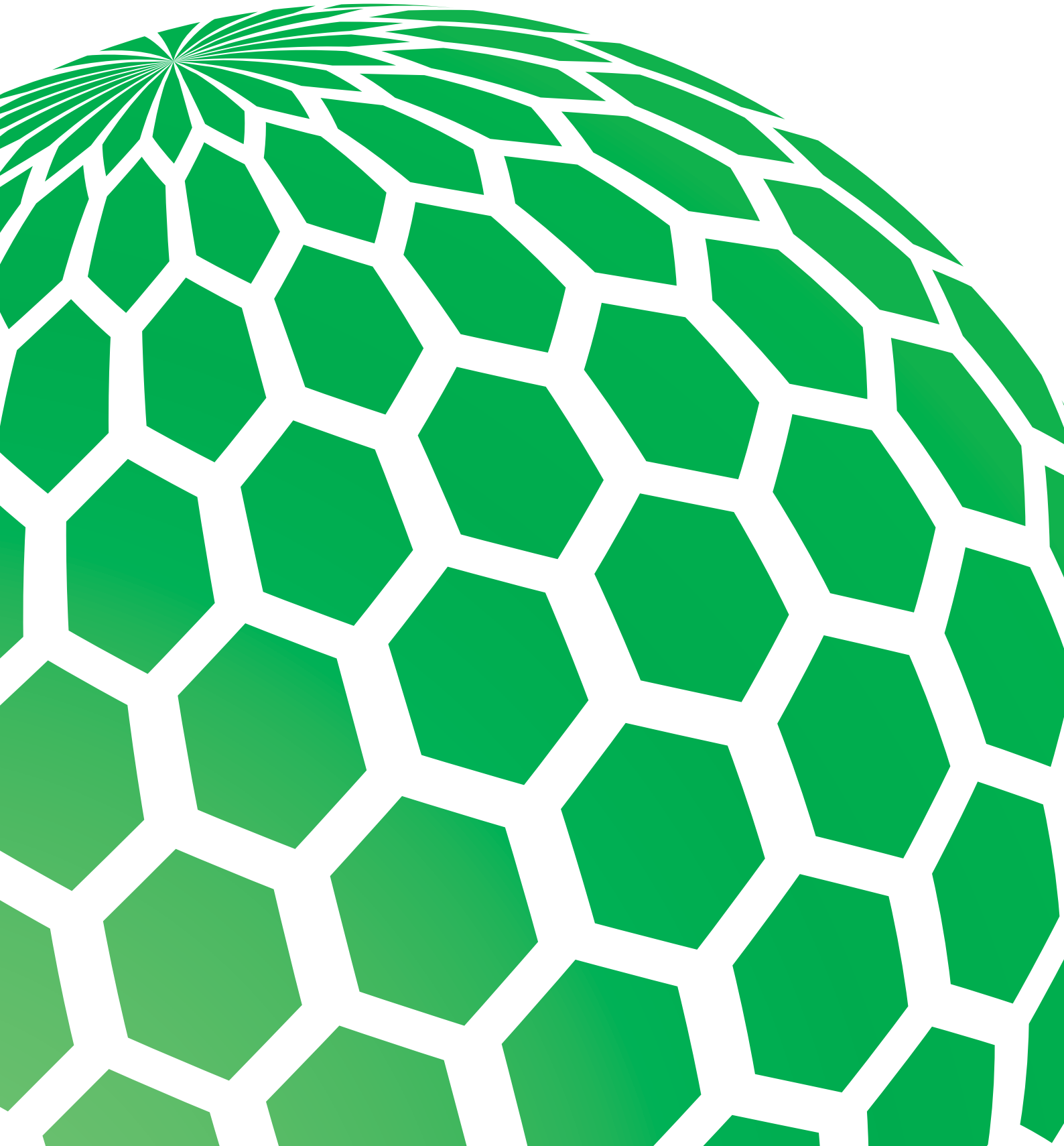
Sub-Saharan Africa Mobile Economy 2013



About the **GSMA**
The **GSMA** represents the interests of mobile operators worldwide. Spanning more than 220 countries, the **GSMA** unites nearly 800 of the world's mobile operators with 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organisations in industry sectors such as financial services, healthcare, media, transport and utilities. The GSMA also produces industry-leading events such as Mobile World Congress and Mobile Asia Expo.

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GSMA Intelligence

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GSMA Intelligence is the definitive source of global mobile operator data, analysis and forecasts; and a publisher of authoritative industry reports and research. Our data covers every operator group, network and MVNO in every country worldwide – from Afghanistan to Zimbabwe. It is the most accurate and complete set of industry metrics available, comprising tens of millions of individual data points, updated daily. **GSMA** Intelligence is relied on by leading operators, vendors, regulators, financial institutions and third-party industry players, to support strategic decision-making and long-term investment planning. The data is used as an industry reference point and is frequently cited by the media and by the industry itself. Our team of analysts and experts produce regular thought-leading research reports across a range of industry topics.

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Mobile for Development

GSMA Mobile for Development brings together our mobile operator members, the wider mobile industry and the development community to drive commercial mobile services for underserved people in emerging markets. We identify opportunities for social, economic and environmental impact and stimulate the development of scalable, life-enhancing mobile services.

BCG
The Boston Consulting Group

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CONTENTS

MOBILE ECONOMY SUB-SAHARAN AFRICA

Unique Subscribers and SIM Connections

253 Million
UNIQUE MOBILE SUBSCRIBERS JUNE 2013

502 Million
CONNECTIONS JUNE 2013

UNIQUE SUBSCRIBER GROWTH
2007-12
18% CAGR

Growth

Huge growth potential remains as average subscriber mobile penetration is 31% across 40 countries in Sub-Saharan Africa (SSA)

UNIQUE SUBSCRIBERS TO GROW 43% BY 2017* REACHING 346M

SSA TO REMAIN FASTEST GROWING REGION

*Unique subscriber growth from 2012 to 2017

Socio-economic impact

High levels of mobile access compared to other basic services

Mobile already bringing enormous social and economic benefits to region

Potential in future to achieve much more with a supportive regulatory and policy environment

Mobile ecosystem contribution to GDP in SSA

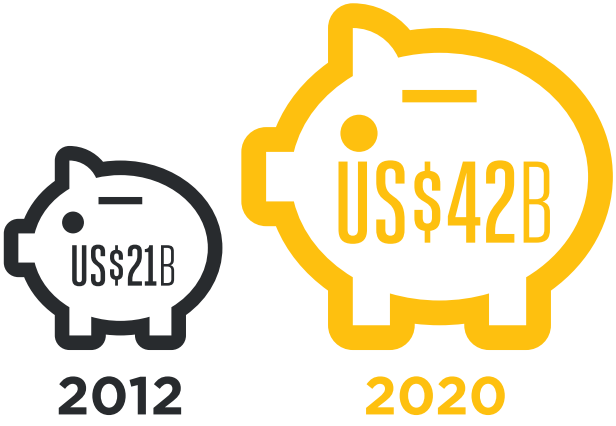
2012
US$60B

2020
US$119B

8%
GDP
BY 2020

GDP US$60B in 2012 growing to a forecast of US$119B - 8% of GDP by 2020

Public Funding



US$21B public funding contribution from MNOs including licence fees in 2012 growing to US$42B by 2020

Employment

3.3M

Direct employment by the mobile ecosystem to grow to 6.6M by 2020

6.6M

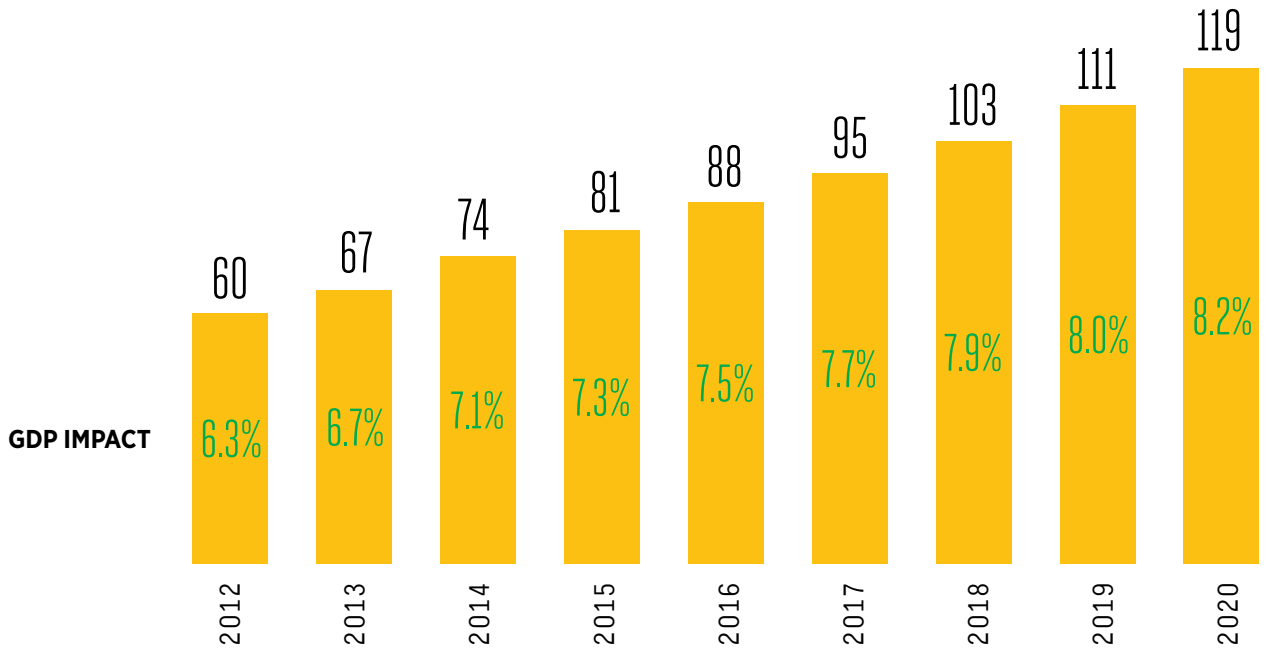
Executive Summary

Despite the astonishing progress of the mobile industry in Sub-Saharan Africa (SSA) in recent years, the biggest impact of mobile in Africa is yet to come. Roughly two thirds of the population are still without a mobile subscription, leaving much room for growth; while the region is on the cusp of an explosion of mobile data as 3G and 4G deployments gain scale and advanced capabilities appear on increasingly affordable handsets. Mobile already contributes over 6% of Sub-Saharan Africa's GDP, higher than any other comparable region globally, and this is forecast to rise to over 8% of regional GDP by 2020. However, a short term focus by some governments on maximising tax revenues risks stifling the potential of the industry to drive both economic and social development across the region.

The mobile industry has already had a transformative effect on the social and economic development of Sub-Saharan Africa, on the back of a sustained period of strong growth. By the middle of 2013, there were 253 million unique mobile subscribers (and 502 million active SIM connections) in the region, 95% of whom were on prepaid tariffs. The unique mobile subscriber base has grown by 18% per annum over the last five years, making SSA by some distance the fastest growing region globally.

MOBILE ECOSYSTEM CONTRIBUTION TO GDP TO 2020

(US$ B)



Source: GSMA Intelligence; Ovum; EIU; BCG analysis

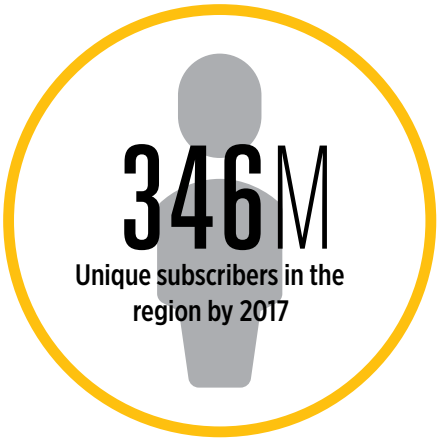
Despite the strong growth, GSMA Intelligence research reveals that unique subscriber penetration rates in SSA remain lower than any other region globally (unique subscriber penetration rates are lower than SIM based rates, as most phone users have multiple SIMs). Less than one in three people in SSA have subscribed to mobile services, compared to the global average of close to one in two, while in more developed regions such as the European Union, the figure is now four out of five. This shows that significant growth potential still remains, with the challenge for both the industry and policy makers to help realise this potential.

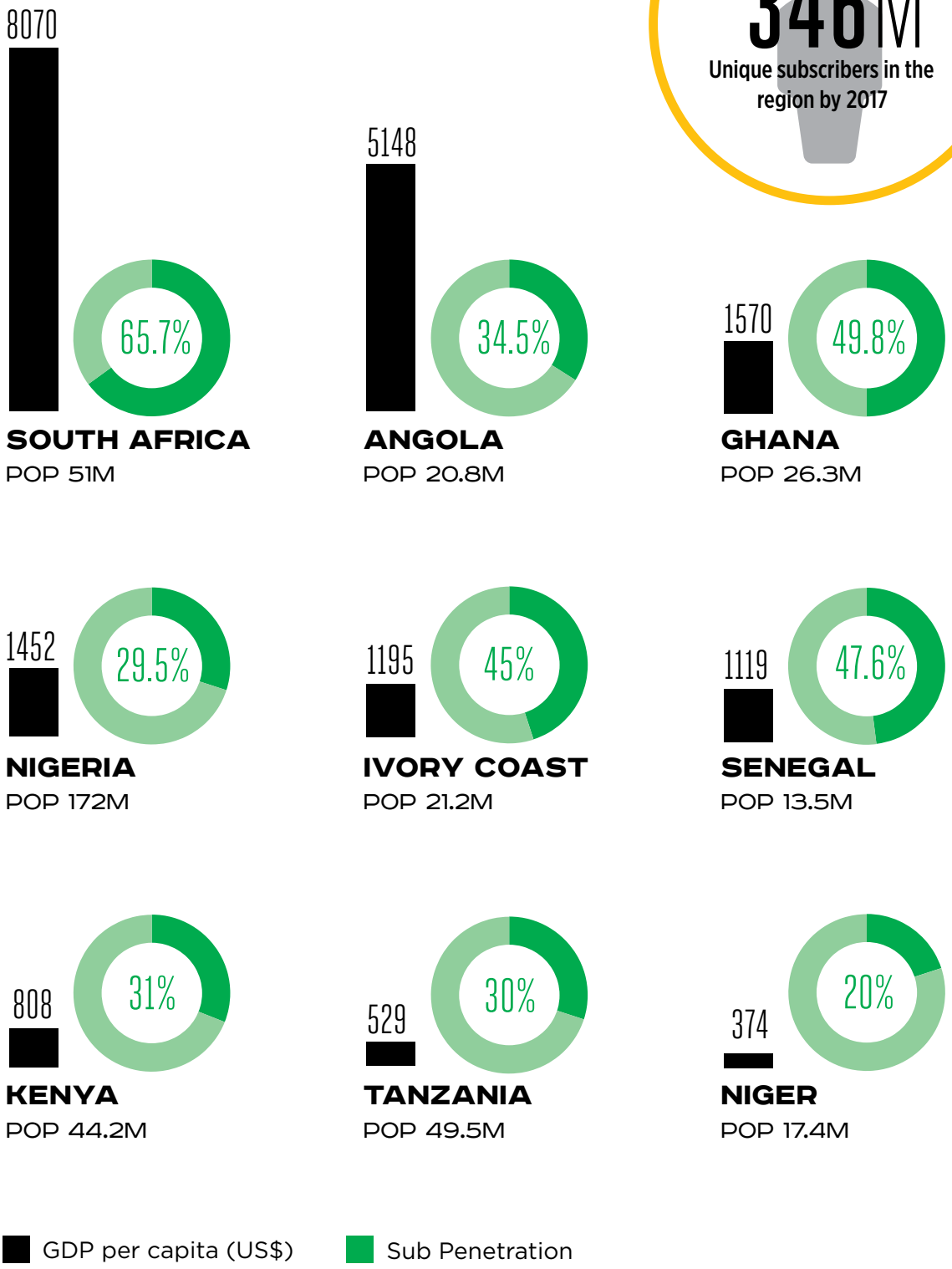
The industry faces a number of challenges to lift penetration rates further, and close the gap with other mobile markets. Incremental subscriber growth will come almost entirely from rural and lower income populations, reinforcing the need to further improve the affordability of mobile services and to extend network coverage. Mobile users in SSA spend on average a larger proportion of their income on mobile services than in other regions: an average of 15% of their income compared to the 3-5% observed in other developing markets and the less than 1% that is the average in the US and Europe.

The mobile industry has already made great progress in improving the affordability of mobile services in SSA, connecting the previously unconnected and transforming the way people across the region live their lives. However, more remains to be done to address issues around social inequality and to bring mobile services to lower income and often more marginalised sections of society. Policy makers need to be aware of the negative impacts of taxes that target mobile usage and handsets, in a region where tax as a proportion of the cost of ownership is already above the global average.

PENETRATION, GDP AND POPULATION

Selected countries, 2012





Improving coverage is a further challenge for the industry; given the region's vast rural expanse and the limited reach of grid-based electricity and supporting infrastructure. Operators are already employing a wide range of innovative solutions to tackle these challenges. These include the growing use of "green" solutions including solar, wind, water, biomass and fuel cells. There is also an increasing trend towards network sharing, with mobile operators hiring sites from third party tower companies, which can also reduce network deployment costs and bring down barriers to rural coverage rollout.

Not only is there still growth to come for basic voice services, but SSA is on the cusp of an explosion in the uptake of mobile broadband and mobile data growth. Increasingly affordable, internet enabled mobile devices are enabling people to access the internet for the first time. Mobile devices, using either 3G or even 2.5G EDGE networks, are already the main platform for internet access in SSA, allowing people to bypass the limited reach of the fixed broadband network.

Realising the growth potential of the mobile industry, both in terms of connecting new subscribers and enabling widespread mobile broadband access, will depend on substantial ongoing investments by the network operators. Based on the available data, it is estimated that mobile operators across the region have invested over US$ 44 billion over the last six years (excluding fibre and international cables). Going forward, investment levels are likely to be even higher given the costs of extending coverage to lower density geographic areas and deploying increased 3G coverage as well as higher speed 4G networks.

Long-term investment also depends upon sustainable market structures at the country level. A number of markets have five or more operators, well above global average levels. Operators need to be confident of generating sustainable long-term cash flows if current investment levels are to be sustained. Regulators and competition authorities should take a pragmatic and flexible approach to consolidation, and look to balance short term pricing trends against ensuring adequate investment levels in the longer term.

The mobile industry already makes a significant contribution to economic growth and job creation across SSA, accounting for a greater proportion of GDP than in any other region across the globe. In 2012 the broader mobile ecosystem contributed over 6% to GDP in SSA, a figure that is forecast to rise to over 8% by 2020. This is well ahead of comparable figures in other parts of the world, for example 1.4% in Asia-Pacific and 4% in Latin America. In addition, the industry already supports over 3.3 million jobs across SSA, while contributing US$ 21 billion to public funding through taxation in 2012.

Mobile services are already available to a larger portion of the population than many other basic services, including electricity, sanitation and financial services. Access rates to mobile services are even higher if one considers the household effect where a single phone may act as a shared device. As a result, mobile services can play a unique role in addressing social, economic and environmental issues, particularly for populations at the base of the economic pyramid (BoP). For example, in Nigeria 56 million people lack access to electricity, and 38 million lack access to clean water, but nearly all could potentially access mobile services.

SSA faces some unique social challenges, with a relatively rural population living in often remote and difficult-to-reach areas. Urbanisation rates are relatively low, though urban growth has translated into a rapid rise of populations living in informal settlements, and increasing poverty and inequality. Many SSA cities are characterized by limited infrastructure, particularly in low-income areas. The GSMA Mobile Enabled Community Services (MECS) programme leverages mobile technology and infrastructure to improve access to basic energy and water services.

Mobile operators, entrepreneurs, corporates, governments, investors and non-profit organisations have together driven an explosion in mobile-enabled products and services across SSA that can help address these issues. The number of new service launches has increased consistently over recent years, with a particular focus on mHealth and mobile money.

Mobile money services are a clear success story, with SSA leading other regions in the number of mobile money deployments. This brings financial services within the reach of previously unbanked populations, driving economic growth and promoting financial inclusion. At the time of writing, the region had over 110 active initiatives in 2013[1], with a number of countries having more than one provider. There are 56.9 million registered mobile money users in SSA and in June 2012, there were twice as many mobile money users as Facebook users in the region[2].

Similarly, mobile solutions are beginning to address a range of social and economic challenges in the region, particularly in areas such as healthcare, education and agriculture. mHealth solutions can be a powerful assisting tool for countries to improve health conditions for their populations, and there are almost 250 mHealth services in operation across SSA today. By end of 2016, the GSMA Pan-African mHealth Initiative aims to have catalysed nationally-scaled, commercially sustainable mHealth services which contribute meaningfully to national health objectives in nutrition as well as maternal and child health in ten African countries. Mobile solutions can play an important role in improving productivity in agriculture across SSA, a sector that generates around a third of the GDP in SSA and employs almost two thirds of the labour force.

Closing the mobile gender gap, especially amongst low-income populations, should be a key consideration for operators and policy makers aiming to realise the potential contribution of mobile services. The most recent data on the gender gap for mobile phone ownership suggests women are 23% less likely than men to own a mobile phone in Africa[3]. Women are critical to realising the potential socio-economic benefits in the areas of health, education and agriculture, and have the most to gain in terms of financial inclusion via mobile financial services.

However, the potential of the mobile industry to deliver these socio-economic benefits depends on a supportive regulatory environment. Key regulatory issues in the region surround spectrum management and taxation. Operators and investors need stability and clarity in order to fund the huge investment needed over the coming years both to extend coverage to more remote areas and to meet the growing demand for higher speed connectivity. Excessive regulation can stifle innovation, raise operating costs, limit competition and, ultimately, harm consumer welfare.

1. MMU Mobile Money Deployment Tracker available at http://www.gsma.com/mobilefordevelopment/programmes/mobile-money-for-the-unbanked/tracker
2. "State of the Industry: Results from the 2012 Global Mobile Money Adoption Survey", GSMA Mobile Money for the Unbanked http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/02/MMU_State_of_industry.pdf
3. GSMA and The Cherie Blair Foundation for Women. Women and Mobile: A Global Opportunity

Efficient spectrum management is paramount to promoting investment and connectivity. Spectrum should be allocated to those with the ability to deploy and invest in infrastructure. The licensing process should not discriminate among operators, or in favour of new entrants, but instead should provide a level playing field and regulatory certainty.

With a number of licences due to come up for renewal across SSA, establishing a transparent, consultative and predictable process for granting spectrum licences and renewing spectrum usage rights will allow operators to plan their investments. The cost of renewing spectrum usage rights should be based on recovering administrative costs, rather than maximising short-term revenues for government.

While some governments and regulators have recognised the importance of harmonising spectrum across the region, much work remains in this regard. In many SSA countries, concrete commitments to the harmonised allocation of sub-1 GHz spectrum, in particular the 700 MHz and 800 MHz (Digital Dividend) bands are yet to be fulfilled. Coordinating and accelerating the analogue to digital television switchover and freeing the Digital Dividend spectrum bands for mobile broadband should provide a massive boost to economic growth in the region. The analysis in section 2.2.1 of this report suggests that allocating this Digital Dividend spectrum band to mobile broadband in SSA would generate a GDP increase for the region of US$ 49 billion from 2015 to 2020 (5.9% of 2012 GDP), while contributing a further US$ 15 billion of tax revenues over the period.

Taxation as a proportion of the total cost of mobile ownership is higher than the global average in many SSA countries, reducing the affordability of mobile services. Twenty countries also have customs duties on mobile handset imports, while the operators themselves face a number of sector-specific taxes. Lowering taxation levels on the mobile sector could benefit consumers, businesses and government alike by encouraging the take-up and use of new mobile services, improving productivity and boosting GDP and tax revenues in the longer term.

1

Mobile's transforming impact on Sub-Saharan Africa

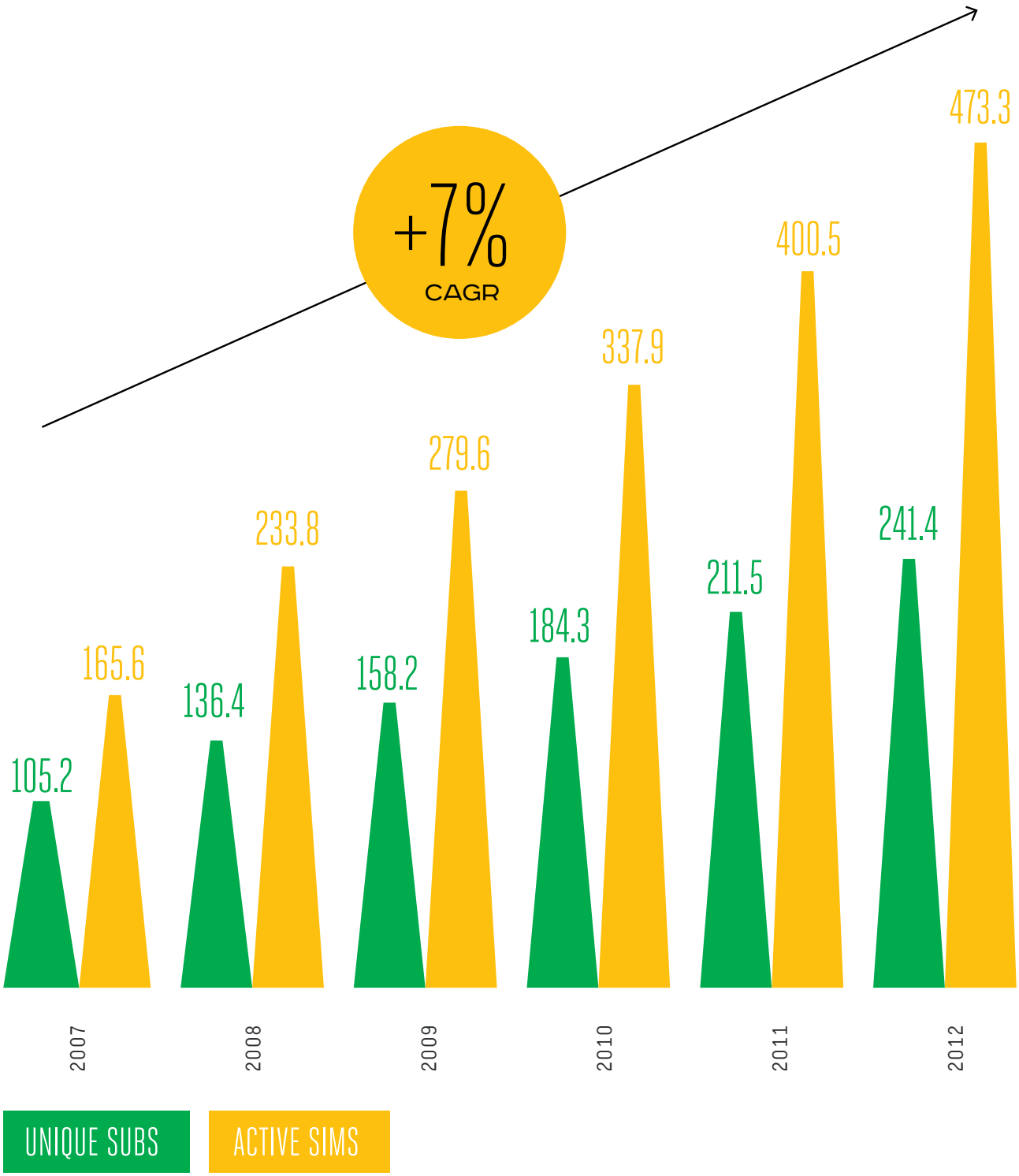
The mobile industry has already had a transformative effect in Sub-Saharan Africa. By mid-2013 there were 502 million active SIM connections in the region (equivalent to a penetration rate of 61%), a figure that has grown by 23% per annum over the last five years.

Analysis by GSMA Intelligence found that on average subscribers in developing markets had close to two SIM cards each, more than in developed markets[4]. As a result, and to better understand the "addressable" population and the scope for future growth, the GSMA increasingly focuses on unique subscribers rather than SIM connections.

By the middle of 2013, there were 253 million unique mobile subscribers in the region, a figure that has grown by 18% per annum over the last five years, and making SSA by some distance the fastest growing region globally. Mobile has benefited from the economic development across SSA, with economic growth particularly robust in some of the lower income countries in the region[5], where penetration rates historically have been lowest. Rising mobile penetration rates are themselves a positive contributor to economic growth in the region.

