Digital Inclusion

2014

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 more than 230 companies in the broader mobile ecosystem, including handset 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 the Mobile World Congress and Mobile Asia Expo.

For more information, please visit the GSMA corporate website at **www.gsma.com**

or Mobile World Live, the online portal for the mobile communications industry, at **www.mobileworldlive.com**

Contents

The goal of the Digital Inclusion programme is to support the connection of an additional **one billion** people to the mobile internet.

Executive Summary

Mobile phones have become the most popular and widespread form of personal technology on the planet, with 3.6 billion unique mobile subscribers and 7.2 billion connections globally[1]. Mobile has had a profound impact on all aspects of life, from simply allowing people to communicate with each other, to providing access to services such as education, healthcare and financial services. The mobile internet will bring the next wave of growth and impact.

Over the last 30 years, the internet has had a major impact on the world, transforming the way individuals, societies, businesses and industries function and interact. The International Telecoms Union (ITU) estimates that global internet users will grow from 1.6 billion in 2008 to 2.9 billion by the end of 2014, accounting for approximately 40% of the global population[2]. But this leaves the remaining 60%, or approximately 4.4 billion people unconnected[3].

This gap will largely be addressed by growth in mobile internet, which will see billions of people connect to the internet for the first time via a mobile device. GSMA Intelligence estimates that in 2013 the number of people using the mobile internet reached 2.2 billion, rising to 3.8 billion by 2020, driven by growth in developing countries. The unconnected population in these markets is predominantly rural, with low incomes and high levels of illiteracy creating barriers to mobile internet adoption.

In April 2014 the GSMA launched Digital Inclusion, a new programme aimed at expanding global connectivity by addressing barriers to mobile internet adoption, with the goal to "support the connection of an additional one billion people to the mobile internet[4]." The programme will collaborate with mobile operators, governments, broader mobile ecosystem players and non-governmental organisations (NGOs) to address four key barriers to mobile internet adoption.

MOBILE INTERNET
Wireless access to the internet through a mobile phone, smartphone, USB wireless modem, tablet or other mobile device.

MOBILE BROADBAND
Access to the mobile internet via a high speed 3G or 4G mobile connection.

1. GSMA Intelligence
2. http://www.itu.int/net/pressoffice/press_releases/2014/23.aspx#.VDKPgfldV9y
3. VNI Service Adoption Forecast, Cisco, June 2014
4. GSMA

Digital Inclusion has prioritised four barriers to mobile internet adoption to address:

Network Infrastructure and Policy – Network coverage is critical for access to the mobile internet. Mobile operators covered 85% of the global population with 2G and 55% with 3G mobile signal. The economic case for mobile operators to expand networks into remote, rural areas is challenging because of the cost of maintaining and powering cell towers in remote, off-grid locations, combined with lower revenues expected from thinly spread, low income populations. Industry solutions to address this barrier include infrastructure sharing and use of renewable energy for powering off-grid cell towers. Government policies can also support increased network coverage including timely release of low frequency spectrum, supporting voluntary network sharing and providing public subsidies for networks.

Taxation – The combination of low incomes, the cost of the device, charging fees, and data plan payments creates an affordability barrier to accessing the mobile internet. This issue is compounded by government taxes and fees, such as airtime taxes and handset taxes. Taxes on mobile consumers restrict access and usage by reducing affordability, while taxes on mobile operators limit incentives for investment in networks. Yet mobile is often subject to higher taxation than other sectors. Reducing mobile taxes has been demonstrated to increase digital inclusion, as well as mobile operator investment, leading to a greater economic contribution from the mobile industry which ultimately expands the tax revenue base for governments.

Consumer Barriers – Illiteracy, digital illiteracy and lack of internet awareness are consumer barriers to mobile internet adoption. In 2011 there were 774 million illiterate adults globally[5]. In developing countries in particular, illiteracy is most prominent across rural areas and marginalised groups, such as the poor and youth, and causes a major challenge in accessing internet content which is predominately text based. Combined with an overall lack of awareness about the internet and its potential uses and benefits, this creates a significant barrier for mobile internet adoption, even where coverage and affordability issues have been addressed. Building awareness of the internet and required skills in the developing world will require efforts of multiple stakeholders with respect to the delivery of awareness building campaigns and literacy training programmes.

Local Content - Content plays a vital role in the adoption of mobile internet in developing countries, however, at present the majority of content is in English and is largely focussed on data-heavy smartphone apps. Smartphone penetration is still low in the developing world and English is not the primary language for the majority of the population, thereby limiting accessibility and usefulness of the content. In order to reach the widest audience, content needs to be available on as many devices as possible in languages the users understand, as well as being relevant to their local needs and interests. E-government services are emerging as a major source of local content for mobile internet in developing countries, and are a driver for use of mobile internet.

McKinsey and Company completed a detailed analysis of the barriers to internet access in "Offline and falling behind: Barriers to Internet adoption", which is summarised in Figure 1.

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5. http://www.un.org/apps/news/story.asp?NewsID=47034#.VDKh2PldV9w

Figure 1: Barriers to internet access

INFRASTRUCTURE

Lack of mobile internet coverage or network access

Lack of adjacent infrastructure (e.g. grid electricity)

USER CAPABILITY

Lack of digital literacy

Lack of language literacy

LOW INCOMES AND AFFORDABILITY

Low income or consumer purchasing power

Total cost of ownership for device

Cost of data plan

Consumer taxes and fees

INCENTIVES

Lack of awareness of internet or relevant use cases

Lack of relevant content and services (e.g., local, localised)

Lack of cultural or social acceptance

2 Digital Inclusion Industry Context

2.1 The internet revolution

The internet has had a major impact on the world over the last 30 years, transforming the way individuals, societies and business interact, creating entire businesses with the internet at their core. Consumers and businesses across the world, from financial centres to remote villages, are able to join a global community that is expanding by the day: according to the ITU, global internet users grew from 1.6 billion in 2008 to 2.9 billion by the end of 2014, accounting for approximately 40% of the global population[6].

The way the internet facilitates both social and business interaction has led to it contributing significantly to the global economy. McKinsey and Company estimates that the internet contributed 2.9% of global GDP in 2010, or about US$1.7 trillion[7]. In the last five years the internet has accounted for 10% of total GDP growth in China, India and Brazil, and the trend is accelerating across the developing world.

The greatest future impact from the internet will be in developing countries, where user penetration is typically lower than more advanced countries, but where access and usage will likely grow the most, and investments in infrastructure that will increase bandwidth, reduce costs and connect previously unconnected populations to the internet will drive economic growth. As an example, McKinsey and Company estimates that the internet could account for up to 10% (US$300 billion) of Africa's annual GDP by 2025 due the transformational effects on retail, agriculture, education and healthcare, up from around 1% today[8].

6. http://www.itu.int/net/pressoffice/press_releases/2014/23.aspx#.VDKPgfldV9y
7. McKinsey & Company, The Impact of the Internet on Economic Growth and Prosperity, 2011
8. Lions go digital: The Internet's transformative impact in Africa, McKinsey and Company, January 2013

The internet could account for up to **US$300B** of Africa's annual GDP by 2025

DIGITAL INCLUSION INDUSTRY CONTEXT

Internet

GLOBAL INTERNET CONNECTIVITY:

40%
are connected

60%
remain unconnected

(source: ITU)

Rural populations account for

64%
of the unconnected population

(source: McKinsey and Company)

Mobile

3.6B
unique mobile subscribers globally

2.7B
are in the developing world

(source: GSMA Intelligence)

18X
Global mobile data traffic in 2013 was nearly 18X the size of the entire internet in 2000

(source: Global Mobile Data Traffic Forecast Update, Cisco, February 2014)
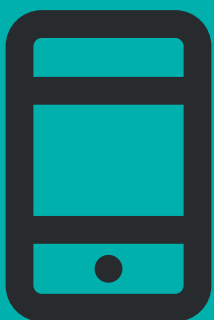
Smartphones account for

40-50%
of total handsets in the developed world, but below

10%
in the developing world

(source: GSMA Intelligence estimate)

Mobile operator data revenues expected to surpass voice revenues globally by 2018

(source: GSMA Intelligence)

Mobile internet

(source: GSMA Intelligence)
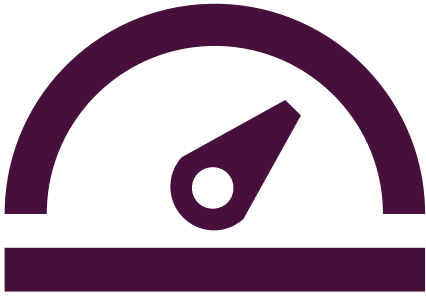
Mobile internet connections overtook fixed-broadband connections globally in 2008, and mobile data traffic is expected to overtake desktop traffic in 2014

3G/4G mobile internet subscribers will be

3 TIMES

the size of **2G** mobile internet users in 2020

UNIQUE
MOBILE
INTERNET
SUBSCRIBERS
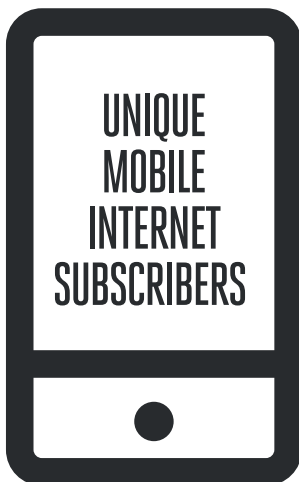
2013 2.2B

2020 3.8B

Barriers addressed by the Digital Inclusion programme

Network infrastructure and policy

Taxation

Consumer barriers

Local content

2.2   The mobile revolution

Presently, mobile phones are the most popular and widespread form of personal technology on the planet, with GSMA Intelligence reporting 3.6 billion unique mobile subscribers and 7.2 billion connections globally[9].

Source: GSMA Intelligence

Figure 2: Unique subscribers

SUBSCRIBER PENETRATION (%)

78%	79%	79%	80%	80%	80%	81%	81%	81%	81%
36%	39%	42%	45%	48%	50%	52%	53%	55%	56%

UNIQUE SUBSCRIBERS (M)

2,155	2,336	2,575	2,783	2,976	3,144	3,303	3,437	3,560	3,678
859	874	885	895	903	912	919	926	933	939
2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

Developed   Developing
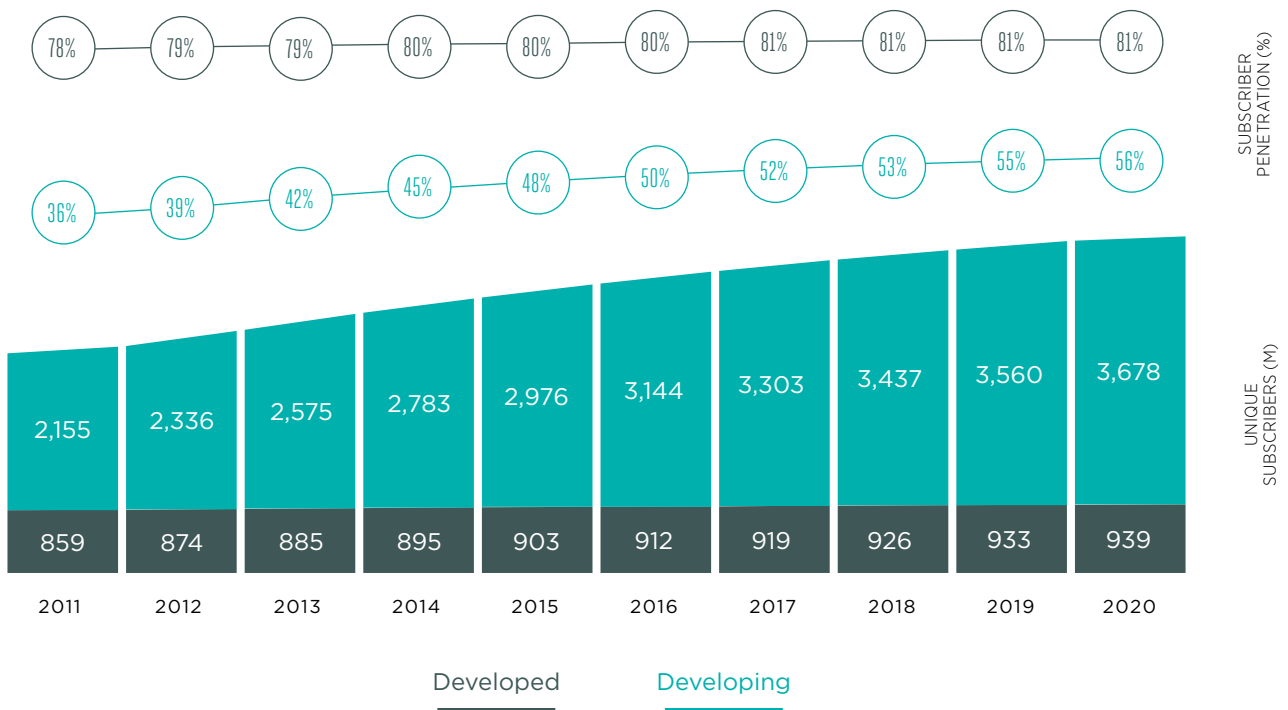
UNIQUE SUBSCRIBERS – Unique users who have subscribed to mobile services, excluding machine to machine (M2M). Subscribers differ from connections such that a unique user can have multiple connections

CONNECTIONS – Unique SIM cards (or phone numbers, where SIM cards are not used) that have been registered on the mobile network

9.   GSMA Intelligence

The cost of both mobile devices and data plans has fallen sharply over recent years. Strategy Analytics report that an entry-level smartphone in 2013 cost on average just US$63, down from US$296 in 2003 (a drop of 80%). This trend is particularly prevalent in developing countries. In Latin America for example, the average price of an entry level smartphone data plan (with a 250MB usage cap) fell from US$17.68 in 2010 to US$8.33 in 2013, a decline of 52% in just three years[10].

According to Strategy Analytics smartphones have been a major factor in the global growth of mobile internet, increasing from 11% of total handset sales in 2007 to just under 60% in 2013, expected to reach just under 70% by the end of 2014. However, it must be noted that smartphone growth is not a global phenomenon. In the developed world, smartphones account for around 45-50% of total handsets, whilst in the developing world, this number is below 10%[11]. Lower income groups (often earning less than US$2 a day) represent large sections of the populations in many developing countries and smartphones are still a niche product reserved for the upper echelons of society, despite a general decline in price.

Nevertheless, the developing world continues to be the engine room of mobile growth, adding 416 million new unique subscribers over the last 2 years and pushing total unique subscribers to 2.8 billion, with 5.9 billion connections[12].

The socio-economic impact of mobile is significant and well documented. The mobile industry, both directly and indirectly, contributed around 3.6%, or US$2.4 trillion of global GDP in 2013, and this is expected to increase to 5.1% by 2020. The mobile industry contributed 10.5 million jobs and US$336 billion in public funding in 2013, not including regulatory and spectrum fees[13].

The widespread availability of affordable mobile technology has revolutionised the way people communicate globally, particularly in developing countries. According to GSMA Intelligence, unique mobile subscriber penetration in the developing world increased steadily over the last 5 years to 44% (from approximately 25%), with an additional 15-20% having access to a mobile despite not owning one. Given the widespread lack of fixed-line infrastructure and the inherent low level of PC ownership (under 10%)[14], this makes mobile the primary communication platform for the majority of the developing world population. As a result, more people are using their mobile devices to communicate with friends and family, and businesses are increasingly able to connect with their employees and customers.

Ironically, while mobile penetration rates continue to rise in the developing world, basic services continue to be limited. In some markets, less than a third of the population has access to basic utilities, such as banking and education services. Because of its near ubiquity, mobile technology can act as an enabler, and is already helping provide underserved people with access to education, healthcare, energy, and improved water sources, as well as providing previously unbanked populations with access to financial services. As such, mobile technology can play an invaluable role in the social, economic and environmental development of developing countries.

The GSMA currently tracks over 1750 life-enhancing mobile products and services throughout the developing world. To access the online tracker go to: www.gsmaintelligence.com/m4d

10. Barriers to Expanding Internet Access, McKinsey and Company, July 2014
11. GSMA Intelligence
12. GSMA Intelligence
13. The Mobile Economy, GSMA, 2014
14. GSMA Intelligence estimate based on Strategy Analytics and Telegeography data

2.3 The mobile internet revolution

The next wave of growth in the mobile industry is the mobile internet, which will see billions of people connect to the internet for the first time via a mobile device, resulting in social and economic transformation.

Global mobile data traffic in 2013 was nearly 18 times the size of the entire internet in 2000, and mobile is now the dominant means of accessing the internet. According to Cisco, global mobile internet connections overtook fixed-broadband connections in 2008, and mobile data traffic is expected to overtake desktop traffic in 2014[15].

Motivation to use the mobile internet is amplified by the portable nature of handsets, which enable access to information from anywhere, as well as useful location-based services, such as mapping based on GPS. The simple and increasingly touch-screen nature of handsets supports intuitive operation, simplifies web browsing, and improves the appearance of content such as pictures and movies. In addition, secure SIM cards support digital identity services such as mobile signatures, payments and biometric solutions.

Much of the developing world accesses the internet via mobile devices, and this impacts overall economic activity of a country. The World Bank estimates that the mobile internet has a higher positive economic impact than fixed-line broadband, particularly in developing countries, and that a 10% increase in mobile broadband penetration drives a 1.4% increase in GDP for low-to-middle income countries. This GDP growth, coupled with stimulation of the job market, helps fuel a virtuous circle that reduces poverty, improves infrastructure and services, and increases internet access and usage.

The mobile internet is widely accepted to be the next wave of industry growth. Mobile operators have made significant capital investments of over US$1 trillion in the last 6 years, focussing on both improving network coverage and facilitating the growth in mobile broadband connections. According to GSMA Intelligence, there are currently 707 mobile broadband (3G & 4G) networks worldwide, of which 422 are in the developing world, and capital expenditure is expected to continue to increase in order to accommodate the growing demand in global data traffic, with investments totalling US$1.7 trillion expected between 2014 and 2020[16]. This investment will drive mobile internet usage, resulting in mobile operator data revenues surpassing voice revenues globally by 2018.

GSMA Intelligence estimates that in 2013 the number of people using the mobile internet reached 2.2 billion, rising to 3.8 billion by 2020, driven by growth in developing countries. In those developing countries alone, at the end of 2013, it is estimated that 1.5 billion people used mobile internet services. By 2020, this figure is set to double reaching 3.0 billion, 45% of the population.

15. Global Mobile Data Traffic Forecast Update, Cisco, February 2014
16. The Mobile Economy, GSMA, 2014

"With my phone I can get information about farming. I can gather information about any crop related diseases, or find information about the quality of seeds, or information about market prices. As an example, we've doubled production in our Bajra and sugarcane crops. Regarding my family's health, we're now also in better contact with doctors. Small domestic sicknesses, the ones related to children also, we get immense relief with regard to those. The mobile internet tells you what injections should be given to small children right from the start, in what month it should be taken. All this information can be found."

RAJENDRA, LAKHORI VILLAGE, UTTAR PRADESH, INDIA

"The first time I used the internet was on my phone...In previous days, we were not able to obtain our own information. Whatever the teacher said, that's all the information we had. Now I can download information in two minutes. In the future, why can't the services we queue for in banks and post offices be sent via the mobile?"

DURGESH, UTTAR PRADESH, INDIA

Figure 3: Growth in unique mobile internet subscribers

| | Developed | Developing |
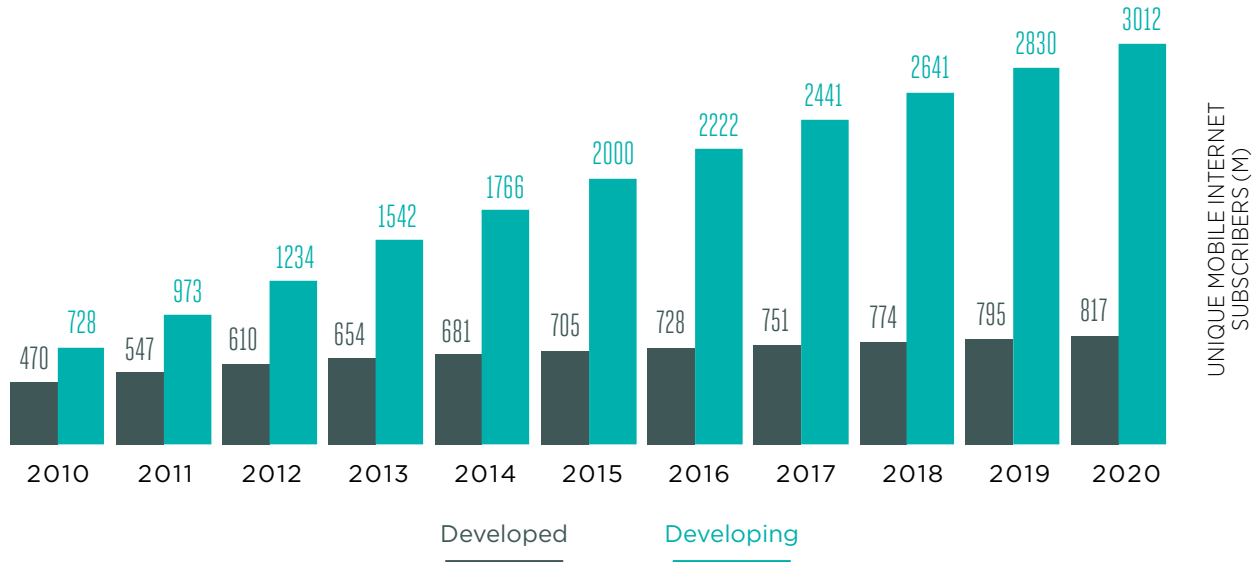
As the number of unique mobile internet subscribers continues to explode there will also be a transition to higher speed connectivity. The end of 2013 saw virtual parity between those using mobile internet services primarily on 2G networks and those using 3G/4G networks but a rapid shift of the subscriber base to faster, more advanced technologies results in 3G/4G mobile internet subscribers being almost 3 times the size of 2G mobile internet users in 2020.