4. https://gsmaintelligence.com/files/analysis-subscription/?file=121018-subscribers.pdf
5. http://www.imf.org/external/pubs/ft/reo/2012/afr/eng/sreo0412.pdf

UNIQUE SUBSCRIBERS AND SIM CONNECTIONS (M)

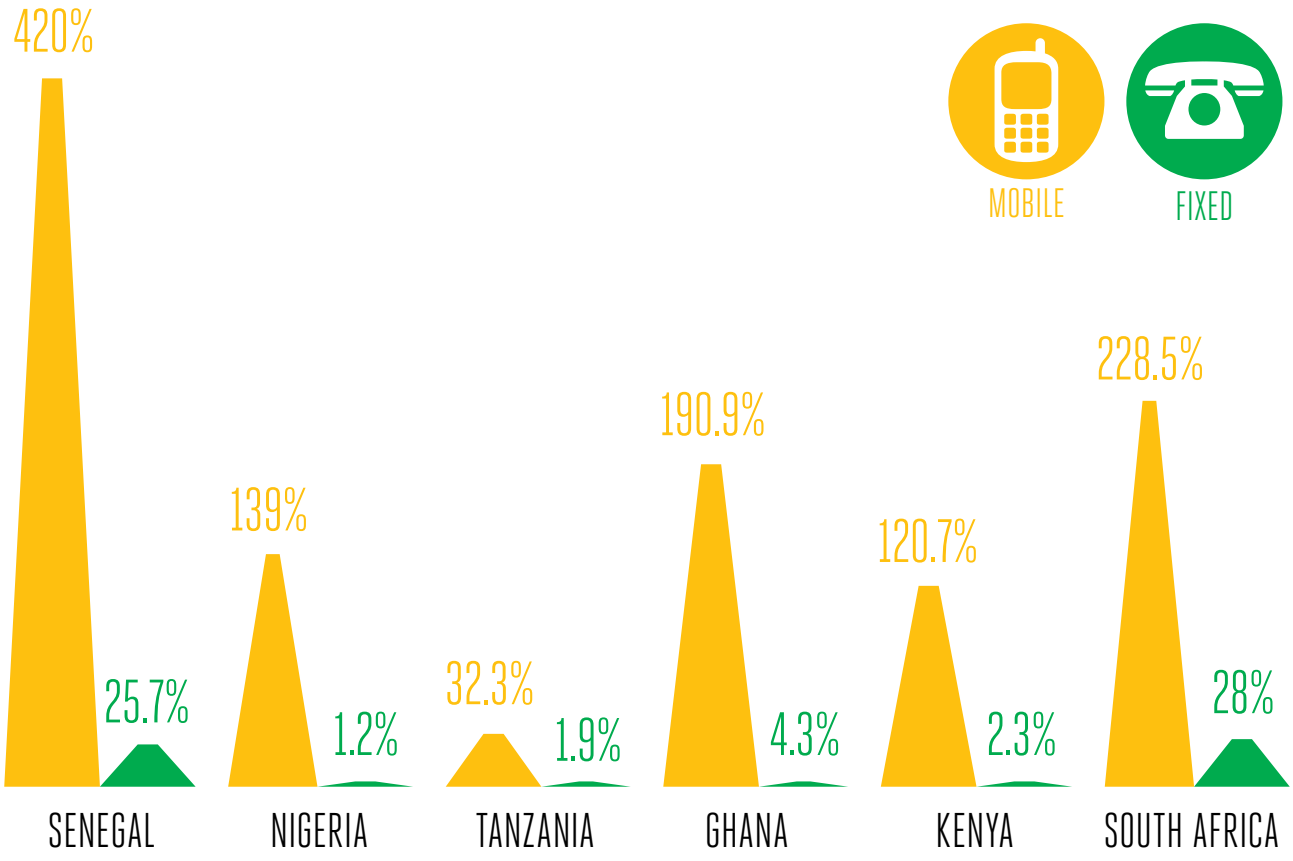


Source: GSMA Intelligence

Figure 1

In a region that has the lowest fixed line penetration globally, and where many countries have fixed line household penetration rates of less than 5%, mobile services have helped address the pent up demand for voice services, and increasingly are addressing the demand for internet access. While fixed line penetration is limited, almost every household across SSA has access to a mobile phone. This highlights the importance of shared access to a phone in many communities, as several family members may make use of a single mobile subscription. As a result, mobile services can have a broader reach than a simple analysis of subscriber penetration rates would indicate.

FIXED AND MOBILE HOUSEHOLD PENETRATION - 2012



Source: GSMA Intelligence; Telegeography

Figure 2

With a lack of alternative ICT infrastructure, mobile has played a key role in boosting economic growth whilst also serving as a platform for socio-economic development, bringing a range of services in areas such as banking, healthcare and education to populations across the region.

253M

IN MID 2013, THERE WERE 253 MILLION UNIQUE MOBILE SUBSCRIBERS IN SUB-SAHARAN AFRICA.

1.1

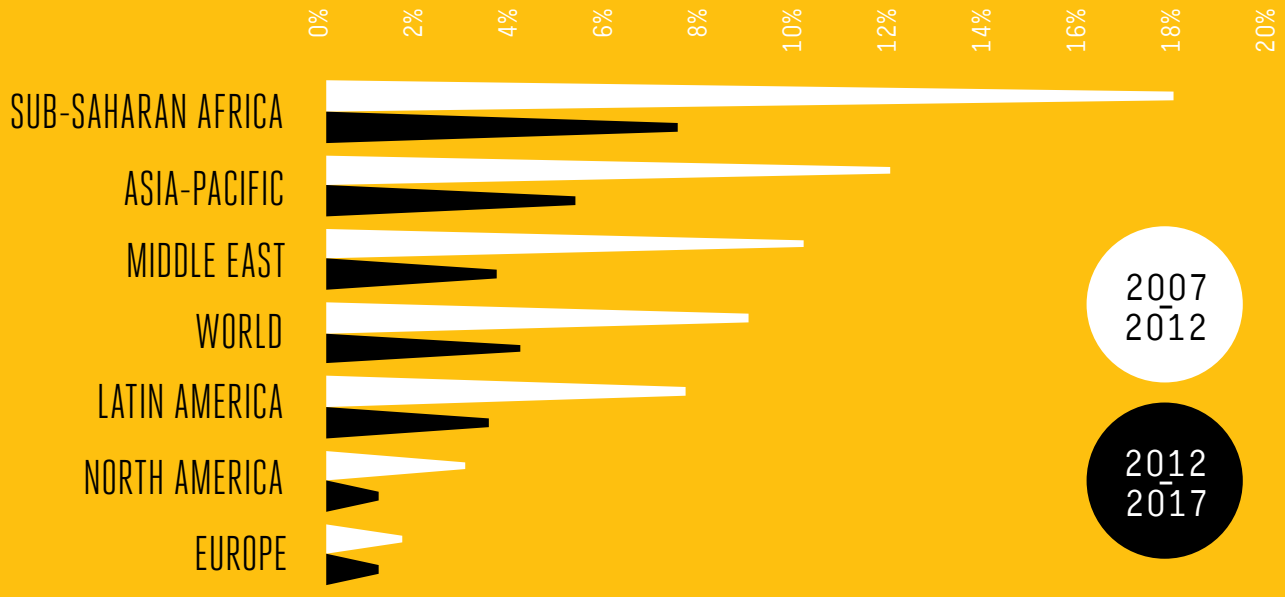
Significant untapped potential remains

When addressing the issue of the future growth potential for mobile services, it is important to look at "unique" individual mobile subscribers rather than to focus on SIM connections, especially in emerging markets. With the unique subscriber penetration rate in Sub-Saharan Africa (SSA) standing at close to 31% at the end of the second quarter of 2013, this means that less than one in three of the region's population currently have subscribed to a mobile service. This figure compares to the global average of close to one in two, while in developed regions such as the European Union, the figure is now four out of five.

The unique subscriber penetration rate for SSA is the lowest of any region in the world. This highlights the long-term growth potential of the region, with a key challenge for both operators and regulators to address issues that can help raise penetration rates, including improving the affordability of services as well as increasing coverage to bring mobile services to the many people living in rural areas. Women also present a significant opportunity with 23% fewer women than men owning handsets.[6]

Forecasts from GSMA Intelligence suggest that SSA will continue to be the fastest growing region in the coming years, helped by the ongoing economic development and rising disposable incomes. While subscriber growth rates are slowing across the world, the growth rate for SSA is expected to remain at almost twice the level of the global average figure.

SUBSCRIBER GROWTH RATES (CAGR %)



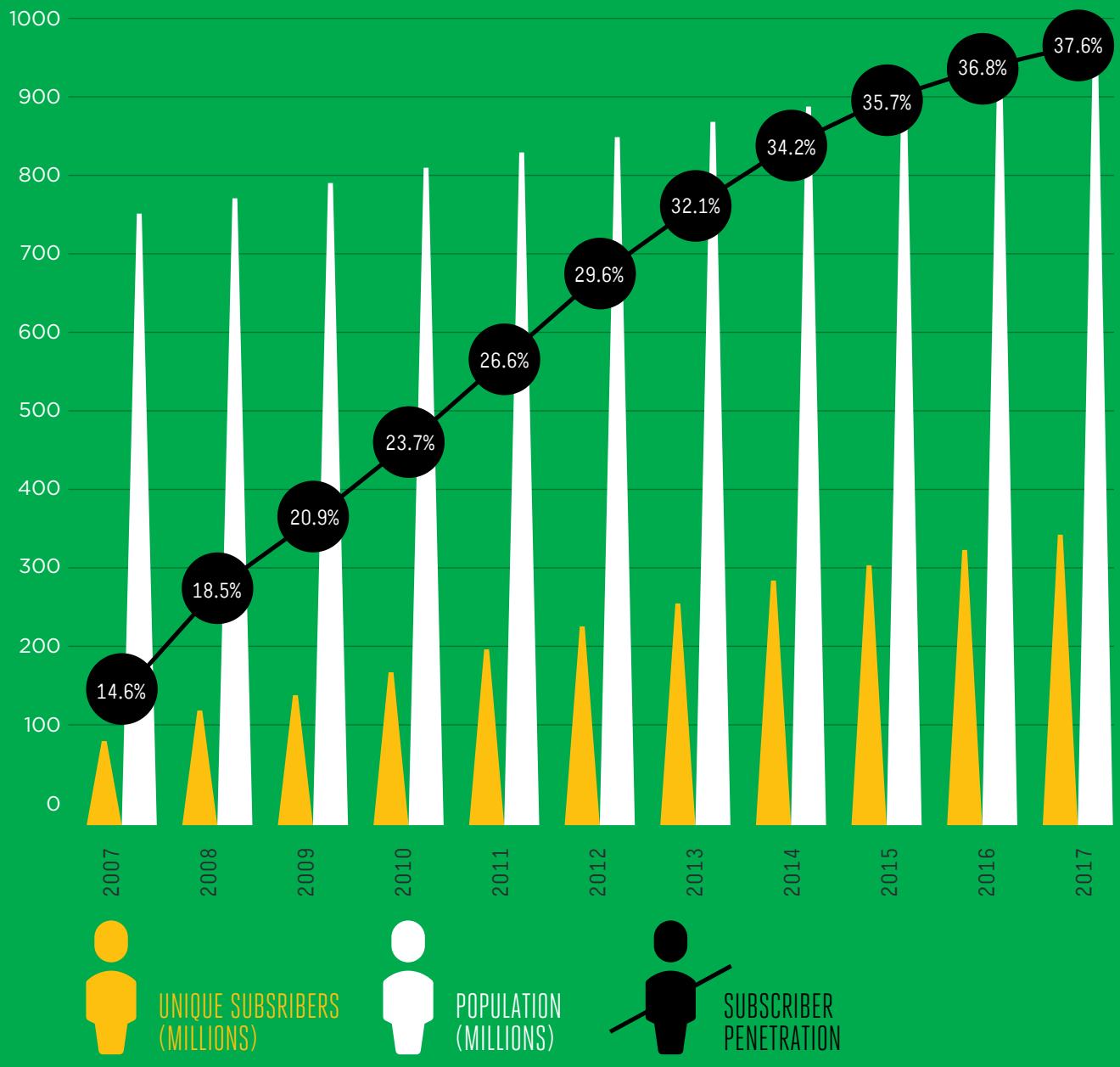
Source: GSMA Intelligence

Figure 3

6. GSMA_"Women_and_Mobile: A Global_Opportunity" Report, 2010.

The total number of unique subscribers in the region will reach 346 million by 2017, equivalent to a subscriber penetration rate of almost 38%. The region at this point will still trail the broader developing market penetration figure of 48%. Given the role that access to mobile services can play in both economic development and addressing social challenges, regulators and other government agencies should look at providing a supportive regulatory environment for the mobile industry, with the potential of bringing voice and internet services to a larger proportion of the population, reducing the penetration gap with other developing markets in the process.

UNIQUE SUBSCRIBERS AND POPULATION



Source: GSMA Intelligence

Figure 4

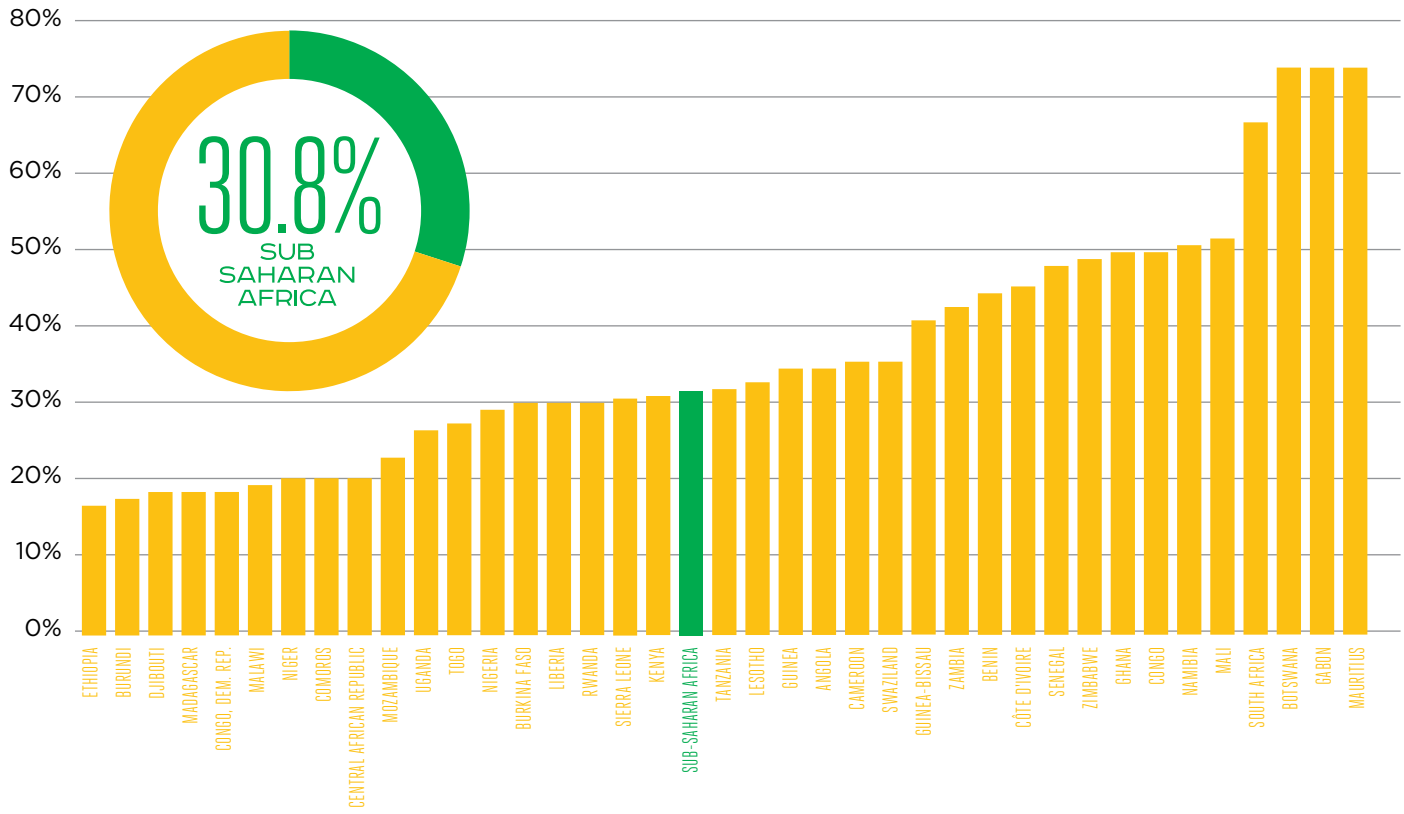
1.2

A diverse region: with differing opportunities and challenges

Sub-Saharan Africa is very diverse in terms of the range of subscriber penetration rates at the country level, with subscriber penetration ranging from a low of 17% in Ethiopia to over 70% in countries such as Botswana, Mauritius and Gabon. Income levels are a key driver of differing penetration rates, though other factors including market structure, geography and regulatory environments also play a role. There can also be significant variations within individual countries, such as South Africa which has some segments with income levels similar to those in developed markets, but also a large population with low income levels.

UNIQUE SUBSCRIBER PENETRATION BY COUNTRY

Q2 2013

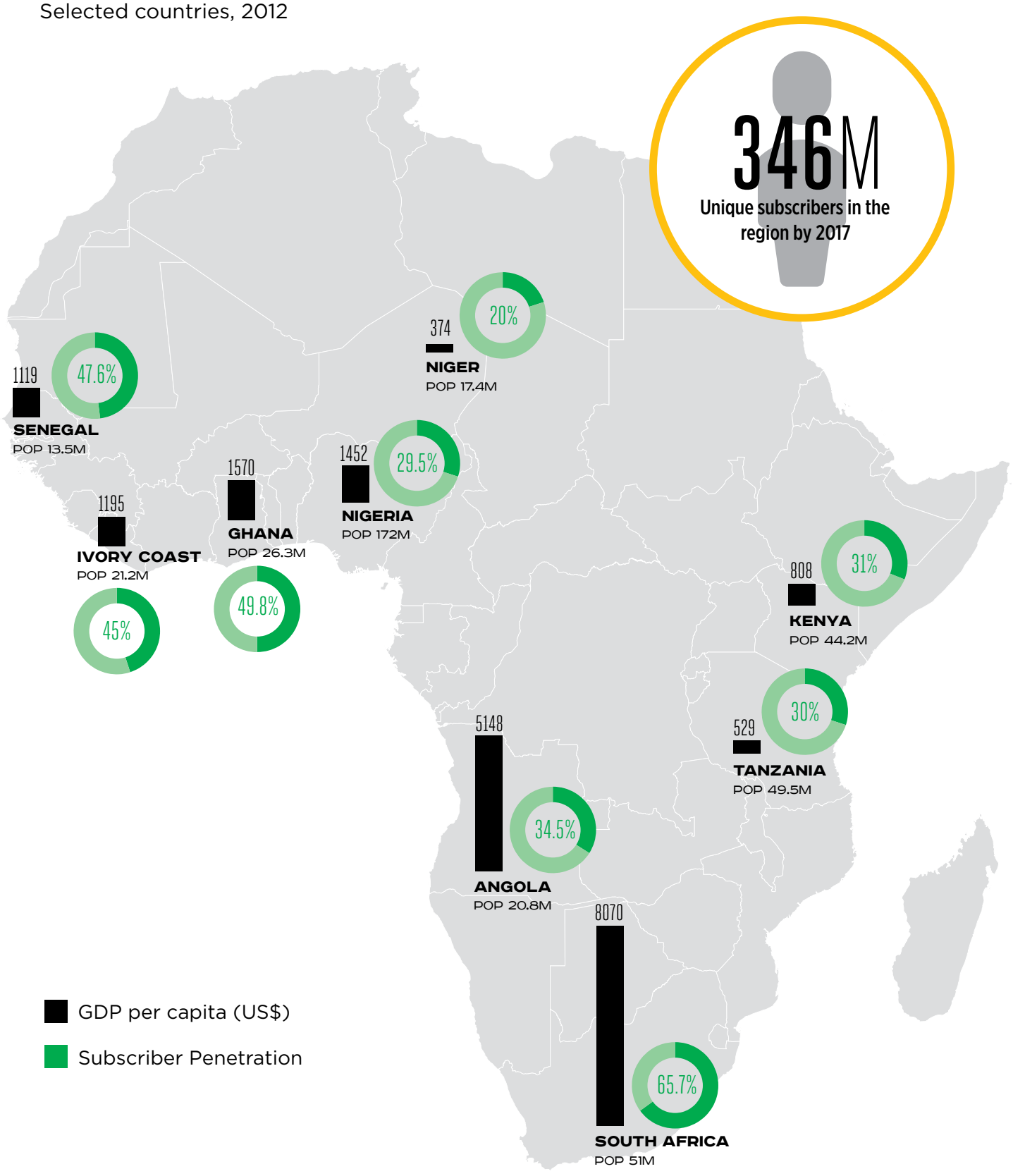


Source: GSMA Intelligence

Figure 5

SUBSCRIBER PENETRATION, GDP PER CAPITA AND POPULATION

Selected countries, 2012

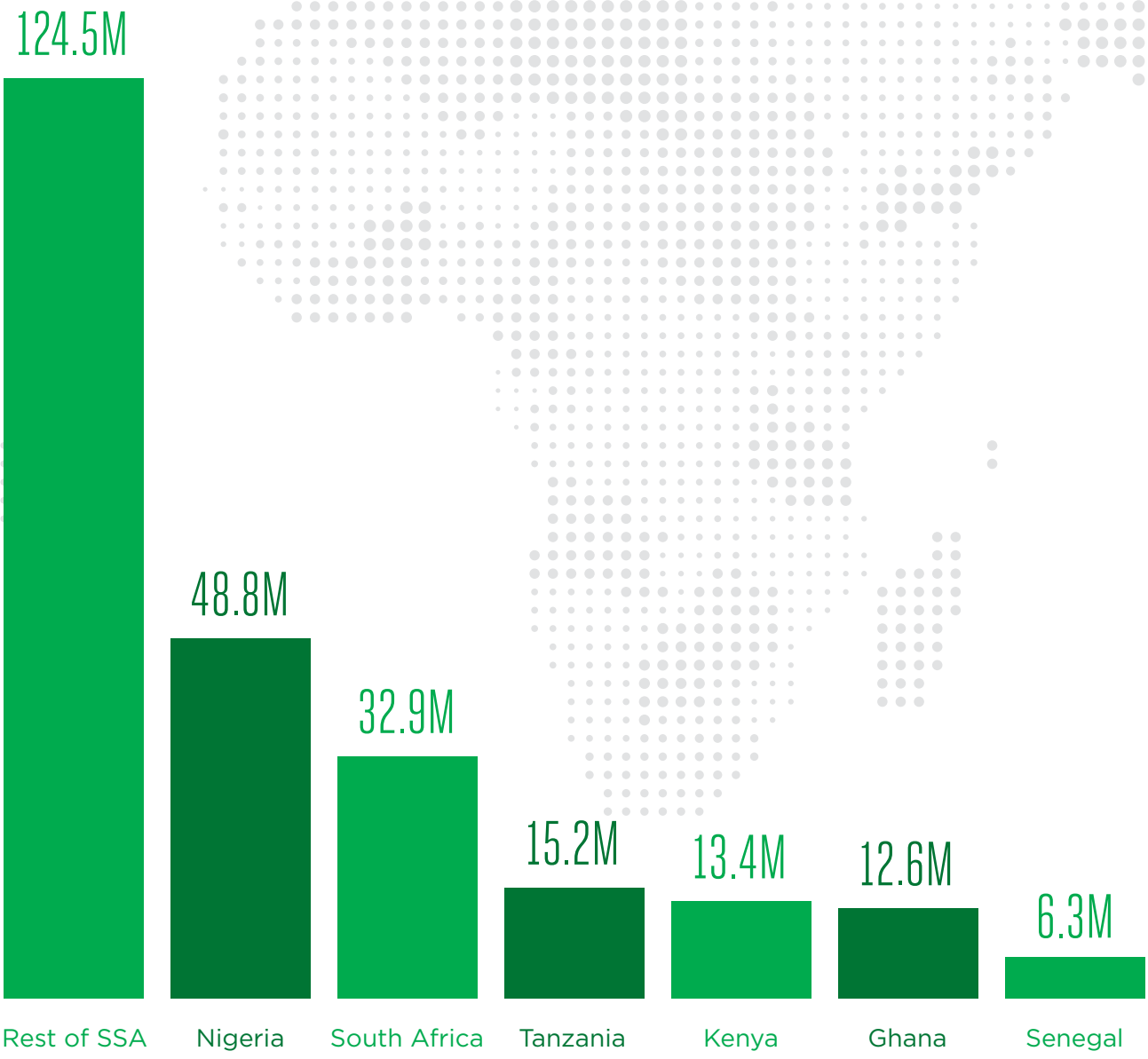


Source: GSMA Intelligence

Figure 6

UNIQUE SUBSCRIBERS (MILLIONS)

Q2 2013



Source: GSMA Intelligence

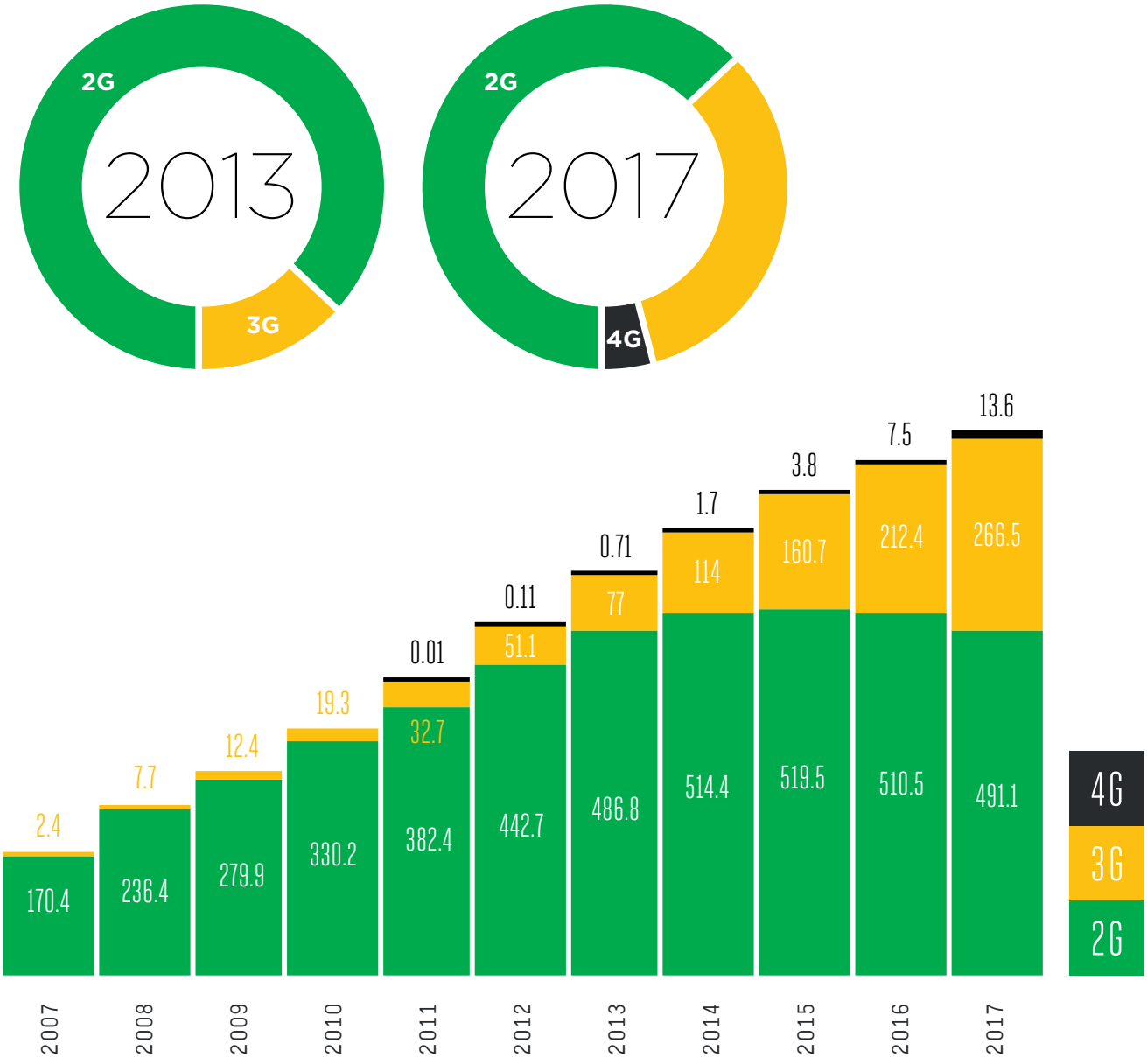
Figure 7

The largest markets in the region include both South Africa and Nigeria, together accounting for around of third of the total subscriber base in SSA. However, these two markets have very different penetration rates (and as a result different growth potentials). The subscriber penetration in Nigeria is currently under 30%, but with the figure in South Africa already at 65%. In absolute terms, the Nigerian market is expected to add 27 million new subscribers over the next five years, compared to around 7 million in South Africa.

The region is also heavily dominated by lower cost mobile technologies, with over 86% of connections in region at the end of 2013 expected to be 2G. The balance is almost all 3G connections, with 4G expected to account for only around 0.1% of total connections (a figure that will rise to almost 2% in 2017).

TECHNOLOGY MIX

Connections (M)



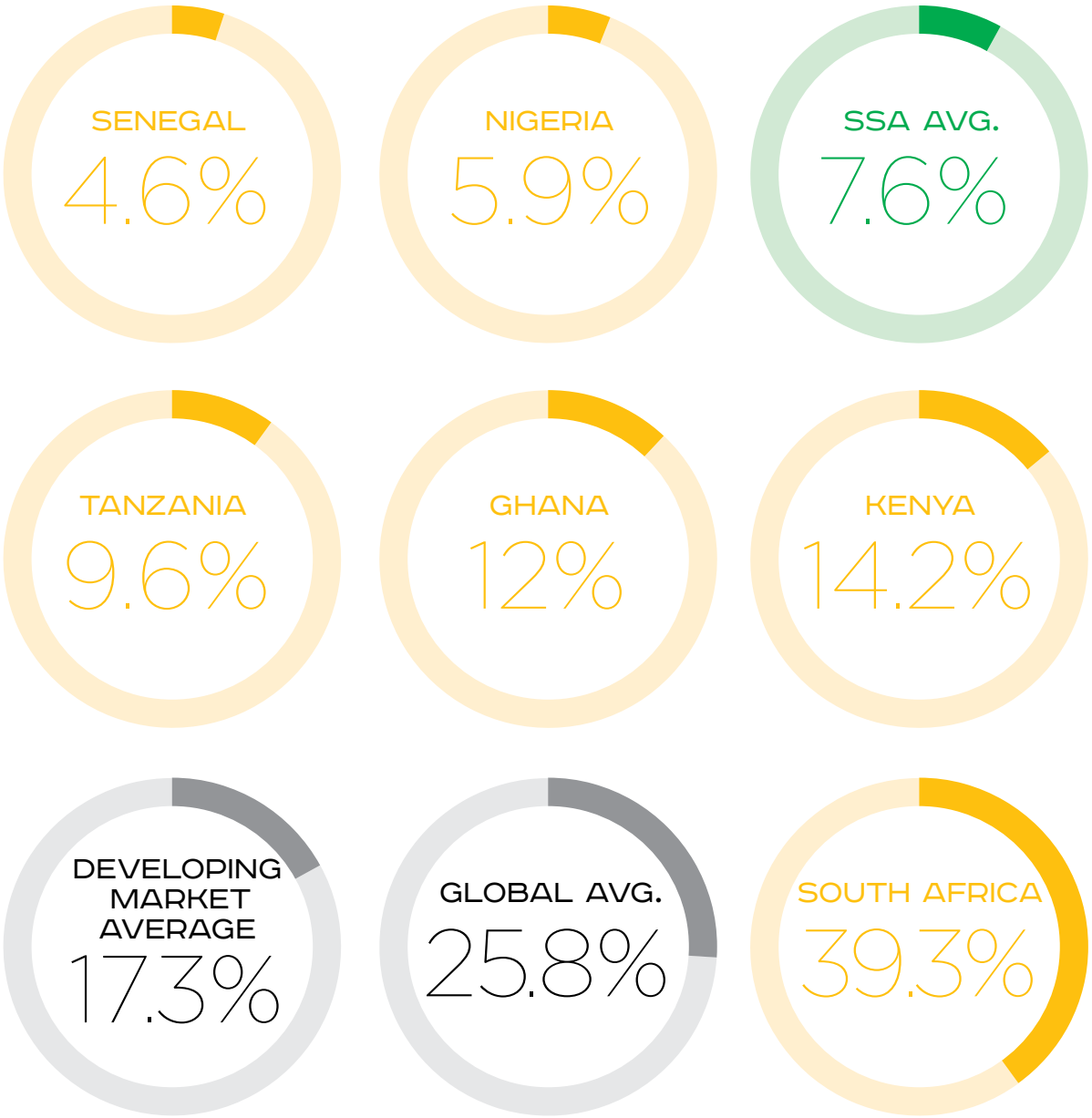
Source: GSMA Intelligence

Figure 8

3G and 4G connections are today concentrated in a limited number of markets, as shown in the following chart. Only South Africa, of the larger markets in the region, has a 3G penetration rate ahead of the developing market (or indeed global) average figure. Most of the rest of the SSA region trails behind the rest of the developing world, highlighting the significant growth potential still to come.

3G PENETRATION RATE

Q2 2013



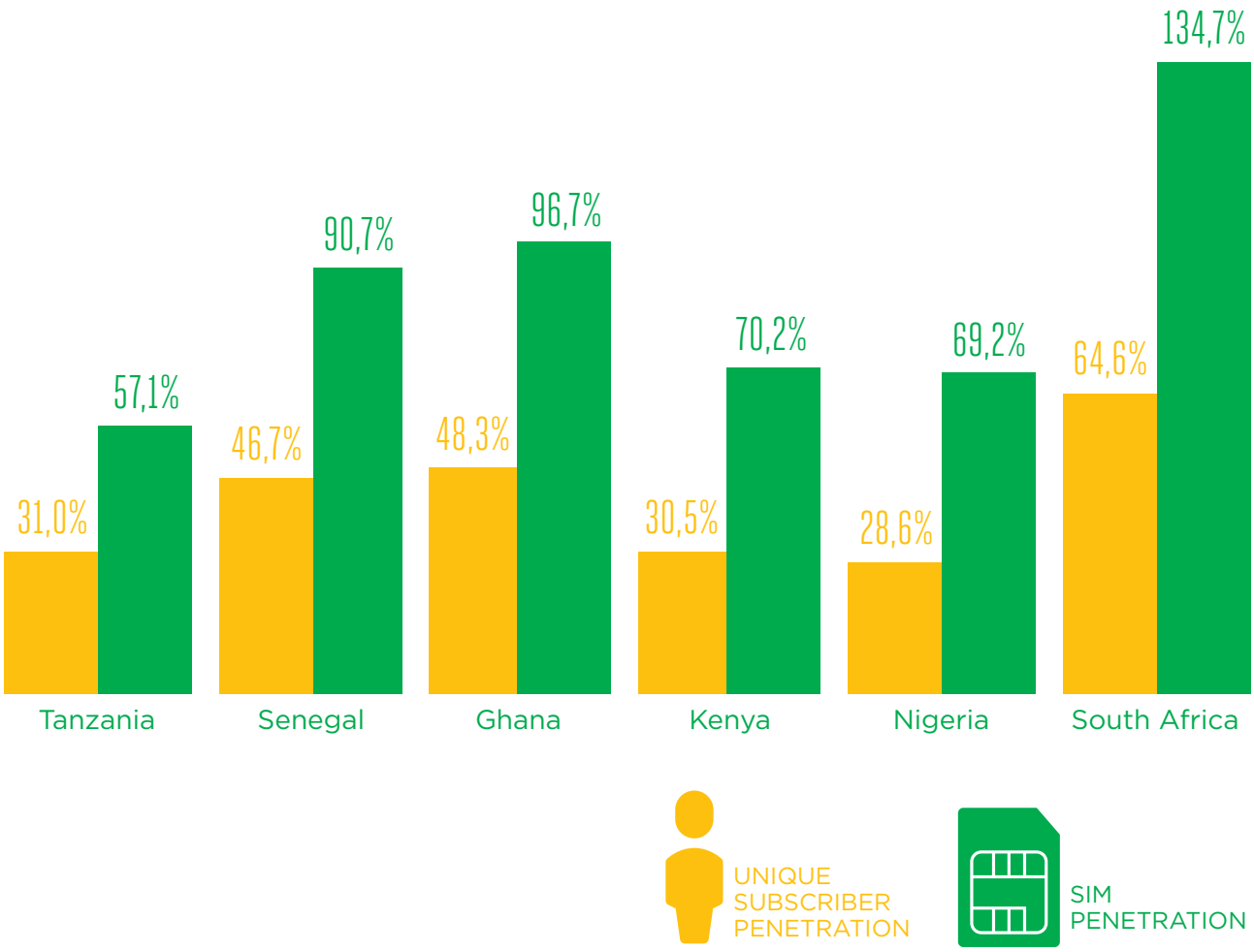
Source: GSMA Intelligence

Figure 9

As is common in other developing markets, many mobile subscribers in SSA have multiple SIM cards in order to take advantage of low cost offers, and also to use the best available tariffs for particular types of calls (such as "on-net " tariffs that offer significantly lower rates for calls between SIM cards from the same network operator). As we have already highlighted, we believe any debate about the future growth rates need to focus on subscriber and not SIM penetration rates.

A number of markets have introduced mandatory SIM registration schemes over the last year (including for example Ghana, Uganda and Ivory Coast) which in some cases has led to large scale disconnections of unregistered SIMs. This has impacted reported connection growth rates, at least in the short term. South Africa has one of the largest gaps between subscriber and active SIM penetration rates, although Nigeria, Senegal and Ghana all have gaps in the 40-50 percentage point range.

SUBSCRIBER VS SIM PENETRATION RATES IN SELECTED MARKETS - JUNE 2013



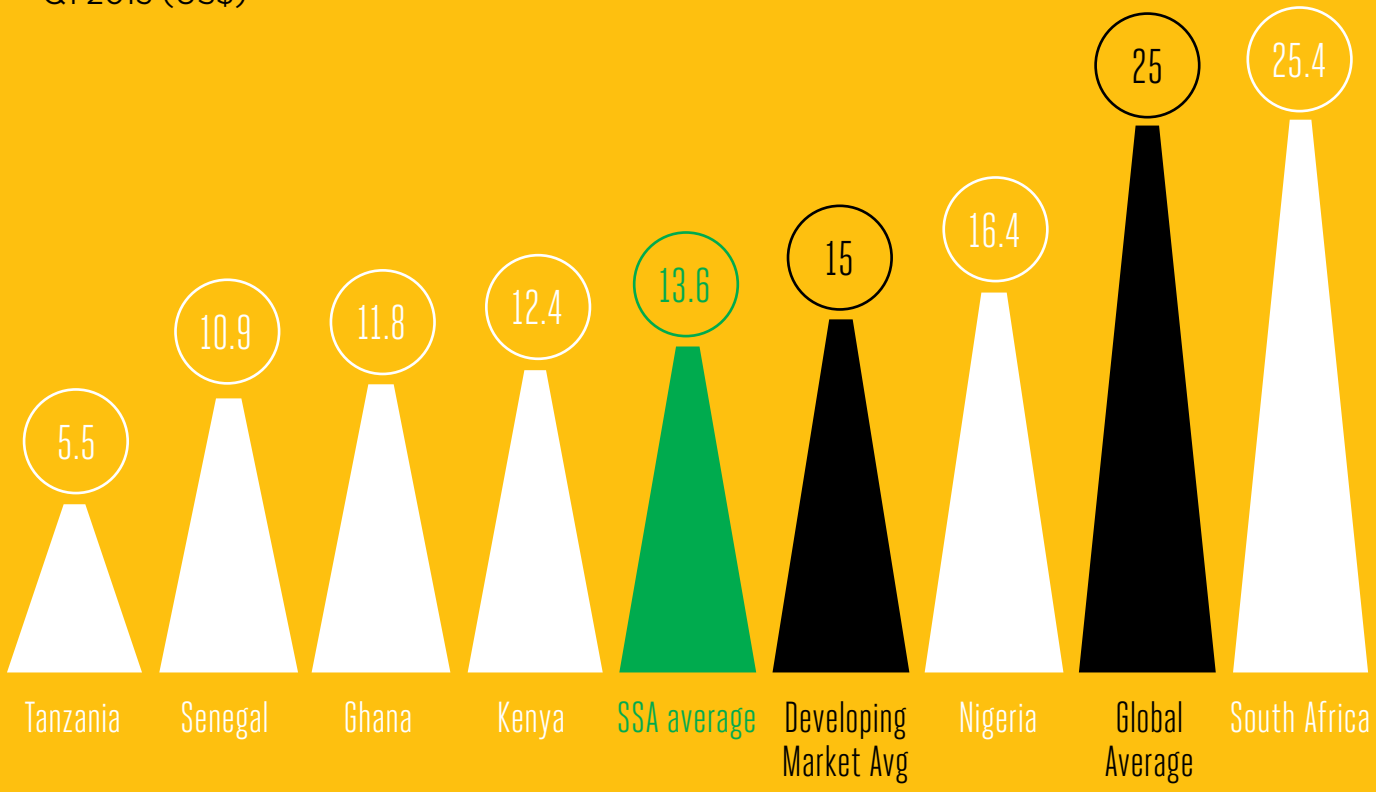
Source: GSMA Intelligence

Figure 10

Average revenue per subscriber (ARPU) also varies significantly across the region, largely driven by differing GDP per capita and income levels. On the whole, ARPU levels in SSA are in line with the developing market average, while only South Africa of the larger markets has ARPUs above the global average level (reflecting mainly high average income levels in the country).

ARPU (BY SUBSCRIBER) PER MONTH

Q1 2013 (US$)



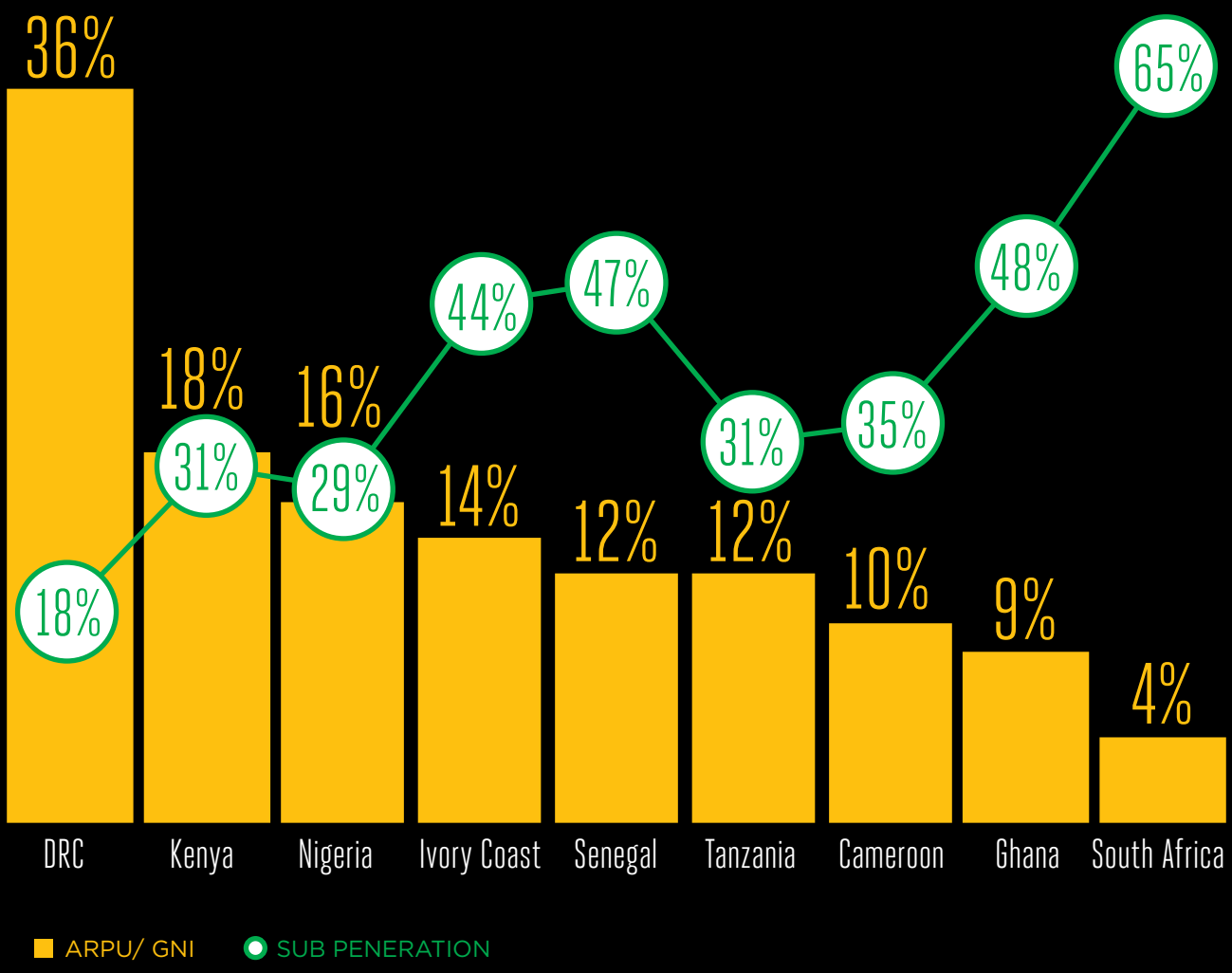
Source: GSMA Intelligence

Figure 11

While the average APRU for the region is US$ 14, there are many subscribers in SSA who generate much lower ARPU levels, mainly reflecting lower income levels. Indeed, there are over 250 million people in the region living in countries where the average ARPU is currently US$ 8 or less. This is a key consideration when it comes to the discussion about future growth potential in the region, as many of the incremental subscribers going forward will come increasingly from rural and often lower income parts of the region, which are likely to generate relatively low ARPUs. This raises particular challenges for operators in terms of the need to generate adequate returns on their investments.

For example, in 2011 GNI per capita (GNI is a measure of a country's income) stood at US$ 231 in the Democratic Republic of Congo (DRC). Given a monthly subscriber ARPU of around US$ 6, it follows that the average mobile user in the DRC spends a considerably higher proportion of their income on mobile access than the 3-5% observed in other developing markets and the less than 1% that is the average in the US and Europe[7]. Figure 12 shows that in general there is a strong negative correlation between subscriber penetration rates and the affordability of mobile services. In countries where subscribers spend a lower percentage of their income (defined as GNI per capita) on mobile services (defined as subscriber ARPU) then penetration rates tend to be higher.

MOBILE SPEND AS PERCENTAGE OF GNI PER CAPITA AND SUBSCRIBER PENETRATION



Source: GSMA Intelligence

Figure 12

7 https://mobiledevelopmentintelligence.com/insight#!Targeting_100M_mobile_users_across_the_Congolese_and_Sudanese_markets

1.3

Mobile broadband: on the cusp of the next wave of development in Sub-Saharan Africa

The lack of fixed line infrastructure for broadband access, and the relatively high cost of such services where they exist[8], means that mobile has emerged as the main medium for accessing the internet across SSA. Other factors include the high cost of PC ownership and the availability of a range of innovative pricing models for mobile broadband access (including a range of low cost prepaid options) that can prove more attractive than longer term fixed line contracts.

A recent survey by Analysys Mason found that 87% of the respondents across Africa indicated that mobile devices were the main means through which they connected to the internet[9]. This highlights the importance of mobile services, and the further deployment of higher speed 3G and 4G networks, in bringing internet access to new sections of the population. For example, women in Africa are 43% less likely to have access to the internet than men[10]; so mobile internet access offers a potentially valuable mechanism to address under-served female market segments.

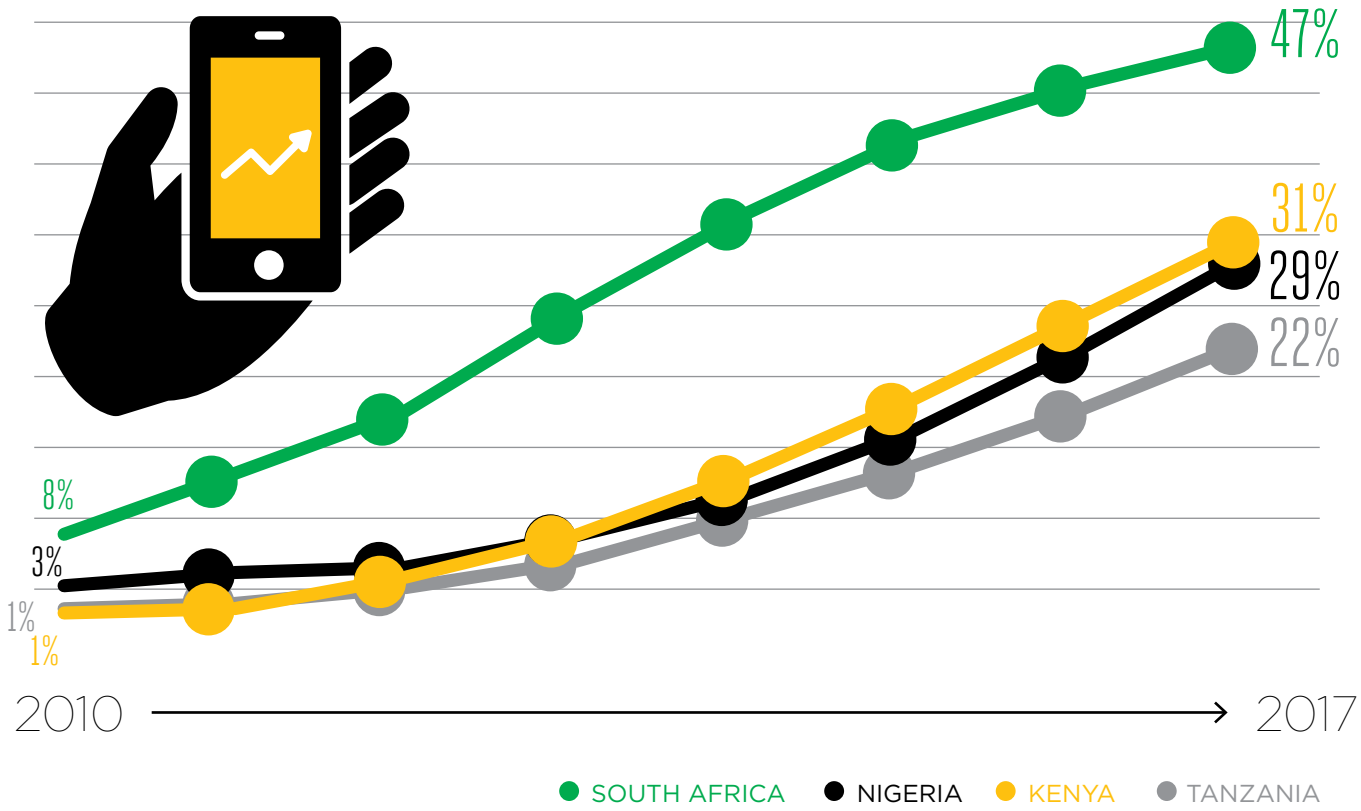
Mobile internet access will be facilitated by the increasing uptake of more advanced devices, including smartphones. Overall smartphone penetration rates are still relatively low in SSA, although affordability and access to internet capable devices is growing rapidly. At the end of 2012 smartphone penetration in SSA stood at 4%, well below the global average figure of 17%. However, there are significant differences at the country level, with South Africa already having smartphone adoption levels that are slightly ahead of global averages, with the penetration rate forecast to exceed 45% by 2017.

8. http://www.itu.int/en/ITU-D/Regulatory-Market/Documents/IIC_Africa_Final-en.pdf
9. http://www.analysysmason.com/Templates/Pages/KnowledgeCentreArticle1.aspx?id=13066
10. Intel's "Women in the Web" Report, 2013.

Smartphone adoption will be helped by ongoing declines in handset pricing. The sub-US$ 100 smartphone has already become a reality, and more recently a number of emerging market operators have been calling for a sub-US$ 50 device, which Gartner has suggested could be available in 2013[11]. It is also important not to overlook the role of more basic "feature phones" in accessing the internet, often running on lower speed 2G networks, even if they do not support the same range of services and content as smartphones and other more advanced devices.

SMARTPHONE PENETRATION

SELECTED COUNTRIES SSA



Source: Strategy Analytics

Figure 13

For the region as a whole, smartphone penetration rates are forecast to reach 20% by 2017, representing significant growth in terms of the absolute number of devices, but still leaving the penetration rate in SSA at below half the global average figure and by far the lowest of any emerging market region.

In some markets, low income levels mean that smartphone penetration rates are likely to remain relatively low for the foreseeable future. We have already looked at the example of the DRC, which has one of the lowest income levels in the region. Millicom recently stated that in the DRC, "the smartphone market is very small in absolute numbers"[12], and we would expect this to change only slowly over time.

11. Gartner. Market Trends, "The Emergence of the $50 Smartphone", September 2012
12. https://gsmaintelligence.com/analysis/2013/04/targeting-100m-mobile-users-across-the-congolese-and-sudanese-markets/380/

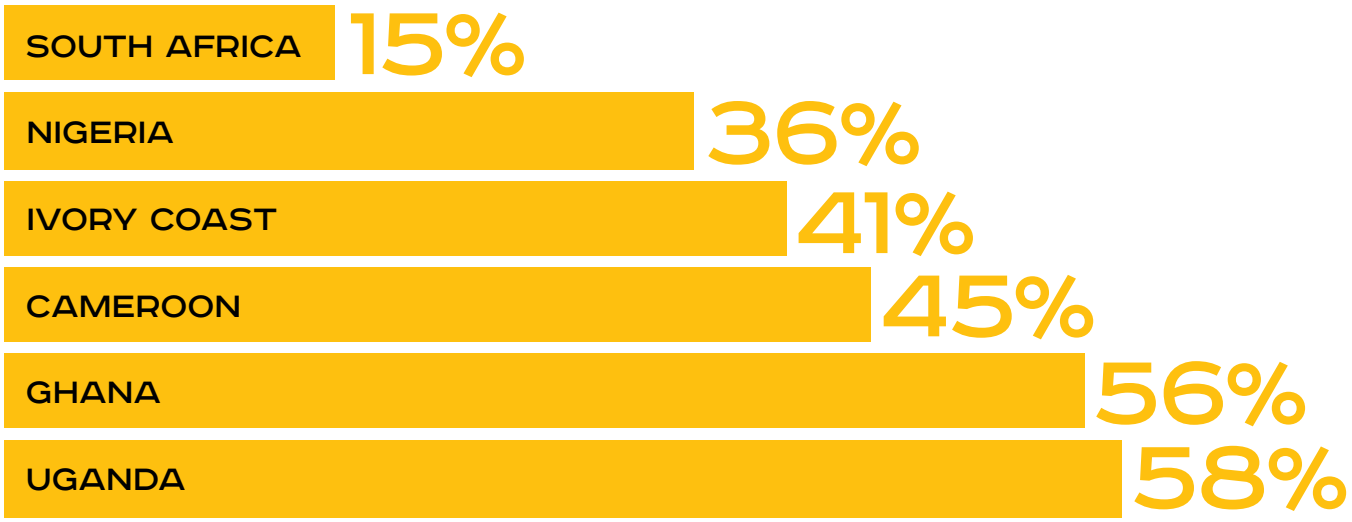
While feature phones and increasingly, smartphones, are opening up internet access to the masses, mobile broadband (MBB) includes a range of other devices that are capable of offering higher speed mobile broadband access. MBB penetration rates also vary sharply across SSA, with a number of countries having penetration rates below 1% as of the middle of 2013 (these include Cameroon, Niger and Ethiopia). At the other end of the scale, South Africa already has a MBB penetration rate approaching 30%, well ahead of the global average and meaning that almost one in three people in the country have a mobile broadband subscription.

Although we are still at the early stages of mobile broadband and smartphone penetration in SSA, we are already seeing strong data growth in many markets. For example, MTN reported 63% growth in data volumes in its South African operations in the first half of 2013. Users are also tending to consume more data over time, reflecting both the increasing familiarity with data services as well as the likely impact of upgrading to more advanced handsets including smartphones which tend to generate higher data volumes. Vodacom reported in its H1 2013 results that users in South Africa were on average generating 75% more data traffic per device than a year ago, while the price per MB of data had fallen 25% in the six months since December 2012.

While South Africa is one of the most advanced markets in SSA for mobile data usage, there is a similar pattern of strong data growth across most of the region. Indeed, coming from a lower base, data volumes and revenues are growing more quickly in other countries. MTN saw data revenues grow by between 35% and almost 60% in five markets in the first half of 2013.

MTN DATA REVENUE GROWTH

H1 2013, Year-on-year growth, %



Source: Company data

Figure 14

SMARTPHONE PENETRATION RATES ARE FORECAST TO REACH 20% BY 2017.

1.3.1

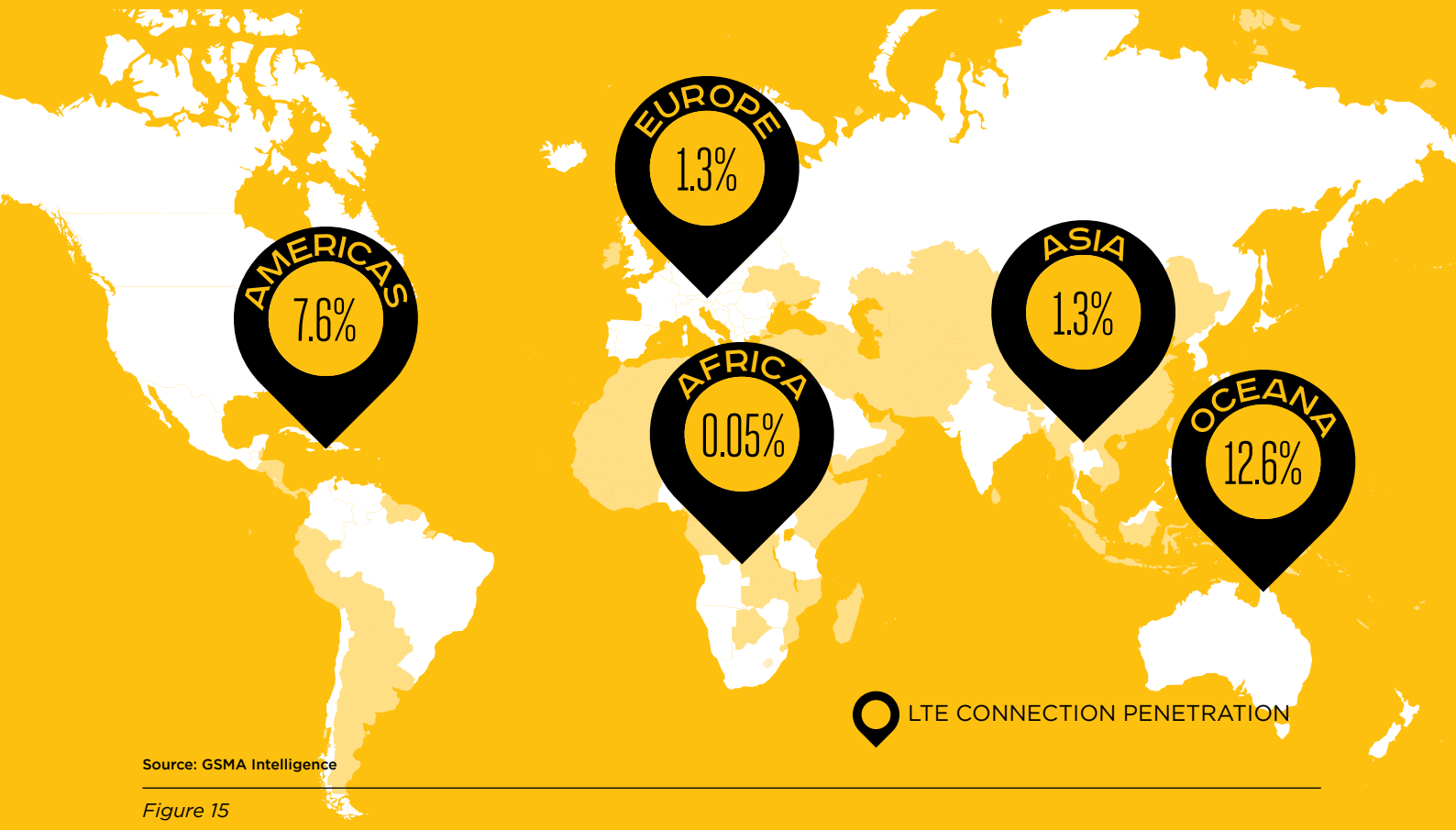
Higher speed network deployments

3G network build outs are continuing across the region, and will play an important role in bringing higher speed internet access to the population. MTN in South Africa recently announced that it covered 68% of the population with its 3G network by the middle of 2013, while 2G coverage is already at 98%. Vodacom has stated that its own 3G network coverage was around 83% of the population at the end of 2012.