Figure 4: Developing markets technology split
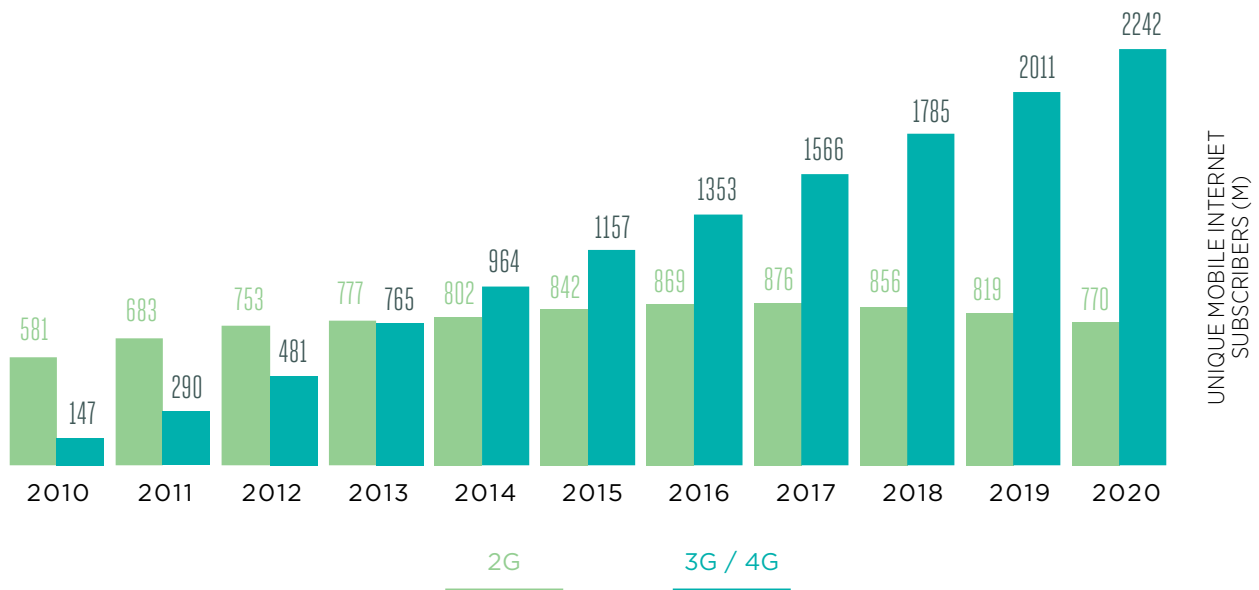
2.4   The offline population

The ITU estimates there will be 2.9 billion fixed and mobile internet users by end of 2014, accounting for approximately 40% of the global population[17]. But this leaves the remaining 60%, or approximately 4.4 billion people unconnected. And given the current pace of internet adoption, it is estimated 3.6 billion or 48% will still be offline by 2018[18].

McKinsey and Company have researched the demographic profile of the offline population across 20 countries and identified that rural populations account for 64% of the unconnected population[19]. Despite rapid urbanisation over the last few decades, there are currently 3.3 billion people living in rural areas, 3 billion of whom are in developing countries[20]. The rural populations in developing countries ranges from 15% in Brazil to 83% in Ethiopia, these rural populations typically have poor communication and power infrastructure, lower incomes, and suffer from higher rates of illiteracy.

Another characteristic identified was low income with over half of the unconnected population being low-income individuals. Even with the declining prices of data plans and devices, connectivity remains beyond the reach of many, particularly those who must prioritise food, shelter, clean water and energy over internet access.

Illiteracy is very common in the unconnected population with 28% being unable to read, causing a significant barrier to usage of mobile internet as the majority of content is text based. The issue of literacy and digital literacy is explored in 'Chapter 5: Consumer Barriers'.

Both youth and seniors are prominent in the offline population with 42% being younger than 25, and 18% being older than 54 years old. The youth segment,

a very large portion of the population of developing countries, have a strong appetite to adopt new technology and will be a major driver of mobile internet adoption. Seniors are disproportionately represented in the offline population due to their more conservative adoption of new technology and physical constraints that make accessing the internet on a small mobile device challenging.

Further, there is a bias towards fewer females being connected to the internet than men. Women account for 53% of the non-internet users versus 41% of the online population, with the gender gap rising up to 45% in certain parts of sub-Saharan Africa.

The GSMA Connected Women programme estimates that as of 2010, 21%, or 300 million fewer women than men owned a mobile phone in low-to-middle-income countries, not only putting women at a disadvantage, but also hindering societal progress. Many factors contribute to this discrepancy, and cost, awareness, illiteracy, culture and religion are all barriers that have been found to disproportionately affect women. The GSMA Connected Women programme is focused on increasing women's access to and use of mobile phones and life-enhancing mobile services in developing markets, as well as closing the digital skills gender gap, attracting and retaining female talent, and encouraging female leadership in technology on a global basis.

17. http://www.itu.int/net/pressoffice/press_releases/2014/23.aspx#.VC04vvldV9 and http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2014-e.pdf
18. VNI Service Adoption Forecast, Cisco, June 2014
19. Offline and falling behind: Barriers to Internet adoption, McKinsey and Company, 2014
20. GSMA Intelligence

3 Network Infrastructure and Policy

3.1 Lack of mobile network coverage

Mobile coverage is provided by cell towers over a surrounding radius, a cell, which is interlinked via backhaul to create a mobile network that can provide internet connectivity. Today, approximately 85% of the world's population is covered by a 2G signal and 2G coverage exceeds 70% for all countries. For faster mobile broadband 3G technology, population coverage is 55% globally, with concentration in urban areas[21].

The economic case for a mobile operator to expand networks into rural areas is challenging because of the cost of maintaining and powering cell towers in remote, off-grid locations, in combination with the lower revenues expected from the thinly spread, low income populations. Both industry and government have a role to play in improving the economics of mobile networks and facilitating greater network coverage in rural areas.

21. GSMA Intelligence estimate

NETWORK INFRASTRUCTURE AND POLICY

EXPANDING RURAL NETWORK COVERAGE
OF MOBILE INTERNET BY PROMOTING REGULATORY AND TECHNICAL BEST PRACTICE

85%

85% of the world's population is covered by a **2G** signal

55%
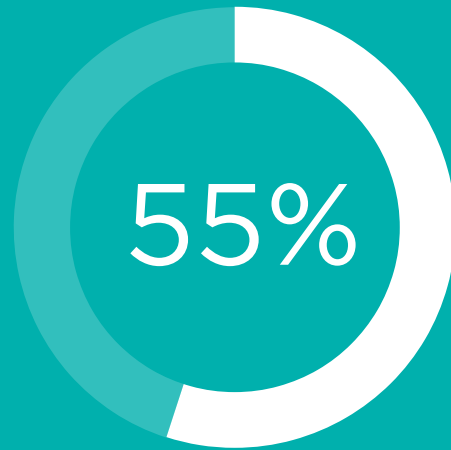
55% of the world's population is covered by a **3G** signal, concentrated in **urban areas**

(source: GSMA Intelligence)

60%

Energy constitutes as high as 60% of the total network operating expenditure

(source: GSMA)

BARRIERS

to network expansion in rural areas:

cost of maintenance & power in remote, off-grid locations

lower revenues from low income populations

SOLUTIONS

Infrastructure sharing

Timely release of low frequency spectrum

Public subsidies for networks

Use of renewable energy

3.1.1 Industry solutions

Addressing the costs of powering remote, rural cell towers is a priority for developing world mobile operators. A range of technological innovations to both improve the energy efficiency of cell tower equipment and to utilise solar, wind and other renewable energy sources are now commonplace as highlighted in section '3.2.1 Renewable energy mobile networks'. Network vendors, such as VNL[22] are designing innovative cell towers for rural, remote regions by using a combination of efficient, low capacity equipment with solar power and satellite technology for backhaul.

Infrastructure sharing is a solution that can help reduce the cost of extending network coverage, particularly into remote or geographically challenging areas. Infrastructure sharing is common in many countries, with arrangements allowing mobile operators to jointly use masts, buildings and even antennas, avoiding unnecessary duplication of infrastructure. It has the potential to strengthen competition and reduce the carbon footprint of mobile networks, while reducing costs for operators. Several operators in conjunction with the GSMA, announced an agreement in early 2014 to "cooperate on network sharing initiatives" and "to help to provide mobile broadband access to underserved rural communities and drive down the cost of mobile services for all sections of the population"[23].

3.1.2 Government solutions

Whilst the operators themselves are taking steps to address the coverage challenge, there are measures that can also be taken by governments and regulators to help support the goal of improving mobile internet coverage. These particularly relate to issues around spectrum management, network sharing, public subsidies for networks and proposals for single wholesale networks ('SWN').

Spectrum management and release of the Digital Dividend spectrum bands

The timely release of spectrum, particularly the Digital Dividend spectrum, can play an important role in helping to facilitate network deployments. Lower frequency bands, in particular the 700MHz and 800MHz bands have the broadest geographical coverage, requiring far fewer cell towers and are therefore more cost-effective to provide coverage to wider areas. Governments often use coverage obligations as terms for the license which define the extent and timescale for provision of rural coverage which are factors in the cost of the license.

Regulators should facilitate voluntary infrastructure sharing

As described above, infrastructure sharing is a mechanism the industry uses to reduce the cost and carbon footprint of mobile networks. However, in reality there may be barriers to infrastructure sharing. The government may be able to take steps to removing such administrative and regulatory barriers, which, if it facilitated voluntary infrastructure sharing between mobile operators would support expansion of mobile coverage in rural areas.

Regulators should facilitate voluntary infrastructure sharing between operators by easing planning controls to encourage shared fibre transmission facilities, and including preferential access along roads and other state property. Furthermore, registered providers (including third party tower companies) should be permitted to construct and acquire passive infrastructure and sell access to operators.

22. www.vnl.com
23. http://www.gsma.com/newsroom/gsma-and-operators-mobile-access-affordability-across-africa-and-the-middle-east/

Using public finances to directly subsidise rollout in uneconomic areas

The government can award public funds directly to operators, where aids are allocated on the basis of a public tender. In low demand areas, the expected rollout costs exceed the expected margin that would be generated from offering services in the area. As a result, the area will remain uncovered in the absence of public funding. The government could provide funding to bridge the gap between costs and margins such that the area becomes viable to cover.

In addition there might be remote areas which by themselves have enough demand to make roll out commercially viable, but the cost of extending the backhaul network might be too high. In these cases, government can help to bring broadband connectivity closer to rural customers by supporting the construction of backhaul links.

Regulators should not impose single wholesale networks

Regulators and governments in a number of developing markets are looking at the creation of 'single wholesale networks' as a policy tool, particularly to deliver mobile broadband networks. No SWN has as yet been implemented and some of the proposals differ in the detail. However, this would represent a radical departure from the existing model of competing networks and there are a number of concerns as to how a SWN would operate in practice. GSMA published a report analysing this topic 'Assessing the case for Single Wholesale Networks'[24] highlighting that SWNs will lead to worse outcomes for consumers than network competition.

3.2 Lack of adjacent infrastructure - grid electricity

Mobile networks in developing countries face various challenges in terms of power due to lack of reliable grid electricity infrastructure. When grid electricity is not available, cell towers typically use diesel generators, but consumption of diesel fuel is expensive, prone to maintenance problems and is heavily polluting.

Energy provision is a critical aspect of telecom networks. Diesel consumption for telecom towers will increase by 13-15% from today's levels, to over 150 million barrels a day. The resulting annual cost of diesel will be over US$19 billion in 2020, or US$5 per mobile-phone per year[25]. With a requirement of 99.9% uptime for the cell towers, networks must be powered up constantly throughout the year.

Therefore, electricity supply and grid infrastructure play a vital role in an operator's day-to-day operations.

The scale of this challenge is huge and growing as networks expand into ever more remote, rural areas. There are over 1 million off-grid and unreliable-grid cell towers in the world today, and this number is expected to grow to 1.2 million by 2020[26].

24. Assessing the case for Single Wholesale Networks, GSMA, 2014
25. Green Power for Mobile, Bi-Annual report, 2014
26. Green Power for Mobile, Bi-Annual report, 2014

3.2.1 Renewable energy mobile networks

Operators have built approximately 43,000 renewable energy sites globally since 2008[27] using a range of technologies including solar, wind and fuel cells. These sites require minimal amounts of diesel to operate and therefore significantly reduce the operating costs and maintenance burden of rural cell towers. This allows operators to expand network coverage to more remote areas on a cost effective basis.

The main challenge for operators to build renewable energy cell towers is the high upfront capital costs of the equipment compared to diesel generators. The savings on diesel fuel typically have a pay-back period against the higher upfront cost of one to three years. Operators also lack resources with technical skills and expertise in renewable energy technology to design, cost and procure the equipment, and they therefore require support from the equipment vendor community on this challenge.

GSMA GREEN POWER FOR MOBILE

In 2008 the GSMA established the Green Power for Mobile programme with an objective to *"Extend the coverage, reduce the cost and minimise the environmental impact of mobile networks by championing renewable energy"*.

The programme, in partnership with the International Finance Corporation, supports operators to resolve these challenges by developing a body of knowledge and insight, supporting a thriving vendor ecosystem, hosting working group forums, assessing latest technologies and resolving financing challenges. For more information visit www.gsma.com/gpm

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27. http://www.gsma.com/mobilefordevelopment/programmes/green-power-for-mobile/tracker

Operators have built approximately **43,000** renewable energy sites globally since 2008

4 Taxation

The mobile sector in many countries is the target of excess taxation that creates barriers to digital inclusion, especially in developing countries. Even though mobile is an essential service, it is often taxed at a substantially higher rate than other sectors. While these taxes are often imposed to meet short-term fiscal targets, they come at the cost of immediate and long-term benefits from increased access to mobile internet, and ultimately greater government revenue.

Mobile taxation includes taxes on handset purchases, subscriptions and consumption of services, as well as a number of sector-specific levies on operators. In a recent survey of 19 markets, taxes accounted for more than 30% of sector revenue in over half the markets surveyed, and more than 40% of sector revenue in Jordan, Tunisia, and Brazil. In Bangladesh and Turkey, taxes accounted for almost 60% of sector revenue.[28]

Taxes on mobile consumers restrict access and usage by reducing affordability, while taxes on operators limit incentives for investment, for example into expanded network coverage. As a result of these negative impacts, high levels of taxation have caused some communications ministers, like those of Nigeria and Brazil, and international institutions such as the ITU and the Broadband Commission, to call for reduced mobile taxation.[29] For the sector to achieve its potential, governments should harmonise mobile taxes to the general tax level.

28. Mobile Taxes and Fees: A toolkit of principles and evidence, GSMA/Deloitte, 2014
29. Nigeria: http://www.punchng.com/business/business-economy/taxes-levies-gulp-70-of-telecoms-investment-minister
   Brazilian: http://www.marketwatch.com/story/brazilian-official-phone-taxes-are-excessive-2012-08-27
   ITU: http://www.itu.int/net/pressoffice/press_releases/2012/11.aspx
   Broadband commission:https://itunews.itu.int/En/506-Broadband-Commission-for-Digital-Development-delivers report.note.aspx

TAXATION

REDUCING TOTAL COST OF OWNERSHIP OF MOBILE INTERNET BY ADDRESSING GOVERNMENT TAXES AND FEES

MOBILE TAXATION INCLUDES:

Taxes on handset purchases
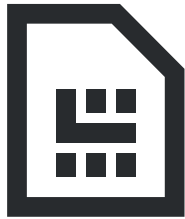
Taxes on subscriptions

Taxes on service consumption

Sector-specific levies on operators

Taxes can account for up to nearly **60%** of mobile sector revenues

(source: GSMA/Deloitte 2014 "Mobile taxes and fees: A toolkit of principles and evidence")

The average proportion of total cost of mobile phone ownership from tax is **18%**

(source: GSMA/Deloitte 2011 "Global mobile tax review")

The average annual growth of taxes and fees on mobile services is **2.1%**

(source: GSMA/Deloitte 2014 "Mobile taxes and fees: A toolkit of principles and evidence")

Reducing mobile taxes can increase consumer service access and usage, and operator investment

Figure 5: Taxes apply to both consumers and operators

4.1 Consumer taxes and fees

Taxes paid by consumers add to the cost of owning and using mobile phones. In Africa, taxes account for 19% of total cost of mobile ownership[30], representing a significant cost burden for consumers, especially poorer consumers. Mobile consumer taxes can take many forms.

Source: GSMA

Table 1: Common taxes on mobile consumers

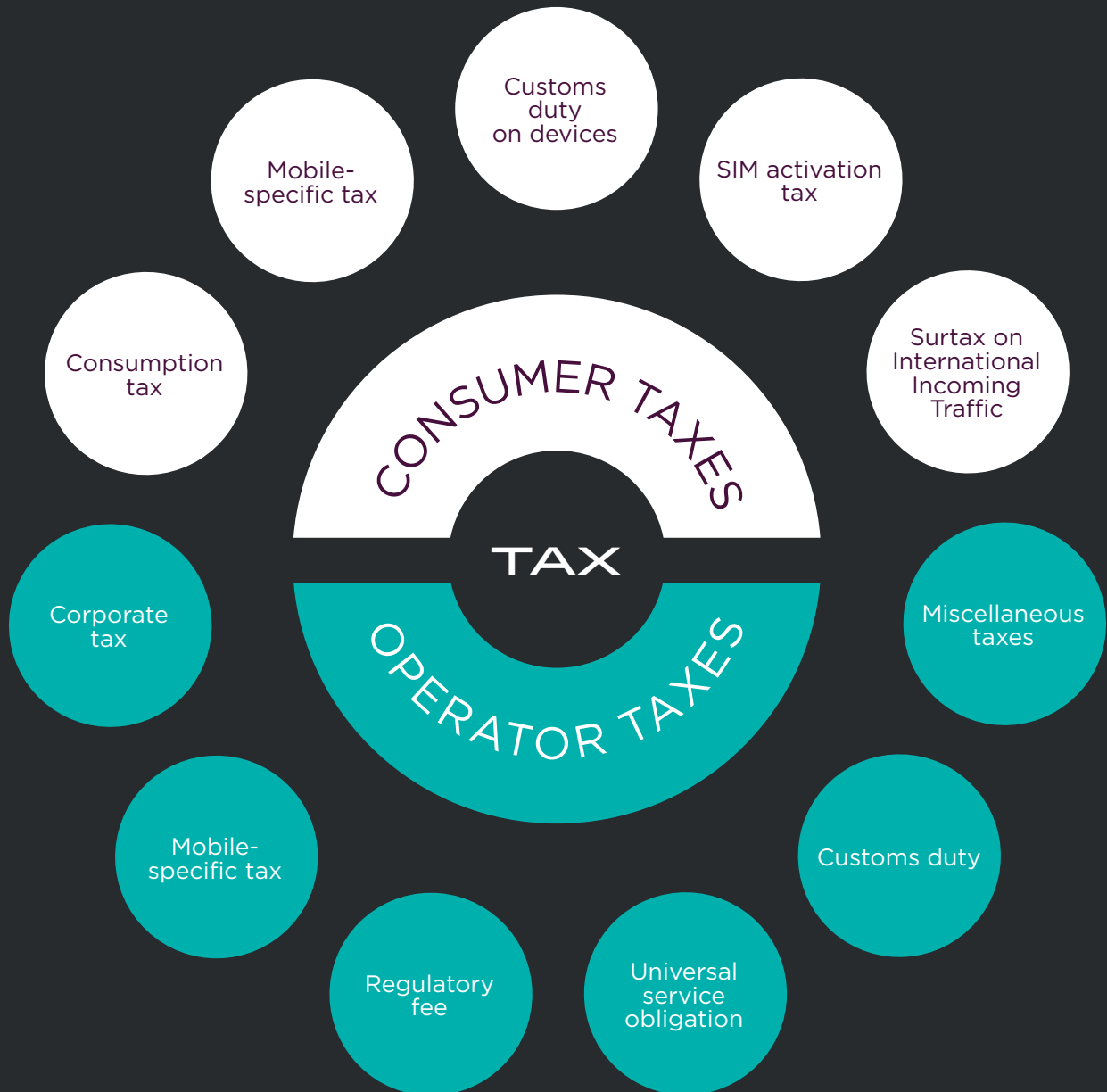| TYPE	DESCRIPTION	EXAMPLES
CONSUMPTION TAX	- A broad-based tax that applies to most products and services, such as Value Added Tax (VAT) or Goods and Services Tax (GST) - Mobile devices and services are often singled out for higher levels of these taxes	- Egypt: mobile 15% GST versus 10% standard - Jamaica: mobile 25% VAT versus 16.5% standard - Pakistan: mobile 19.5% sales tax versus 17% standard - Sudan: mobile 30% VAT versus 17% standard
MOBILE-SPECIFIC TAX AND LUXURY TAX	- Specific taxes on mobile services, which are applied on top of standard consumption taxes - Some taxes are also applied to luxury goods (e.g. jewellery) or products that governments seek to discourage (e.g. tobacco)	- Gabon: 18% airtime excise tax is imposed on top of an 18% general sales tax - Dominican Republic: 10% luxury tax applied to mobile devices and services - Some countries like Tanzania have also introduced taxes on new and innovative mobile services, such as m-money transactions
CUSTOMS DUTY	- Importers typically pay customs duties on imported mobile devices - These taxes are then passed on to consumers, adding to the cost of device ownership	- Brazil: mobile devices are subject to a 20% customs duty - Ghana: imported handsets are subject to customs duty of 20% as well as VAT and other miscellaneous taxes, resulting in a total tax of 48% on handset imports
SIM ACTIVATION TAX	- SIM cards are required for connecting devices to mobile networks - SIM taxes raise the cost of device acquisition, especially for poorer subscribers	- Bangladesh: SIM card taxes of US$3.88 are currently applied - Pakistan: SIM card taxes of US$2.44 are currently applied
SURTAX ON INTERNATIONAL INCOMING TRAFFIC (SIIT)	- A set fixed fee for international incoming calls, part of which is paid to government - Increases international call prices and act as a tax on other countries' citizens	- Ghana: one operator experienced a 12% decrease in revenues from the termination of international traffic in the 6 months after the imposition of SIIT

30. Mobile Taxes and Fees: A toolkit of principles and evidence, GMSA/Deloitte, 2014

Taxes on mobile consumers constitute a significant portion of mobile ownership costs, creating a barrier to mobile internet access. In 2011 the Global Mobile Tax Review (GSMA/Deloitte, 2011) of 111 countries showed that the proportion of the total cost of mobile ownership (TCMO) from tax had increased to an average of 18.1%, and in many countries, the proportion is significantly higher. In 11 countries, tax constituted over 40% of the cost of handsets. Figure 6 shows how taxes applied to every aspect of mobile ownership, from handsets to usage, contribute to TCMO in the top 5 countries ranked in the 2011 study.

Source: Global Mobile Tax Review, GSMA/Deloitte 2011

Figure 6: Tax as a proportion of total cost of mobile ownership
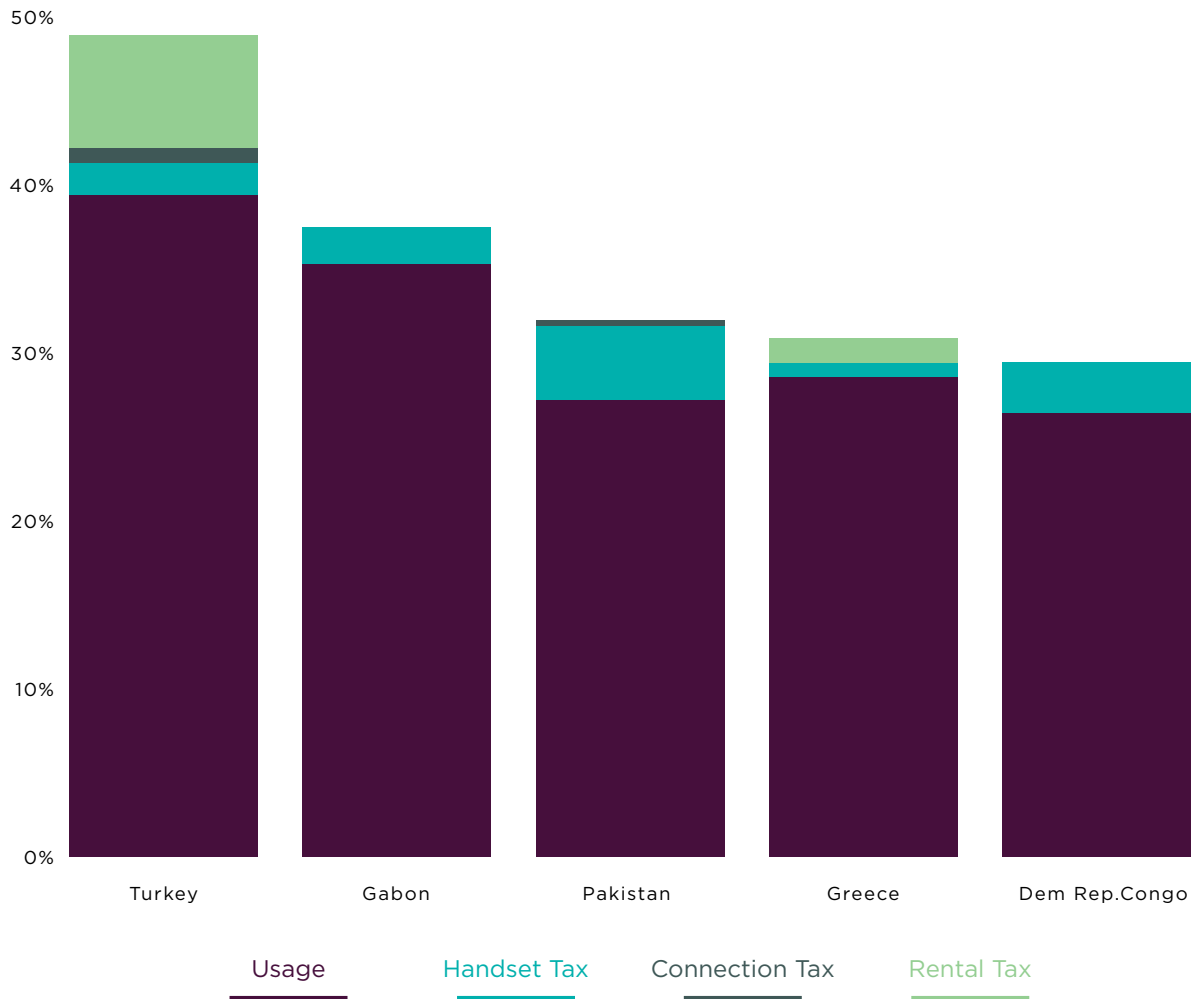
The added cost for mobile consumers due to taxes creates a significant barrier to mobile access. Taxes on mobile devices and SIM cards make mobile handsets, tablets and dongles more expensive. Low income consumers are especially hurt by this barrier and may be prevented from accessing internet-enabled mobile devices or even basic mobile phones. Taxes on airtime, short message service (SMS) and mobile broadband raise the cost of using mobile services and can cause consumers to limit the amount of mobile services they use or even to be deterred from using mobile services altogether.

Source: GSMA

Figure 7: Consumer taxes are a barrier to digital inclusion
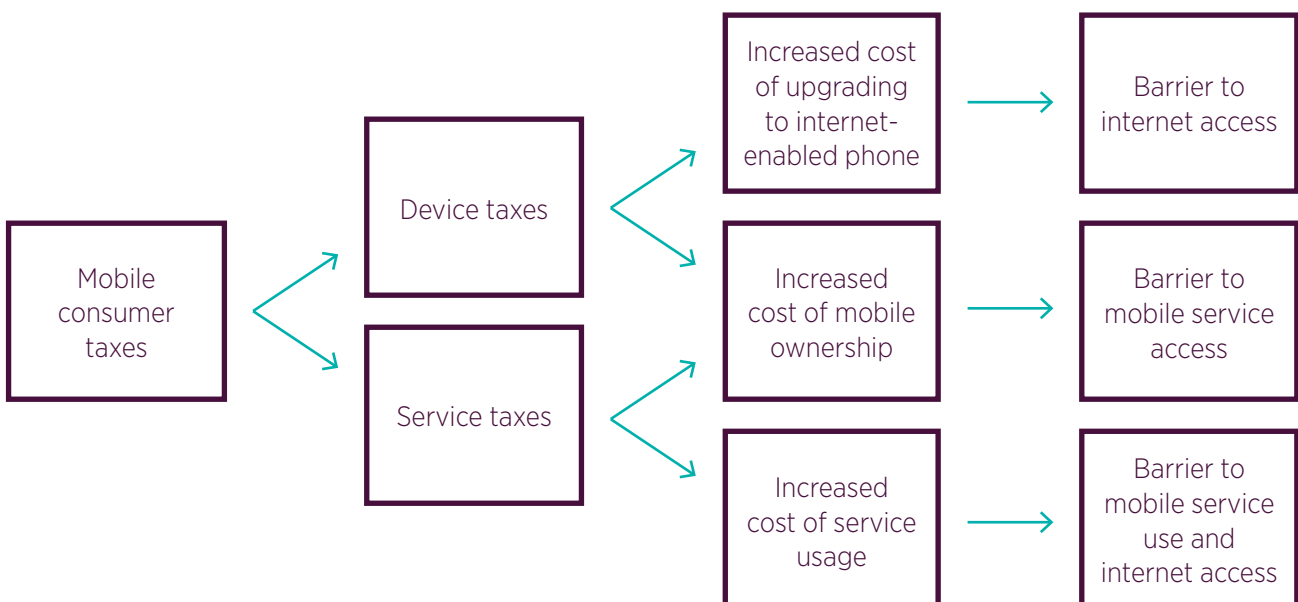
4.2   Operator taxes and fees

Operators frequently face a greater tax burden than companies in other sectors due to numerous sector-specific taxes and fees. The Mobile Taxes and Fees: Toolkit of Principles and Evidence (GSMA/Deloitte 2014) report surveyed 19 markets and found that taxes accounted for more than 30% of sector revenue in over half the markets surveyed, and more than 40% of sector revenue in Jordan, Tunisia, and Brazil. These include taxes on network equipment, revenues, profits and regulatory fees, as shown in Table 2.

Table 2: Common taxes on operators

TYPE	DESCRIPTION	EXAMPLES
CORPORATE TAX	- Corporate taxes are typically imposed on the profits of all companies - Operators are often singled out for a higher rate	- Bangladesh: 45% for operators (vs. 27.5% in general) - Cameroon: 39% (vs. 25% in general) - Tunisia: 35% (vs. 25% in general) - Yemen: 50% (vs. 20% in general)
MOBILE-SPECIFIC TAX	- In some countries, governments impose taxes on operator revenues	- Tanzania: mobile money commissions and revenues are each subject to a 10% tax - Ghana: operators pay 2.5% of their revenues to a health insurance fund - Bangladesh: operators pay 5.5% of their revenues as a "revenue share tax"
CUSTOMS DUTY	- Operators typically pay customs duties for imported network equipment	- Pakistan: customs duty on network equipment was increased from 5% to 10-25% in 2014 - Tanzania: a customs duty exemption on network equipment was removed in 2014
REGULATORY FEES	- Operators typically pay one-off license and spectrum fees - Operators also pay annual license and spectrum fees	- Ecuador: operators pay 3% of revenues as a licence fee - Brazil: operators pay 2% of their net revenues from the previous year as a spectrum fee
UNIVERSAL SERVICE OBLIGATION	- Operators usually pay a portion of revenues to a universal service fund, which is intended for use by the government to extend access to rural areas - In many cases, these funds are not the most efficient means for extending access and are not actively used[31]	- Colombia: operators pay 5% of revenues to a universal service fund - Sub-Saharan Africa: In a recent study of Universal Service Funds, more than half of the funds (12 out of 23) were found to apply levies of 2% or more on operator revenues[32]
MISCELLANEOUS TAXES	- Various regulatory authorities, national governments, and local governments levy additional fees and taxes on operators	- Nigeria: operators are subject to numerous fees charged by state governments and regulators, such as environmental taxes - Ghana: operators are subject to various business site fees charged by local governments

In many countries, the level of mobile taxation is increasing. The average annual growth of the taxes and fees burden on mobile services across all markets is 2.1%[33]. For example, over the last five years in Hungary, although the overall tax level on the economy increased by 0.5% annually, the level on telecoms rose 7%, predominantly driven by the introduction of a 'telecoms crisis tax' in 2010.

Operator taxes are a barrier to investment in network coverage and quality of service. Mobile taxes reduce operator margins, thus limiting their incentives for investment and limiting their returns available for reinvestment. In many countries, significant gaps in rural coverage remain, so investing in network roll-out is crucial. By limiting operators' ability to invest in networks, taxes on operators threaten to worsen the digital divide between those living in areas with access to mobile services and those without.

31. Sub-Saharan Africa – Universal Service Fund Study, GSMA, 2014
32. Sub-Saharan Africa – Universal Service Fund Study, GSMA, 2014
33. Mobile Taxes and Fees: A toolkit of principles and evidence, GMSA/Deloitte, 2014

Service quality and development of innovative services such as mobile banking services, may be limited due to taxes on operators. The International Monetary Fund (IMF), for example, highlighted the decline in investment in the information and communication sector of Hungary in recent years as a result of the disproportionate taxation burden on that sector.[34]

Source: GSMA

Figure 8: Mobile operator taxes act as barrier to investment
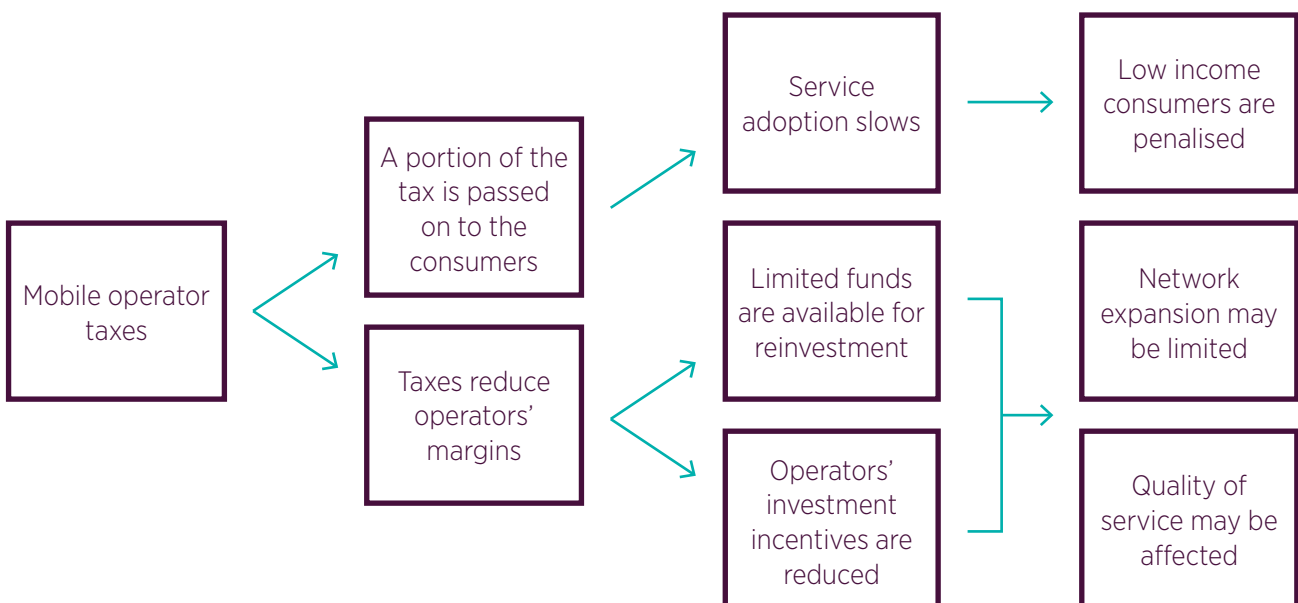
4.3 Benefits of lowering taxes

Lowering mobile taxes can help governments achieve their digital inclusion objectives. In markets where consumer tax levels have been reduced, an increase in the take-up and usage of services has occurred. In Ecuador, for example, the abolition of a mobile excise tax in 2008 resulted in a 40% increase in penetration, a lower cost per minute of calls, and increased usage per user[35]. Reducing operator taxes can similarly encourage network investment, leading to extension of mobile services to underserved areas and improvements in quality of service.

34. Hungary: Article IV Consultation, IMF, 2014
35. Mobile telephony and taxation in Latin America, GSMA/Deloitte, 2012

Figure 9: The benefits of mobile tax reduction

Tax reductions have a direct positive impact on the mobile sector...

...Which translate into wider economic benefits

Mobile tax reductions →

- Increased mobile penetration
- Increased mobile usage
- Increased investment in mobile networks

→

- Mobile enables productivity enhancements for workers
- Enhanced tax revenues through expansion of mobile usage
- Job creation and income generation across the mobile supply chain

→

- Real GDP increases
- Tax revenue increases
- Employment increases

The Mobile Taxes and Fees: Toolkit of Principles and Evidence (GSMA/Deloitte 2014) report estimates that if countries reduced mobile-specific taxes by approximately 6%, tax revenues would return to 2013 levels by between 2016 and 2020. Policymakers must be careful not to hinder mobile growth potential with polices that maximise near-term tax revenues at the expense of medium-term growth and development. A phased programme of tax harmonisation can offer governments the opportunity to benefit from a stronger economic contribution from mobile whilst limiting the short-run fiscal costs of such harmonisation.

Reducing
operator taxes
leads to extension
of mobile services to
underserved areas
and improvements in
quality of service

5 Consumer Barriers

5.1 Literacy

In 2011 there were 774 million illiterate adults globally and developing countries account for the majority of this population[36]. Despite high illiteracy rates, people in developing countries are adopting mobile technology at a high rate, albeit predominantly for voice calls, since many consumers are unable to tap into mobile internet due to lack of basic literacy.

In the traditional context, adult literacy is defined as *"the per cent of population aged 15 years and over who can both read and write with understanding a short simple statement on his or her everyday life"*[37].

Literacy is essential for understanding the mobile phone user interface, reading its display and using its keyboard. Lack of English literacy further prevents many native language speakers from using the mobile internet as 55% of websites use English as the primary language[38]. Generally, regions with high levels of illiteracy are also those that lag in take-up of the mobile internet.

36. http://www.un.org/apps/news/story.asp?NewsID=47034#.VDKh2PldV9w
37. http://www.uis.unesco.org/literacy/Pages/default.aspx
38. Web Technology Surveys - http://w3techs.com/technologies/overview/content_language/all

CONSUMER BARRIERS

INCREASING ADOPTION AND USAGE OF MOBILE INTERNET
BY ADDRESSING LITERACY AND INTERNET AWARENESS BARRIERS

774M

illiterate adults globally.
(developing countries are the majority)

(source: UN)
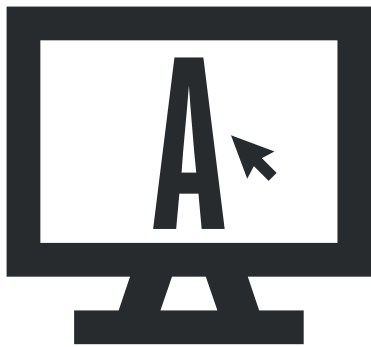
55%
of websites use English as the primary language

(source: Web Technology Surveys - http://w3techs.com/technologies/overview/content_language/all)

African individuals stated the top reason they **do not** access the internet is **lack of digital skills**

(source: McKinsey and Company)

69%
of respondents in India cited **lack of awareness** as the main reason for not using the internet

(source: McKinsey and Company)
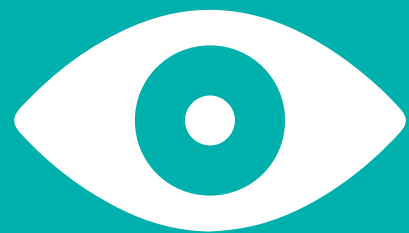
Building **internet awareness** and **digital literacy** skills requires efforts of multiple stakeholders to deliver campaigns and training programmes

Source: GSMA Intelligence, World Bank

Figure 10: Literacy vs. internet penetration

2013, Data includes both fixed and mobile internet users
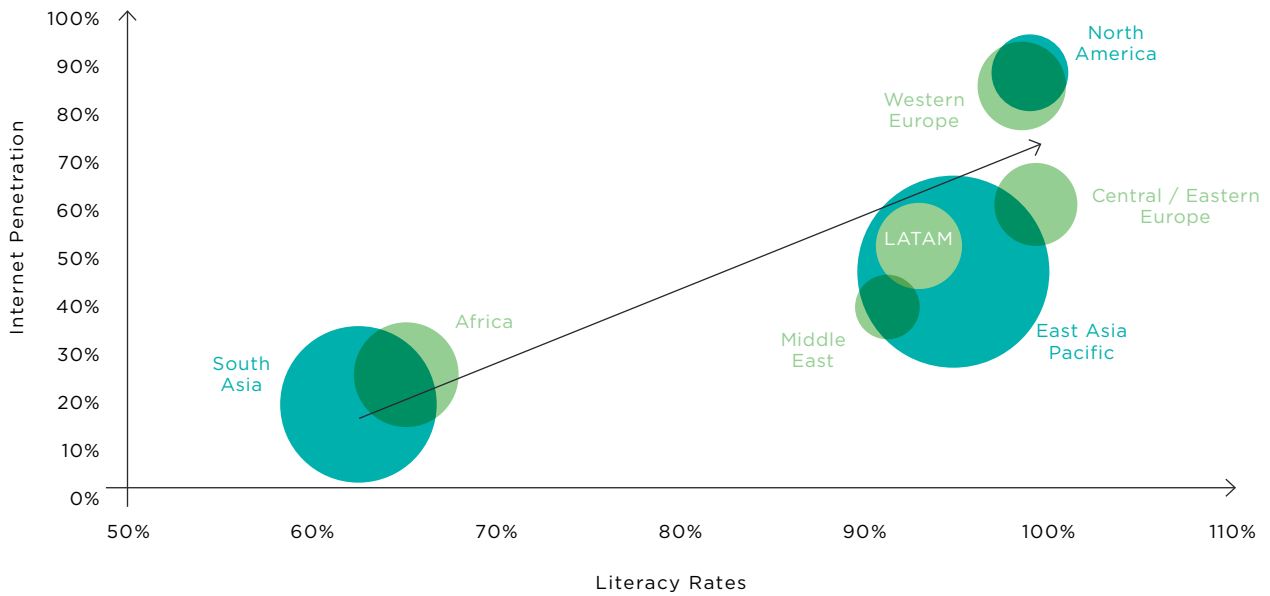
Illiteracy in developing countries is prominent across rural areas and marginalised groups of people such as the poor and youth, whilst women account for 64% of the total global illiterates[39]. These segments of the population are often most underserved by mobile technology, and by extension the largest untapped market for mobile internet adoption and usage.