In contrast, LTE deployments across SSA are still in their early stages, with only nine countries across the region having commercial LTE networks in operation as of August 2013. This leaves SSA trailing the other regions in the world in terms of active LTE networks.

206 LTE NETWORKS ACROSS 79 COUNTRIES WORLDWIDE

AUGUST 2013



Source: GSMA Intelligence

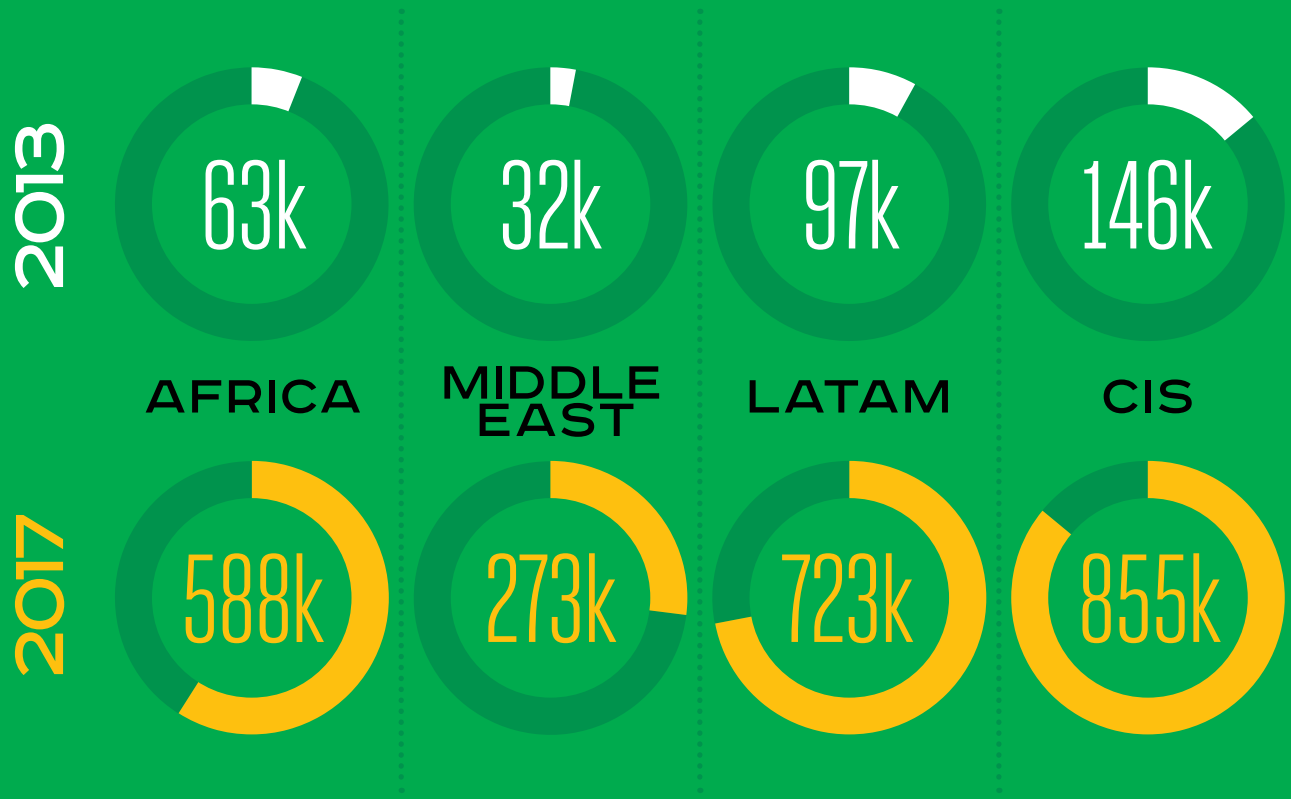
Figure 15

South Africa has already seen material LTE adoption, despite networks only being launched in late 2012 or early 2013. Three of the four mobile operators in the country have now launched LTE networks. However, operators face challenges with the delays in the planned spectrum auctions (for both the 2.6 GHz and 3.5 GHz bands), obliging the operators to use refarmed spectrum for their LTE deployments. Similarly in Nigeria operators are trialling LTE at 1800 MHz whilst they await the availability of the 2.6 GHz and 800 MHz bands. The total number of LTE connections in South Africa is forecast to reach 6.5 million by 2017, although at that point this will still account for only 8% of total connections in the market at that time.

Data speeds are forecast to increase steadily over the next few years across SSA, with speeds on average in the mid-range for developing markets. While data is not available at a country level, it is likely to follow a similar pattern to smartphone and mobile broadband adoption, with much higher speeds in higher income countries such as South Africa (which are already leading on LTE build outs), with many lower income countries still more focused on improving 3G coverage.

DATA SPEEDS BY REGION

2013 vs 2017, bps



Source: Cisco VNI, A.T. Kearney analysis

Figure 16

1.4

Realising the growth potential of mobile in SSA

The mobile industry is overcoming cost barriers and developing innovative new solutions to deploy networks in more remote and challenging environments. The industry is already competitive and significant price reductions over recent years have helped to drive strong subscriber growth across the region. However, the industry faces a number of challenges if it is to fulfil its growth potential, and regulators and policy makers must be careful not to hinder this with short-term polices that maximise near-term tax revenues over medium-term potential for growth and development.

There are several challenges to be addressed if the medium-term potential of the mobile sector is to be realised:

1 The first challenge is the need to reduce the affordability on mobile services, especially when considering the low income levels in many markets and especially in those segments of the population who have still to gain access to mobile;

2 The second of these is the need to improve the business case for further mobile network build outs; a particular challenge given low population densities in Africa which mean that most of the new subscriber growth will come from rural (and increasingly remote) areas;

3 The third challenge is to provide the right conditions for the uptake of mobile broadband and more advanced handsets and devices in the region.

1.4.1

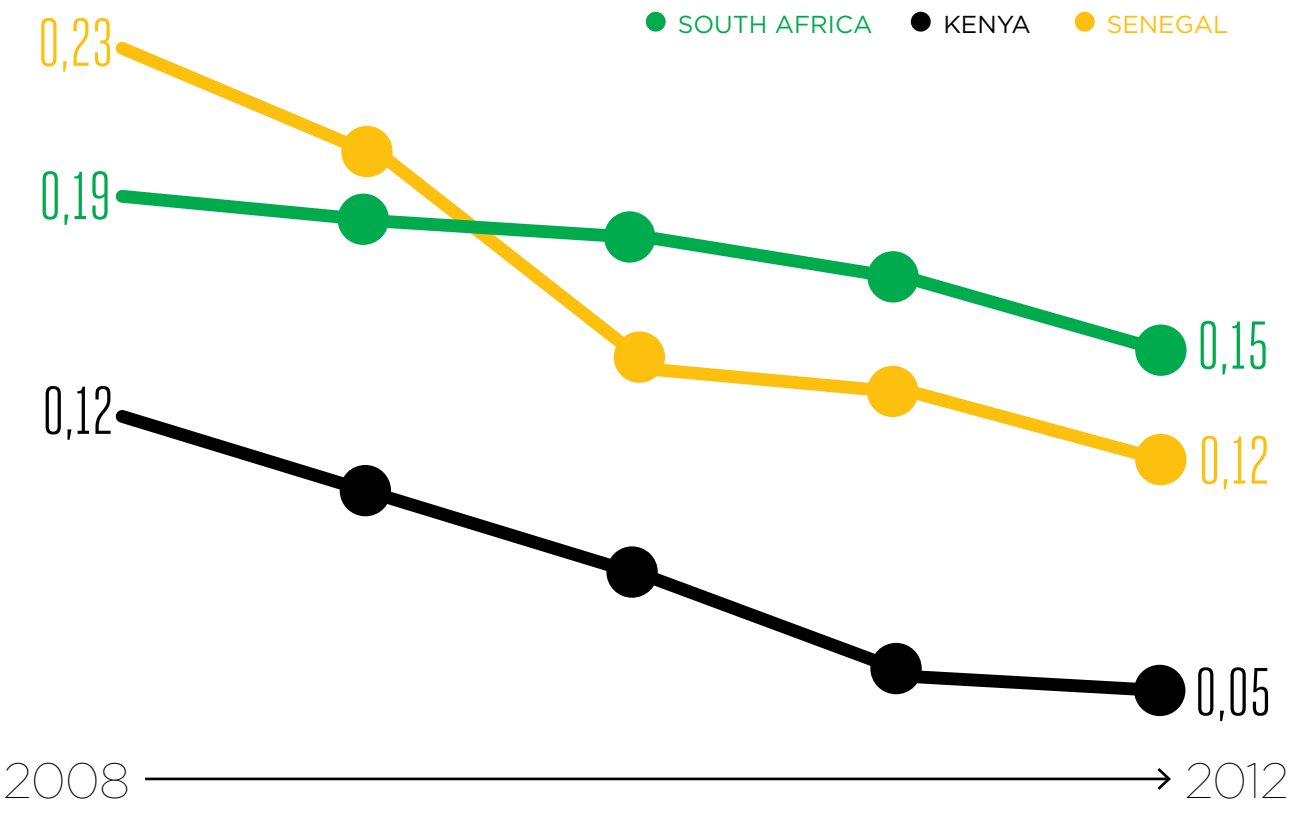
Increasing affordability of mobile services

Prices for mobile services have fallen substantially over recent years, driven by a range of factors including increasing competition in a number of markets, falling equipment prices (both in terms of handsets and for mobile networks), as well as growing scale for the operators. The mobile operators themselves have played an important role with ongoing investments to improve network coverage as well as to introduce new service offerings that can attract lower income subscribers.

Prices have fallen in Kenya by 20% per annum over the last four years and by 15% over the same period in Senegal, while declines in South Africa have been more modest. However, there are signs that prices will now fall more quickly in South Africa, with cuts to termination rates and the main operators launching a range of new tariff offerings.

EFFECTIVE REVENUE PER MINUTE (US$)

2008 - 2012



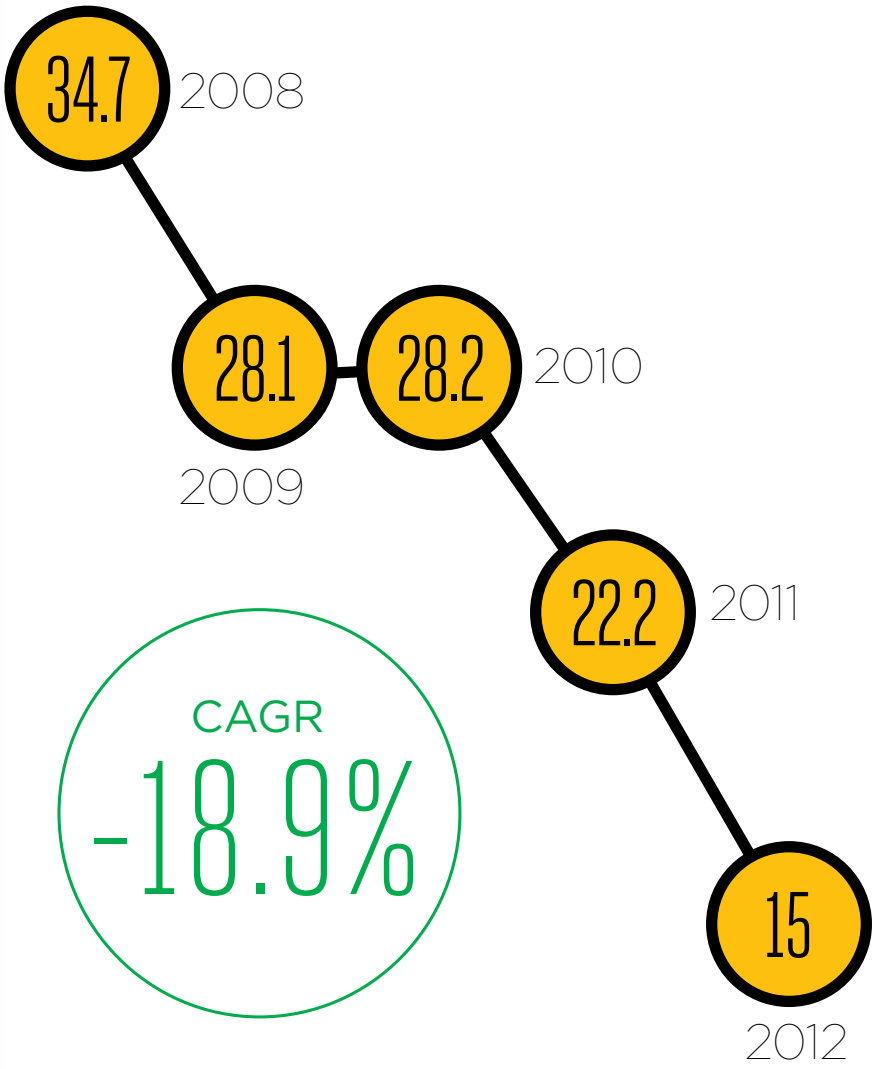
Source: GSMA Intelligence

Figure 17

Data from MTN, the largest operator in Nigeria with a 46% market share as of mid-2013, shows that its effective revenue per minute (RPM) has fallen by almost 20% per annum over the last four years. Price declines have been helped by increasing competition with several new entrants to the Nigerian market in recent years, as well as regulatory action to reduce termination rates.

MTN NIGERA EFECTIVE RPM (NGN)

2008 - 2012



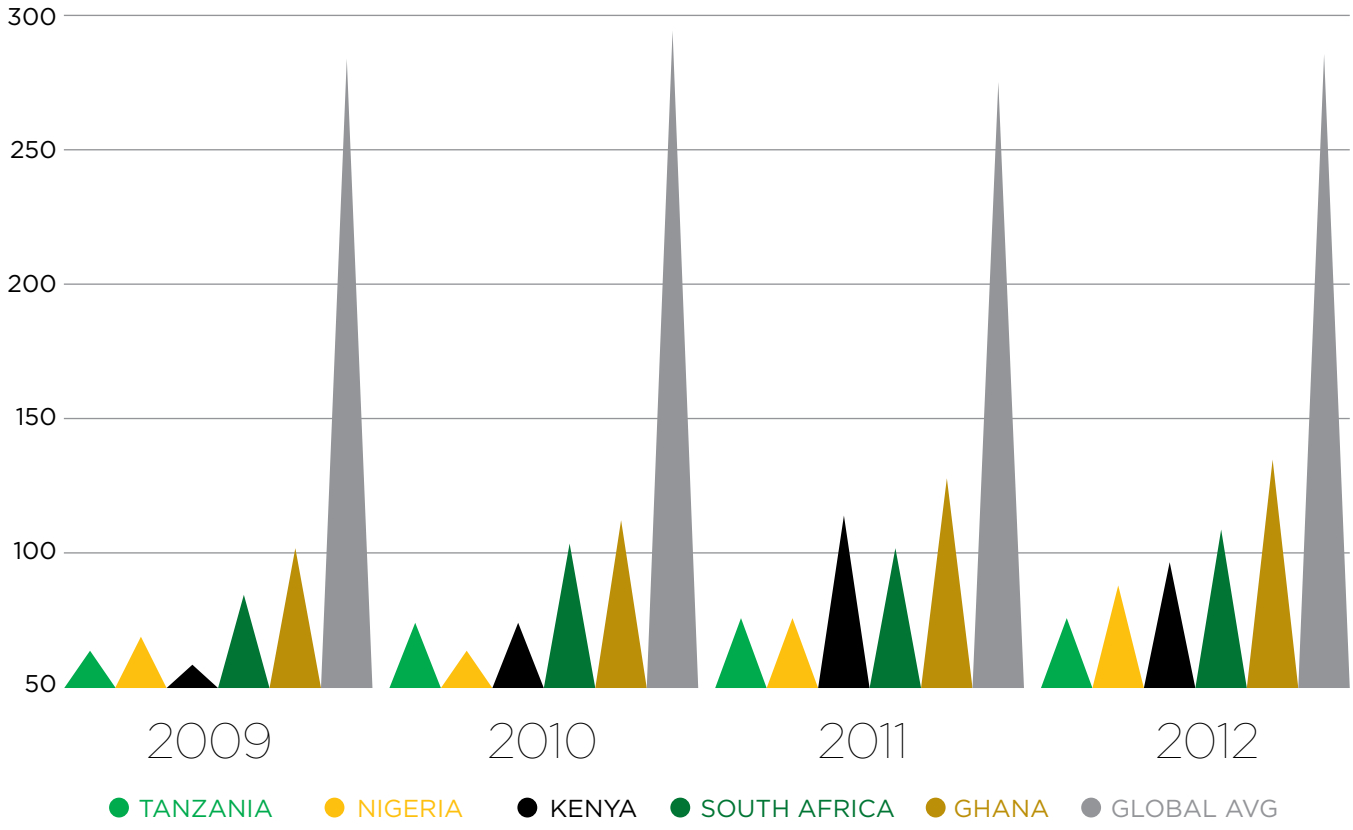
Source: GSMA Intelligence

Figure 18

Despite these price reductions, usage levels are still low by global standards. Minutes of use have increased over recent years in most markets across the region, reflecting the normal positive elasticity of demand as prices fall. However, while data in SSA is somewhat patchy, it is clear that overall usage levels trail well behind other developing markets and well below global average figures. Lower prices should drive increased usage, though operators will also need to invest to add network capacity. However, operators need both the flexibility to offer more innovative tariffs, as well as adequate cash flows to fund further investment.

MINUTES OF USE

Selected Markets, Monthly Usage



Source: GSMA Intelligence

Figure 19

Improving the affordability of services remains a key challenge for operators in their efforts to further deepen mobile penetration rates and so bring mobile services to a broader range of the population. Handset device prices continue to fall, both for feature phones as well as smartphones, which is a key factor in bringing mobile services to lower income segments.

There is an important role to play for regulators and other government agencies in further improving the affordability and reach of mobile services. Taxes on mobile devices or usage will further hinder efforts to improve the affordability of mobile services across SSA. For example, voice retail prices are regulated in the DRC (there is a floor price for on-net tariffs) and promotions are not permitted, which according to local operator Millicom is "limiting the competitiveness of operators in the [customer] acquisition process" and hampering their efforts to manage price elasticity.

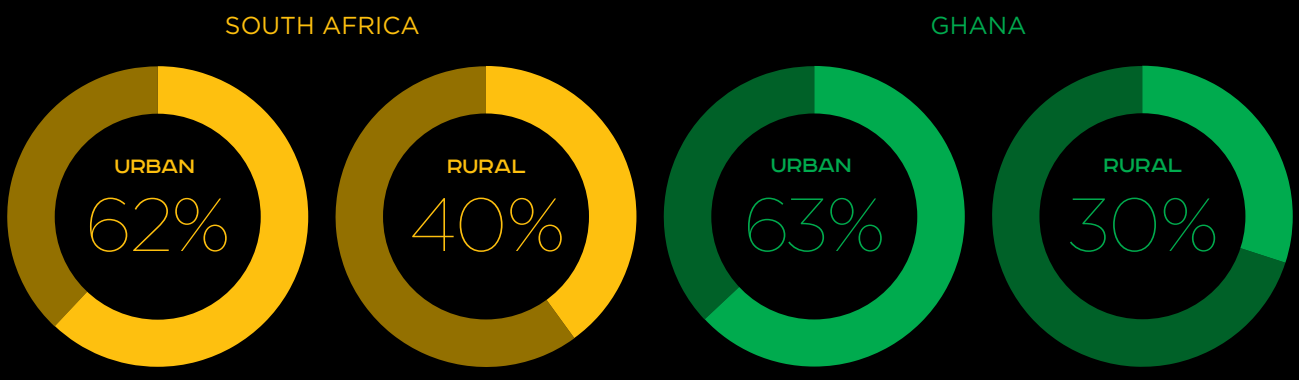
1.4.2

Increasing coverage in rural and remote areas

The second key challenge to realising the growth potential of mobile in SSA lies in improving network coverage, especially in more remote and rural parts of the region. Future subscriber growth will increasingly come from rural areas, where network coverage is typically poor or indeed often non-existent.

For example, Vodacom noted at the end of 2012 that future growth in Tanzania will come from rural areas that currently have low connection penetration rates (25% compared to 80% in urban areas). The company stated that "clearly the growth will start with voice and text messages before the rural areas become matured enough to migrate to the internet and high speed broadband".

ACTIVE SUBSCRIBER PENETRATION

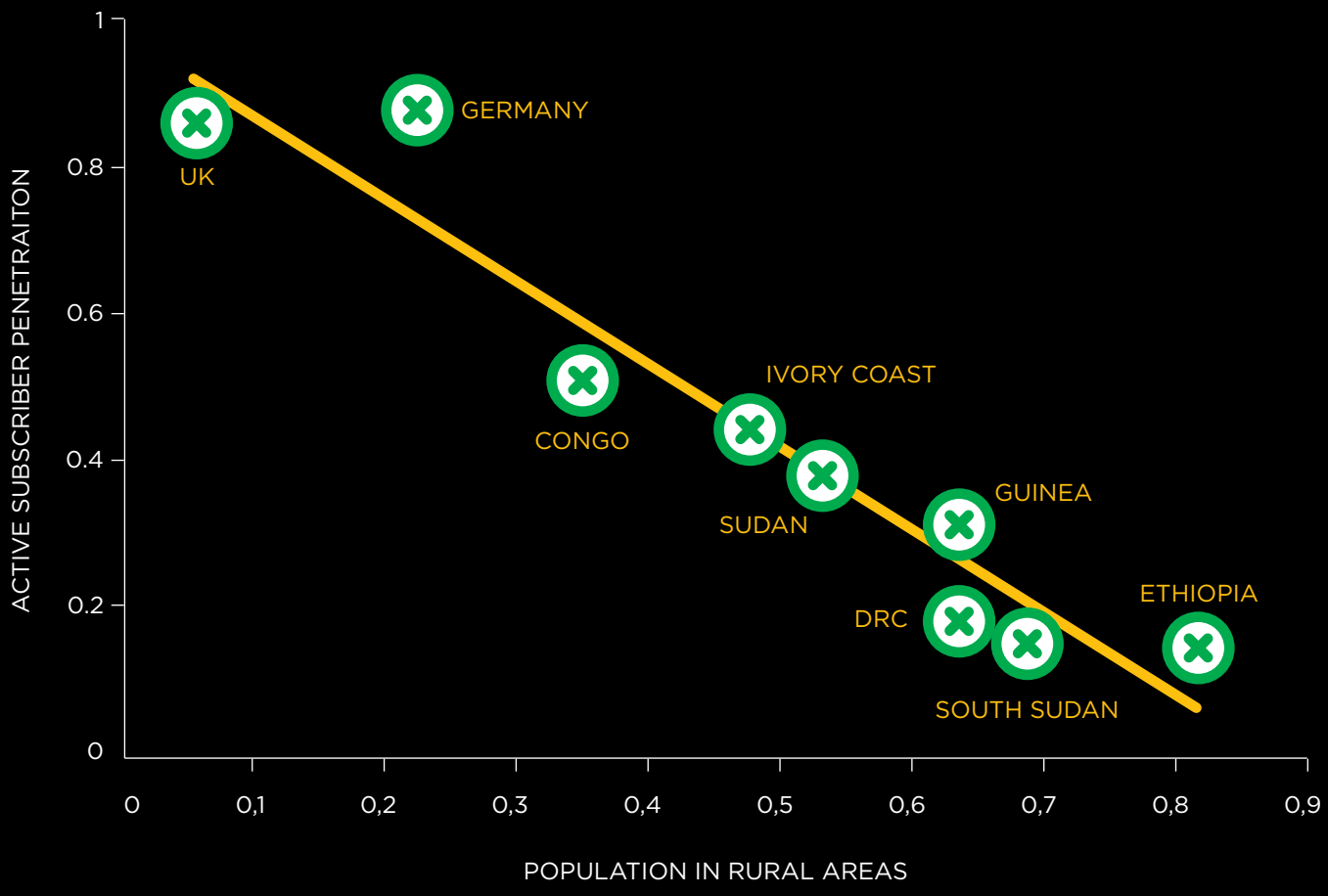


GSMA Intelligence analysis; AMPS; Ghana Statistical service

Figure 20

The lack of electricity infrastructure and low road density has negatively affected network coverage expansion in several African countries, with minimal levels of urbanisation corresponding directly to low subscriber penetration figures (see the figure 21). In the case of the DRC, Millicom stated that "the cost of doing business is high due to inaccessibility of other regions by road" which according to the operator explains why "consumer prices are very high" and are therefore putting increasing "pressure on share of wallet for mobile services"[13].

MOBILE ADOPTION VS RURAL POPULATION



Source: GSMA Intelligence

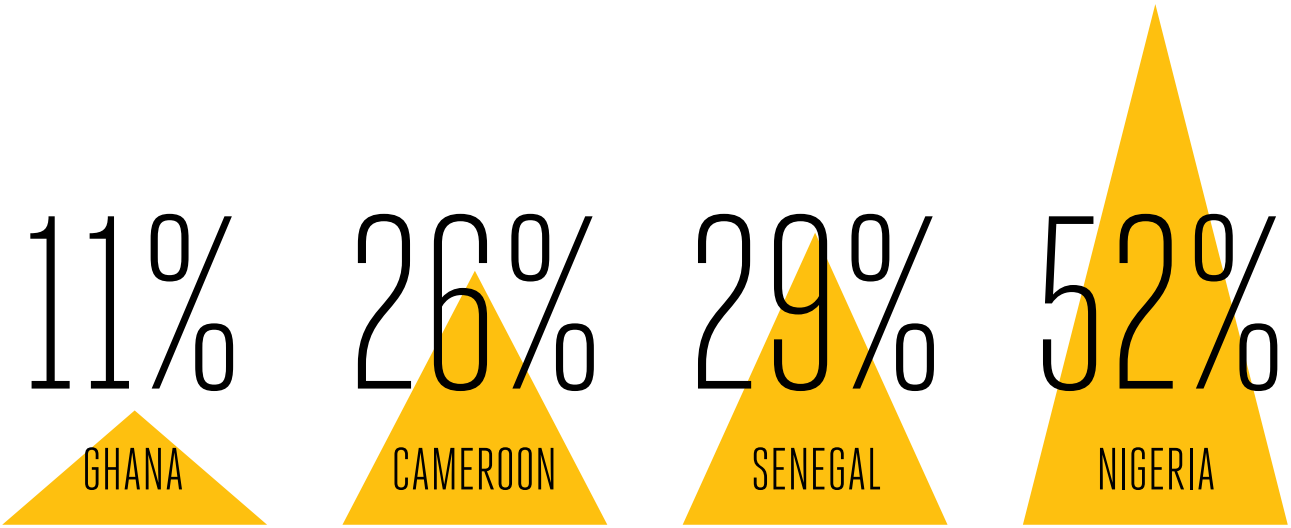
Figure 21

13 https://mobiledevelopmentintelligence.com/insight#!Targeting_100M_mobile_users_across_the_Congolese_and_Sudanese_markets

A recent study by GSMA Intelligence of several markets in East Africa found that average population coverage rates in 2012 averaged 75%, or close to 50% coverage in terms of the geographic land area[14]. Nearly 96% of the uncovered population is rural, which brings particular economic and geographic challenges in bringing mobile services to this segment of the population. A particular challenge is the limited coverage of the commercial electricity grid, with nearly a quarter of the total of 13 thousand base stations across the three countries "off grid".

OFF GRID SITES

(% of total sites)



Source: Green Power for Mobile

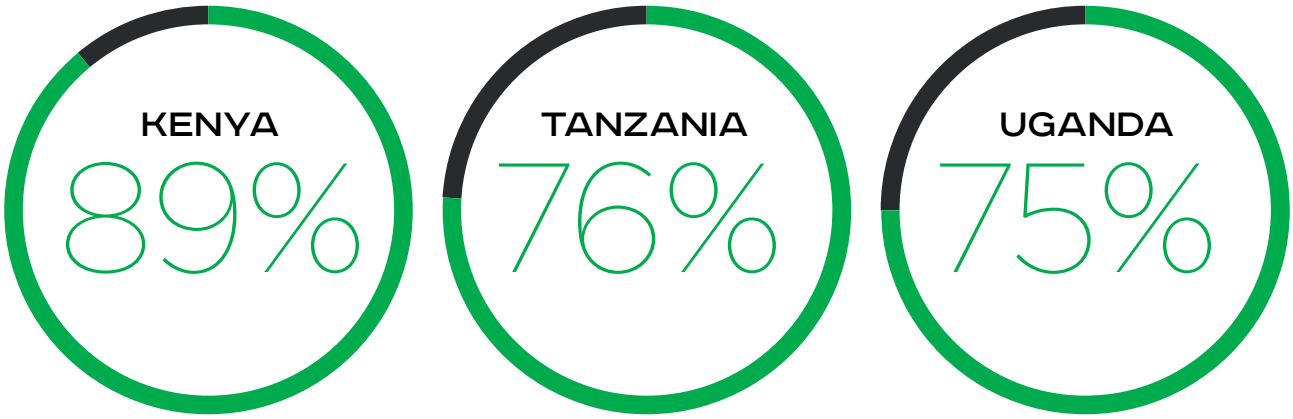
Figure 22

An increasing proportion of incremental network coverage is likely to involve off grid base stations, opening the potential for a range of alternative solutions including solar power (although these account for only 5% of the off grid sites at the end of 2012) and other "green" solutions including wind, water, biomass and fuel cells. Research by Green Power for Mobile (GPM) estimates that mobile operators across four countries (Ghana, Cameroon, Senegal and Nigeria) could realise total operating cost savings of over US$ 200 million per annum. This would come from a reduction in diesel consumption of over 70% from current levels by deploying green alternatives at a number of existing off grid sites[15].