Source: UNESCO, World Bank, Indian Express, Tribune

Figure 11: Literacy rates urban vs. rural

2007-2013

Urban   Rural

39. http://www.uis.unesco.org/literacy/Pages/data-release-map-2013.aspx
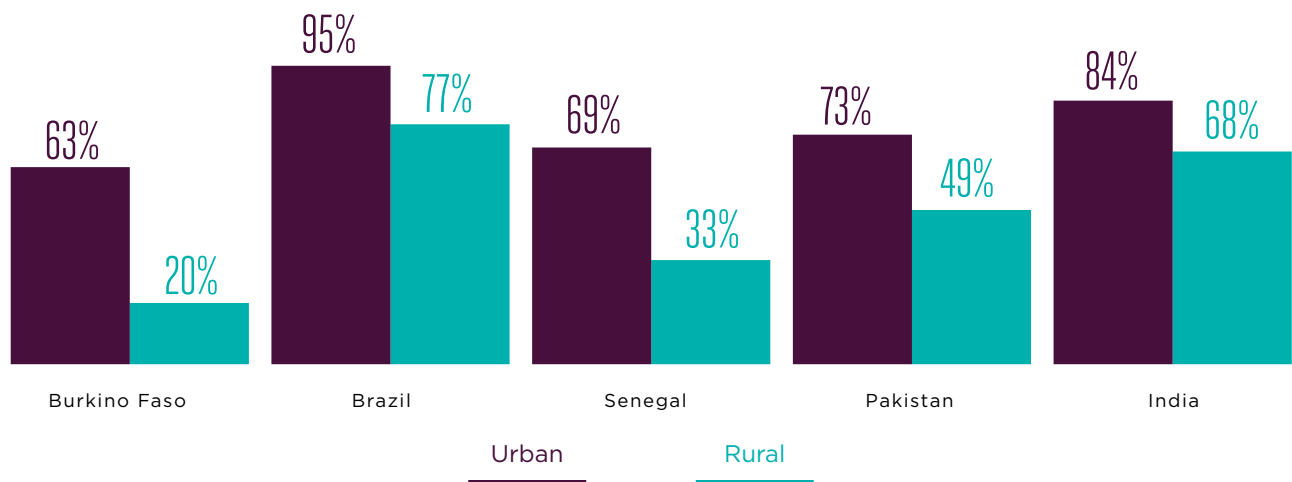
5.1.1 Digital literacy

Further to traditional literacy barriers, McKinsey and Company found that the top reason African individuals do not access the internet is because they have not developed the digital skills to do so[40]. This highlights that literacy outcomes must account for proficiency in basic language as well as technology – in other words, digital literacy. This concept might be summed up as "a set of skills that allows a user to not only access the internet, but to navigate websites, and evaluate and create information through digital devices".

In Africa, Google and Basis Research's survey of 13,000 people in urban centres in 6 key African countries (Ghana, Kenya, Nigeria, Senegal, South Africa and Uganda) found that among non-adopters, lack of knowledge of how to use the internet was perceived as a larger hurdle than coverage or cost.

Source: Google and Basis Research

Figure 12: Why do people not use the internet?

Knowledge   Access   Cost

---
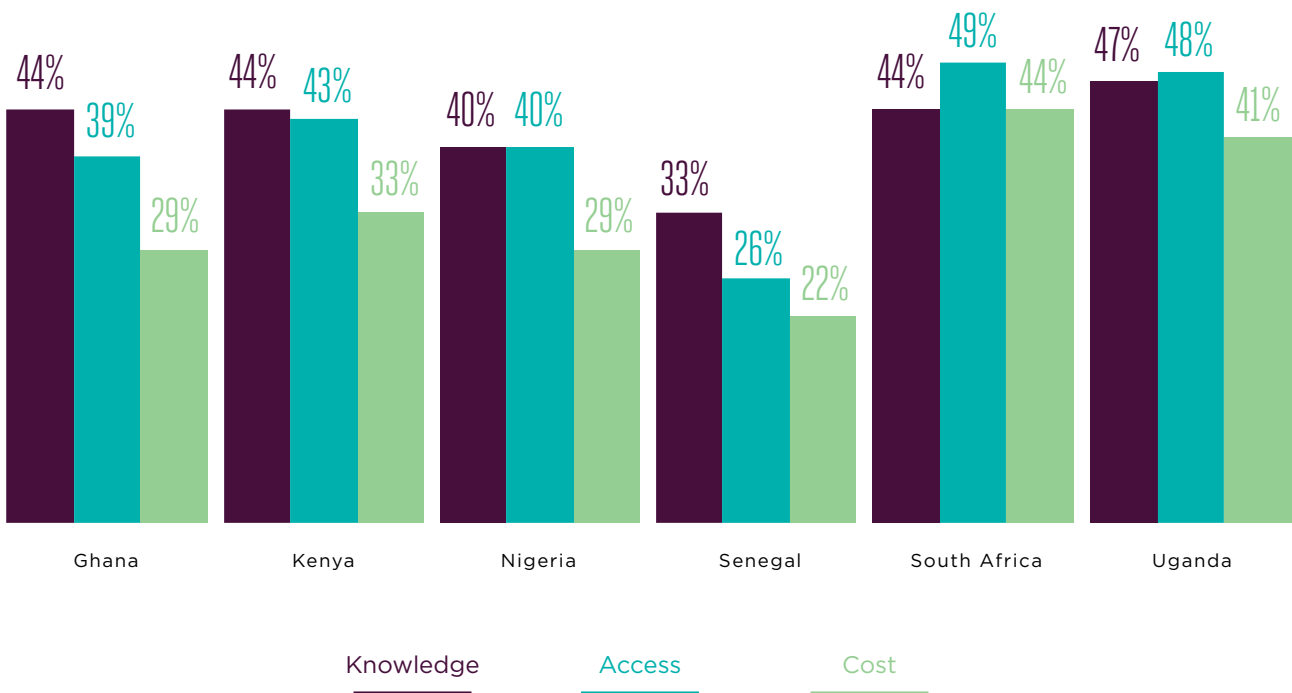
40. iConsumers: Life online, McKinsey and Company, January 2013

Mobile phones are and will continue to be the primary gateway to the internet for the majority of developing countries, due to their near ubiquity, along with the lack of fixed broadband infrastructure. Since a mobile user interface is different to that of a traditional PC, the user's internet journey requires different skill sets:

Basic mobile literacy: The ability to use the phone to make voice calls

Mobile technical literacy: The ability to use a mobile phone and its non-voice and core functions such as SMS, the calculator, alarm clock, time and date, contact menu, and camera. People who are technically illiterate are less likely to use these core functions effectively, if at all

Mobile internet literacy: The ability to access the internet using a mobile device internet browser and or application to find resources, and the capability to critically evaluate and create information

Advanced mobile internet literacy: The ability to find, evaluate, utilise, share, and create content using information technologies and the internet using a mobile phone or a computer. Advanced skills are achieved via five interdependent stages

Source: GSMA Intelligence

Figure 13: Stages of digital literacy using a mobile device

| TRADITIONAL LITERACY: Reading, writing, numeracy | BASIC MOBILE LITERACY: Use of voice on phone | MOBILE TECHNICAL LITERACY Use of features such as calendar, calculator, camera and text (SMS, USSD) in addition to voice | MOBILE INTERNET LITERACY Ability to search for content via internet browser and apps | ADVANCED MOBILE INTERNET LITERACY Access, create, navigate and consume online content on a range of digital devices |

It is important to highlight that mastering mobile internet literacy is not essential from the onset, nor is basic literacy always a pre-requisite for meaningful use of technology. The journey starts with learning the mechanics of using a mobile device, with a gradual transition towards use of more advanced features such as the internet.

5.1.2 Role of stakeholders

To address the needs of the illiterate population in the developing world, it is necessary to create awareness about the internet and its benefits in an effort to help people embark on the digital literacy journey. Specifically, we believe key stakeholder groups should consider targeted action:

Mobile Operators

Using the various assets in their business, operators can promote digital literacy leading to increased data revenues:

- **Distribution channels:** Using existing agent networks and door-to-door sales agents who are proficient in digital literacy, operators can provide training sessions to rural communities

- **SMS and interactive voice response (IVR):** Using these basic technologies, operators can design basic literacy tutorials that can be delivered to a wider subscriber base, particularly feature phone users

- **Existing customers:** Incentivise and encourage existing internet subscribers to become local agents, disseminating knowledge of the mobile phone, internet and relevant services to friends and family

Government

Governments must dedicate sufficient funding and support in the following areas:

- **Education:** Expedite the work in offering strong education systems at primary school level

- **ICT:** Promote use of ICT and internet as a medium of learning in schools, colleges and universities allowing students to master technology use.

- **Rural engagement:** Devote sufficient resources to extend a supportive learning environment to rural areas

- **E-government services:** Deliver services in education, health and financial disbursements and other life-enhancing services

Development Organisations

- **Partnership:** Work with operators and governments to produce relevant content to teach digital literacy

- **Engagement**: Develop ways to keep the rural community engaged and interested in improving their mobile internet skills

- **Dissemination:** Create mobile training centres and recruit trainers to improve digital literacy

- **Use existing infrastructure:** Offer digital literacy training via public libraries, schools, community centres and places of worship

5.2 Internet awareness

Internet awareness is the ability to perceive the internet and its existence, leading to an understanding of the benefits of its use. Basic awareness is a major challenge in the developing world, with large sections of the population still unaware of the mobile internet's existence and empowering potential. In a recent McKinsey and Company survey in India, 69% of respondents cited lack of awareness as the main reason for not using the internet[41].

Operators are increasingly finding that awareness is a significant barrier to internet take-up. To overcome this awareness barrier, MTN Uganda has been organising regional expos to drive awareness and assist subscribers in accessing the internet on feature phones and smartphones, as well as showcasing MTN's data products and services in an engaging, entertaining and informative way (see Appendix for MTN case study).

Figure 14 illustrates a framework for the customer awareness and user journey, taking the user from a basic level of awareness, to trial and continued use of the mobile internet.

Source: Research ICT Africa, GSMA Intelligence

Figure 14: The customer awareness journey
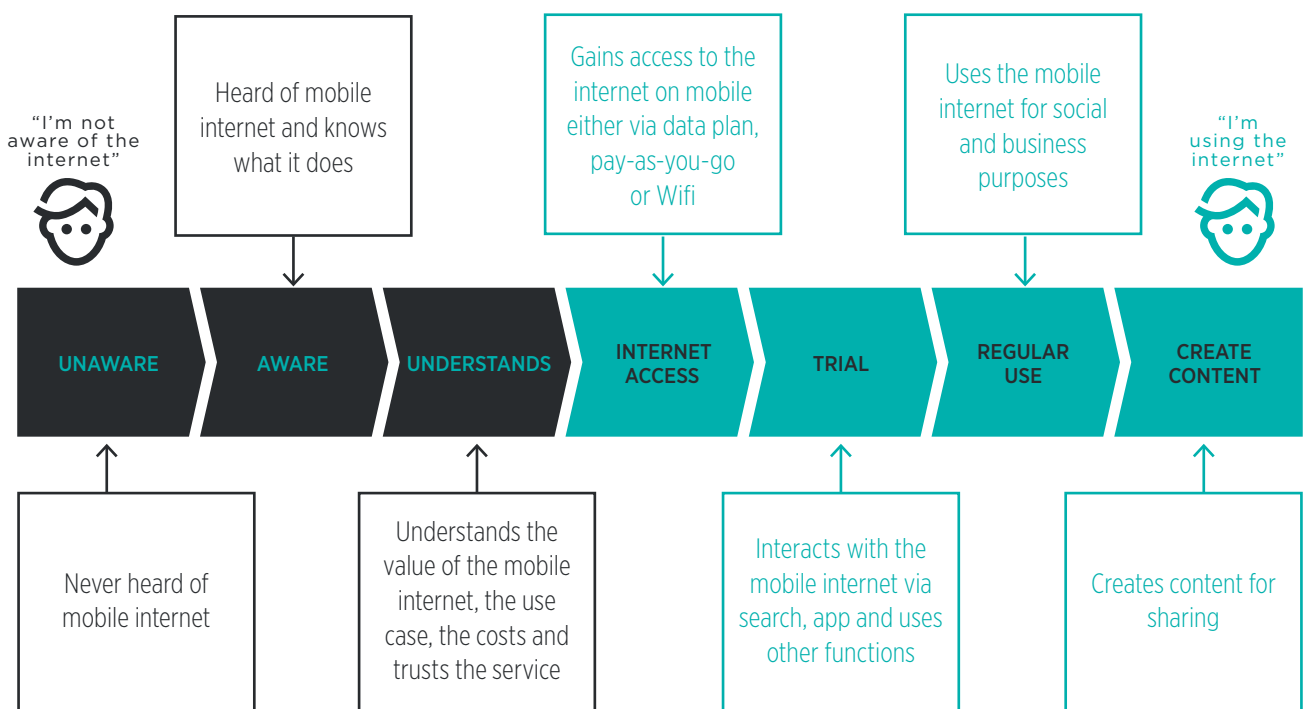
41. Offline and falling behind: Barriers to Expanding Internet Usage, McKinsey, 2014

Awareness of the value and benefits of the mobile internet is the first step a consumer takes in the adoption journey. While applications like email, search, social networking and instant messaging often bring significant benefits to the consumer; many non-adopters remain unaware of these benefits and the potential utility to their lives.

Source: Insights Africa, 2011

Figure 15: Awareness of applications among those who do not use the mobile internet

34%
Email

28%
Search

24%
Instant Messaging

24%
Social Networking

22%
Streaming Content
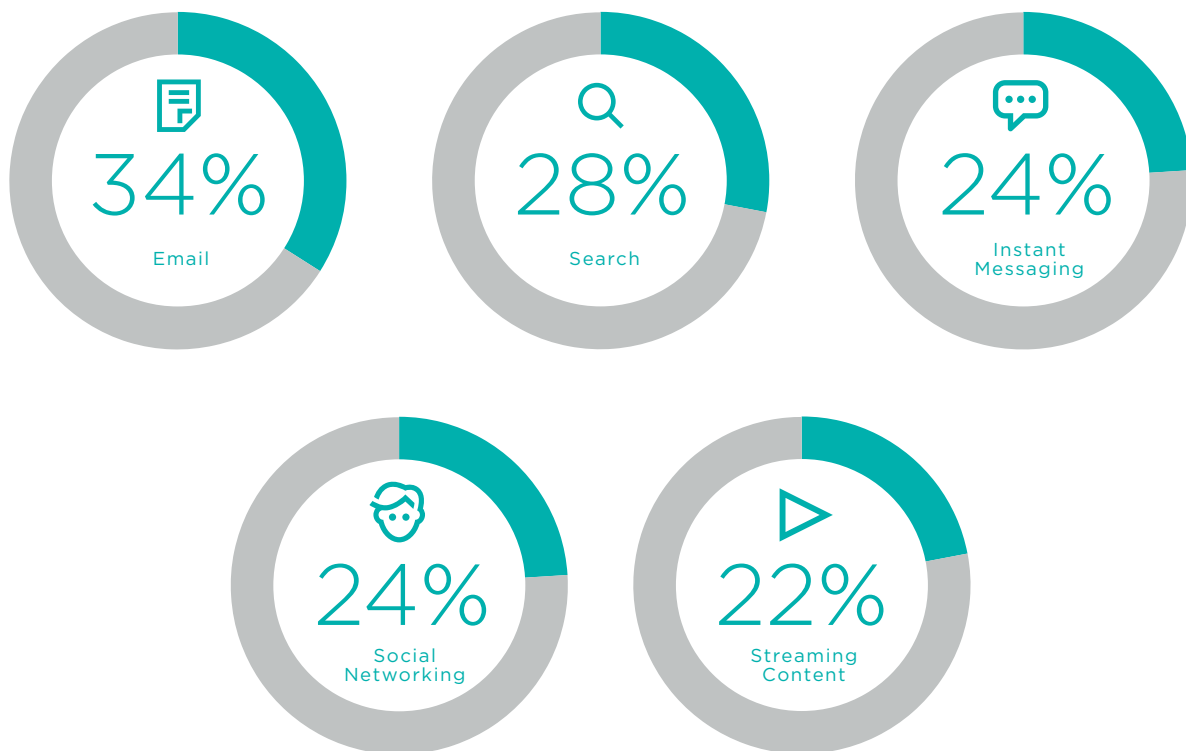
Looking at Base of Pyramid (BoP) users, research in Kenya suggests that while over 60% of individuals own or have access to a mobile phone, very few use applications other than M-PESA (M-Pesa is a mobile-phone based money transfer and microfinancing service, launched in 2007 by Safaricom and Vodacom, in Kenya and Tanzania), due to lack of awareness and confusion about the difference between applications[42]. Research conducted by Microsoft highlighted that, despite the lack of financial inclusion, most non-adopters of mobile banking cite lack of awareness as the main reason they do not use the application.

The consumer journey from unaware to a regular user of mobile internet is impacted by misconceptions. For example, in India, the internet is perceived as a premium and lifestyle service. There is also confusion about which content and services on the internet are trustworthy, secure and beneficial. As many applications require users to share their financial and personal information, individuals may lack the trust to engage. Finally, in some countries, governments censor opinion-orientated sites such as YouTube, leading to further negative perception in specific cultural environments.

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42. Mobile Usage at the Base of the Pyramid in Kenya, Infodev, 2012

5.2.1 Learnings and solutions

Building universal awareness of the internet and its benefits in the developing world will take many years and effort from a wide range of actors. Specifically, the following key stakeholder groups should consider targeted action:

Mobile Operators

Using their various assets, operators can grow mobile internet awareness. However, operators must shape marketing strategies based on the extent to which internet awareness is a challenge in their region:

- **SMS/IVR:** Design SMS and IVR based solutions as a step to raising customer awareness of internet services on basic phones. For example, Facebook provided an SMS and Unstructured Supplementary Service Data (USSD) based version for basic phones in addition to the more sophisticated mobile internet and smartphone app versions

- **Marketing:** Advertise the benefits of mobile internet through billboards, TV, radio and newspaper campaigns

- **Distribution channels:** Use existing sales agents and retail stores to create awareness of the use cases and benefits of mobile internet and the various data plans on offer.

- **Other campaigns:** Hold expos and events in local communities that are out of reach of traditional marketing channels to promote the benefits of mobile internet

Government

Governments must dedicate sufficient funding and support to raise awareness. In addition to the recommended actions in the literacy section of this report governments should:

- **Empower:** Empower rural communities with knowledge of the mobile internet and its benefits through advertising campaigns that raise awareness of the relevant use cases

- **Facilitate:** Support operators, internet content developers and development organisations in the development of services relevant to rural consumers

- **Stimulate:** Stimulate interest in mobile internet by showcasing social, cultural and economic advantages of mobile internet in rural communities

Development Organisations

Development organisations must work with operators to reach consumers and provide relevant materials showcasing the value of mobile internet to consumers:

- **Distribution:** Source used or refurbished smartphones and distribute them in rural communities. For example, O2 has partnered with Fonebak to encourage school children in the UK to round up their spare family phones, and then ships them to developing countries for re-use[43]

- **Insights:** Educate governments and donors on the benefits of mobile internet

- **Partnership:** Liaise with community leaders in the most remote communities to disseminate mobile internet awareness

43. Mobile Phone Lifecycles - Use, Take-back, Reuse and Recycle, GSMA, 2006

In India,
the internet
is perceived
as a premium
and lifestyle
service

6 Local Content

Across the globe users are consuming more and more content through apps and the mobile internet. In the developed world the explosion in mobile internet usage has been driven by the vast quantity of internet content that adds value to everyday lives by being accessible, interesting, useful, and most importantly, relevant.

Content also plays a vital role in the adoption of mobile internet in developing countries. However, at present, the majority of content is in English and is largely focussed on data-heavy smartphone apps. Smartphone penetration is still low in the developing world and English is not the primary language for the majority of the population, thereby limiting accessibility and usefulness of the content. In order to reach the widest audience, content needs to be available on as many devices as possible in languages the users understand, as well as being relevant to their local needs and interests.

LOCAL CONTENT

**PROMOTING LOCALLY RELEVANT CONTENT
TO ATTRACT PEOPLE TO USE THE MOBILE INTERNET**

The majority of mobile internet content is in English, for smartphones, and North American or European centric

55% of websites use English as the primary language

(source: Web Technology Surveys)

Only **5%** of the global population speak English as a first language
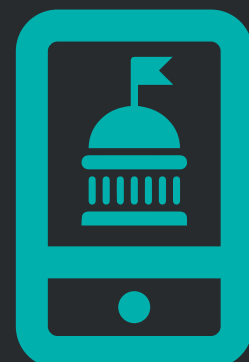
(source: Ethnologue)

Approximately **50%** of developing country populations live in rural areas

(source: GSMA Intelligence)

Content needs to be available on both smart phones and feature phones, in languages they understand, and relevant to their needs and interests

E-government services are emerging as a major source of local content

6.1 What is local content?

Mobile content is any form of electronic media (pictures, music, voice, text, videos, games, maps) that can be viewed or used on a mobile device, such as a mobile phone or tablet. Mobile content can be split into content distributed via mobile internet, such as apps and web-based services, and content outside the data channel, such as via IVR, SMS, Multi-media Message Service (MMS) and USSD. It is important to make this distinction, as while content via mobile internet is most prevalent in the developed world, content outside the data channel is particularly important in developing countries.

Local content can mean many things. It can refer to content that is in the local language, content that is created and hosted locally, or content that happens to be relevant to the local population. In terms of local language, much of the content that is currently available is simply translated, but this is not always sufficient, and tailoring content to fit the local and cultural context is where the real value lies. Local content creation is an important part of the ecosystem as local developers will generally understand their target market much better and be able to generate content to suit local needs. In addition, local hosting can bring speed and cost benefits for both end-users and content providers.

Local relevance can also mean different things. Some international content is relevant because it is interesting to consumers in those markets, such as foreign sports teams, films, music and international brands. However, local relevance, extends beyond information that is simply interesting, to content that specifically addresses key needs and challenges in the communities where consumers live and work, be it social networking, news, or information on business, health, agriculture and weather. Local relevance and local content is therefore defined as content or information that has a direct impact on the everyday lives of people.

DEFINITION OF LOCAL CONTENT: Local content is content or information that has a direct impact on the everyday lives of people, and can specifically address key needs and challenges in the communities where individuals live and work

In Figure 16, the three circles represent content that is locally relevant, created locally, or in the local language. The majority of 'local' content at present is international content simply translated, and hence the local language circle is the largest. A smaller volume of content is locally created and locally relevant. The categories overlap but not completely, as some types of content only fall into some of the areas.

Some content and services will be simple translations of existing content, using services such as Google Translate. Others, such as those focussing on international news (CNN for example) may well be locally relevant, but not necessarily in the local language. Information on sports or entertainment, such as ESPN or IMDb, may well be interesting to people in developing countries, but not locally relevant as per the above definition. And user-generated content, such as Wikipedia, can be created locally in the local language, but may not necessarily be relevant to the local community as the information can be anything the writers themselves find interesting.

Figure 16: Local content has a combination of local language, local relevance and local creation

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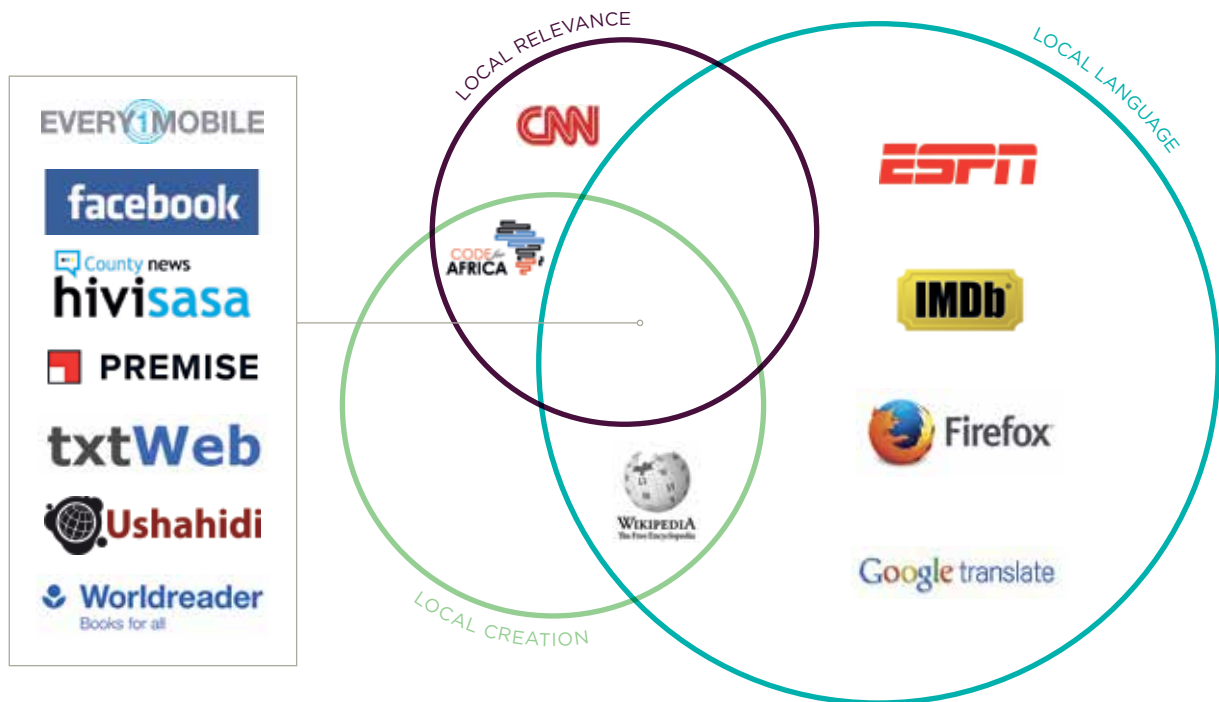
Content created within the markets, addressing specific needs is found at the centre of the diagram. This is content that is locally generated, in the local language and locally relevant to users in emerging markets.

Examples include:

- **HiviSasa:** a free online newspaper that engages local users, especially youth, to come online and contribute as citizen news reporters

- **Premise:** a service that monitors price, quality and availability of goods and services from local, on-the-ground sources tracking data points at the point of sale

- **Every1Mobile:** builds and manages online communities that offer young people opportunities to discuss topics related to health, education, jobs and entertainment with their peers and subject matter experts on mobile, helping users to generate content that matters most to them

In addition, social networking sites such as Facebook can function as platforms for user-generated content specific to the interests, wants and needs of people in developing countries

6.2 Impact of language on local content

One of the major challenges in the expansion of mobile internet content is language. 55% of websites use English as the primary language, which is in stark contrast to the fact that only 5% of the global population (335 million) speak English as their first language[44]. Chinese on the other hand (including all dialects) is the first language of over 1.1 billion people (17% of the global population), yet only 3% of websites are written in Chinese[45]. This trend continues in many non-English speaking countries throughout the developing world, where very little internet content exists in languages such as Arabic, Hindi and Bengali.

Similarly, aside from the top grossing and popular social networking, gaming or instant messaging apps, most mobile content lacks local language support. The major platforms (iOS, Android and Windows Phone) have features that make translating an app simpler for the developers but, this is not always a solution, as simply translating an app can often lead to more problems than it solves. There is much more to local content than simple translation, and local context needs to be considered in order to make content relevant to target consumers.

6.3 Impact of social media on local content

Social networking has become one of the most important sources of crowd-sourced content, Facebook and Twitter being the most popular sites serving this purpose. While content distributed through these websites is highly influenced both by language limitations and individual user preferences (making it difficult to manage and curate), they act as very important channels for distributing content due to the large number of users and the potential for more locally relevant content.

In addition to being used by consumers, many social media websites are now actively used by businesses for advertising and marketing purposes. Facebook, for example, has dedicated pages created by businesses, organisations and brands that can be subscribed to or 'followed'.

Interestingly, a number of local businesses across the globe have Facebook pages rather than creating websites from scratch, owing to the ease of managing and interacting on Facebook as opposed to developing and maintaining websites of their own. This opportunity will grow with the rise in mobile internet and smartphone adoption in developing countries, expanding the potential of social networks to be used as a platform for the creation and dissemination of local content.

44. Web Technology Surveys -http://w3techs.com/technologies/overview/content_language/all
45. Ethnologue - http://www.ethnologue.com/statistics/size

6.4 Impact of smartphones on local content

Lower income groups form large segments of the population in many developing countries, and despite a general decline in price and increasing sales, smartphones remain affordable to only mid to high-income individuals. As a share of handset sales, smartphones now represent over 50% in developing countries compared to under 10% in 2009, but sales take time to trickle down to the active user base, which is a more indicative measure of the devices currently in circulation and being used and therefore the range of functionality that consumers have at their disposal. As such, while smartphone sales are expected to see a sharp increase in the next 4-5 years, the rate of increase, possibly influenced by the amount of local content on offer, may not reach parity in the number of people that actually own them for several years to come.

Source: GSMA Intelligence, Strategy Analytics

Figure 17: Developing world device users and sales

Millions

| Feature Phone Connections | Smartphone Connections | Feature Phone Sales | Smartphone Sales |
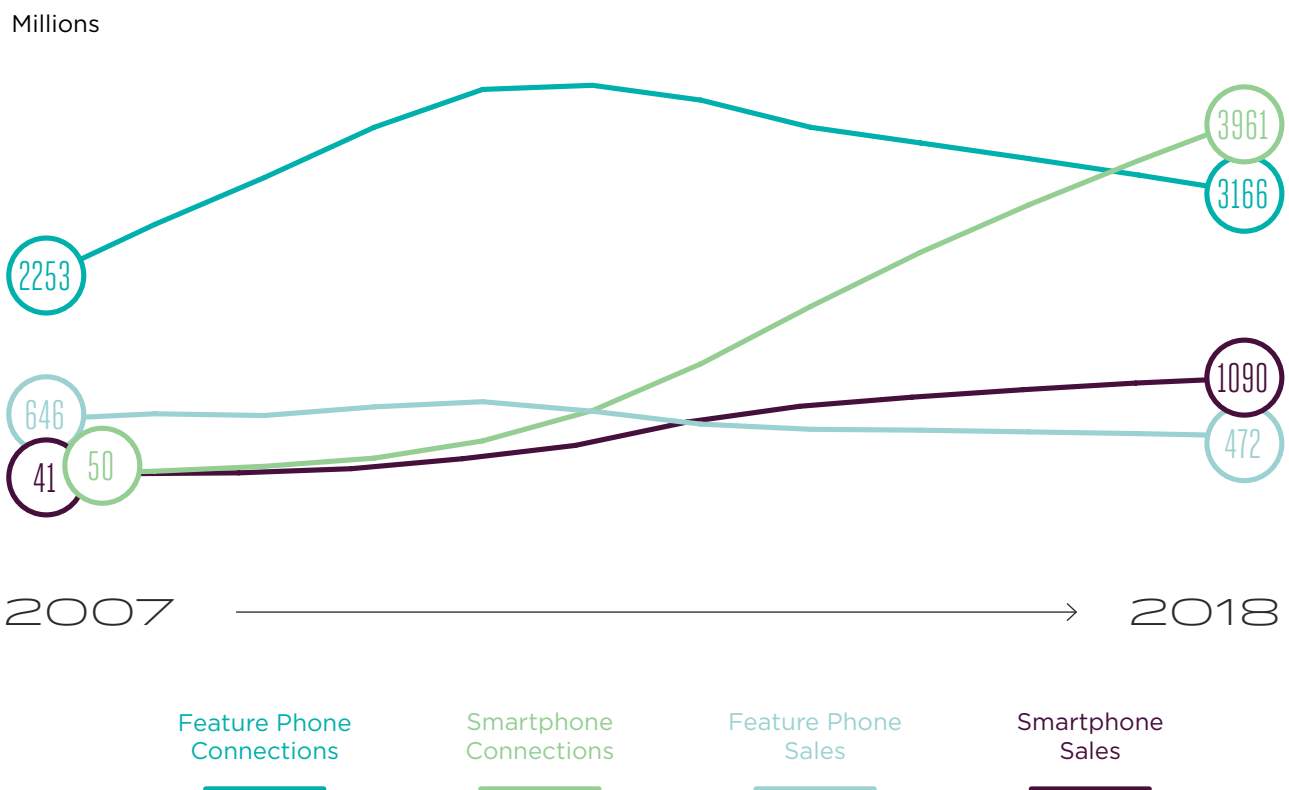
Despite predictions that feature phones and smartphones are expected to co-exist in developing countries for the foreseeable future, content generation opportunities remain skewed towards smartphones. The application developer community has largely focussed on developing more apps for iOS or Android smartphones, as opposed to content for mobile browsers which could be accessed equally via feature phones as well as smartphones.

While social media players such as Facebook and Twitter are taking the lead in designing applications specifically for feature phones, most other popular smartphone services are yet to create suitable feature phone alternatives. However, some companies are experimenting with solutions to attract users in developing markets towards the mobile internet and expose them to its benefits. Examples include:

- **Mxit:** a South African social networking app for feature phones with over seven million users[46] offering functionality in areas with a weak 2G signal

- **biNu:** an Australian start-up company offering a Java app that can emulate the functions of a smartphone on a feature phone such as updating Facebook and Twitter, reading news and searching the internet[47]

- **VascoDe:** an Israeli company offering access to mails and social media on feature phones through USSD in real time

- **txtWeb:** an open platform in India for apps that enables all mobile users, including those with basic phones without GPRS or data plans, to access locally relevant information

It is services like these that are helping address the local content gap in developing countries, with the aim being to introduce feature phone users to the benefits of the mobile internet, and instil in them a pattern of usage that will continue once they have transferred over to smartphones.

46. http://qz.com/172012/an-african-messaging-app-could-beat-out-whatsapp-line-and-wechat-in-india/
47. Mobile Internet for the Next Two Billion, biNu, May 2014

6.5 Barriers to uptake of local content

Lack of internet exchange points
Content delivery and traffic at present is very Europe and US centric, with the majority of internet exchange points (IXPs) and content hosting based out of the developed world. Moving servers and content hosting within a country can cut costs and improve visibility for content developers, as well as improve the user experience by reducing latency.

Device compatibility
Content developers in developing countries need to widen the net to account for the majority of the population, which are feature phone users. Smartphones will play an important role in the developing world due to the growth they will foster, but the opportunity for the simplest feature phone can be just as great as for the most advanced smartphone. Content that is more feature phone centric, or that is outside the mobile data channel, will therefore play a big part in the uptake of local content. Content developers can use SMS, USSD and IVR solutions to target low-end device owners.

Payment limitations
To monetise content some kind of billing relationship between the content provider and the end-user is required, which can prove a challenge when it comes to people without bank accounts. Mobile money services are already gaining popularity in developing countries, whereby mobile operators and the financial industry are working to accelerate the availability of affordable financial services that provide safety, security and convenience to the unbanked. But mobile operators can play an additional role here, as anyone with a mobile phone will generally have a billing relationship with their operator.

Understanding local needs
The challenge with creating locally relevant content in developing countries is knowing exactly what target individuals want and need. Very little consumer data exists but, the end-user needs to be carefully considered in order to create a relevant value proposition with the best chance of success. Mobile allows content developers to connect to end-users, presenting them with an opportunity to better collect, understand and utilise end-user requirements to enable tailored content.

Government attitudes
Governments can play a crucial role in the scaling of local content, but their role could be a double-edged sword. On the one hand, some governments will want to encourage local content, whilst other governments will support the censorship of some content and websites. Governments in developing countries can promote local content through collaborations and partnerships with developers and regulators. Additionally, governments can themselves be the content providers, offering relevant local information, content and services in areas such as health, education, agriculture, taxation, public transportation, business and voting through e-government portals.

6.6 Strategic implications for stakeholders

There is an opportunity for the mobile industry to engage, collaborate, and partner with developers and entrepreneurs to build a thriving content ecosystem, aligning their content strategies to meet user needs in developing countries. We discuss the implications for the operators and other key stakeholders below:

6.6.1 Operators

Engaging with partners and developers is beneficial to operators. Firstly, operators will broaden their customer base and promote customer loyalty by enriching their product offering through new services and applications. Secondly, new content and applications will result in an increase in the volume of services for which consumers will pay and use, thereby expanding revenue streams for operators.

Creating locally relevant content requires expertise and effort. Operators are becoming increasingly involved in finding and encouraging local developers. However, most local developers do not have the resources to succeed and operators are helping to lower the barriers of entry by partnering with these developers to push local content. These partnerships fall into a number of different categories:

- **Service delivery platforms:** Operators can share their infrastructure and expose their application programming interfaces (APIs) to allow local developers access to their content delivery platforms and other services such as messaging, authentication and billing

- **Accelerator programmes:** Accelerator programmes help start-up companies and services get off the ground by offering mentorship, access to technology, office space and an innovative community. One such program is Telenor's 'Accelerate' program in Thailand[48], which aims to encourage the creation of more local content, build better local resources, raise awareness of and provide reasons to use mobile internet

- **Start-up competitions:** Crowd-sourced start-up competitions like Safaricom's App Wiz Challenge[49] and the Orange African Social Venture Prize[50] incentivise local developers to create innovative local mobile services

- **Innovation scouting**: Operators are becoming more active in trying to find the best developer talent, and initiatives such as Swisscom Ventures scout for new technologies and innovative businesses ideas

- **Corporate venture capital:** Operators including Vodafone, SK Telecom, Telefonica and DOCOMO, as well as industry players like Google, Samsung, Qualcomm and Intel engage in active corporate venture capital activity to bring promising external innovations and content solutions in-house

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48. http://www.telenor.com/media/articles/2014/helping-thai-startups-accelerate
49. http://www.ibizafrica.co.ke/index.php/news/170-safaricom-app-wiz-challenge-2014-launch
50. http://en.starafrica.com/entrepreneurship/orange-african-social-venture-prize-2014

Operators have many assets and capabilities that can greatly assist in the development and distribution of local content, reducing the need for content developers to develop these assets themselves:

- **Channel access:** Operators can provide channels that allow services to operate without direct data or internet access, such as IVR, SMS, MMS and USSD

- **Distribution:** Developers could make use of operator's extensive distribution models, including, agent networks, marketing displays, supply chains, software push technology and mobile application stores, increasing their reach and visibility

- **Hardware, software and physical network:** Operators can provide the entire technical infrastructure developers need to get their content to market, including hosting hardware and software, international bandwidth, testing facilities, APIs and billing/accounting software

The latter is particularly important in developing countries where large proportions of the population do not have bank accounts and rely on operator billing to facilitate their spending on content

- **Operations capabilities:** Developers can make use of operators' customer support, marketing, accounting, financing, training and mentoring services to allow them to focus on creating their content

- **Trust:** Developers can leverage the reputation and brand of operators when distributing their content, which is particularly useful in markets where trust is a major barrier

6.6.2 Content developers

Creating content that is specific and relevant for developing countries is a difficult task, but developers can pick their battles. Different categories of content have different needs when it comes to localisation. Consumers expect news, social networks and information on health services to be highly localised, but are slightly less concerned about the localisation of gaming, music, entertainment content and financial services[51]. Full localisation should focus on the former categories, while for the latter, adapting to the context of the market is enough. This means translating content in countries where English is not the primary language, and also working around the more nuanced factors such as discoverability, cultural factors (important for user interface design), price and in-app purchase plans and payment mechanisms. In addition to focussing on developing apps for top platforms such as iOS and Android, developers should also think about creating more content for mobile browsers, accessible to the large proportion of the population that owns a feature phone, in order to maximise their addressable market.

51. The Next Mobile Frontier, Upstream & Ovum, April 2014

6.7 The benefits of local content

Local content in developing countries should be relevant to rural populations since approximately 50% of the population in these countries live in rural areas. For example, while fitness apps may be very popular in Europe or the US, or even in some urban cities in developing countries, other content, such as health information related to the prevention of endemic diseases or hygiene awareness, is more needed in rural areas. Increasing the amount of local content and other mobile-enabled services targeting core life needs can radically improve people's lives.

As for the wider mobile ecosystem, access to relevant local content has a massive potential to revolutionise the mobile industry in developing markets. Relevant local content raises awareness and drives uptake of the mobile internet, attracting developers, increasing innovation, creating more value for stakeholders and increasing interest in generating more relevant content. This increases user engagement and pushes the uptake of mobile internet further, creating a win-win situation for stakeholders across the entire ecosystem. Additionally, by providing more locally relevant services to their customers, operators can benefit from an increase in subscriptions, customer loyalty, and revenue through data services, and the potential of generating new revenue streams in an industry facing increasing competition and pressure on revenue margins in developing countries.

7 Local Content: Deep Dive on E-government Services

E-government services are emerging as a major source of local content for mobile internet in developing countries. The lack of fixed internet access and challenges around physically accessing government offices in towns and cities creates an opportunity for mobile internet to be the primary means to deliver e-government services. This will then drive increased mobile internet usage for all operators within a country.

The National Audit Office, a UK public body that scrutinises public spending on behalf of the parliament, defines e-government as: *"Providing public access via the internet to information about all the services offered by central government departments and their agencies; and enabling the public to conduct and conclude transactions for all those services, for example paying taxes, claiming and receiving benefits, getting a passport".*

E-government holds tremendous potential for improving the way governments deliver public services and enhance broad stakeholder involvement in public service delivery. The opportunities offered by digital development in recent years, whether through online services, big data, social media, mobile apps, or cloud computing, are transforming the way we look at e-government[52].

52. United Nations E-Government Survey 2014, United Nations Department of Economic and Social Affairs, 2014

E-GOVERNMENT DEVELOPMENT INDEX

(EGDI) is based on United Nations E-government survey that is produced every two years since 2003.

It is the only report in the world that assesses the e-government development status of the 193 United Nations Member States.

The use of the mobile channel in e-government is referred to as mobile e-government or m-government[53]. According to ITU, mobile technology has the potential to significantly enhance governments' capacity to produce benefits and deliver outcomes to consumers and businesses[54]. Through new sets of applications, m-government can transform the way existing e-government services are delivered and accessed by consumers.

E-government falls into four categories based on delivery model. These are:

- **Government-to-consumers** (G2C)
- **Government-to-business** (G2B)
- **Government-to-government** (G2G), and
- **Government-to-employees** (G2E)

Mobile applications and services largely fall under G2C and given the socio-economic opportunities they bring to consumers, this section of the report primarily focuses on G2C[55].