14. http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/10/GPM-Market-Analysis-East-Africa-v3.pdf
15. http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/07/GPM-Bi-annual-Report_July13.pdf

MOBILE NETWORK COVERAGE (POPULATION)

2012



Source: GSMA Intelligence

Figure 23

An additional challenge for improving coverage in a number of countries is their sheer geographic scale. For example, Niger, the DRC and Ethiopia have both low levels of GDP per capita, low subscriber penetration rates and amongst the largest geographic areas in the SSA region. Airtel commented in a recent piece of research by GSMA Intelligence that "the vast geographic landscape of Sudan makes it difficult for operating companies to roll-out mobile networks across the entire territory".

Commercially driven network sharing deals are an increasing feature of the mobile landscape in SSA. A number of operators are sharing passive elements of their networks, with several independent tower companies offering their services to operators across SSA. These deals can reduce both capital expenditure ("capex") and operating costs for the operators.

There are several tower companies operating across SSA, including the likes of Helios, Eaton, and ATC. A number of operators have chosen to sell network elements to tower companies over recent years, which reflects the challenge of earning a reasonable return on investment in an environment where ARPUs and income levels are typically low. TowerXchange forecasts that tower companies will own or manage almost a third of the mobile towers in Africa by the end of 2014.[16]

16. http://www.towerxchange.com/category/research/

1.4.3

Realising the potential of mobile broadband

The lack of fixed line infrastructure in SSA means that mobile will play a crucial role in bringing internet access to the broader population in the region, whether access is by mobile handsets, tablets and similar devices, or the use of broadband dongles to allow access via traditional PCs. In addition, the role of 2G networks and feature phones should not be overlooked, as issues around both smartphone affordability and network coverage mean that many users are accessing the internet on these devices and over lower speed networks.

However, SSA is only at the first stages of mobile broadband adoption, meaning that the full range of economic and social benefits that this can bring to the region have yet to be fully realised. The introduction of mobile broadband networks is expected to positively impact the country's socio-economic development. According to a Deloitte/GSMA study[17], for a given level of total mobile penetration, a 10% substitution from 2G to 3G penetration increases GDP per capita growth by 0.15%. In addition, the World Bank estimates that mobile broadband has a higher positive economic impact than fixed-line broadband, particularly in emerging markets.

The challenges for both policy makers and the mobile operators in increasing the uptake of mobile broadband vary across the region. This is mainly due to the diversity, with countries having very different income levels and being at different stages of adoption of the more advanced mobile services. In more developed economies such as South Africa, there is a pressing need for the release of lower frequency spectrum for LTE, to allow the operators to improve both coverage and quality of service in a cost effective manner.

Conversely, in the many low ARPU (and typically low income) markets of the region, regulators need to ensure that mobile operators' spending on both spectrum acquisition and network deployments is aligned with potential return on investment. As has been previously noted in other markets – from Europe to India - mobile retail prices will climb in the face of unrealistically high spectrum prices and high taxation, slowing the pace of mobile adoption[18]. This is particularly true when it comes to mobile broadband services, where the cost of deployment for operators and of devices/ usage for users is generally higher than for more basic services.

A key issue is the release of lower frequency spectrum (sub-1GHz) for mobile broadband networks, as this spectrum allows more cost effective deployments. As the digital switchover is a long and complex process, it is important that governments take a leadership role to facilitate dialogue between all stakeholders including broadcasters, the mobile industry, set-top box manufacturers and consumers. The adoption of harmonised band plans for this spectrum will also be critical to achieving economies of scale, which, in turn, reduces handset costs and limits interference, enabling more consumers to harness the numerous social and economic benefits of mobile broadband.

17. http://www.gsma.com/publicpolicy/wp-content/uploads/2012/11/gsma-deloitte-impact-mobile-telephony-economic-growth.pdf
18. https://gsmaintelligence.com/analysis/2013/07/bangladesh-asias-untapped-mobile-broadband-opportunity/394/

1.5

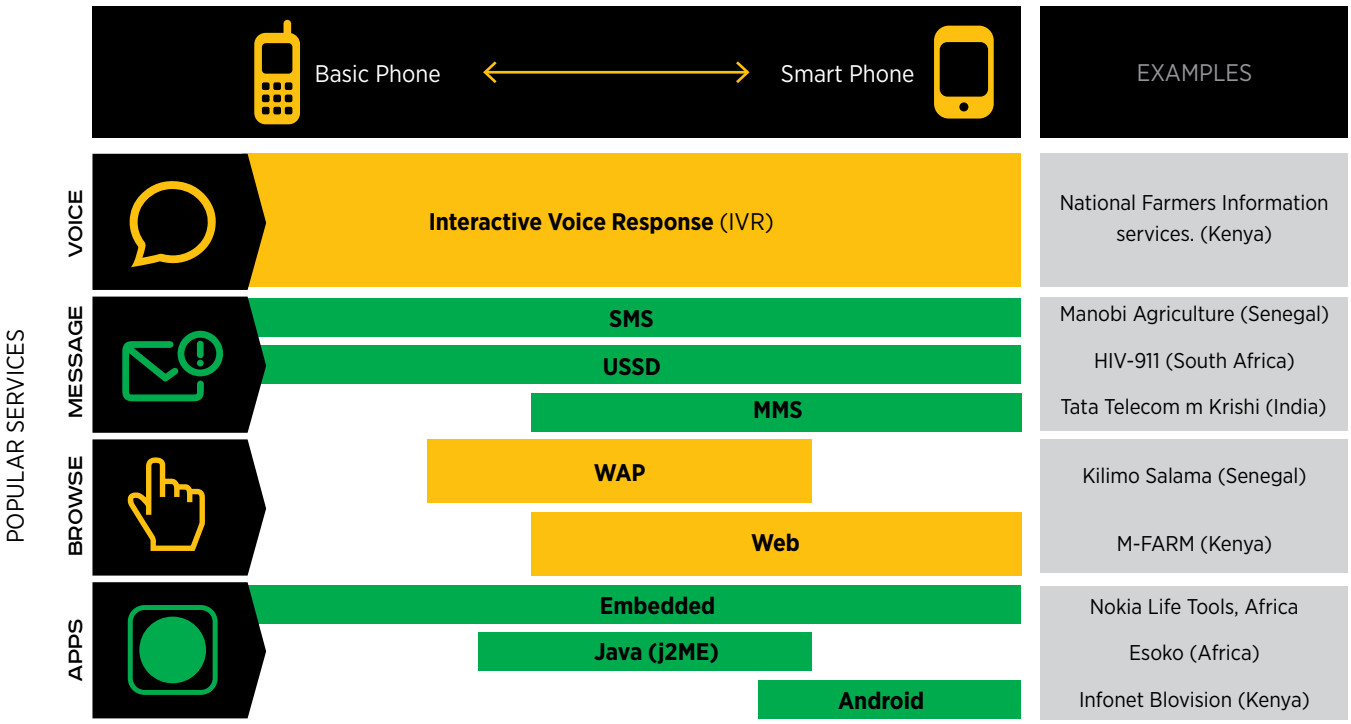
Role of 2G and feature phones key in SSA

While issues around the availability of spectrum for LTE networks and mobile broadband services are important in some of the more developed markets in the region, for a majority of markets in SSA the key focus is on more traditional services based on 2G networks and feature phones. A recent report by GSMA Intelligence highlighted that in many developed markets 2G networks are likely to play a dominant role in the longer term[19].

In many counties in SSA the slow adoption of mobile broadband services means that subscribers will rely on 2G data capabilities (EDGE and GPRS) to access mobile data services. Issues such as low income levels and illiteracy will continue to dampen the ability of consumers to access advanced devices and mobile broadband services. Low income levels also mean that the current dominance of the prepaid model (which largely prevents the handset subsidy model common in more developed markets and which plays an important role in improving the affordability of more advanced devices) is likely to continue.

While smartphone sales are rising rapidly, the majority of users in SSA still own a basic or feature phone and this will remain the case for some time. SSA's population has one of the lowest literacy levels of any region (38% lack basic literacy and numeracy skills[20]), limiting the reach of text based services. However, innovative services have been launched across a wide range of technologies - allowing all kinds of users in SSA to access valuable information and communication in a relevant way.

SERVICE INNOVATION ACROSS A RANGE OF ACCESS TECHNOLOGIES



Source: GSMA Intelligence

Figure 24

19. https://gsmaintelligence.com/files/analysis-subscription/?file=130726-future-of-2g.pdf
20. http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/GMR/pdf/gmr2010/gmr2010-fs-ssa.pdf

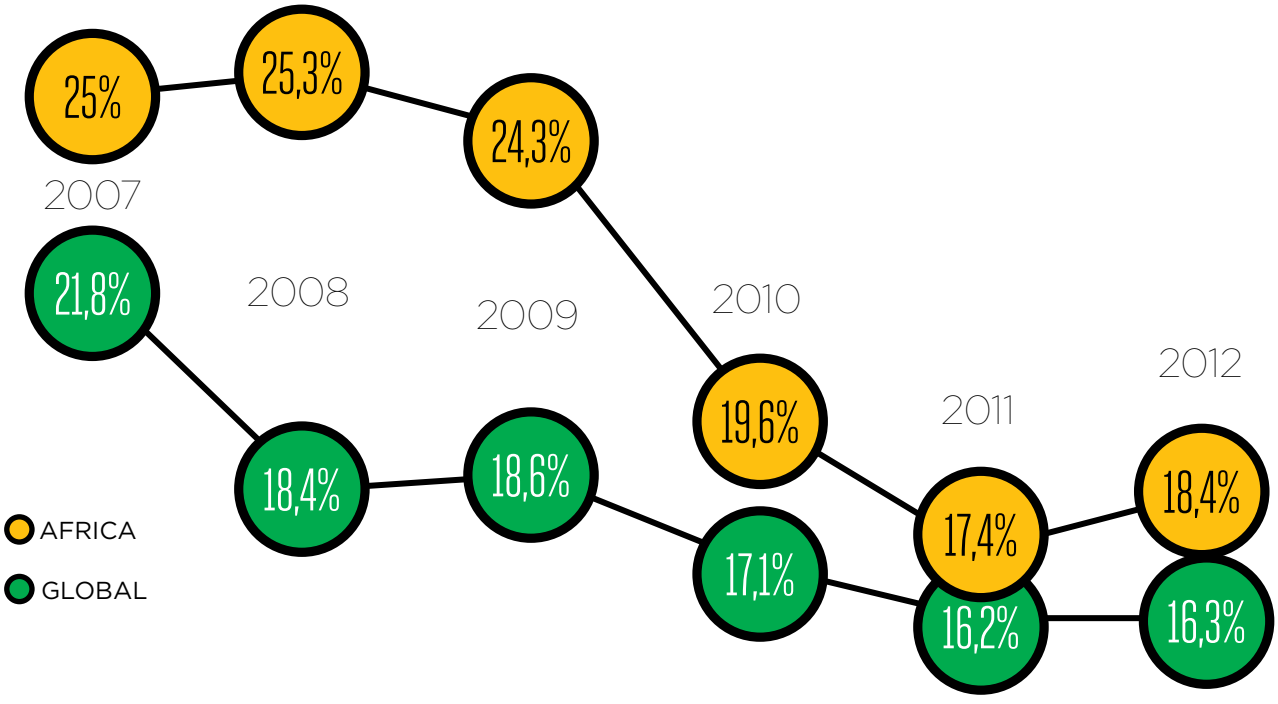
1.6

Encouraging investment

Investment levels by mobile operators in SSA (defined as capex/ sales) have been running ahead of the global average figure over recent years, reflecting both the need to accommodate strong subscriber growth as well as the particular challenges of improving coverage in a number of countries in the region with low population densities.

While there is a lack of firm data on capex levels for a number of countries in SSA, using data available for Africa as a whole would suggest that total investment over the past six years in SSA has been around US$ 44 billion (note that this estimate excludes investment in fibre or international cable links). Going forward, capex levels are likely to be even higher, as operators look to extend coverage into more remote areas, as well as to build out new LTE networks.

CAPEX / SALES



Source: GSMA Intelligence
Note: capex/ sales figures are for Africa as a whole, and the data for the region is not complete

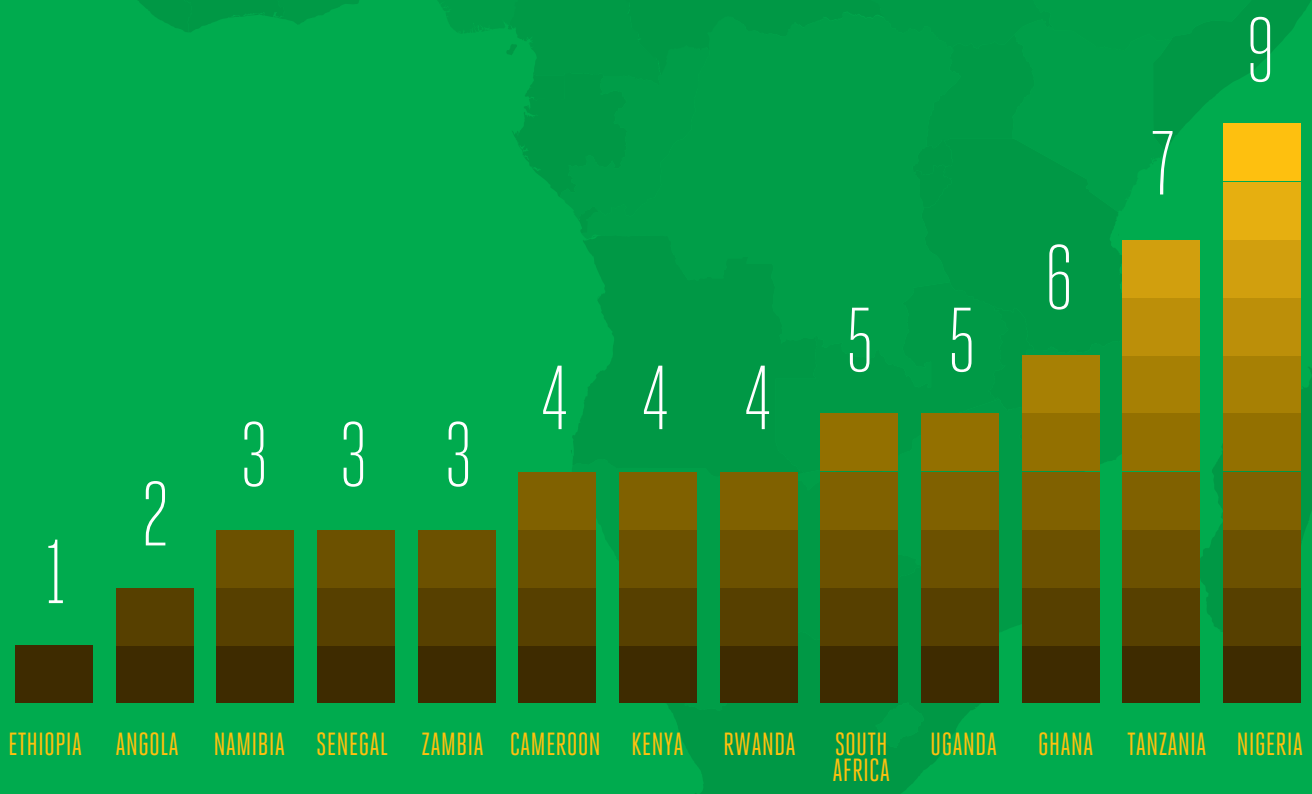
Figure 25

1.6.1

Moving to sustainable market structures

While competition can play an important role in reducing prices and improving services for end customers, operators also need to generate both a return on their existing investments and sufficient cash flow to invest in future network deployments. There have been a number of new entrants in many markets in SSA in recent years. As a result, several markets in SSA have five or more operators, with Nigeria having as many as nine. This compares with an average figure of around four in Latin America and Europe.

NUMBER OF MNOS BY COUNTRY



Source: GSMA Intelligence

Figure 26

There is limited data available on EBITDA margins for operators across the region. However, competition in markets such as Nigeria has already had a significant impact on top line growth rates, and it remains to be seen whether current margin levels will prove sustainable. In the future we would expect to see consolidation in markets with a large number of operators. It is important that regulatory authorities allow such moves in a timely manner in order to allow a sustainable industry structure to emerge.

Scale economies play an important role in the economics of mobile operators, and subscriber numbers are a key driver of scale. While there are a number of large operators with a presence across a number of markets in the SSA region, as well as several operators with more global presence, many scale economies can only be realised at a country level. Overly fragmented markets with a large number of players can be damaging both to the long-term profitability and the investment levels of mobile operators.

There is a clear warning for policy makers across SSA in the diverging fortunes between the mobile industries in Europe and the US. Too great a focus on promoting competition and lower consumer prices can have a detrimental impact on medium-term investment levels, which can slow the adoption of new technologies and the development of new applications and services, which in turn means the positive economic and social benefits of the mobile industry may not be fully realised.

More sustainable market structures will also need at some point to see consolidation amongst the mobile operators, especially in those markets which currently have the highest number of operators. There has been one consolidation deal in Uganda, where Bharti Airtel recently received approval for its acquisition of Warid Telecom Uganda. This deal was approved relatively quickly by the national regulator, in a market that had seen significant price competition in recent years. However, regulators and competition authorities will need to take a flexible and proactive approach to future consolidation deals if the mobile industry in the region is to be placed on a sustainable footing and the potential of the industry is to be fully realised.

US$ 44 BILLION

TOTAL INVESTMENT OVER THE PAST SIX YEARS IN SSA HAS BEEN AROUND US$ 44 BILLION

2

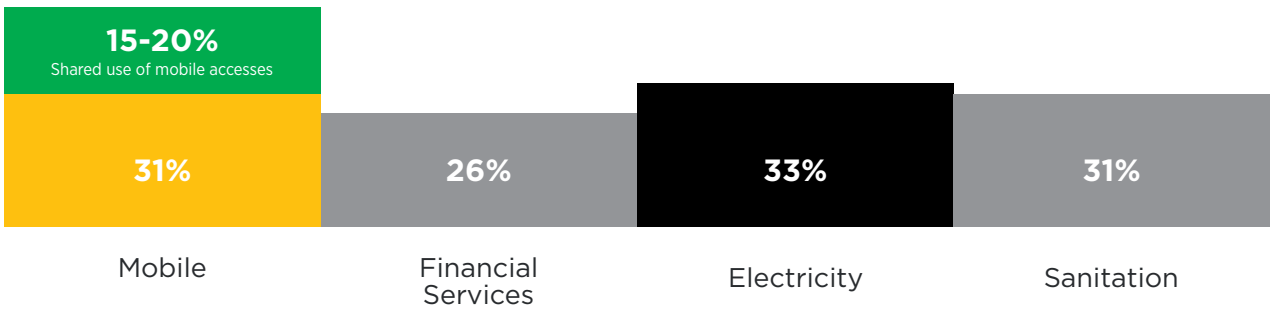
Role of mobile in socio-economic development

2.1

Mobile services already address social challenges across SSA

While mobile connectivity has transformed daily life across the globe, mobile is playing a particularly strong role in socio-economic development in Sub-Saharan Africa. The region has high levels of mobile access compared to other basic services, such as electricity, sanitation and financial services. The GSMA Mobile Enabled Community Services programme estimates that in Nigeria there are 56 million people living without access to electricity, and 38 million without access to clean water, but most do have access to mobile services. The relatively high (and increasing) availability of mobile services highlights the potential that mobile connectivity has in bringing enormous social and economic benefits to the region.

ACCESS TO BASIC SERVICES IN SUB-SAHARAN AFRICA



Source:GSMA Intelligence, IEA, World Bank, MDI Analysis

Figure 27

Close to one in three people across SSA already have a mobile subscription and access rates to mobile services are even higher if one considers the household effect where a single phone may act as a shared device. As a result mobile services can play a unique role in addressing social, economic and environmental issues across SSA, particularly for those populations at the base of the economic pyramid (BoP).

Close to one in three people across SSA already have a mobile subscription

The simple increase in access to information at a faster pace, from new sources, will influence everything. Affordable mobile phones and the opportunities they usher in for the poor is already becoming one of the most dramatic game-changing technologies the world has ever seen. Mobile can deliver cost effective solutions to address a range of social challenges in areas such as access to basic healthcare and education; a particular challenge in a region where there is limited funding available for government services and with a large proportion of the population living in rural areas.

Countries across SSA face multiple social and environmental challenges today. Those that have large rural populations in particular face difficulties providing access to basic infrastructure and services such as electricity, education, healthcare and banking. Urbanisation rates across SSA are relatively low in global terms, though urban growth has translated into an increasing number of people living in informal settlements, increasing poverty and inequality[21]. Most SSA cities are characterized by insufficient basic infrastructure, particularly in low-income areas, where mobile services could provide cost effective solutions and provide the basis for more sustainable urban growth

Mobile is already making a positive contribution in addressing many of these issues, as we explore in this section of the report. With the right regulatory and policy environment, there is the potential for mobile to play an ever more transformational role in the future and to address a broader range of issues than is currently the case.

Women though are at risk of falling behind as these new services are developed. The most recent data on the gender gap for mobile phone ownership suggests women are 23% less likely than men to own a mobile phone in Africa[22]. Women are critical to realising the potential socio-economic benefits in the areas of health, education and agriculture, and have the most to gain in terms of financial inclusion via mobile financial services. As a result, closing the mobile and mobile internet gender gap, especially amongst low-income women, is a key consideration for operators and policy makers to realise the potential contribution of mobile services.

21. http://www.afdb.org/en/blogs/afdb-championing-inclusive-growth-across-africa/post/urbanization-in-africa-10143/
22. GSMA and The Cherie Blair Foundation for Women. Women and Mobile: A Global Opportunity

2.2

Economic contribution of the mobile industry

Mobile already makes a significant contribution to economic growth and job creation in SSA, and has been a key enabler of SSA's emergence as a fast growing region. The economic contribution from the mobile industry has increased substantially in recent years, driven by rising penetration rates and investment by the mobile operators. The emerging trend towards smartphones and other more advanced devices, combined with increasing mobile broadband coverage, have had an additional impact on the economy of the region. Analysis from BCG shows that in 2012 the mobile operators themselves contributed 2.8% of the GDP in SSA; while the broader ecosystem (which includes equipment suppliers, handset distributors and local content suppliers) generated a further 0.9% of GDP.

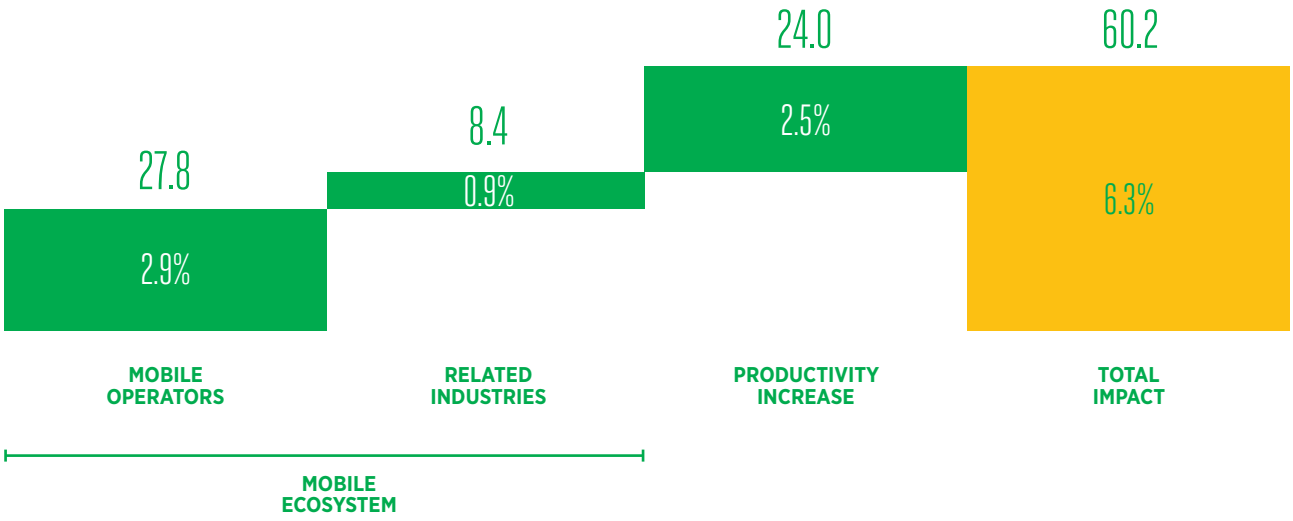
In addition, the use of mobile services brings productivity benefits to the broader economy, particularly to so called "high mobility workers" (which account for around 10% of the workforce across SSA[23]). The analysis assumed an average 8% productivity uplift, which appears a relatively conservative estimate based on recent studies[24]. Finally, there is an assumed 10% productivity uplift for small-holding based agricultural and fisheries activities, where mobile services can bring benefits such as access to pricing information, online marketplace and information to optimise production (some examples of such services were highlighted later in this report).

The overall impact of these productivity increases is to add a further 2.5% to GDP in SSA, bringing the total contribution that mobile generates to 6.3% of total GDP. The contribution of mobile to an economy tends to be highest in developing economies with low income levels and where the formal economy is relatively underdeveloped. The contribution of mobile in SSA is in fact higher than any other region across the globe, with the comparable figures for other regions ranging from 1.4% in Asia-Pacific to 3.7% in Latin America.

23. Formal workforce
24. IDC "Worldwide mobile worker population 2011-15 forecast"

TOTAL GDP IMPACT FROM MOBILE IN SSA

(US$ B)



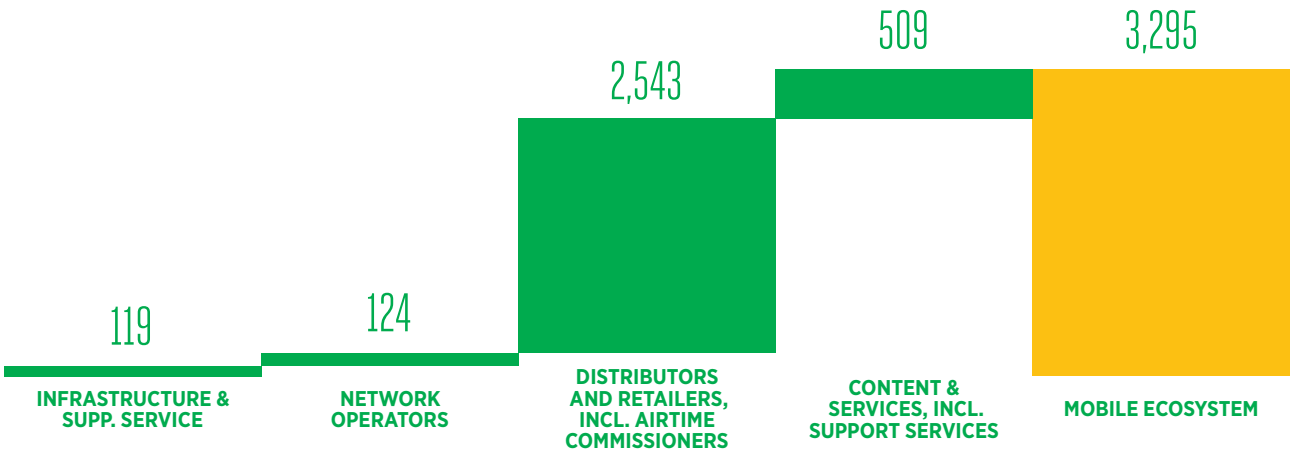
Source: Deloitte/GSMA: "Mobile telephony and taxation in Kenya"; GSMA Intelligence; Annual Reports; EIU; GSMA; BCG analysis

Figure 28

Mobile also makes an important contribution to employment in SSA, with the broader mobile ecosystem contributing around 3.3 million jobs in 2012. The largest portions of these come from the distributors and retailers, with another large contribution from content and services.