E-government services offer rich, local, real-time information accessible by everyone, resulting in more transparent governments, businesses and other institutions, increasing trust, and forging a sense of community on unprecedented levels. E-government services and online forums provide people with a platform to engage and interact with governments and companies when previously it would have been difficult for them to do so. Citizens and consumers are empowered to share their views, leading to informed decisions and the improvement of government services.

Colombia, Uruguay, and Panama have been successful in expanding e-government services, resulting in increased internet use; in Colombia in 2012, 50% of residents and 78% of businesses engaged with the government through online channels[56].

The global development of e-government services is assessed using the United Nation's E-government Development Index (EGDI) that takes a holistic view of e-government development, resting on three important dimensions: (i) the availability of online services (OSI Index), (ii) telecommunication infrastructure (TII Index) and (iii) human capacity[57] (HCI Index). EGDI is a composite indicator measuring the willingness and capacity of national administrations to use information and communication technologies to deliver public services.

Figure 18 shows the current standing of countries grouped into quartiles based on 2014 EGDI scores[58]. Developed countries, mostly occupy the top quartile, while developing nations, mostly in sub-Saharan Africa, are in the 3rd and bottom quartiles.

53. United Nations E-Government Survey 2014, United Nations Department of Economic and Social Affairs, 2014
54. M-Government: Mobile Technologies for Responsive Governments and Connected Societies, ITU, 2011
55. M-Government: Mobile Technologies for Responsive Governments and Connected Societies, ITU, 2011
56. The Global Competitiveness Report 2013–2014, World Economic Forum, 2013
57. United Nations E-Government Survey 2014, United Nations Department of Economic and Social Affairs, 2014
58. United Nations E-Government Survey 2014, United Nations Department of Economic and Social Affairs, 2014

Figure 18: E-government market assessment

2014 EGDI Score

0.0139   0.9462

Top Quartile   2nd Quartile   3rd Quartile   Bottom Quartile
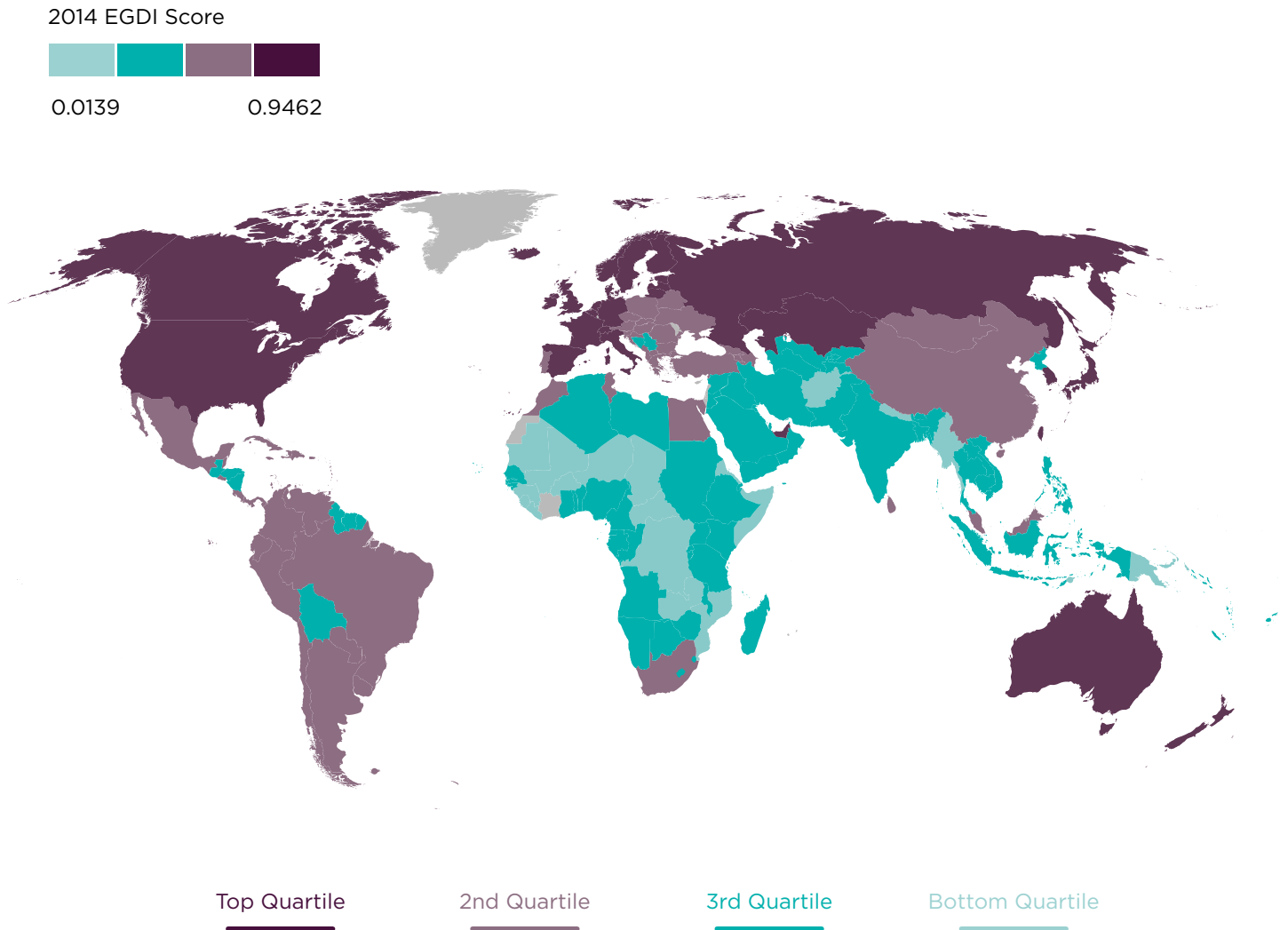
7.1 Evolution from information to transaction services

There are four stages of e-government development within EGDI. The first two layers are informational services, which is one way communication from the governments to consumers. The top two layers of the pyramid are transactional services, which is two way communication and interaction between governments and consumers.

Source: United Nations E-Government Survey 2014, United Nations Department of Economic and Social Affairs, 2014

Figure 19: Different levels of sophistication in e-government
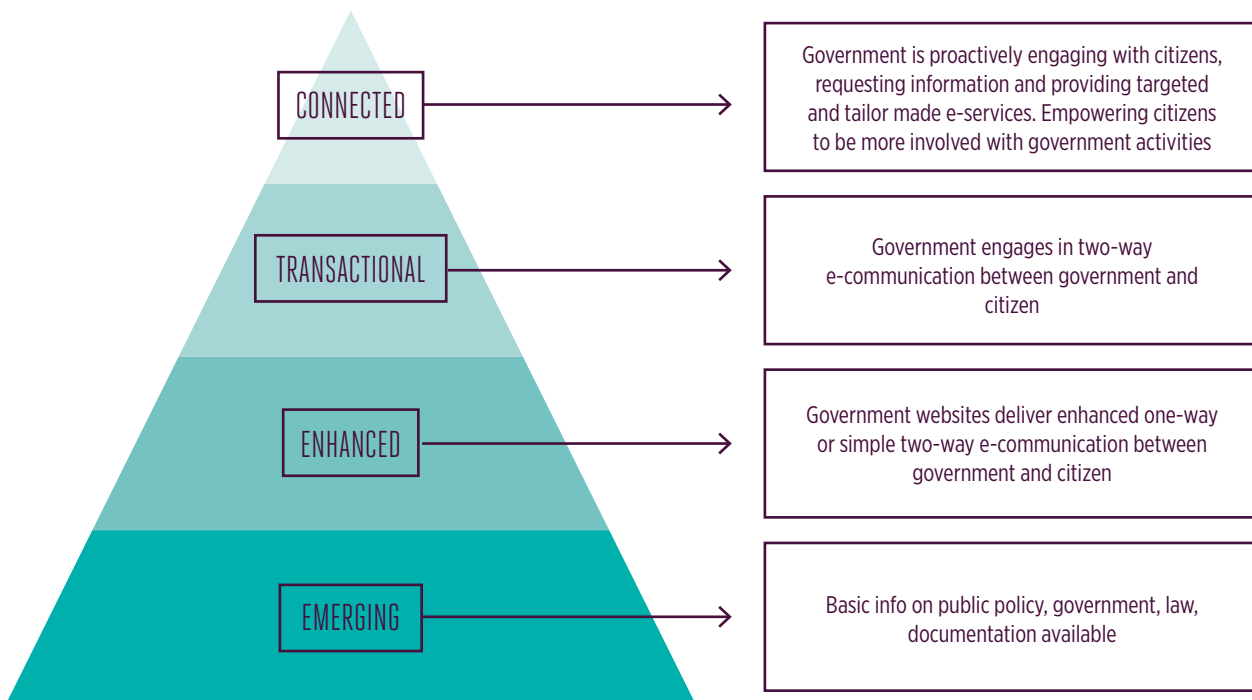
While informational content is relevant, higher uptake and continued usage of e-government via mobile internet in the future will be driven by transactional services ranging from basic life and livelihood, such as health and education, to more advanced, such as taxation, business services, immigration and transportation.

However, there is a stark gap between the availability of e-government services and usage of these services.

Figure 20: E-government availability vs. usage
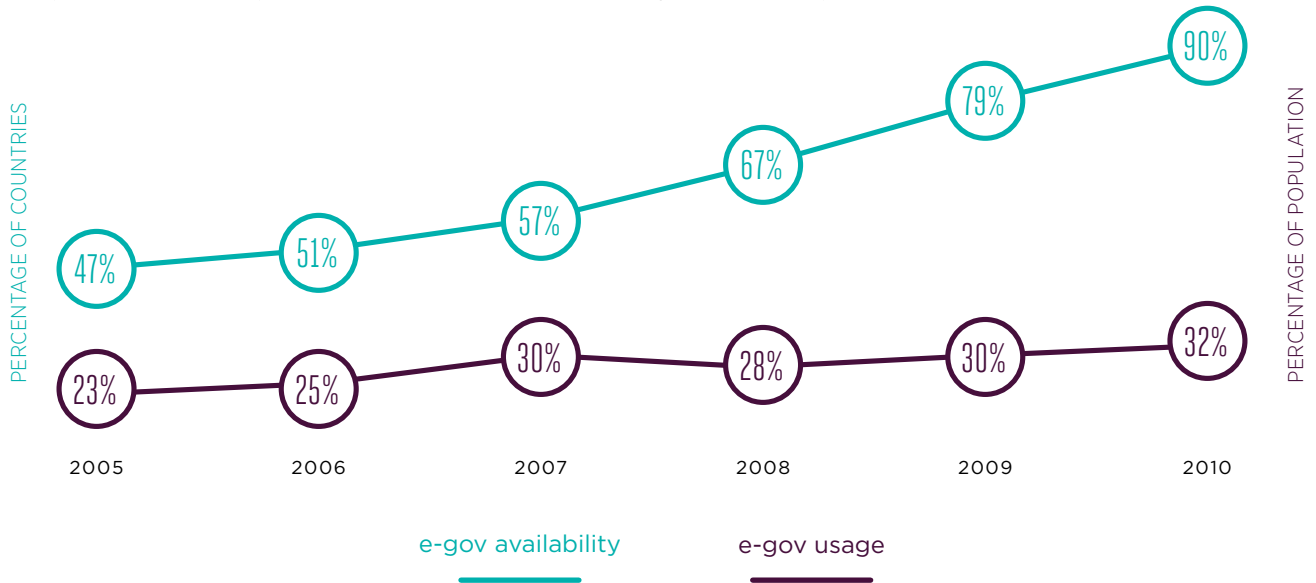
The gap between e-government usage and its availability is explained by the lack of transactional e-government services. Figure 21 demonstrates the fall in the percentage of countries offering relevant e-government services as the sophistication level of services progresses from "emerging" (stage 1) to "connected" (stage 4) of the pyramid.

Figure 21: Percentage of countries offering sophisticated e-government services

Malaysia's Economic Transformation Programme (ETP) defines Communications, Content & Infrastructure (CCI) as a National Key Economic Area (NKEA), and prioritising e-government as one of the key initiatives. Through various Entry Point Projects (EPPs), the Malaysian government aims to "migrate all public-facing government services online with the goal of 'zero face-to-face' interactions by 2020"[59].

On a global level, figure 22 shows countries that improved (Turquoise), and those that slipped (Mauve), in rankings based on United Nation's EGDI scores between 2008 and 2014. Many European countries and Russia have gained in ranks, while several African and Asian countries, including India and China, have slipped in rank over the last 6 years. The developing countries that have significantly improved in their e-government development during this period exemplify the importance of continued investment and efforts being made in the implementation of e-government services.

Source: United Nation's E-government Development Index

Figure 22: Countries that improved (Turquoise) and slipped (Mauve) in EGDI rankings between 2008 and 2014

For example, Sri Lanka has climbed 27 ranks in six years and ranks first in Southern Asia. The Sri Lankan government has made a substantial effort to develop its online government portal, which now ranks 74th in the world.

59. Economic Transformation Programme Annual Report 2014, Performance Management and Delivery Unit, Malaysia, 2014.

SRI LANKA'S ONE FOR ALL

Sri Lanka's e-government policies have been geared towards including all segments of the population and offering services to everyone, regardless of their IT literacy levels or access to the internet. With mobile usage rates in the country exceeding 100% and even the poorest people today having cell phones, albeit basic, Sri Lanka offers many m-government services. The Government Information Center (GIC) is now providing more than 65 online services through basic phone calls, such as train schedules, job opportunities abroad, flight schedules, exam results, economic indicators, medical services and contact details. This new policy of inclusiveness and outreach towards the general population helped Sri Lanka improve in e-government service delivery and to jump from 115th rank in EGDI in 2012 to 74th in 2014.

7.2 Benefits of e-government

Benefits for consumers

Consumers are the ultimate beneficiaries of e-government services. E-government services can benefit consumers by providing access to services such as health, education, financial services and agricultural information, in a convenient, timely, and transparent way.

- **Convenience:** E-government can bring public services to consumers' fingertips and help conduct transactions anytime, anywhere. Consumers in rural areas can save time and money by gaining access to government services irrespective of their location and without the need to travel to government offices

- **Consumer empowerment:** E-government can empower consumers to become better informed, gain access to opportunities, voice their opinion and participate in key decision making of the government. For example, in Morocco, the government developed an e-consultation platform where consumers could access legislative texts online and post their comments and concerns[60]

- **Entrepreneurship:** E-government services promote entrepreneurship by making available the key resources and information required to start a business. For example, the Ministry of Economy of Chile created 'Start-up Chile' with the objective of attracting foreign entrepreneurs to launch their businesses, promoting Chile as the innovation and entrepreneurial hub of Latin America[61]

- **Job opportunities:** E-government service portals can be leveraged to distribute live job feeds to consumers and to connect employers with the right talent. Development, delivery and regular management of e-government services requires people with Information and Communication Technology (ICT) expertise

Benefits for government

- **Transparent democracy**: Governments can promote transparent democracy, reduce corruption, and engage with consumers on key issues through e-government services. For example, Italy's "La Bussola della Trasparenza", (Compass of Transparency), is an online portal that allows consumers to access the structure and functions of various government departments[62]. The information available online includes balance sheets, performance plans and organisational structures

- **Time and cost savings:** Services provided electronically eliminate the need for paper-based transactions translating into a huge cost saving for governments. Electronic and mobile service delivery also saves time and eliminates duplication of work for the government. According to the "Digital by Default" report by the government of UK, online transactions are 30 times cheaper than postal transactions, and as much as 50 times cheaper than face-to-face delivery of services[63]

- **Increased internal efficiency:** Leveraging the power of data, e-government services can improve internal efficiency of governments by facilitating information re-use across and within the departments of the government. They can also reduce the need for frequent training by means of standardised process and systems

Benefits for operators

- **Increased user base:** By partnering with governments and educating consumers on the benefits of e-government, operators can increase their customer base and usage of mobile internet

- **Brand awareness:** Taking steps towards e-government services delivery in partnership with governments, operators can create a positive brand image for themselves in consumers' minds

60. United Nations E-Government Survey 2014, United Nations Department of Economic and Social Affairs, 2014
61. http://www.startupchile.org/about/
62. United Nations E-Government Survey 2014, United Nations Department of Economic and Social Affairs, 2014
63. Government Digital Strategy: December 2013, Government of UK, 2013 -

8 Appendix: Case Studies

8.1 Network infrastructure and policy case studies

Building Colombia's digital ecosystem, VIVE Digital, Colombian government, Colombia

BACKGROUND AND OPPORTUNITY

In recent years, Colombia's government recognised that its ICT infrastructure plays a vital role in the country's economic progress, and decided to take steps to develop the country's digital ecosystem, aiming to make Colombia more interconnected, thereby unlocking socio-economic benefits and opportunities for its consumers.

INITIATIVE DESCRIPTION

In 2012 the Colombian Government launched, **Vive-Digital**, which means 'Digital Lives'. The initiative has three primary objectives:

- Triple the number of municipalities in Colombia connected to the internet
- Connect 50% of the small and medium enterprises and 50%[64] of homes to the internet
- Increase the number of internet connections 200%[65] by the end of 2014

Given the nature of Colombia's topography, coupled with the fact that huge investments were needed to rollout a fibre optic network, the solution to develop the country's digital ecosystem clearly rested with mobile communication infrastructure. In 2013, Colombia was the first country in the region to launch mobile 4G services, with spectrum licenses awarded to five mobile operators. However, the government found that a key challenge to the adoption of mobile internet services was the low purchasing power of the majority of its population. To overcome this hurdle, the government offered subsidies for low income households to adopt mobile internet services.

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64. The Global Information Technology Report, World Economic Forum, 2013
65. The Global Information Technology Report, World Economic Forum, 2013

Figure 23: Vive-Digital: 2014 project goals
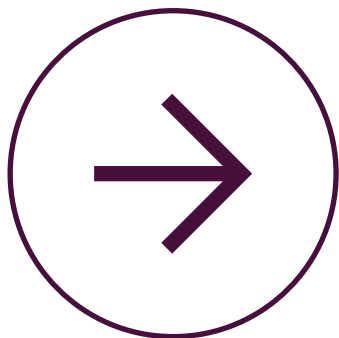
Extend the infrastructure to connect 1,053 of the country's municipalities to the national fibre-optic network

Connect 50% of micro-enterprises and small-and-medium-sized enterprises (known as MIPYMEs) and 50% of homes to the internet
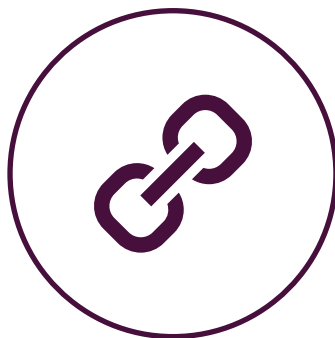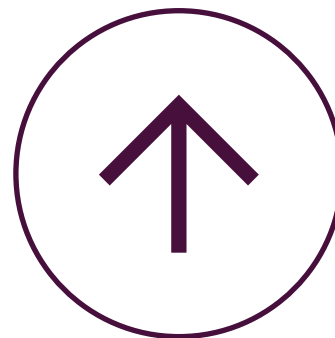
Increase the number of internet connections fourfold. By 2014, reach 8.8 million internet connections

OUTCOMES

The outcomes of Vive-Digital have been enormous:

- Significant increase in the quantity (1024 services) and quality of online services offered by the government

- By the end of 2014, 700,000[66] people are expected to complete the **Digital Citizenship Program** run by the Government that trains consumers in the use of ICT

- The number of internet connections is expected to increase to 8.8 million by 2014

- The Colombian government won the Government Leadership Award from the GSMA at Mobile World Congress in 2012

CHALLENGES AND NEXT STEPS

The major hurdle faced by the government in this program is the perception by the majority of the population that the internet is not useful. To overcome this hurdle the government continues to promote the development of local content as well as increasing the number of online government services. As more services are offered online and as more users come online, increased capacity on the underlying networks will be required.

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66. The Global Information Technology Report, World Economic Forum, 2013

Reducing network costs through energy efficiency, Warid, Pakistan

BACKGROUND AND OPPORTUNITY

Pakistan is particularly challenging for power supply, even on-grid. Electricity shortages in Pakistan are severe and load shedding happens on a daily basis, for about 10 hours per day in major cities and up to 16 hours per day in rural areas. As a result, operators must install backup power at all cell sites to ensure high availability. Pakistan's high temperatures in many parts of the country mean that air conditioning is also required to cool telecoms equipment.

INITIATIVE DESCRIPTION

In 2013, Cascadiant, Warid Telecom and the GSMA collaborated to perform a Mobile Energy Efficiency Optimisation (MEEO) project in Pakistan. The GSMA's MEEO service helps operators lower their energy costs and carbon footprint by trialling energy efficiency solutions on cell sites, analysing their technical and financial performance, and rolling out the most attractive solutions.

The project objectives were to identify the elements consuming the greatest amount of energy in Warid's network and to trial equipment that could significantly reduce energy consumption and environmental impact, as well as improve performance cost-effectively. An initial assessment showed opportunities to reduce energy by using advanced batteries, sophisticated cooling and fuel cells.

OUTCOMES

The **advanced battery trial** demonstrated significantly reduced diesel consumption, 33% fuel savings compared to a continuously running diesel generator.

The **advanced cooling trial** showed that if the system was installed across Warid's network at all suitable indoor cell sites would save US$2.6 million annually in energy costs with a 14 month financial payback period on the investment cost.

The fuel cell trial showed it to be a potential alternative to diesel generators in Pakistan with the total cost of ownership equivalent to a diesel generator. The fuel cell's light weight, small footprint and almost silent operation would also make it financially attractive in residential and urban areas in Pakistan.

In summary, the trials showed potential annual savings of US$6.2 million in energy and 19,720 tonnes of carbon dioxide.

8.2 Taxation case studies

→ Increasing access to mobile phones through a tax reduction in Kenya, 2009

BACKGROUND AND OPPORTUNITY

The expense of purchasing of a handset can represent a high barrier to entry into the mobile market for many poorer Kenyans. Despite removal of import taxes on handsets in June 2006, which helped improved device affordability, mobile phones remained subject to VAT and were out of reach for many.

INITIATIVE DESCRIPTION

Recognising that handset prices represented a barrier to development of the sector, the Kenyan government exempted mobile handsets from VAT as of June 2009, in order to promote mobile phone usage and allow increasing numbers of Kenyans access to the benefits it entails.[67]

OUTCOMES

The tax reduction substantially reduced barriers to digital inclusion. In the subsequent three years, the VAT reduction contributed to an increase in handset sales of 200% and a penetration rise from 50% to 70%.[68]

This means that a significantly higher number of Kenyans were able to access the benefits of mobile phone ownership including social integration and access to valuable mobile services such as mobile money.

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67. Mobile telephony and taxation in Kenya, Deloitte, 2011
68. Mobile telephony and taxation in Kenya, Deloitte, 2011

Figure 24: Increase in handset sales and penetration in Kenya after the removal of VAT on handsets

Mobile penetration rate Kenya   **Number of handsets sold - Safaricom**
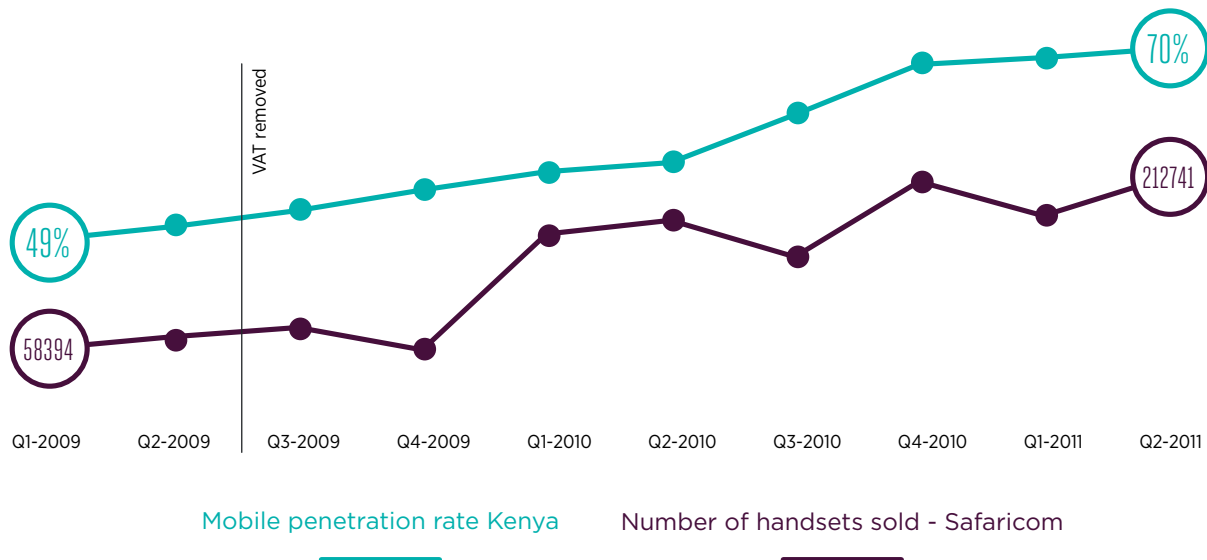
Enhanced handset sales and mobile penetration allowed the mobile sector to grow, resulting in wider economic benefits across the mobile supply chain and generating economic benefits for users. Over the three years following the VAT removal, the contribution of mobile telephony to the Kenyan economy grew by almost 250%, while mobile-related employment increased by 67%.

Growth in the mobile industry also benefitted the government. Operator's tax payments actually increased: mobile operators paid KES 112 Billion in taxes and fees during 2009-12 compared to 69 billion during 2006-08. This shows that reducing the mobile taxation rate can be tax revenue positive for governments.

CHALLENGES AND NEXT STEPS

This successful policy confirms that consumption taxes can have a significant impact on consumer behaviour in Kenya. Unfortunately, VAT was reintroduced on handsets in 2013, resulting in an increase in handset prices by 16%.[69] This has caused wide-spread concerns around the negative impact on rural poverty, mobile penetration and economic growth.[70] A recent report by the research and analysis firm IDC highlighted the impact of the tax:

"An unfair playing field has emerged since these new taxes were implemented, and as a result gray market dealers now account for more than two-thirds of the mobile handset market's volume."[71]

Mobile consumers in Kenya are still impacted by a 10% specific tax on airtime as well as a tax on mobile money. The airtime tax is amongst the highest in Africa, and contributes to the high proportion of the total cost of mobile ownership attributed to tax, which at 21% is well over both the African and the global average. The airtime tax is regressive in nature and serves as a barrier to digital inclusion, while the mobile money tax limits financial opportunities for the unbanked. Removing these taxes would enable Kenya to further realise the advantages of digital inclusion.

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69. Tax causes Kenya's grey phone market to balloon, available at http://www.itwebafrica.com/mobile/309-kenya/232306-tax-causes-kenyas-grey-phone-market-to-balloon, IT Web Africa, 2014
70. Kenyan government VAT on ICT will hurt the underprivileged; available at http://www.cio.co.ke/news/main-stories/kenyan-government-vat-on-ict-will-hurt-the-underprivileged, CIO 2013
71. Kenyan handset VAT supports gray good market, available at http://www.biztechafrica.com/article/idc-kenyan-handset-vat-supports-gray-goods-market/8221/, IDC, 2014

Increasing mobile penetration through an airtime tax reduction in Ecuador, 2007

BACKGROUND AND OPPORTUNITY

Until 2007, mobile usage and subscriptions in Ecuador were subject to a 15% excise tax on top of a 12% VAT. Because of this, taxes accounted for 26 percent of the total cost of mobile ownership – one of the highest tax burdens in Latin America. By raising the price of mobile services, taxes on mobile subscriptions and usage acted as a barrier to digital inclusion for consumers. Ecuador's mobile penetration rate, at only 73%, was significantly lower than in many neighbouring countries.[72]

INITIATIVE DESCRIPTION

Recognising this barrier to digital inclusion, in 2007, the government abolished the excise tax on airtime. This reduced taxes as a percent of total cost of mobile ownership decreased from 26% to around 13%.[73]

OUTCOMES

The effective cost per minute of calls fell from US$ 0.19 to US$ 0.07. Consumers responded to lower prices for mobile services by rapidly taking up mobile and increasing usage. As a result of the tax decrease, mobile penetration increased to 141%, and usage per user more than doubled, thus making Ecuadorians more connected.[74]

Source: Mobile telephony and taxation in Latin America, GSMA, 2012

Figure 25: Mobile usage in Ecuador before and after tax abolition

Minutes of use per month

81.3 — 2008

142.3 — 2011

72. Taxation and telecommunications in Latin America, AHCIET, 2012
73. Global mobile tax review, GSMA/Deloitte, 2011
74. Mobile telephony and taxation in Latin America, GSMA/Deloitte 2012

8.3 Consumer barriers case studies

Improving digital literacy. Internet on Every Mobile, Idea Cellular, India

BACKGROUND AND OPPORTUNITIES

The population of India is 1.2 billion, with 833 million people living in rural areas, however only 3% of the Indian rural population has access to mobile internet. Research by Idea, the third largest mobile operator in India, found that subscribers in the rural communities of Madhya Pradesh and Chhattisgarh were only using the voice function on their GPRS enabled feature phones, and as a result not benefiting from the full range of Idea's products and services. Given the empowering potential of the internet, Idea believes all its consumers should be able to benefit from the social and economic advantages provided through access to and usage of mobile internet.

Furthermore, Idea's research revealed that many consumers are unaware of mobile internet, assuming it is too complicated to use or only for high income, well educated people. In addition to low literacy rates, many consumers are digitally illiterate and do not know how to use mobile internet or understand its value.

INITIATIVE DESCRIPTION

To address digital literacy barriers, Idea launched an initiative called "Har Mobile Par Internet" (Internet on every Mobile), targeting rural consumers. The service provides step by step digital literacy lessons via IVR; the first tutorial is designed to teach consumers how to access and use basic mobile internet skills on feature phones. Building on the success of the basic internet access tutorials, Idea launched additional IVR lessons for consumers to teach them how to open Gmail and Facebook accounts, check availability and times of trains and search Google.

Each tutorial is provided in both English and Hindi, and is made available to all Idea consumers on a toll-free short code. When a consumer finishes listening to the tutorial, a WAP link is automatically sent via SMS to the consumer's phone, enabling access to the information anytime, anywhere and providing the ability to share the link with family and friends.

OUTCOMES

There has been approximately 500 tutorial activations per day since the launch of the IVR tutorial, making a clear business case for Idea to continue providing the tutorials.

CHALLENGES AND NEXT STEPS

In order to improve on and understand how to expand the tutorial service, Idea is exploring the possibility of conducting a detailed analysis of the IVR calls. Idea is committed to investing in and developing the tutorials offered based on the outcomes of the analysis.

Idea believes that while this initiative will bring significant increase in data usage, the true impact will be realised by its subscribers via the social and economic benefits of accessing the internet via their mobile phones.

Driving financial and digital literacy amongst South African street vendors, 1 Global Economy, South Africa

BACKGROUND AND OPPORTUNITIES

1 Global Economy (OGE), an affiliated non-profit in partnership with the Citi Foundation, launched the Mobile Entrepreneurs Programme (MEP) in 2009, a mobile-based initiative serving South African street vendors. A crucial element of the programme is the use of mobile technologies such as SMS as a means of imparting financial literacy knowledge. OGE developed a Financial Update Network SMS system (FUN-SMS) to send SMS messages that provide actionable content for improving entrepreneurs' financial capability and money management skills. The programme is geared towards encouraging small business owners to utilise mobile devices and their features to fulfil business communication needs, to access information, and receive real-time advice and tips via SMS for financial decision-making and business growth opportunities.

However, most entrepreneurs participating in the programme are neither computer nor mobile internet literate and lack the skills to conduct internet searches and access locally relevant content through their mobile devices such as entrepreneurship-focused resources and current market prices. In order to take advantage of mobile internet services, entrepreneurs need to be enrolled in digital literacy lessons.

INITIATIVE DESCRIPTION

In 2011 OGE began offering in-person training workshops at computer centres throughout Johannesburg and at public libraries in Durban to address the digital literacy gap. Participants are taught to conduct online research, access relevant resources to complement their entrepreneurial development and improve their business planning. They are also taught marketing and leadership skills, as well as how to use mobile internet. Entrepreneurs are encouraged to use mobile internet through GPRS on feature phones and applications on smart phones, enabling them to build an online presence and maximise social media to communicate with their customer base, as well as use voice and SMS to manage on-going business opportunities. OGE aims to provide essential digital literacy skills to increase proficiency in effectively using the mobile internet to develop entrepreneurs and small-scale business owner's skillsets.

OUTCOMES

During the 2012-2013 program year, out of 300 participants:

- 50% of entrepreneurs monitor their bank accounts online and/or through SMS alerts
- 75% accessed 10 government or local services for education and financial support using the internet

CHALLENGES AND NEXT STEPS

The training workshops demonstrate to OGE the value in continuing to include SMS as a means to connect with participants, disseminate helpful information, and monitor and boost progress. SMS plays a key role in the virtual mentorship of participants, allowing the local trainer to coach aspiring entrepreneurs and small-scale business owners at every stage of starting and growing their enterprise. This also affirms OGE's emphasis on access, content and training as complementary components of digital literacy to improve and expand livelihood opportunities.

Partnering with operators and local incubators to strengthen MEP's digital literacy focus is a key priority for OGE in enabling continued engagement with mobile internet for its entrepreneurs.

Creating internet awareness, MTN Internet Expos, Uganda, 2014

BACKGROUND AND OPPORTUNITIES

MTN is the largest operator in Uganda with 10 million subscribers and over 3 million mobile internet users. MTN's vision is to deliver a bold new digital world to all its customers and is aiming to move the majority of its subscribers online. To this end MTN has been investing significantly in network rollout and infrastructure development, enabling advanced internet services. MTN has rolled out MTN WiFi Hotspots, and was the first operator in Uganda and one of the first in Africa to launch 4G LTE across the majority of the country.

Although the majority of consumers have the network coverage and devices to access mobile internet, adoption rates in Uganda are low at only 16.2%. MTN concluded that many consumers are unaware of mobile internet, how to use it on their handset, as well as the inherent value of the internet. This presented MTN with a significant opportunity to educate people on the power of the internet through various technologies, products and services.

INITIATIVE DESCRIPTION

MTN organises three day regional internet expos around the country showcasing their data products and services directly to consumers in an engaging, entertaining and informative way in order to address the lack of mobile internet awareness and ensure customers realise the vast opportunities available through the use of ICT.

MTN internet expos are designed with the theme, 'Touch, Feel and Experience', and provide interactive platforms through partnerships with vendors, which allows MTN's consumers to experience the internet first hand. MTN's technical experts support consumers by answering technical questions and setting up the internet on their devices, which helps consumers overcome digital literacy barriers. MTN's technical experts also share information about affordable smartphone offers and relevant data plans, such as how to access the 15MB of free internet that MTN provides every customer each month.

In addition, MTN also showcases MTN Mobile Money and has an MTN Business section as well as social media corner to generate awareness and questions amongst consumers. Finally, the internet expos offer a unique customer experience that illustrates the potential of mobile internet for discovering and learning.

MTN internet expos are advertised via local radio, newspapers, street banners, posters, town drives and through SMS blasts, driving significant awareness amongst its subscribers of the events, what mobile internet is and MTN's products and services.

OUTCOMES

Figures indicate that MTN Uganda has registered over 30% growth in the number of subscribers using its services to access mobile internet in the last six months, translating to three million MTN mobile internet users in July 2014. The MTN internet expos are part of a broader MTN initiative to increase data subscribers, but the expos have played an important role in influencing the increase in mobile internet users.

CHALLENGES AND NEXT STEPS

Through the internet expos, MTN is able to understand consumer issues first hand, whilst supporting them as they engage and learn. Key learnings that MTN can incorporate into marketing and service propositions in the future are:

- Consumers want affordable internet access, but basic awareness and digital literacy remain key barriers

- Once consumers are educated on the benefits of mobile internet access, they appreciate the convenience and flexibility offered by mobile internet to remain connected

- Consumers appreciate access to Facebook, Twitter, YouTube, LinkedIn, Google+ and Instagram with increasing numbers accessing MTN's Facebook page to get regular updates on the data plans and other offers available

Addressing awareness and cultural barriers to internet adoption, Talkshawk, I-Champ initiative Telenor, Pakistan

BACKGROUND AND OPPORTUNITY

Mobile communications in Pakistan is highly popular in terms of voice and SMS and is in its infancy when it comes to mobile internet and data services. According to Telenor figures, Pakistan has over 138 million mobile connections and connection penetration rate of 75% of the population. With 102 million unique subscribers, 56% of the total population own a SIM enabled mobile phone. Many current and potential new users know little about mobile internet and as a result are subject to misperceptions about the cultural appropriateness of the technology. These misplaced concerns are significant enough to prompt public expression of concern and private restrictions over access. Despite Pakistan's mobile internet sector being nascent, with 3G data connections only launched in April 2014, Telenor has recognised the significance and huge growth opportunities for the technology, if barriers to access could be overcome. For Telenor, mobile internet is a corporate priority. Michael Foley, CEO Telenor Pakistan says, in the digital age "to have an online presence is to exist", quipping "surf ergo sum" – I surf therefore I am.

INITIATIVE DESCRIPTION:

Driven by business and social interests Telenor launched the Talkshawk, I-Champ initiative in 2012, with the aim of increasing mobile internet adoption focusing on improving mobile internet awareness and countering negative perceptions. Research conducted by Nielsen found that many parents were concerned about the internet providing access to "explicit" content in absence of proper supervision, whilst teachers were concerned that the use of mobile internet by students might challenge their authority and control. Shahbaz Maqsood, Brand Manager for Talkshawk and Project Leader for I-Champ shared "we knew we had to change minds and the negative perception that surrounds internet in our country, and to do that we needed to demonstrate the practical value of the internet".

The I-Champ initiative was funded by Telenor Talkshawk brand team and conducted across Pakistan throughout 2012 and 2013. The goal of the initiative was to introduce mobile internet to students, whilst demonstrating mobile technology as an effective tool which can help spread, improve and enhance education for all and dispel negative connotations to students, parents and teachers.

I-Champ achieved its goals through holding school, regional and national competition heats, where students competed to search fastest for useful information such as education related material through Telenor's mobile internet enabled handsets. Students gained certificates for their participation while the winner's took part in prize ceremonies in the capital Islamabad and in Telenor's group headquarters in Oslo, Norway.

OUTCOMES

I-Champ was a strategic campaign. By involving parents and teachers, I-Champ aimed to influence people who shaped community attitudes. Shahbaz Maqsood Khan, Brand Manager – Mass Market (Talkshawk), said "it was the largest and most complex campaign we had ever run. We reached over 35,000 students, with over 13,000 directly participating in the programme".

I-Champ successfully influenced popular attitudes towards the internet, and helped shape Telenor's approach to promoting internet use. Comparative research on people who had experienced I-Champ and people who hadn't found those who'd been exposed to the intervention had greater awareness of the internet's utility and were more supportive of its use. One parent described how I-Champ showed her daughter to use the internet. Her enthusiasm for the technology and ability explain its usefulness persuaded her father to let her use the internet, under supervision. Reflecting on the research, Sohaib Dara of Telenor Consumer Insights said "it's striking that nearly two years later effects of the intervention are still apparent".

Michael Foley also notes that for mobile internet adoption to be attractive and viable for users, the technology has to be useful and make sense.

CHALLENGES AND NEXT STEPS:

One of the main lessons emerging from the experience of conducting I-Champ, according to Shariq Mustafa Segment Director Mass Market, is "the social barriers to internet use are stronger than we thought". Telenor now recognises that introducing mobile internet to people who've never used it before is a problem beyond the means of one mobile operator. So Telenor's next steps are to explore partnerships for further engagement activities. As Shahbaz Maqsood notes, "Telenor has now made "Internet for All" as one of the key strategic ambition for driving mobile internet growth in the country. In addition, we are working with other companies like Google and OperaMini and Facebook, who have similar agendas, to build awareness of mobile internet". Telenor is also exploring with donors how to collaborate on issues related to internet use in emerging markets, from digital literacy to privacy and security online.

Case study produced by Emrys Schoemaker, London School of Economics & iMedia Associates, with research coordination by Sohaib Dara and Aliya AAmir of Telenor Pakistan Consumer Insights Team.
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8.4   Local content case studies

Table 3 highlights examples of mobile services providing local content. Note each service has varying degrees of the factors that define local content: local language, local relevance and local creation.

Source: GSMA Intelligence, company websites

Table 3: Examples of local content services

CNN	**CNN.com** is one of the most popular international news websites in the world, run by the US television company CNN. It reports global as well as local news, but is only available in a limited number of languages (English, Spanish and Arabic).
CODE for AFRICA	**Code for Africa** is a people-driven movement aiming to use the power of relevant, local data on health, education, politics and other sectors to empower active citizenry and help governments shape and improve their services. The program is at present only available in English.
ESPN	**ESPN** is a US based TV and media network focussing on sports-related content. The content is translated into 8 languages.
EVERY1MOBILE	**Every1Mobile** uses social media to build and manage online communities for young people to discuss topics related to health, education, jobs and entertainment in 7 countries across sub-Saharan Africa. Content is locally generated, usually in the local language, and is highly locally relevant.
facebook	**Facebook** is the largest social networking service in the world with over 1 billion active users. As users have the ability to engage in any sort of social interactions they see fit, be it for business or pleasure, it is locally created content, in the local language, and very locally relevant.
Firefox	**Firefox** is a free and open source web browser, currently available in 79 languages with regionally specific features.
Google translate	**Google Translate** is a free machine translation service, and is arguably the most well-known attempt to address the issue of localising content for non-English speaking countries. It currently supports 54 languages.

HiviSasa is a free online newspaper that engages the local community, especially youth, to come online and contribute as citizen news reporters. Hence it is locally generated content in the local language, and centred on affairs that are relevant to local people.

IMDb is an online database of information related to films, TV, and video games, with versions translated completely or in part into over 10 languages.

The Mobile Alliance for Maternal Action partnership delivers vital health messages to new and expectant mothers in developing countries via their mobile phones. The content is localised to the target market and highly relevant, but is created by non-local experts in maternal, new-born and child health.

Premise is a service that monitors the price, quality and availability of goods and services from local, on-the-ground sources tracking data points at the point of sale. The content is locally generated and very relevant for the every day needs of local businesses and individuals.

txtWeb is a platform enabling all mobile users to access content via SMS. Created by an open community of publishers and developers (which can be anyone), information can include Wikipedia content, local market prices, government programs and financial tips, making it very locally relevant.

Ushahidi is an open-source information collection, visualisation and interactive mapping service enabling observers to submit reports on local events using their mobile phones or the internet, generating a map of locally relevant information, created by locals, usually in the local language.

Wikipedia is a free-access, online encyclopaedia that can, in theory, be edited by anyone in any location. There are 287 language versions of Wikipedia globally.