JOB CONTRIBUTION FROM MOBILE ECOSYSTEM

[Thousand]

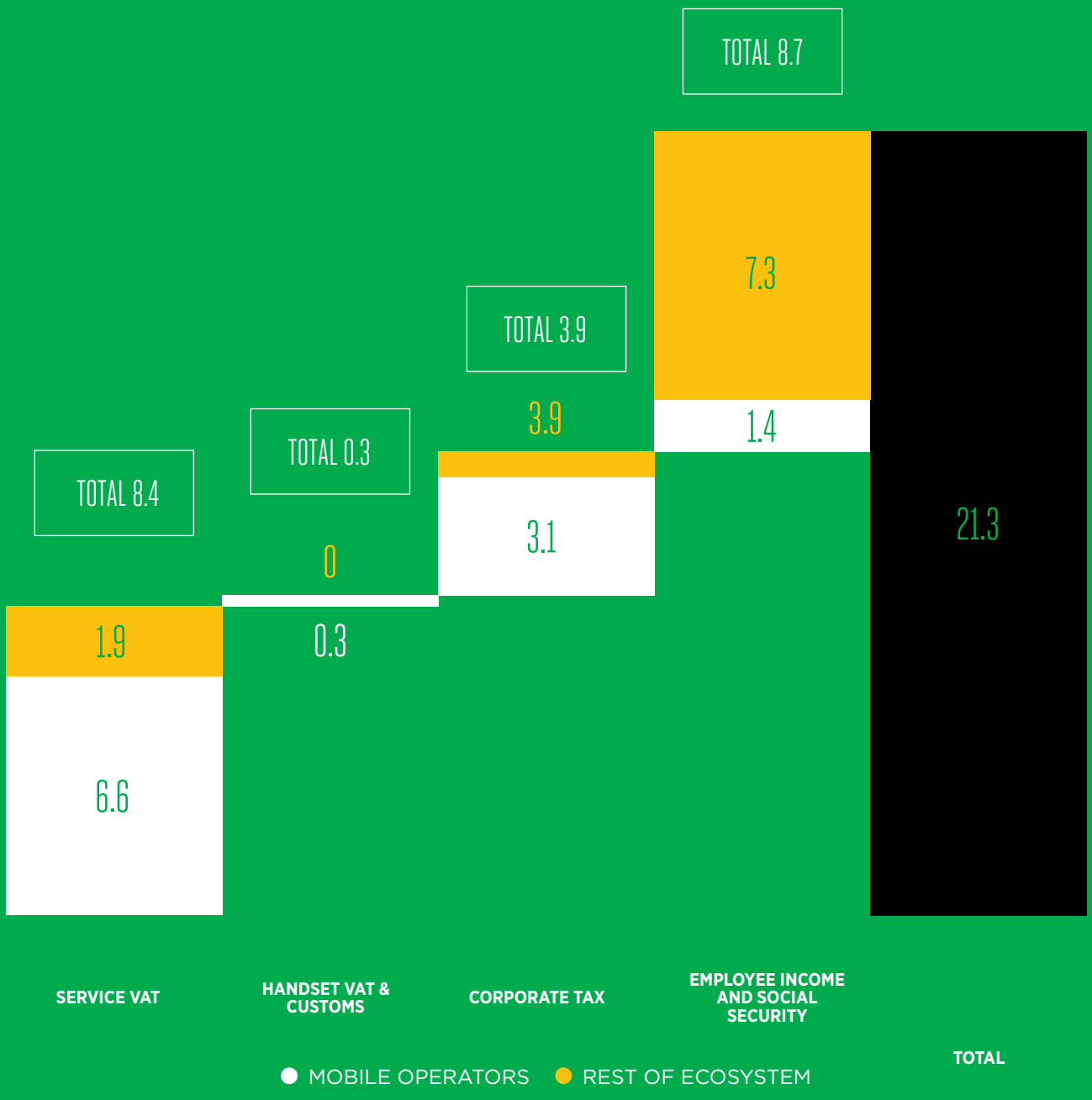


Source: Deloitte/GSMA: "Mobile telephony and taxation in Kenya"; GSMA Intelligence; Annual Reports; EIU; GSMA; BCG analysis

Figure 29

Finally, the mobile ecosystem makes a significant contribution to public funding in SSA. In 2012 the contribution was over US$ 21 billion, which includes taxes paid in terms of VAT, corporate and income tax, as well as the contribution from regulatory fees.

PUBLIC FUNDING CONTRIBUTION FROM MOBILE OPERATORS 2012 [US$ B]



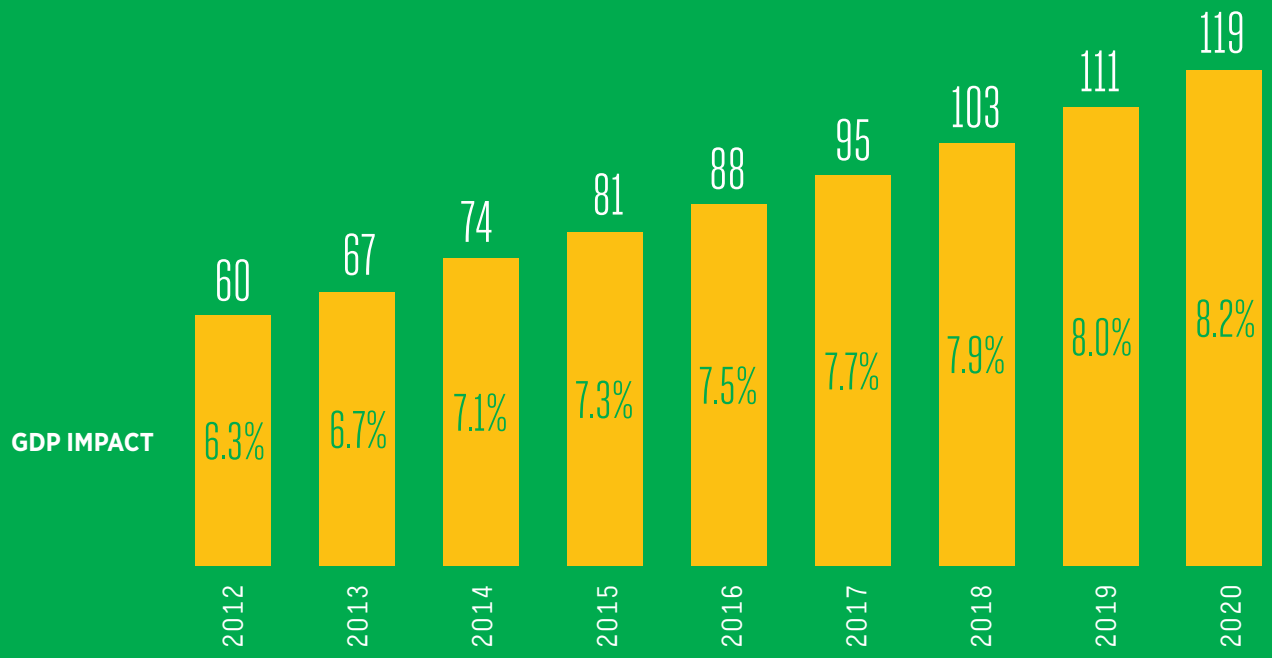
Source: GSMA Intelligence; Ovum; EIU; BCG Analysis

Figure 30

The mobile industry will make an even greater contribution to economic growth across SSA in the future. This reflects both rising penetration rates, as well as the accelerating migration to more advanced services (3G and 4G). Higher connection speeds allow for a richer range of services and applications. The forecasts show that the GDP contribution of the mobile ecosystem will increase to 8.2% by 2020.

MOBILE CONTRIBUTION BY 2020

(US$ B)

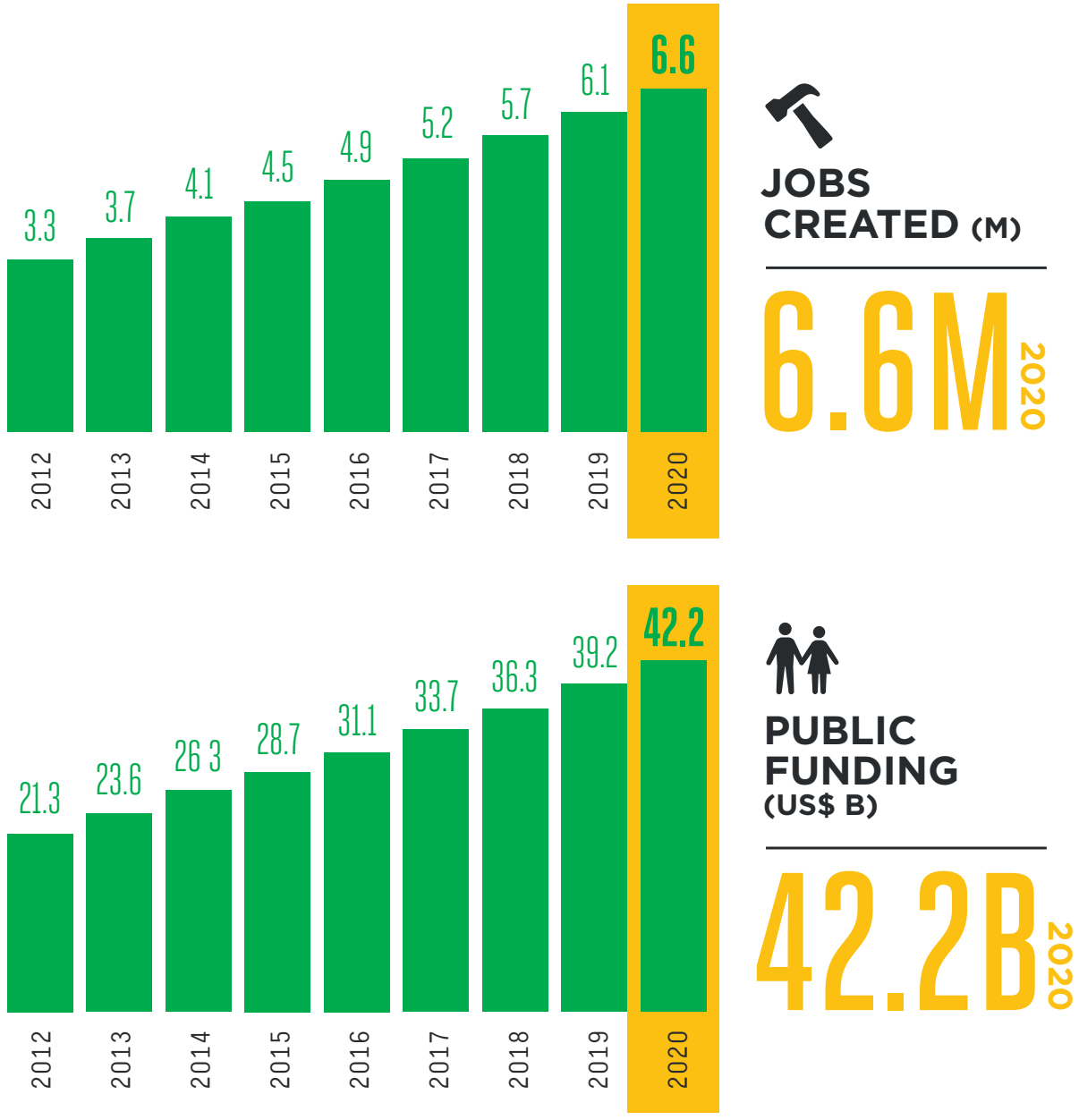


Source: GSMA Intelligence; Ovum; EIU; BCG analysis

Figure 31

Rising penetration rates and the increasing number of higher speed mobile broadband subscribers will also drive an increased contribution from the mobile industry to public funding and job creation in SSA. By 2020 the public funding from mobile is expected to exceed US$ 42 billion, with the number of jobs supported forecast to reach 6.6 million. Both these figures represent a near doubling of the figure for 2012.

PUBLIC FUNDING AND JOBS CREATED BY 2020



Source: GSMA Intelligence; GSMA; Ovum; EIU; BCG analysis

Figure 32

2.2.1

Digital Dividend spectrum can drive substantial further economic benefits

The Digital Dividend band refers to spectrum in the 700 MHz and 800 MHz bands. This lower frequency spectrum is ideal for covering rural areas or those with lower population densities, as well as offering better in-building coverage. As a result, using the Digital Dividend bands, particularly for deploying higher speed networks such as LTE, has important cost and environmental implications for both operators and consumers alike. Deployments require a reduced number of base stations, meaning faster and more cost effective roll outs, as well as lower running costs in the medium term.

Analysis from BCG shows that allocating Digital Dividend spectrum to mobile broadband would generate a GDP increase in SSA of US$ 49 billion from 2015 to 2020 (equivalent to 5.9% of 2012 GDP), while generating a further US$ 15 billion of tax revenues. In terms of new businesses and jobs created, allocating this spectrum to mobile broadband is estimated to result in 264,000 new businesses and 506,000 new jobs in the mobile ecosystem by 2020.

Delaying decisions to allocate spectrum to mobile may have a significant negative effect on the estimated benefits of mobile broadband. A 2-year delay (until 2017), could result in a loss of US$ 23 billion in GDP, along with US$ 8 billion reduction in future tax income. The same delay could reduce the number of new businesses by 126,000, and 249,000 fewer jobs would be created in the mobile ecosystem.

DIGITAL SWITCHOVER

The ITU's global digital migration deadline of June 2015 is fast-approaching. If countries successfully complete the switchover process and allow for a phased roll out of mobile networks in the Digital Dividend bands, the socio-economic benefits of this accomplishment will be immense.

GDP

US$ 49B

Extra in GDP over 2015-2020

Impact of delaying this release of spectrum by 2 years (2017) amounts to

US$23B

loss in GDP

Employment

506K

Additional jobs by 2020

Impact of delaying this release of spectrum by 2 years (2017) amounts to

249k

less jobs

New Business

264K

New businesses created by 2020

Impact of delaying this release of spectrum by 2 years (2017) amounts to

126k

less new businesses

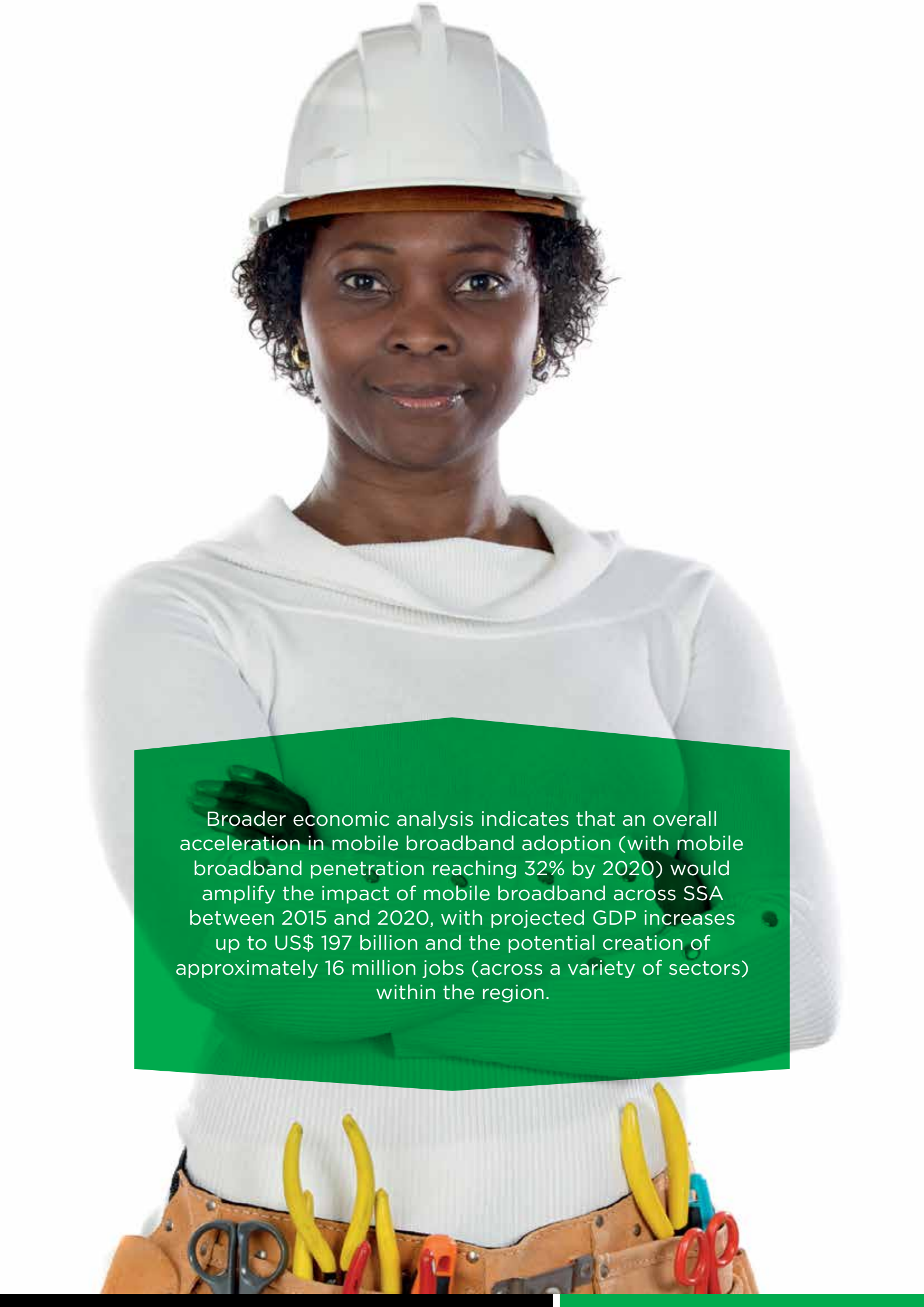
Government Funding

US$ 15B

Impact of delaying this release of spectrum by 2 years (2017) amounts to

US$ 8B

less in tax revenue



Broader economic analysis indicates that an overall acceleration in mobile broadband adoption (with mobile broadband penetration reaching 32% by 2020) would amplify the impact of mobile broadband across SSA between 2015 and 2020, with projected GDP increases up to US$ 197 billion and the potential creation of approximately 16 million jobs (across a variety of sectors) within the region.

2.3

Mobile as an innovation enabler

The mobile industry has played a crucial role as an enabling platform for innovation across SSA. Mobile operators provide unique opportunities to reach new customers (through mobile connectivity and operators' trusted distribution networks) and to monetise products and services (through mobile payments, especially mobile money accounts). The industry has enabled the emergence of a number of "innovation hubs" across the region, with increasingly active communities of start-ups, hubs, incubators and accelerators, investors and business angels, academic institutions and government ministries. Mobile operators are increasingly aware of the benefits of generating a larger ecosystem (e.g. Orange's Technocentre in Cote d'Ivoire, Safaricom's AppWiz Challenge in Kenya) and are partnering with B2B and B2C businesses that bring both innovative services and sustainable business models.

INNOVATION HUBS ACROSS SSA

Northern Africa	Western Africa	Eastern Africa	Southern Africa
WikiStartp.tn	JokkoLabs.net	IceAddis.com	mLab.co.za
Flat6Labs.com	iLabLiberia.org	iHub.co.ke	Google.co.za/Umbono
PlugAndPlayEgypt.com	MobileWebGhana.org	HiveColab.org	BongoHive.com
Tahrir2.com	mFriday.org	TheHubKampala.com	i-Hub.mg
	CCHubNigeria.com	kLab.rw	
	WennovationHub.com	Teknohama.or.tz	
	ActivSpaces.com		

Senegal	**Tunisia**	**Egypt**	**Ethiopia**	**Kenya**
DAKAR jokkolabs	TUNIS wiki start up	GIZA Flat6Labs CAIRO PlugAndPlayEgypt.com ALEXANDRIA Tahrir2	ADDIS ABEBA Iceaddis	NAIROBI iHub Nailab
Uganda	**Rwanda**	**Tanzania**	**Madagascar**	**Zambia**
KAMPALA HiveColab 2010 @TheHubKampala	KIGALI kLab 2012	DAR ES SALAM DTBi 2011 Kinu	ANTANANARIVO Hub 2011	LUSAKA BongoHive 2011
South Africa	**Cameroon**	**Nigeria**	**Ghana**	**Liberia**
CAPE TOWN Umbono PRETORIA mlab 2011	DOUALA ActivSpaces	LAGOS Co-CreationHub Nigeria We"innovation"Hub	ACCRA Mfriday Mobile Web Ghana Mest	MONROVIA iLabLiberia 2011

Source: iHUB

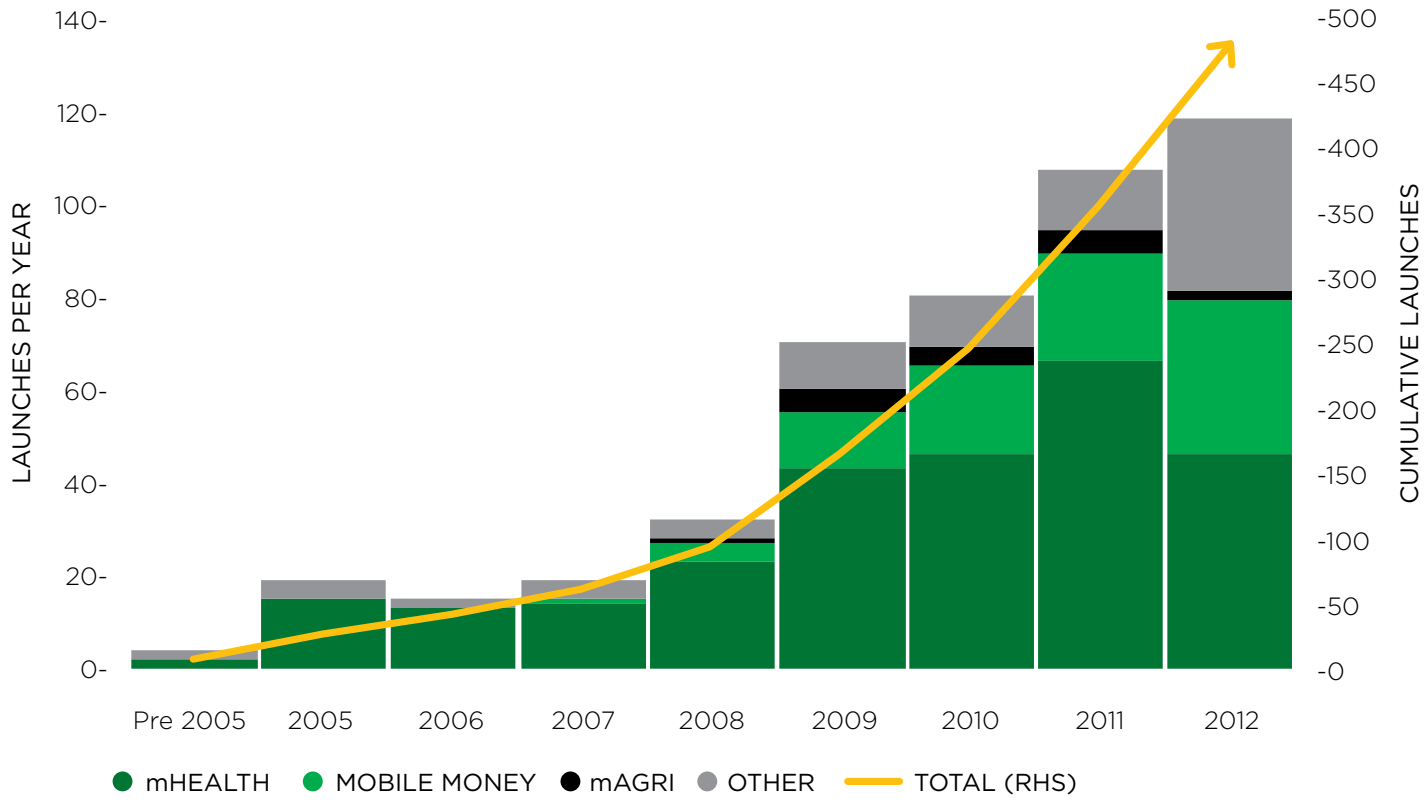
Figure 33

2.4

Growth of new services and applications

Mobile operators, entrepreneurs, corporates, governments, investors and non-profit organisations have together driven an explosion in mobile-enabled products and services across SSA. The following chart shows that the number of new service launches has increased consistently over recent years, with a particular focus on mHealth and mobile money related services.

TIMELINE OF MOBILE ENABLED PRODUCT LAUNCHES IN SSA



Source: MDI analysis

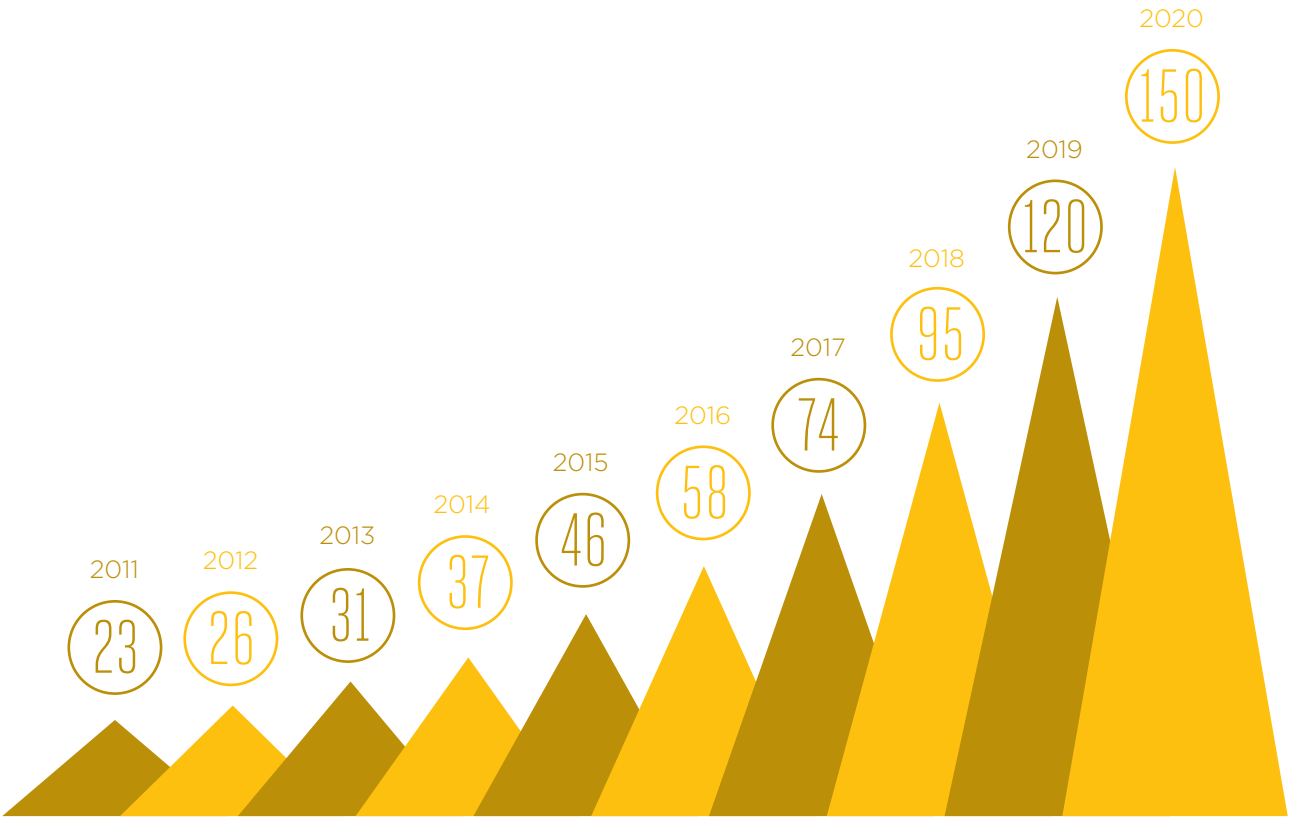
Figure 34

2.4.1

M2M services

Machine to machine ("M2M") applications are one example of these new applications, involving the direct communication between devices without human involvement. Given the lack of alternative (fixed line) infrastructure in emerging markets, there is a clear opportunity for M2M solutions to improve the standard of living of millions by making new business models possible. For example, Grundfos Lifelink's M2M-enabled solar-powered water pumps provide safe drinking water to small communities thanks to M2M remote monitoring in the pump unit. The rise of tech hubs across SSA, as we discussed previously, should provide favourable conditions for more M2M innovation in the region.

M2M CONNECTIONS SUB-SAHARAN AFRICA (M)



Source: Machina

Figure 35

South Africa has seen the highest uptake of M2M services to date, with a particular usage around vehicle tracking to deal with high levels of vehicle crime. An M2M service has also been deployed on the railways in South Africa to monitor track conditions in an environment where the harsh climate can often lead to track failures. As a result, train derailments have been eliminated on those lines where the system has been installed[25]. A number of municipalities in South Africa are also in the process of installing smart meters, as part of an effort to improve the electricity network.

Other examples of commercial M2M applications in SSA today include monitoring air quality at mining operations, temperature changes on farms or alerting energy companies to the public tampering with power lines at energy plants.

25. http://m2m.gemalto.com/tl_files/cinterion/newsletter/gemalto_case_study_GTT_web.pdf

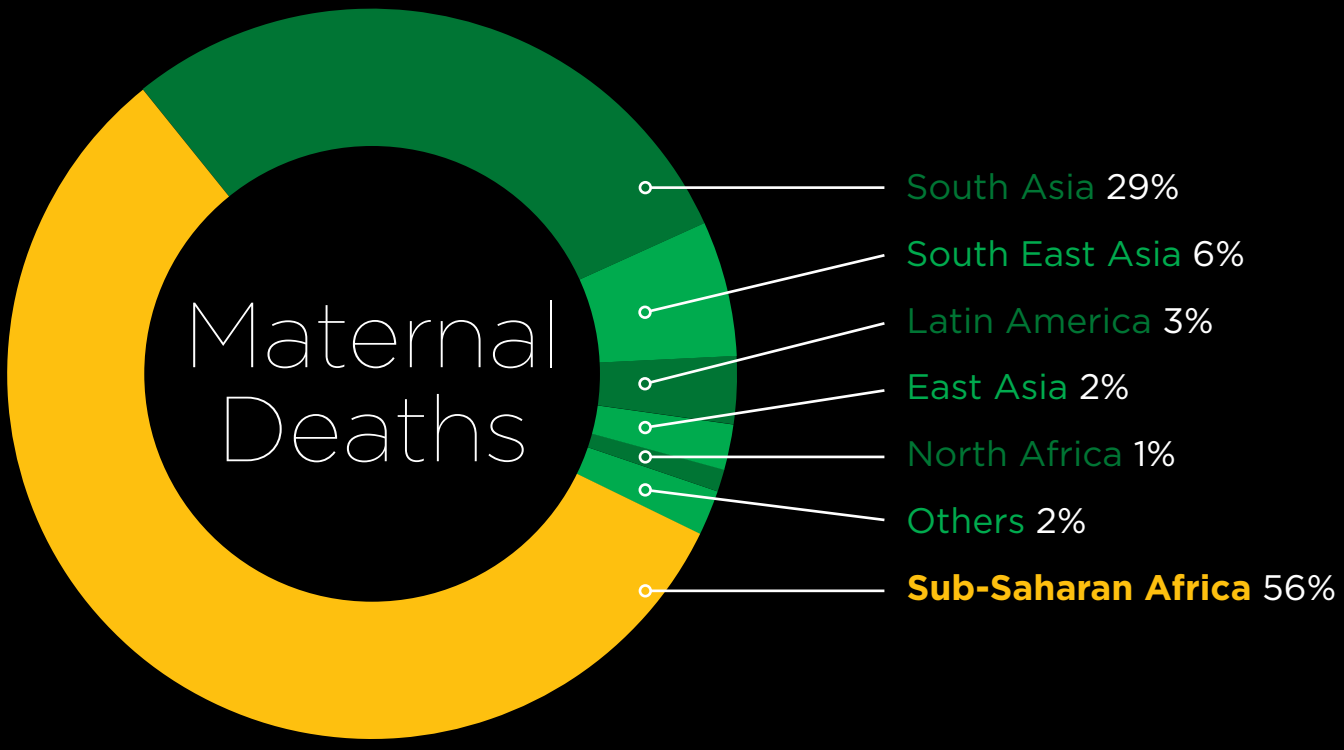
2.4.2

mHealth

There are a range of issues facing the provision of basic healthcare across SSA. For example, mortality rates for young children and maternal mortality remain significant problems in the region. The maternal mortality rate of 1 in 30 in SSA is 130 times greater than the risk in developed markets[26].

MATERNAL DEATHS BY REGION

(% of total maternal deaths)



Source: UN Trends in Maternal Mortality, 2010

Figure 36

Similarly, SSA faces particular challenges in combatting a range of infectious diseases. The Millennium Development Goal for Africa include the aims of reducing the spread of HIV; achieving universal access to treatment for HIV/ AIDS by 2020; and to reduce the incidence of malaria and other major diseases. While progress has been made on some of these objectives, there is still much to be done. It is estimated that there were 1.7 million new HIV infections in SSA in 2011, while an estimated 3 million people were already living with the disease[27].

26. http://www.un.org/millenniumgoals/pdf/MDG_FS_5_EN_new.pdf
27. http://www.undp.org/content/undp/en/home/mdgoverview/mdg.goals/mdg6/

Disease and the lack of adequate preventative care have a significant effect on developing populations and their economies. Evidence shows that strict adherence to a medication regime is essential for effective treatment of a variety of health conditions, from AIDS to diabetes. In addition, monitoring patients at home for chronic conditions dramatically improves survival rates.

However, many patients in developing countries do not have access to local healthcare services. There are almost 250 mHealth services in operation across SSA, focused on overcoming these challenges:

• In Tanzania and Nigeria, **'Mobile-baby'** is the result of a partnership between Etisalat, Qualcomm, D-Tree International and Great Connection. The service is aimed at reducing mother and child mortality by helping pregnant women in rural areas reach hospital. 'Mobile-baby' allows medical practitioners to send ultrasound images, video clips and 3D scans directly from ultrasound machines to mobile phones via SMS, MMS and email, providing real-time remote medical diagnostics.

• **ChildCount+,** part of the Millennium Villages Project, is an SMS based mobile phone system that enables point-of-care decision support, data collection, reporting, and feedback for Community Health Workers to facilitate their community-based services and enable real-time monitoring. Data covers child malnutrition, malaria, and other childhood illnesses. Its aim is to reduce child and maternal mortality, contributing to the achievement of the Millennium development goals.

• UNICEF Uganda is supporting the Ministry of Health in a nationwide roll-out of **mTrac**, an SMS-based disease surveillance and medicine tracking system available at all 5,000 health facilities and for all 8,000 medicine-distributing village health workers, with the roll out completed in 2012. The objective is to provide key health sector stakeholders with timely and accurate data, while monitoring health service delivery performance. This mobile phone based initiative will also link in citizen feedback through an anonymous hotline, and will integrate a strong governance and accountability angle through public dialogue sessions.

2.4.3

mEducation

Access to basic education is also an issue across most of SSA. Despite some progress in recent years in lifting school enrolments for primary school age children, the proportion of children who are out of school is still 2.5 times higher than the rest of the world.

Mobile technologies can widen access to education, particularly in remote areas. Mobile devices can act as a platform to provide access to educational content, as well as helping to address the shortage of teachers evident in many countries (both by improving teacher education and allowing teachers to reach a broader number of pupils). There are a number of examples of mEducation programmes in SSA:

Mobiles for mathematics in South Africa (MoMaths). Nokia, MTN and Cell C have partnered to enable teenagers access to short math courses and a database of 10,000 questions. Students receive immediate feedback on multiple choice practice tests for free, as data transfer costs have been paid by mobile operators. By 2011 the project had targeted 18,000 learners, reaching 150 schools in South Africa. As part of the programme results, teachers have cited improvements in learners' attitudes towards mathematics leading to better test results.

Video content and teacher support in Tanzania. The 'Bridge-it' project in Tanzania currently operating in 150 schools uses mobile phones to support teachers. It promotes request and delivery of video content entirely over local 2.5G or 3G mobile networks, for display on a television in the classroom. Most of the project's efforts have been aimed at providing teacher professional development and on-going pedagogical support, including the development of learner-centred lesson plans and teacher's guides.

2.4.4

mAgriculture

Agriculture generates around a third of the GDP in SSA, and employs almost two thirds of the labour force[28]. Smallholders form the majority of farmers in most of the developing world (over 60% in the case of Africa); and smallholder agriculture is increasingly important, both to boost national productivity and rural incomes. Smallholders therefore need adequate support to produce efficiently and to participate in an increasingly globalised agricultural market.

For many farmers in SSA, access to timely and relevant information regarding production, technology, production standards, input and agricultural finance remains a major challenge. mAgriculture solutions can play a significant role in addressing these challenges. Mobile devices can be used to improve logistics by matching supply with demand, to supply farmers with relevant information on agricultural techniques and local weather information, to provide access to market prices and to deliver financial services.

For instance, the Community Knowledge Worker (CKW) initiative from Africa has used farmer communities as a channel for agricultural training and development. In Kenya, M-Kilimo establishes a two-way communication channel between farmers and agricultural experts and provides a reliable solution to the information deficit that farmers often face.

28. http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0,,contentMDK:21935583~pagePK:146736~piPK:146830~theSitePK:258644,00.html

2.4.5

Mobile Money

Access to finance remains a persistent challenge in Sub-Saharan Africa where the bricks and mortar infrastructure costs render traditional banking models too uneconomic to reach low-income or rural populations. In Sub-Saharan Africa, close to 500 million people are unbanked[29] while there are 502 million active SIM connections representing around 253 unique million mobile subscribers. This gap between unbanked individuals with access to a mobile phone is the foundation of the opportunity of mobile money. The technology of mobile money allows for the digital conversion of cash to electronic value ("e-money"). Customers using mobile money can shift cash transactions, such as payments or transfers, into a digital ecosystem which is more secure, more convenient and more affordable than cash operations.

In June 2012, there were 56.9 million registered mobile money users in Sub-Saharan Africa which represented nearly 70% of the world's mobile money user base. Moreover, many policymakers and operators have recognised the strategic importance of mobile money as both an opportunity to increase financial inclusion and a revenue generator. In their most recent annual report, Millicom published that mobile money was the largest contributor to revenue growth in Africa in Q4 2012. Millicom also highlighted that "mobile financial services could be a platform that transforms economies."[30] MTN group, who offers mobile money in 11 SSA markets, stated in their annual report that MTN has more than 10 million subscribers and that mobile money helps "close the digital divide in our markets and make a positive socio-economic impact."[31] Given the growth in users as well as the commitment from operators, it has become clear that Safaricom's M-Pesa is no longer the only success story in this industry. On the public policy side, many African regulators have included mobile money in their strategies to pursue economic development and to increase the reach of the financial sector providing access to the unserved leveraging the ubiquity of the mobile and the capillarity of the cash-in / cash-out networks built by the operators.[32]

As well as enabling payments, mobile technology is capable of extending the reach of financial services through products like insurance, credit and savings. Through effective relationships with banks and other financial institutions, mobile operators can meet a broader range of customers' financial needs and thereby deepen financial inclusion. In the savings and credit space, Safaricom is leading the way through the launch of their banking and loan product, M-Shwari. M-Shwari was launched in November 2012 in partnership with Commercial Bank of Africa and one year on has more than 2 million active customers with deposits amounting to 20 billion shillings and outstanding loans of 60 million shillings.[33]

29. In 2012, the Global Findex revealed that only 24 percent of adults in SSA have a formal account, ranging from less than 5 percent in the Central African Republic, DRC, Guinea, and Niger to 54 percent in South Africa and 80 percent in Mauritius. The Global Findex database is available at: http://data.worldbank.org/data-catalog/financial_inclusion
30. http://www.millicom.com/all-news
31. http://www.mtn.com/PressOffice/Pages/pressreleasedetail.aspx?pid=227&country=South%20Africa&year=2013
32. AFI MAYA DECLARATIONS
33. Simone di Castri, M-Shawari blog.....

In addition to advancing savings and loan products, operators are proactively developing the mobile money ecosystem through additional product and services. Merchant payments and cross-border remittances are two examples of products that may help build the bridge toward a cashless society. Both Telesom in Somaliland and Econet Zimbabwe have cited developing merchant payments as a critical success factor in their strategy[34]. Meanwhile, Orange is leveraging their significant footprint in West Africa through launching an inter-regional wallet-to-wallet transfer service between Côte d'Ivoire, Senegal and Mali. Shifting these transactions from cash to e-money not only makes sending money easier and more affordable for the customer, it also increases transparency in the financial system and reduces the risks of money laundering and financing of terrorism.[35]

There has been a tendency to overlook women in the deployment of mobile money services. Women in developing markets are an important potential customer base for mobile financial service providers. They are active household financial managers – in some ways more active than men. In the long-term, using mobile money to bring women into the formal banking sector will be essential as only 22% of women have a formal bank account in SSA compared to 52% in the East Asia and Pacific region[36].

While many operational challenges persist, a growing number of operators are overcoming these barriers and taking advantage of the commercial and social impact opportunity of offering a reliable and effective mobile money service. As of June 2013, 9 mobile money operators have more than 1 million active users and most of them are in Sub-Saharan Africa. As the industry grows and more operators reach scale, more focus will go towards diversifying product portfolios and pursuing greater connectivity with partners, third parties and financial institutions. Looking ahead, with 53% of the global number of live mobile money services being in Sub-Saharan Africa and one third of the planned deployments, it is evident that operators in SSA will continue to lead the industry on innovation in mobile money.[37]

34. http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/07/Telesom-Somaliland.pdf
http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/07/EcoCash-Zimbabwe.pdf
35. http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/02/MMU-Enabling-Regulatory-Solutions-di-Castri-2013.pdf
36. FINDEX, 2012.
37. http://www.gsma.com/newsroom/gsma-releases-initial

2.4.5.1

Better mobile money regulatory policies for greater financial inclusion

Smart policies are decisive in enabling the development of mobile money and to reach larger numbers of those excluded from accessing financial services. Persistent and widespread financial exclusion has negative effects on economic development and the stability and integrity of the financial sector.

One of the hallmarks of a mature inclusive financial system is the widespread availability of payment and other financial services, offered by both bank and non-bank providers that leverage their assets to meet overwhelming demand. Progress has been made in a number of Sub-Saharan markets towards creating more enabling policy frameworks, developing the templates for regulatory reforms that allow both banks and non-bank mobile money providers, including mobile network operators, into the market. Anecdotal evidence, commercial lessons, and international regulatory principles all defend opening the market to providers with different value propositions, and the templates to put in place prudential regulation that safeguards customer money, enhances anti-money laundering efforts and combats the financing of terrorism (AML/CFT) compliance systems have been successfully tested in many markets.

In some Sub-Saharan markets where mobile money is already reaching huge numbers of low-income and previously excluded customers, moving millions of households (mostly low-income) from a cash-only economy into the formal financial system – such as, for instance, Côte d'Ivoire, the Democratic Republic of Congo, Kenya,[38] Madagascar, Rwanda, Tanzania, Uganda and Zimbabwe – the regulator has created an enabling framework allowing also non-bank financial providers to offer mobile money services. In most of these countries the number of mobile money accounts is already far greater than the number of bank accounts and the overall value of the mobile money transactions counts for a significant percentage of the money transferred through the whole retail payment systems.

An important lesson from the markets where mobile money is growing is that the precondition for developing a successful regulatory framework is to establish an open dialogue and consultative process between the policymaker, the regulator and the private sector. Many regulators will agree that by establishing open channels of communication with mobile money providers they are able to design enabling regulation that has a financial inclusion objective and provides effective oversight of the mobile money sector.

38. See Simone di Castri and Lara Gidvani (2013), "The Kenyan Journey to Digital Financial Inclusion", GSMA Mobile Money for the Unbaked. Available at www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/07/MMU-Infographic-The-Kenyan-journey-to-digital-financial-inclusion.pdf

2.4.6

Driving growth of local content

Mobile has already emerged as the dominant technology for internet browsing across SSA. This creates significant potential for the development of locally-developed content and applications in SSA; with locally-developed content often both more relevant to local populations and ensuring that a larger proportion of revenues are retained locally.

There are already a number of examples of local content for mobile services:

Infotainment in Nigeria: MTN Nigeria's Afrinolly is an application that aggregates the latest information on African film entertainment, allowing access to the latest film trailers, music videos and comedy sketches. This service is free to Blackberry, Android and Nokia phone users.

Locally relevant video in Kenya and South Africa: Google has recently launched a localised website for the YouTube video sharing service, offering Kenyans a site that presents locally relevant videos easily accessible for viewers. A similar site was launched in South Africa earlier in the year.

Local music and entertainment in Tanzania: Millicom gives subscribers a one-stop shop where they can access Tanzanian Kiswahili entertainment services. They also have a portal called "Cheza Games" where subscribers can download games for free.

Seychelles and Mauritius leaders in eGovernment in Africa: Government portals are important contributors to local content. According to the UN's e-government development index, both Seychelles' and Mauritius' are above the world average, due to consolidation of the government portal and a broad service offering (such as vehicle inspections, scholarships and work permits, in the case of Mauritius).

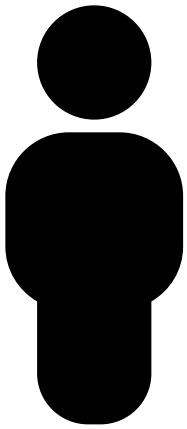
Source: GSMA

FIFTY-FOUR PER CENT OF CHILDREN WITH MOBILE PHONES, AND 87 PER CENT OF THOSE WITH SMARTPHONES, ACCESS THE MOBILE INTERNET.

2.5

Social Responsibility of Mobile

The increase in the number of children and young people with mobile phones (driven by the increasing affordability of mobile services and higher speeds) means that their interaction with the technology is far more relevant than ever before:



- Sixty-five per cent of children aged 8 to 18 have access to a mobile handset. Of children who have mobile phones, 81 per cent use a new handset and 20 per cent own smartphones.
- Across the five countries, 12 is the most common age for a child to first own a mobile phone
- Fifty-four per cent of children with mobile phones, and 87 per cent of those with smartphones, access the mobile internet[39].

Mobile devices and services enhance young people's lives: offering access to increased access to education and learning; skills for employment; opportunities to be creative; and exposure to people from different regions and segments of society.

However, as mobile usage amongst young people rises, it will become increasingly important for these younger users to be taught how to behave safely and responsibly in their own 'digital worlds'. There is universal consensus that the only effective way to protect children is through joint efforts and collaboration between government bodies, educators, NGOs, law enforcement authorities and other associations that work in the area of child protection. This will be especially important in this region, where some children, particularly in rural areas, are likely to have access to a range of ICTs, including mobile, before their parents.

On behalf of its members, the GSMA is active in the International Telecommunications Union's (ITU) Child Online Protection (COP) initiative. It has been involved in ITU COP workshops for several countries in this region, including Cameroon, Ghana and Nigeria, discussing steps that can be taken by key stakeholders to promote safe and responsible 'digital citizenship' amongst younger users.

The mobile industry is committed to ensuring that younger teenagers and children can safely access content on their mobile phones and has demonstrated through various initiatives that it is able to effectively address and protect the needs of children through self-regulation.

39. http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/GSMA_ChildrensMobilePhones2012WEB.pdf

Mobile for Development in Sub-Saharan Africa

EXAMPLES FROM SELECTED COUNTRIES

1. MALAWI

mHealth Pan-African mHealth Initiative
The GSMA has begun work on the Pan-African mHealth Initiative to bring together the mobile industry and health stakeholders to improve health outcomes in emerging markets, with initial focus on Millennium Development Goals 4, 5 and 6 across Africa. With a view to launch mHealth services in Malawi that impact the lives of more than 20,000 vulnerable and at risk women and children, the GSMA has begun work with a landscaping of mHealth Products and Services and Country Feasibility Report.

2. BOTSWANA

Positive Innovation for Next Generation has equipped health care workers at 16 facilities in the Chobe District of Northern Botswana with HP Palm Pre 2 smart phones. The phones allow the facilities to submit regular reports back to the Ministry of Health and allow the health workers to report real-time disease outbreak data, tag the data with GPS coordinates and to send SMS disease outbreak alerts to all other healthcare workers in the district.

3. SOUTH AFRICA

Connectivity - Community Phones - MTN South Africa. In the early days, Mobile for Development focused on bringing much-needed connectivity to remote, base of pyramid populations. In 2008, we helped to implement the provision of shared mobile devices that are managed by local entrepreneurs who charge a fee for the service. In this way, whole communities were able for the first time to speak to relatives and conduct business operations outside of their immediate social network as well as affording a valuable opportunity to local entrepreneurs.

4. NAMIBIA

Green Power for Mobile Feasibility Study.
One of the greatest challenges facing mobile operators in emerging markets is the demand for network expansion in an environment where there is limited or no access to the electricity grid for base station power. Wind and solar power provides an efficient and reliable alternative to mains grid electricity for the powering of base stations. Furthermore wind and solar are both renewable and green power sources and can therefore enable rural communities, service providers and, perhaps more importantly, new and established entrepreneurs, to gain greater access to voice and data services.

The Green Power for Mobile team conducted a thorough analysis of the scope for deploying these solutions in Namibia and connecting remote in-country communities with the global mobile network[40].

5. TANZANIA

Mobile for Development Life Stories, Rachel, Morogoro. Lying outside Morogoro, close to the building of a vast new road, lies a small village. In its compass is a leper hospital. The nurses who offer palliative care to its patients are not well paid. In a scheme designed to enable them to supplement their income, each nurse is provided with a strip of land to farm and access to an agricultural advisor. In a move to bolster the harvest even further, Tigo, in partnership with Technoserve, are beta-trialling an agricultural advice service called m-Kilimo ('farmer') which aims to provide the farmers with agronomy information, market prices and help with selecting and buying pesticides and fungicides through their mobiles[41].

40. http://www.gsma.com/ mobilefordevelopment/wp-content/ uploads/2012/04/mtcnamibia-1.pdf
41. www.gsma.com/ mobilefordevelopment/rachel

6. UGANDA

IFDC and Crop Life. The IFDC is helping to reduce the impact of counterfeit chemicals in the Ugandan agricultural sector. This is an issue that has caused significant financial losses for small famers, as well as negatively impacting the yield from their crops. There is anecdotal evidence from agribusinesses across 12 countries in SSA that counterfeit agricultural inputs could account for as much as 30% of all such retail purchases. Agricultural products such as fertilisers and pesticides come with scratch codes, the code can then be sent by SMS and the farmer receives a confirmation message as to whether the product is genuine or fake. There are benefits from this service both for farmers who remove the risk of financial loss, and for producers who participate as they are likely to gain market share as the scheme gains scale.

7. UGANDA

Fenix International designs and manufactures a multifunction energy system that can charge mobile phones as well as power lights, radios, as well as other devices such as water purifiers and medical devices. The company works closely with the MTN Group in order to distribute the product. MTN has sold over 2000 units across East Africa, with each set allowing an individual to become an entrepreneur and offer micro-power in their local communities. These devices are estimated to be powering over 100,000 off-grid mobile subscribers, providing over 5 million phone recharges and in the process generating over US$ 1.5 million in annual income for entrepreneurs, saving subscribers over US$ 2 million per annum in phone charging costs[42].

8. ZIMBABWE

EcoCash. EcoCash was set up in 2012 by Zimbabwe's largest mobile network operator, Econet Wireless. Just 18 months after launch, the results are impressive: 2.3 million Zimbabweans have registered for EcoCash mobile money accounts, outnumbering all of Zimbabwe's traditional bank accounts combined. Over 1 million of these accounts are active and push US$ 200 million of volume over the EcoCash platform every month.

Econet saw an opportunity to deploy EcoCash due to hyperinflation and the growth of the informal economy having served to undermine people's faith in traditional financial institutions. Many people also saw their bank accounts wiped out with the move to the multi-currency system in 2009, leading many people to abandon traditional bank accounts.

When annualized, the US$ 200 million in monthly EcoCash transaction volume represents an amount equivalent to 22% of Zimbabwe's GDP. The company is now looking to move beyond its strong position in P2P payments and to push integration with the banking sector and payments through mobile money in the retail environment. By greatly expanding acceptance of digital retail payments, EcoCash seeks to become an even greater part of the national payment infrastructure.

http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/07/EcoCash-Zimbabwe.pdf

42. http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/08/Mobile-for-Development-MECS-Fenix-International.pdf

9. KENYA

M-KOPA SOLAR. M-KOPA solar is a service which provides high quality and affordable home solar light systems for rural Kenyans. Customers are able to purchase the equipment on a pay-as-you-go basis using the M-PESA system for mobile payments (operated by Safaricom). With around 80% of Kenyan households not connected to the electricity grid, there is a large potential market amongst households that currently rely on kerosene lighting. This can be both expensive as well as bringing a fire risk. The system costs around US$ 200 and customers pay an upfront deposit and then a series of monthly payments through their mobile. Once the total balance has been paid, then the unit belongs to the customer. M-KOPA was established in 2011 following successful trial in Kenya in 2010, and as of August 2013 the solution is bringing solar power to over 25,000 households in the country.

10. SOMALILAND

Telesom Zaad mobile money. The World Bank's Global Financial Inclusion Database (Findex) recently revealed that Somaliland was one of the most active mobile money markets: 26% of the population reported using mobiles to pay bills, which is the highest rate in the world, and 32% to send and receive money. Most of this mobile money activity has been driven by Telesom ZAAD. In April 2013, over 368,000 customers and 8,600 merchants were registered on Telesom ZAAD and 275,000 of these were active. This represents 35.6% of Telesom's mobile customers.

Telesom's ZAAD has possibly the highest activity rate of any mobile money service in the world with the average active ZAAD user transacting 30 times per month or approximately daily. ZAAD has achieved this by creating an inclusive ecosystem that contained bulk payers and merchants from the very start. In this way, money gets into the system and stays in the system which solves two issues that other mobile money services sometimes find very challenging.

http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/07/Telesom-Somaliland.pdf

11. SENEGAL

Mobile birth registration. In most countries around the world, proof of identity is an essential prerequisite for gaining access to basic services, including enrolling in basic education, health care services, or even claiming rights to inheritance or obtaining legal protection in courts of law. Birth registration rates are low in West and Central Africa, with an average of just 39% of new-born children being registered at birth. This is often due to poor communications infrastructure between rural villages and national birth registration offices.

In Senegal, Orange partnered with Aide & Action to re-purpose an existing widget solution designed to capture and communicate the market price of sesame seeds towards a mobile birth declaration service. Mobiles equipped with specific software are distributed to village chiefs, who send information about a new-born to the Senegal State Registrar via text message. Parents are then given a registration number sent from the Registrar back to the village chief, for collection of their child's birth certificate at any time.

http://www.gsma.com/mobileidentity/wp-content/uploads/2013/05/Mobile-Birth-Registration-in-Sub-Saharan-Africa.pdf

3

Supportive Regulatory Policies Spur Investment and Growth

Realising the longer term potential of the mobile industry and its ability to drive social and economic development in Sub-Saharan Africa requires a transparent and stable regulatory environment for the industry itself and for associated verticals. Operators and investors need stability and clarity (particularly in terms of taxation and licence terms) in order to finance the huge investment needed to extend coverage to remote areas and to meet the growing demand for higher speed connectivity in the coming years. State intervention to build or manage networks is not a substitute to private sector owned and managed networks.

With the fast-moving nature of mobile communications, governments and regulators in the region are encouraged to work closely with all stakeholders to keep abreast of trends within the industry and ensure policies support and not hinder investment and innovation. Excessive regulation can stifle innovation, raise operating costs, limit competition and, ultimately will harm consumer welfare.

In addressing the major concerns surrounding spectrum management, taxation and roaming, policy makers throughout SSA have a major opportunity to unlock the huge potential of a truly harmonised and connected Africa.

3.1

Managing spectrum for the long-term future

The fundamental building block for any mobile network is radio spectrum. It is a finite resource and needs to be managed both nationally and regionally to ensure that usage is planned well in advance to cope with growing demand. Specifically, those in a position to formulate and influence spectrum policy at the national level are urged to consider the following key points.

3.1.1 Fairness and Predictability in Spectrum Licensing Regimes

In many markets, spectrum auctions have been used by governments to favour new entrants. However, operators need to generate scale economies in order to function profitably whilst maintaining affordable prices for their customers. Therefore, spectrum should be allocated to those who have the ability to deploy and invest in infrastructure at the time of licensing. When awarding licences, governments in SSA should avoid the fragmentation of spectrum assignments between market players as such practices can hamper the long-term sustainability of the sector. Furthermore, policy makers are encouraged to exercise stringent "use it or lose it" licence conditions in order to avoid the inefficient hoarding of unused spectrum by licensees who are no longer operational or no longer can demonstrate a valid argument for continued ownership of spectrum that could otherwise better benefit society.

Many of the original 2G licences throughout SSA are coming up for renewal in the next five years. The prospect of licence expiry creates significant uncertainty for mobile operators, particularly when licensing authorities are unclear on what should happen to spectrum rights as licences approach the end of their term. Regulatory authorities should therefore provide clarity to licence owners on renewal of spectrum usage rights at least two to four years ahead of the licence expiry date. Limitations and uncertainty on the terms of licenses are major disincentives to future mobile broadband investment in the region and therefore, policymakers are urged to make the careful and transparent process of re-licensing a priority in their spectrum management strategies.

Governments in SSA are encouraged to apply a presumption of licence renewal to support long-term investment planning and innovation from the mobile industry. The establishment of transparent, consultative and predictable processes for granting spectrum licences and renewing spectrum usage rights will allow operators to plan their investments with a clear understanding of spectrum availability, costs and obligations, which ultimately incentivises continued investment in networks. Importantly, the cost of renewing spectrum usage rights should be based on recovering administrative costs, rather than maximising short-term revenue generation for governments and finance authorities. Regulators and governments throughout SSA are encouraged to follow international and regional best practice in their refarming and reallocation activities, whilst undertaking such efforts according to predetermined procedures that have undergone extensive consultation with a variety of stakeholders.

3.1.2 Harmonised Spectrum for Mobile Broadband

Policy harmonisation across SSA will assist in mitigating the risk that industry investors face when constraining their financing to a singular market which, by definition, has lower revenue potential than a regional approach. A lack of harmonisation makes access to mobile technology more expensive for everyone – mobile operators, businesses and consumers. Nowhere are the benefits of regional harmonisation more obvious than in the area of regulatory decision-making and policy coordination on spectrum.

The harmonisation of frequency bands offers many advantages:

- Lower costs for consumers, as device manufacturers can mass-produce less complex (but still high-performing) devices that function in multiple countries on a single band;
- Roaming, or the ability to use one's mobile device abroad;
- Reductions in cross-border interference.

Additionally, there are a limited number of bands that can be supported in a single mobile device. Each new band supported increases the device cost, reduces the receiver's sensitivity and drains the battery. With this in mind, it is imperative that the mobile industry is granted access to more harmonised spectrum (particularly in the sub-1 GHz bands) in order to deliver the numerous and varied benefits of mobile broadband communication to consumers.

Some governments and regulators within SSA have recognised the central importance of harmonised spectrum bands across the region, noting the potential for significant economies of scale across Africa and including such harmonisation strategies in their national broadband plans. However, much work still remains to be done in regards to concrete commitments to harmonised allocation of sub-1 GHz spectrum, in particular the 700 MHz and 800 MHz bands.

3.1.3 Allocate the Digital Dividend Bands to Mobile

As demand for mobile data continues to grow exponentially, access to more harmonised spectrum within the Digital Dividend (700 and 800 MHz) bands is critical. As we have discussed previously, the propagation characteristics of Digital Dividend bands are particularly well suited for the cost-effective deployment of mobile services in SSA.