Worldreader provides digital books to people in low income countries via e-readers, mobile phones and other digital technology. With over 6,000 book titles in 23 languages in 27 countries, 70% of the library comes from African and Indian publishers to provide the most relevant content for the readers.

Local newspapers for mobile phones, HiviSasa.com, Kenya

County news
hivisasa

BACKGROUND AND OPPORTUNITY

Most traditional media services in Kenya focus on national and international news. But HiviSasa aims to reach out to the two thirds of the population living outside the two major cities that traditional media doesn't reach. Kenya is a multi-lingual country where English is spoken widely for commerce, schooling and government purposes. So HiviSasa has found an immediate audience by producing locally relevant content in English. Nonetheless, there are plans to trial Swahili content soon in at least one county, measuring and assessing the uptake before deciding to roll out content in both languages across all counties.

INITIATIVE DESCRIPTION

HiviSasa.com is a free online newspaper in Kenya offering county level news to consumers using mobile internet enabled phones. News stories and articles are generated by "citizen reporters" from local communities, who submit articles with their phones and, or picture, receiving a payment of 100Ksh (US$1.15) per article via mobile money channels. In-house editors corroborate every news story and article through local contacts to ensure content is then suitable for publishing. Currently the HiviSasa services are available in Nakuru and Kiambu counties, with the service aiming to launch in 24 counties in the coming year. Through its unique model of engaging local communities to generate content, HiviSasa offers consumers access to locally relevant information about local news, job opportunities, political and local events, market information and entertainment, thereby directly serving local community needs and bringing real value to consumers.

In order to source locally relevant news, HiviSasa engages the local communities, particularly the tech-savvy youth segment, to come online and contribute as citizen reporters. In addition to engaging consumers through content creation, the developers at HiviSasa have specially designed their website to work quickly and efficiently on feature phones via a 2G connection which is the most prevalent network in Kenya, offering a good quality of service to its consumers. Further to the free services, consumers can subscribe to the "SMS breaking News Alert" service, receiving up to two news alerts a day, (charged at 10 shillings/US$0.1 per SMS), with each news alert containing a compressed URL linking to the full article.

OUTCOMES

From its launch in February 2014 to August the same year, HiviSasa has gained over 78,257 unique visitors and about 100 active citizen reporters (with over 350 registered users) across two counties. In an effort to spread knowledge of its services and build its reputation as a credible news source, HiviSasa recently secured deals with several local radio stations, that sees HiviSasa provide locally relevant content including local news to the radio stations to share with their listeners in return for HiviSasa being advertised as the source of the stories and articles. HiviSasa is now seeking partnerships with operators to provide cheaper SMS alerts to its consumers, potentially leading to increased uptake of these services. HiviSasa are also gaining a good reputation organically through word of mouth advertising. Operator partnerships in the future could not only be instrumental in bringing more customers to HiviSasa, but also drive the adoption of mobile internet services in the rural and semi-urban areas of Kenya.

CHALLENGES AND NEXT STEPS

The business model of HiviSasa largely relies on user participation and engagement, and the company believes that good and locally relevant content has been key to their achievements so far. Their focus presently is on collecting good stories and building more traffic on their service. The next big challenge is to persuade advertisers to switch to online advertising for example; local businesses that use traditional media like paper newspapers to advertise their products could advertise via online channels with HiviSasa.

Using mobile social networks to build mass communities and provide locally relevant content, concentrating on health, education, jobs and entertainment, Every1Mobile, South Africa

EVERY1MOBILE

BACKGROUND AND OPPORTUNITIES

Every1Mobile (E1M) uses the penetration of mobile technology and social media to transform the efficiency, reach and measurement of International Development programmes in sub-Saharan Africa. E1M has been working at addressing the local content barrier by providing users an opportunity to generate content which is most useful to them, and also interact with other online users and experts around issues of common interest or concern. In many cases, both peer and expert interaction is country-specific and an effective way of generating local content. Moreover the company believes localisation or re-purposing of local content for a particular age-group is as important as localising it by language or culture, and hence most of the online social networks and communities hosted by E1M target issues important to youth, covering health, education and livelihoods.

INITIATIVE DESCRIPTION:

E1M builds and manages online communities that offer young people opportunities to access content and services around health, education, jobs and entertainment on mobile devices. The company is present in seven countries across sub-Saharan Africa and reaches an audience of millions through operational presence on multiple mobile platforms such as Mxit, Eskimi and Opera. E1M has built an eco-system of mobi-sites focussed on a range of 'passion points', "beSmart", "smartSex" and "hiv360" are among the communities through which E1M's community managers engage users daily through curated, interactive and user generated content as well as a range of other bespoke services.

OUTCOMES

Since its launch in 2010 E1M's user-base has expanded to reach 1.2 million monthly visitors, across eight different mobile communities (Bsmart, hiv360, smartsex, Lovewords, mad4socca, D-Siders, Swagga and uSay) and platforms (Mxit, Opera, bINu, Eskimi, Samsung, Facebook). E1M regularly measures user behaviour and needs through regular surveys and feedback which offer insights into the impact of their sites and informs further developments – allowing users to co-design the sites.

About 9 million survey questions have been answered by E1M users on a range of issues facilitated by E1M's community managers and also on behalf of E1M's NGO and corporate client base. The websites have been effective in disseminating information about important health issues. For instance over 4,000 users who have been tested for HIV share their experiences with one another on the hiv360 website, and over 1,500 users have had online eye-test screenings after reading about eye-health on E1M's pilot of smartEyes on the Bsmart site.

CHALLENGES AND NEXT STEPS

Every1Mobile believes that the key to a successfully engaged audience is to carefully re-purpose and rebrand internationally relevant content to suit local user needs. This needs to be done both on the technical level by designing easy to load and low data consuming apps and services as well as on the editorial level by tailoring the content which is most relevant and useful to the local consumers.

One challenge to this approach is the very large cost attached to translating universal content – further exacerbated when the content is not static, but rather refreshed or updated continuously via online communities.

Building an e-government service portal, m-Seva, Indian government, India

BACKGROUND AND OPPORTUNITY

Approximately 70%[75] of consumers now have access to a mobile phone in India. Out of 240 million[76] internet subscribers, 90%[77] of internet traffic occurs via mobile handsets demonstrating how mobile can act as an effective channel to deliver government services to consumers.
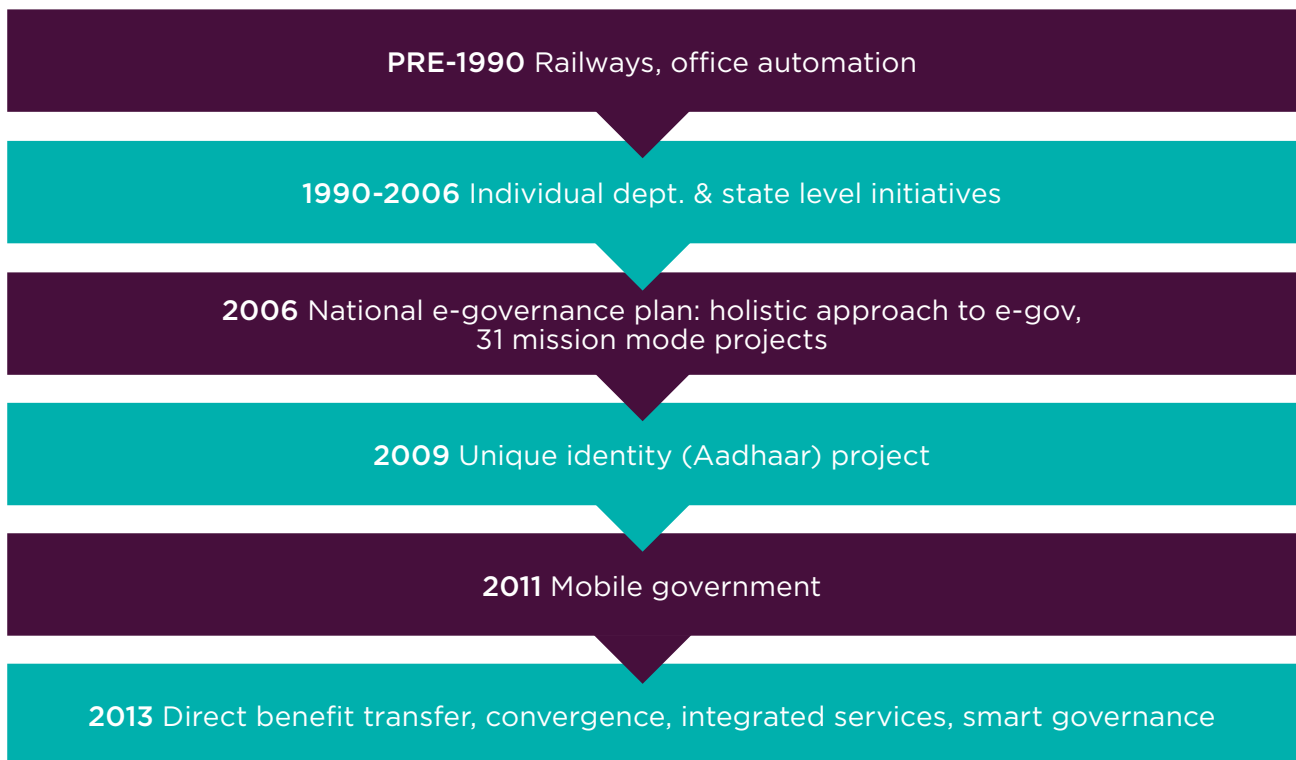
INITIATIVE DESCRIPTION

The Indian government launched an e-government service portal, m-Seva (translation meaning "mobile-help"), which aims to utilise mobile networks to deliver information and services to consumers and businesses. Building on the railway service automation in 1990, and digitising the services of various departments of the government between 1990 and 2006, the national e-governance vision was to provide government services to consumer's fingertips. This was followed by the "Adhar" project, aimed at providing unique identification numbers (ID) to every consumer in the country. The upgraded e-government portal was then launched in 2011, which included mobile based services. The aim of the portal was to position India as a world leader in harnessing the potential of mobile government services, showcased by the 2013 upgrade with features such as, benefit transfer direct to consumers using unique ID.

Source: Towards smart governance: Mobile governance in India, Department of Electronics and Information Technology (DeitY), Govt. of India, April 2014

Figure 26: Evolution of e-government in India

PRE-1990 Railways, office automation

1990-2006 Individual dept. & state level initiatives

2006 National e-governance plan: holistic approach to e-gov, 31 mission mode projects

2009 Unique identity (Aadhaar) project

2011 Mobile government

2013 Direct benefit transfer, convergence, integrated services, smart governance

75. E-Government Survey 2014. United Nations Department of Economic and Social Affairs. 2014
76. Mobile Seva, Ministry of Communications & Information Technology, India, 2014
77. E-Government Survey 2014. United Nations Department of Economic and Social Affairs. 2014

OUTCOMES

An additional expansion of the e-government service portal in 2012, saw the launch of the "Mobile App-Store", which currently features more than 300[78] live mobile government applications, which have received more than 200,000 downloads[79]. Featuring applications in 12 languages, m-Seva has reported more than 241 million transactions for services provided by the Andhra Pradesh state government. The most popular applications include, Right to Information-Directory, Polling Station Location and Ministry Directory. Figure 27 illustrates all of the m-Seva e-government services, including transactions made using feature phones (via SMS, IVR and mobile internet) and smartphones.

Source: Towards smart governance: Mobile governance in India, Department of Electronics and Information Technology (DeitY), Govt. of India, April 2014

Figure 27: m-Seva product portfolio and success stories

CHALLENGES AND NEXT STEPS

The government of India is looking to further develop an ecosystem for smart e-government services, utilising additional channels to deliver more integrated services. To achieve these goals, the government is working to address some of the following major challenges such as language based content generation and translation, handset compatibility to local content (complex language and font display) and minimum uniform rates across all operators.

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78. E-Government Survey 2014. United Nations Department of Economic and Social Affairs. 2014
79. E-Government Survey 2014. United Nations Department of Economic and Social Affairs. 2014

Gold standard e-government service portal, e-Estonia,
Estonian government, Estonia

BACKGROUND AND OPPORTUNITY

Estonia is a small country of 1.3 million people[80], but is one of the most digitally advanced countries in the world, especially with respect to delivery of government services[81]. Estonia's success in e-government services is attributable to the "partnership between a forward-thinking government, a pro-active ICT sector, and a switched-on, tech-savvy population"[82]. This has manifested into Estonia's government designing an "information infrastructure from the ground up, with openness, privacy, security, and 'future-proofing' in mind".[83]

INITIATIVE DESCRIPTION

From e-elections, e-taxes, e-police to e-healthcare, e-banking and e-school, "e-Services" for Estonians have become a way of life[84]. The "X-Road" data exchange infrastructure launched by Estonia's Information System Authority, links all the country's decentralised public and private databases and is one of the key elements behind successful launch of all digital services[85].

The other key element is the chip-enabled "eID" card – the nationally standardised system of online authentication and digital signing[86]. eID is augmented by Mobile-ID, negating the need for carrying smart card readers[87]. With the help of this robust infrastructure, and with 90% of the population subscribing to mobile services e-Estonia delivers a vast range of government services to all stakeholders, including citizens and businesses[88].

OUTCOMES

Estonia's e-government initiatives have resulted in four marked impacts:

- Unprecedented levels of transparency and accessibility in government
- Safe, convenient and flexible exchange of private, public and corporate data
- Healthier, better educated population with easy access to social services
- A prosperous environment for business and entrepreneurship[89]

As of 2012, nearly 90% of the 1.3 million Estonians have E-ID cards[90]. Apart from authentication (m-ID), other examples of mobile e-government services increasingly used by consumers in Estonia are paying parking charges (m-Parking), and purchasing tickets on public transport without cash (m-Ticket).

Figure 28: Timeline of e-Estonia

Year	Event
2000	Launch of e-Tax Board
2000	Launch of m-Parking
2001	Launch of X-Road
2002	ID Card introduced
2003	Launch of ID bus ticket
2005	i-Voting introduced
2007	Launch of Mobile-ID
2008	Launch of e-Health system
2010	Launch of e-Prescription
2011	Launch of Smart Grid

80. http://estonia.eu/about-estonia/country/estonia-at-a-glance.html
81. http://estonia.eu/about-estonia/economy-a-it/e-estonia.html
82. http://estonia.eu/about-estonia/economy-a-it/e-estonia.html
83. http://www.theatlantic.com/international/archive/2014/01/lessons-from-the-worlds-most-tech-savvy-government/283341/
84. http://estonia.eu/about-estonia/economy-a-it/e-estonia.html
85. http://e-estonia.com/toolkit
86. http://e-estonia.com/toolkit
87. http://e-estonia.com/component/mobile-id/
88. GSMA Intelligence
89. http://e-estonia.com/toolkit/.
90. http://estonia.eu/about-estonia/economy-a-it/e-estonia.html

CHALLENGES AND NEXT STEPS

In 2007, Estonia faced a well-coordinated cyber-attack on its public and private online systems. The country's information systems had to be cut-off of from the internet as an immediate defence measure[91]. Estonia later received support from the EU, NATO and US CERT to investigate the attacks[92]. Estonia's online security systems have greatly improved since then. However such cyber-attacks are likely to increase in the future and Estonia, being a 'connected economy', will have to continuously strengthen its online defence systems. The Estonian government has approved the concept of issuing its electronic-ID to foreigners and non-residents paving the way for an opportunity to create a new wave of remotely usable global secure services. Estonia plans to have 10 million total users (including citizens and foreigners) of e-Estonia platform by 2025[93].

Source: e-Estonia.com

Figure 29: Ecosystem of e-Estonia services

91. http://www.theatlantic.com/international/archive/2014/01/lessons-from-the-worlds-most-tech-savvy-government/283341/
92. International Cyber Incidents: Legal Considerations. Tallinn: Cooperative Cyber Defence Centre of Excellence - http://www.ccdcoe.org/publications/books/legalconsiderations.pdf, Tikk, E., Kaska, K., & Vihul, L, 2010
93. http://estonianworld.com/technology/estonia-works-to-create-10-million-e-estonians-by-2025/

→ Building a national ICT Infrastructure, NeGSt, Nigerian Government, Nigeria

⚲ BACKGROUND AND OPPORTUNITY

Nigeria is a nation of 174 million[94] people dispersed over 923k square kilometres. However, the country has very low information and communication technology (ICT) penetration, making it difficult for the government to deliver services to the underserved consumers across the country. To deal with this issue, the Nigerian government increased focus on ICT to deliver government services to consumers. The federal government of Nigeria created the National e-government Strategies (NeGSt), a special purpose vehicle (SPV) in March 2004 to build the national ICT infrastructure[95].

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94. http://data.worldbank.org/country/nigeria
95. http://www.negst.com.ng/index.php/about-us/vision-mission-a-objectives

INITIATIVE DESCRIPTION

NeGSt vision is to implement e-government at multiple levels to promote transparency, achieve efficient service delivery, increase consumer-government interaction, and reap the economic benefits of digitisation. Subsequently two flagship projects launched – the Government Service Portal (GSP) and Government Contact Centre (GCC). The primary objectives of deploying GSP and GCC are:

- To create a single point of entry to federal government services, enhance accountability and improve the delivery and quality of public services through technology-enabled civic engagement (mobile technology, Facebook, Twitter, Interactive Mapping, Blogs and Wiki)

- To transform government processes, increasing public administration efficiency

- To increase end-user productivity by integrating different services of various ministries, departments and agencies (MDAs)

Phase one of GSP included automation of 10 government processes from the Federal Ministry of Education, Federal Ministry of Health, Federal Ministry of Agriculture, Federal Ministry of Industry, Trade and Investment and the Federal Ministry of Communication Technology[96]. Some of the processes digitised are drug authentication, farmer's registration, seed import and export permit and patent registration.

OUTCOMES

NeGSt played a crucial role in boosting ICT penetration in Nigeria, which saw an increase of mobile subscriptions from less than 5 million in 2000 to over 75 million in 2014. Similarly, in 2000, only 1 out of every 100 consumers had access to the internet, increasing to 19 out of every 100 consumers by 2014. In the latest United Nations e-government report (2014), Nigeria gained 21 ranks between 2012 and 2014 as per the UN Global E-Government Development Index. Nigeria also saw an improvement in the e-participation index from 0.18 in 2012 to 0.33 in 2014.

CHALLENGES AND NEXT STEPS:

The Ministry of Communication Technology is currently digitising the online payment for government services through the Government Service Portal (GSP). The Ministry is also setting up Government Contact Centres (GCC) housing robust databases in six geopolitical zones of the country, facilitating efficient response to citizen requests. The government of Nigeria also announced the electronic local government administration project, called eLGA in line with the country's vision 2020 goals. This project seeks to empower each local government in Nigeria by injecting ICT tools in a structured manner to make them efficient and responsive to consumers' needs. The use of the eLGA platform is expected to greatly enhance government's ability to acquire distributed data for evaluating and monitoring, leading to improved policy formulation.

96. http://www.commtech.gov.ng/index.php/initiatives/e-government-initiative

Gold standard e-government portal, Digital by Default, UK Government, UK

BACKGROUND AND OPPORTUNITY

The UK's e-government Unit (eGU), which is in charge of e-government, is the largest unit in the Cabinet Office. eGU's mission is "ensuring that IT supports the business transformation of government itself so that we can provide better, more efficient, public services."[97]. In 2012, the Cabinet Office published the Civil Service Reform Plan[98]. Aiming to have a "Digital by Default" approach by 2015, the plan takes specific actions, including making the government's digital services simpler, clearer and faster.

INITIATIVE DESCRIPTION

The UK government provides more than 650 transactional services, most of them handled by seven departments – HM Revenue and Customs (HMRC), Department for Transport (DFT), Department for Work and Pensions (DWP), Ministry of Justice (MOJ), Department for Business Innovation and Skills (BIS), Department for Environment Food and Rural Affairs (Defra) and Home Office (Immigration)[99]. Every year each of these departments agree to three significant exemplar services (existing) with the Cabinet Office for service transformations, including strategy and delivery plans for the coming year. The Governments Digital Service[100] will implement the strategy, supported by the digital leaders' network of senior civil servants, the Digital Advisory Board[101] and the Government Communication Network[102].

OUTCOMES

A 2012 SOCITM study across 120 local councils estimated that the cost of contact for face to face transactions averages £8.62, for phone £2.83, but for web only £0.15[103]. The Digital Efficiency Report suggests that transactions online can already be 20 times cheaper than by phone, 30 times cheaper than postal and as much as 50 times cheaper than face-to-face[104]. By going Digital by Default, the government could save between £1.7 and £1.8 billion each year[105].

CHALLENGES AND NEXT STEPS:

People will only choose to use the 650 transactional services digitally if they are far more straightforward and convenient. The vast majority (82%) of the UK population is online but most people rarely use services, because:

- Many government services rely on digitised version of pre-digital business processes (replicate paper forms) layered on top of IT legacy systems, preventing data sharing and in some cases locked into expensive vendors

- Very few government digital services are flexible or agile enough to keep up with the rapid changes in user behavior typified by the growth of the mobile sector

- Not everyone who uses government services is online, and not everyone will be able to use digital services independently

Moving for the UK Government is improving the way it provides information by moving to a single website, GOV.UK. Transactional services now present the biggest opportunity to save people time and save the government money. In some cases, people may be offered help to use the digital channel. This is known as "Assisted Digital". The Government is also persuading those who can, to use online services, by raising awareness of services and by improving the quality of services to make them clearly preferable to the alternatives.

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