The socio-economic benefits attributed to mobile broadband are well-documented and continue to expand in their influence - driving increases in GDP, jobs and government funding. The economic benefits of licensing Digital Dividend spectrum to mobile are therefore far greater than allocating it to any other service. Exclusively-licensed spectrum remains the most desirable approach to mobile broadband services for mobile operators. Continued and widespread utilisation of other services could further increase fragmentation of the 700 MHz band within Sub-Saharan Africa.

Governments and regulators in Sub-Saharan Africa should not jeopardize the future of the UHF band through regionally-fractured allocation and policy making. Furthermore, the use of technologies such as TV white space must not distort the market through inappropriate and inconsistent regulation. Eliminating the cost of acquiring licensed spectrum and providing cellular-type mobile services could create an unfair advantage and further de-incentivise investments in network infrastructure.

3.1.4 Coordinate and Accelerate the Digital Switchover

For many countries in SSA, allocating the Digital Dividend to mobile will require governments and regulators to clear this spectrum of existing users. In the 700 MHz and 800 MHz bands, such incumbents are typically using the spectrum for analogue television and legacy CDMA 850 networks, many of which are no longer in use or provide services to a proportionately low number of subscribers. This clearing process can be lengthy and sometimes political, but it is important to recognise that in most countries in the region, less than 40% of households own a television and, broadly speaking (with the exception of countries such as Nigeria and Kenya), terrestrial television usage remains low across SSA[43].

43. Analysys Mason, "Global prospects for the 700 MHz spectrum band", 2012.

Source: GSMA Digital Switchover Toolkit, 2013

Figure 37

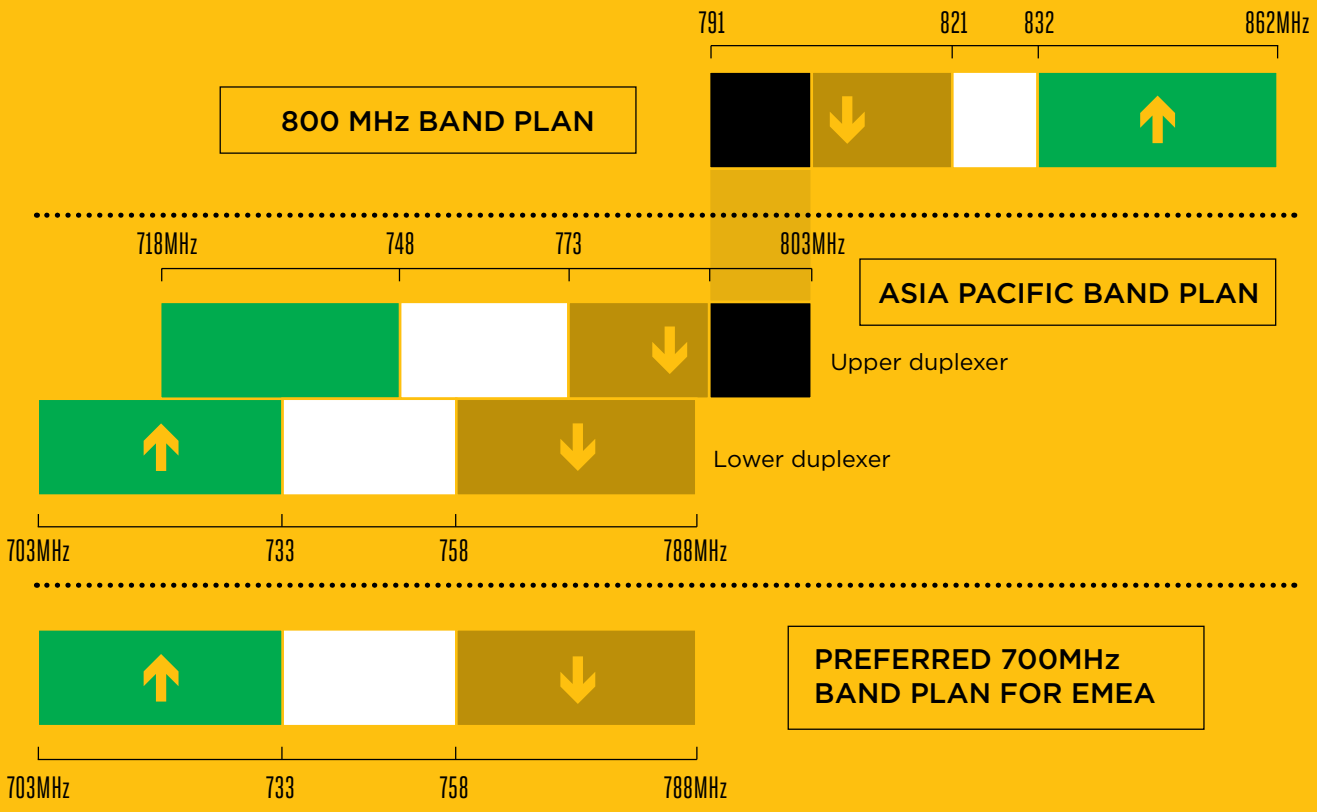
Whilst some concerns remain regarding the provision of local content, governments are encouraged to work closely with broadcasters, consumers and content-providers, whilst retaining innovative and long-term visions for the digital development of their respective countries. The informed and rational development of content is a critical and sometimes complex step in the digital switchover process, but progressive decision-making on this important issue is also an opportunity for governments to fully take advantage of digital television as a valuable vehicle for the provision of locally relevant and widely accessible public programming.

Informed and transparent regional leadership, coordination and decisive action to accelerate the digital switchover are therefore critical actions that governments and regulators throughout SSA will need to take in the coming year in order for the benefits associated to the Digital Dividend to be fully recognised in time for the ITU 2015 deadline. As the digital switchover is a long and complex process, it is important that local and regional policy makers take a leadership role, facilitating dialogue between all stakeholders including broadcasters, the mobile industry, set-top box manufacturers and consumers.

3.1.5 Harmonise Band Plans and Regulatory Conditions for 700 MHz and 800 MHz Bands

The fair and timely management of the Digital Dividend spectrum requires national administrations in SSA to pursue and accelerate their efforts to coordinate the digital switchover and to provide industry stakeholders with a clear roadmap for the allocation of the 700 MHz and 800 MHz bands to mobile services in a harmonised manner.

In February 2012, The World Radiocommunication Conference (WRC-12) agreed to extend the Digital Dividend band below 790 MHz in Europe, Africa and the Middle East, leading to the possible allocation of the 700 MHz band to mobile services. The outcome of the WRC-12 was based on a commitment of most parties to seek harmonisation of that band and the 800MHz band (3GPP Band 20) in Region 1. The GSMA encourages governments in the region to maximise the amount of spectrum available for mobile broadband by coupling the 800MHz band plan with the lower duplexer of the 700 MHz band plan (2x30 MHz), consisting of 703–733 MHz (uplink) paired with 758–788 MHz (downlink):



Source: GSMA

Figure 38

By following part of the Asia Pacific band plan in Region 1, governments and regulators will facilitate a mobile ecosystem that will offer the greatest benefits to consumers, governments and mobile operators. However, in addition to the harmonised band plan, the technical and regulatory conditions governing the use of the band must also be harmonised in order to maximise economies of scale in device manufacturing and enable interoperability and roaming.

It is critical to note that without consistent adoption of a common approach by policy makers, there is a risk that conflicting band plans will be adopted both within SSA and between SSA and other regional markets such as the Middle East and North Africa (MENA), European or Asia Pacific (APAC) regions. Such fragmentation of band plans in the 700 MHz and 800 MHz bands will not only cause border interference problems for operators, but will severely limit economies of scale, de-incentivising handset manufacturers from developing innovative and low-cost devices that function in multiple countries on a single band and limiting the availability of a wider portfolio of devices, which would be driven by a larger, international market that would include SSA.

3.2

Reducing the taxation burden

- High sector-specific taxation on mobile consumers and operators has a damaging impact on the potential benefits arising from a vibrant mobile telecoms sector.
- Lowering the taxation levels could benefit consumers, businesses and government by encouraging the take-up and use of new mobile services, improving productivity and boosting both GDP and tax revenues in the long-term.

The growth in mobile telephony has generated significant economic and social benefits with mobile operators and the wider ecosystem making direct contributions to a country's GDP. Further economic benefits are also created through productivity gains and other intangible benefits. Despite these widely acknowledged and transformational advantages, many mobile consumers face special communication taxes, whilst operators face numerous redundant and overlapping taxes and fees in a number of countries in SSA. Unfortunately, some governments treat the mobile telecoms sector as a source of short-term revenue generation, without taking into account the harmful effect that this near-sighted policymaking has on long-term socio-economic growth. These punitive sector-specific taxes are distortionary and are counterproductive to the digital economy and growth agenda. Increasing the taxation burden on the telecoms sector is not aligned with the goals of encouraging mobile growth and building a knowledge-based economy.

Political leaders, policymakers, investors and development partners share the vision of mobile-induced socio-economic growth. Many policymakers and governments across the world are beginning to recognise the potential of the mobile industry and the harmful impact of the excessive taxes. Lowering taxation levels in countries where mobile is currently more heavily taxed than other goods and sectors will ultimately help to improve affordability in a region where over two thirds of the population have yet to subscribe to mobile services.

Lowering sector-specific taxation has the potential to provide numerous positive benefits through the broader and deeper take-up and usage of mobile services. In addition to increased GDP contributions and the amplified generation of mobile's socio-economic benefits, such measures could also add to the government tax receipts. For example, in August 2009 the Kenyan government recognised that handset prices represented a barrier to the development of the sector and therefore accessibility for consumers. As a result, the government removed the 16% VAT tax on mobile handsets, bringing down the tax as a proportion of the cost of mobile from 25% to 21%[44]. Handset purchases increased by more than 200% since the removal of VAT in Kenya and mobile connection penetration increased from 50% to 70% of the population in Kenya between 2009 and 2011. Recent legislation to re-introduce VAT has caused wide-spread concerns around the negative impact on rural poverty, mobile penetration and economic growth.[45]

Given SSA's need to invest and develop mobile services, taxation policies that create barriers to consumption and discourage investment in the sector are inconsistent with the digital agenda goals of governments in the region. High sector-specific taxation, including uncertainty in fiscal policy, act as a barrier to investment. Importantly, increased penetration would boost traffic volumes and activities in the wider economy, therefore expanding the tax base for the government in the long-term.

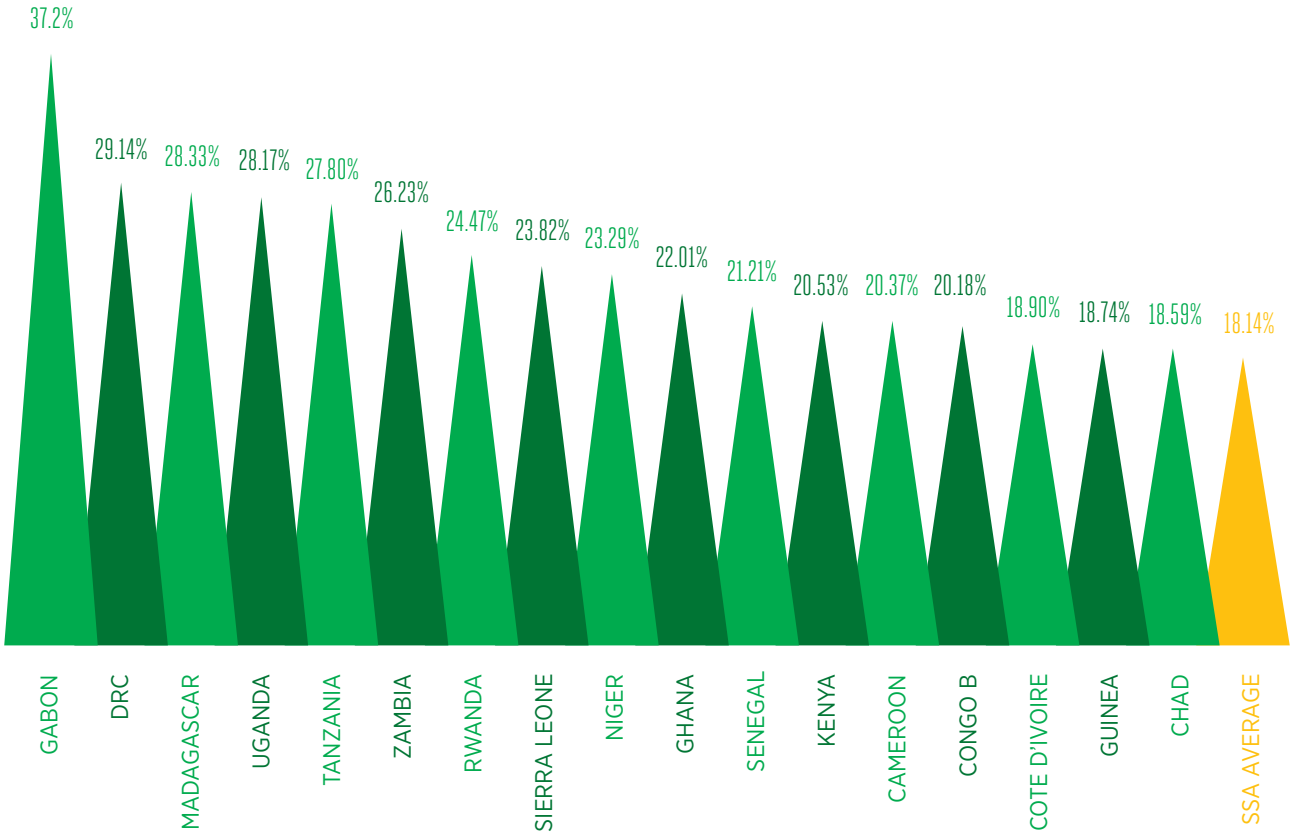
44. Deloitte/GSMA, "Mobile telephony and taxation in Kenya", 2011
45. CIO (2013), 'Kenyan government VAT on ICT will hurt the underprivileged'. http://www.cio.co.ke/news/main-stories/kenyan-government-vat-on-ict-will-hurt-the-underprivileged

3.2.1

Sector-specific taxes on mobile services is impeding mobile development

Tax as a proportion of the total cost of mobile ownership was higher than the global average in many SSA countries in 2011 according to research undertaken by the GSMA and Deloitte[46]. For example, more than a third of the total cost of mobile ownership in Gabon was due to taxes. The same study also found that in 2011 custom duties had been applied to handset imports in twenty African countries[47]. Out of these twenty countries, six imposed import duties of 30% or higher. In Niger, a 46.99% custom duty was applied on all handsets imported into the country.

TAX AS A PROPORTION OF TCMO, 2011



Source: GSMA tax review, 2011

Figure 39

46. http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/gsmaglobaltaxreviewnovember2011.pdf
47. Out of the 30 in the study used as a reference for this analysis

Gabon was found to have the highest average taxation burden among the SSA countries surveyed, with an incidence of 37% due to:

- *A VAT rate of 18%;*
- *A customs duty of 30% imposed on imported handsets, plus an additional US$ 5 fixed tax applied on each handset; and*
- *An airtime excise of 18%.*

Mobile is often the only means to access telephony and the internet in many SSA countries, given the limited fixed telecoms infrastructure. Excessive taxation of mobile services has been repeatedly shown to reduce the consumption of mobile services. It is alarming then, that notwithstanding the harmful impact of taxes on mobile development, some countries in SSA have recently either introduced or increased the taxation burden on mobile services.

Telecommunication services in Ghana were subject to a number of taxes and fees including Value Added Tax of 15%, National Health Insurance Levy of 2.5% and Communication Service Tax (CST) of 6%. The taxation and fees burden on the mobile sector in Ghana is estimated as more than a third of revenues.[48] The taxation burden on consumers and the mobile sector was further increased with the extension of scope of the 6% special communication tax in July 2013.

Earlier in the year, Kenya introduced a new tax on mobile money transfers. Mobile money is significantly contributing to financial inclusion in Kenya, extending the reach of the formal financial system to areas and people that were excluded and having a positive impact on the socio-economic development of many communities and the whole country. Increasing the taxation burden will hinder the growth of the mobile sector when there is an increasing recognition of the importance of mobile connectivity in enhancing productivity and building an inclusive society.

48. The burden is defined as the ratio between the total taxes and fee payments through the provision and consumption of mobile services and gross revenues.

3.2.1.1. Taxes and fees on operators

Operators also face other sector-specific taxes and fees, including turnover taxes (paid as a percentage of revenues), licence fees, universal service fund levies and other regulatory fees. These numerous charges reduce operators' profitability and discourage investments by sending the wrong investment signals about the return on the large fixed investments required to build and upgrade networks.

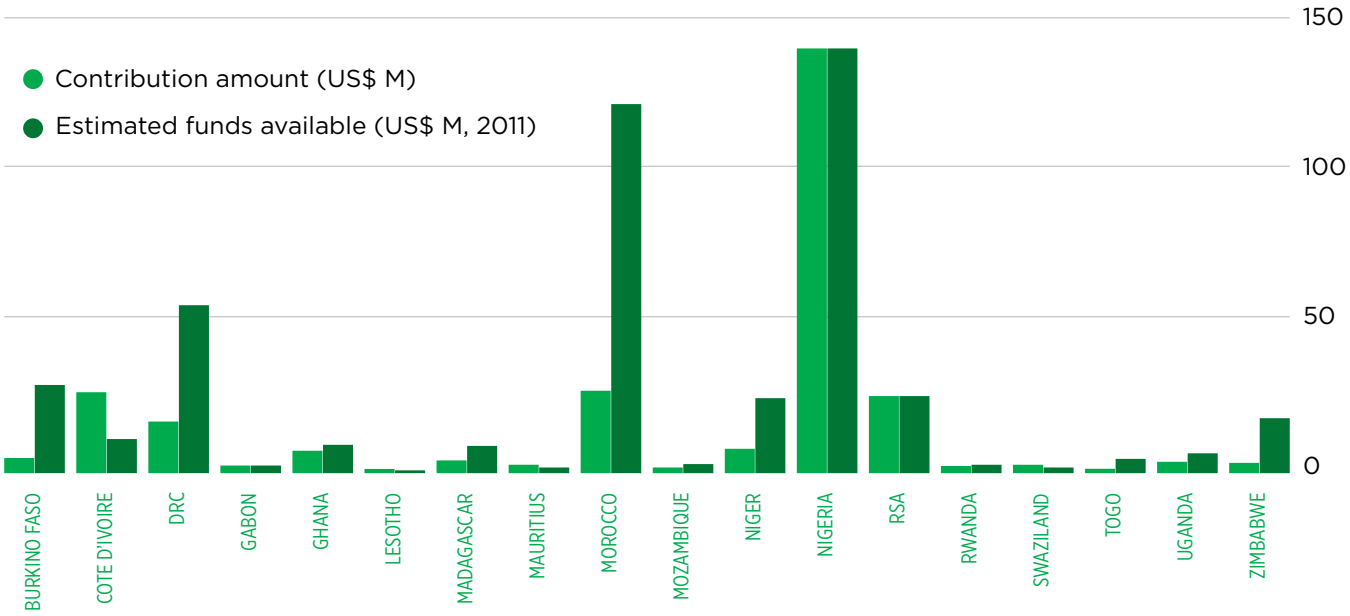
COUNTRY	CHARGES
BURKINA FASO	2% of revenue paid as a universal service fee. 1% of revenue is paid to the government in regulatory fees. 0.5% of revenue is paid to the government's Research and Training Fund.
CAMEROON	Contribution to special telecommunications fund set at 3% of turnover. Licence fee payable to the regulator stands at 1.5% of turnover. Mobile operators have reported that often variations in licence fees are received without a fore notice from the regulator.
CHAD	3% of annual revenue paid as regulatory fees.
CONGO B.	3% of domestic revenue paid as regulatory fees. 6% of international revenue paid as regulatory fees.
DEMOCRATIC REPUBLIC OF CONGO	2% of mobile operator revenue paid as an annual licence fee. 2.4% of mobile operator revenue paid as an annual spectrum frequency fee. 2% of mobile operator revenue paid as an annual numbering fee. Airtime purchased by the customer is first booked on the deferred revenue account and then accounted progressively in the revenue account when the consumption is made. This results in a distortion with other sectors for which ICA tax (equivalent to GST) is calculated on the revenue account, while for telecommunications companies it is based on the deferred revenue account. The tax authorities claim ICA on airtime discounts from both the mobile operators and indirectly also from the dealers.
GABON	0.5% of mobile operator revenue is paid towards Frequency and Spectrum fees 0.5% of mobile operator revenue is paid towards Numbering fees 2% of mobile operator revenue is paid towards Universal/Service Fees 2% of mobile operator revenue is paid towards Technology taxes 5% of mobile operator revenue paid as an annual licence fee
GHANA	Mobile operators by law are obliged to pay 2.5% of their revenues to the government as a Health Insurance tax which is used by the government to fund investment in and development of Ghana's health services 2% of revenue is also paid in regulatory fees to the government
KENYA	0.5% of mobile operator revenue paid as regulatory fees 0.5% of mobile operator revenue paid as universal service fee to the government
LESOTHO	Universal access fee is set at 1% of Net Operating Income This is expected to rise to 2%
NIGERIA	mobile operators pay 0.14% of revenues in Frequency/Spectrum fee tax 0.15% of revenue is paid in Numbering fee tax by mobile operators 0.04% of revenue is paid as a Technology tax or R&D contribution 2.9% of mobile operator revenue is paid as regulatory fees
NIGER	2% of revenue paid as regulatory fees to the government 4% of revenue paid as USO (Universal Service Obligation) to the government
TANZANIA	Overseas providers of communications (e.g. roaming partners) with no presence or physical assets in Tanzania providing mobile communications services to Tanzanian customers (e.g. mobile phone operator) will now be subject to Tanzania withholding tax (to be deducted by his customer). The overseas provider will normally not be able to claim credit for such tax in his home jurisdiction VAT: Each of the two sides of the Union (Mainland Tanzania and the Isles - Zanzibar) has its own VAT legislation (i.e. VAT is not a union tax) The two legislations have not been properly aligned between themselves and with other legislations
UGANDA	2 .5% of mobile operator revenue paid as regulatory fees to the government
ZAMBIA	1. 5% of mobile operator revenue paid as regulatory fees to the government

Source: 2012 SSA Mobile Observatory

3.2.1.2. Universal Service Fund levy

Some countries[49] in SSA have established Universal Service Funds (USFs) on the premise that operators will not extend services to certain underserved areas without financial incentives. Some USFs require operators to contribute a percentage, varying from 0.2% to 2%, of their annual revenues. However, rather than boost rural access, many USFs are holding onto funds that could otherwise be used to encourage rural consumers to take-up services, for example incentivising the purchase of mobile handsets.

FUND COLLECTION AND DISBURSEMENT ACROSS USFS IN SSA



Source: GSMA USF Survey, 2013

Figure 40

Irrespective of the well-intended objectives associated with the creation of USFs during the early stages of the liberalisation of telecommunications markets, there is considerable industry dialogue and debate regarding their practicality and efficacy. Part of this dialogue has been generated by the understanding that there are countries in which USFs have been created and monies collected, yet in many cases, these funds have either not been disbursed or the level of disbursements are substantially less than the contributions collected. The money held in many USFs amount to a meaningful portion of the host country's gross domestic product (GDP); for example, the funds accumulated in the USF of DRC amounts to 0.4% of its GDP.

Although several small-scale projects such as building additional base station sites, establishing internet connectivity centres and connecting schools have been financed in SSA through funds allocated from USFs, there is no overwhelming evidence to suggest that USFs are either effective or efficient. Alternative approaches to achieving universal service goals are often more effective than USFs. In fact, increased availability of telecommunications services has generally been accomplished through alternate solutions, such as the imposition of licence conditions on operators, the establishment of new plans or funds that are separate from the existing USF, or private/public partnerships (e.g., Finland). Based on their general performance to date, USFs do not appear to be the most appropriate mechanism to achieve universal service and further social and economic development. It would be beneficial for governments to consider whether USFs are appropriate and relevant, or whether alterative policy instruments may deliver better results.

49. Some countries with established USFs include Angola, Democratic Republic of Congo, Lesotho, South Africa, Tanzania, Uganda, Zambia

3.2.1.3

Surcharges on international call termination

Liberalisation of international gateways, competition and technological development has resulted in a dramatic fall in international calling prices. However, international 'gateway operator' companies have pressured governments in the region to establish controls on gateway traffic and prices through centrally set surcharges. In recent years, a number of governments and regulators in SSA have introduced another telecommunications specific taxation, the Surtax on International Incoming Traffic ('SIIT'), as a way of imposing controls on international gateways through third party gateway operators.[50]

The SIIT takes the form of an imposed fixed price that operators must charge for international inbound termination, of which the government takes a set amount. This fixed price is set above the negotiated rate that was present prior to the policy implementation, and the difference (or a portion of the difference) is collected by the government. Governments use a 3rd party to measure the number of international inbound minutes terminated by each operator, with the tax charges collected in this way are then shared with the private party that carries out the measuring function. Although the main objective of this taxation is to raise revenues for governments by taxing users calling from abroad into the country, in some cases the government transfers almost 50% of the revenue from the SIIT to the external call monitoring party; so this leakage should be taken into account when assessing the effectiveness and net benefit of this tax.

In addition to the distortionary effects common to all mobile specific taxes, the SIIT presents other unintended consequences for consumers, businesses and ultimately for the governments that chose to adopt it:

- Risk of increased termination charges for incoming calls in other countries leading to blanket increase in call charges across the region;
- Fall in domestic operator revenues from a reduction in incoming international call volumes affecting domestic investments and economic growth;
- Reduction in cross-border economic activity including raising the cost of doing business and decreasing remittances from migrant workers;
- Increase in fraudulent practices for traffic termination from increased incentive for arbitrage with high fixed call termination charges.

50 Some governments, for example Senegal, introduced SIIT and subsequently repealed it.

3.3

Reasonable Approach to Roaming Regulation

International Mobile Roaming (IMR) is a valuable service delivered in a competitive marketplace. Price regulation is not appropriate as the market is delivering many new solutions. Imposing roaming price regulation on mobile operators not only reduces revenue and increases costs but it deters investment.

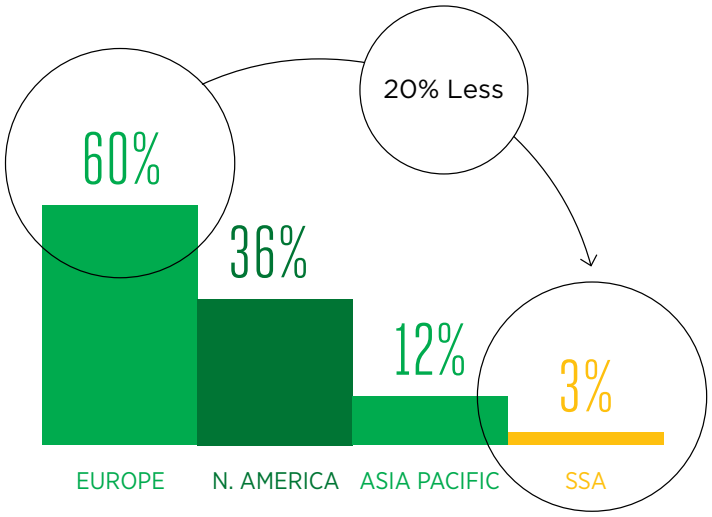
The mobile industry advocates a three-phase strategy to address concerns about IMR prices. This strategy recommends price regulation only after transparency measures and innovative IMR pricing have failed to address consumer complaints:

- transparency of roaming prices;
- the elimination of structural barriers that increase costs and cause price differences between countries;
- Government consideration of price regulation only as a last resort.

The costs and benefits of roaming price regulation must be carefully assessed through impact assessments and must take into account unique regional economic factors such as volumes of travel. Regulation should only be considered appropriate where the majority of consumers benefit.

AFRICA'S ROAMING MARKET IS DEVELOPING BUT STILL NASCENT AS LESS THAN 3% OF POPULATION TRAVEL ABROAD

Ratio of international trips to population, %, 2012



Other Key Stats EU vs. SSA
%, 2010, est.

	EU	SSA
% OF GLOBAL ROAMING REVENUES	39%	5%
% OF REGION'S TOTAL MOBILE REVENUES	3.8%	1.8%
POPULATION (MILLIONS)	739	994
% GLOBAL POPULATION	10%	14%

Source: operator data; Gartner; Informa; US Census Bureau; World Bank; A.T. Kearney analysis

Figure 41

In September 2013, the African Union (AU), African Telecommunications Union (ATU) and GSMA jointly developed "International Mobile Roaming Guidelines for Africa", with measures focusing on retail price transparency, including bill shock measures. Guidance is provided for both regulators and operators, with flexibility to ensure solutions are suitable for local markets. This is a significant step, and an example of public and private sector cooperation that will improve transparency of roaming prices and increase competition in Africa.

The roaming market in SSA is still at a nascent stage of development but rapidly increasing. Growth in tourism, business travel and prepaid accessibility will drive roaming usage, competition and innovative pricing. As the SSA market grows, governments must address structural and technical barriers. Non-liberalised international gateways must be opened to competition, and double taxation must be removed, as both inflate end-user prices. Eradicating fraud and ensuring widespread prepaid roaming availability and coverage will require further investments by mobile operators.

SSA operators' commercial responses to these challenges remain positive. Roaming prices are declining, with higher outlier prices being displaced by new innovative offers including: local rates for outbound calls while in a visited country and for calls back home; free incoming calls; lower rates on the same "one" network, and the ability to top up whilst roaming. This clearly demonstrates that competition between operators is delivering benefits to consumers.

For the full report on Mobile Economy: Sub-Saharan Africa 2013
please visit the GSMA website at www.gsma.com/mobileeconomyssa