

# About the GSMA



THE GSMA  
WAS FOUNDED  
IN  
**1987**

## 12 OFFICES WORLDWIDE:



LONDON



DUBAI



ATLANTA



BRUSSELS



BARCELONA



HONG KONG



BRASILIA



BUENOS AIRES



SAO PAULO



NAIROBI



NEW DELHI



SHANGHAI



The GSMA  
represents  
the interests  
of mobile  
operators  
worldwide



UNITING  
NEARLY  
**800**  
MOBILE  
OPERATORS



WITH  
**300+**  
COMPANIES  
in the broader mobile ecosystem



The world's leading mobile industry events,  
Mobile World Congress and Mobile World  
Congress Shanghai, together attract

**130,000+**  
people from across the globe each year

The GSMA works to deliver a regulatory environment  
that creates value for consumers by engaging  
regularly with:



MINISTRIES  
OF TELECOMS



TELECOMS  
REGULATORY  
AUTHORITIES



INTERNATIONAL &  
NON-GOVERNMENTAL  
ORGANISATIONS



CONNECTING  
**27,000+**  
Industry Experts

Exclusively for GSMA Members,  
InfoCentre<sup>2</sup> is your place to  
connect with a global  
community of industry experts

GSMA Working Groups  
provide frameworks and  
standards in commercial,  
operational and  
technical matters that help  
maintain and advance  
mobile industry ecosystems



**7.5  
BILLION+**

MOBILE CONNECTIONS  
WORLDWIDE



# GSMA Capacity Building Programme

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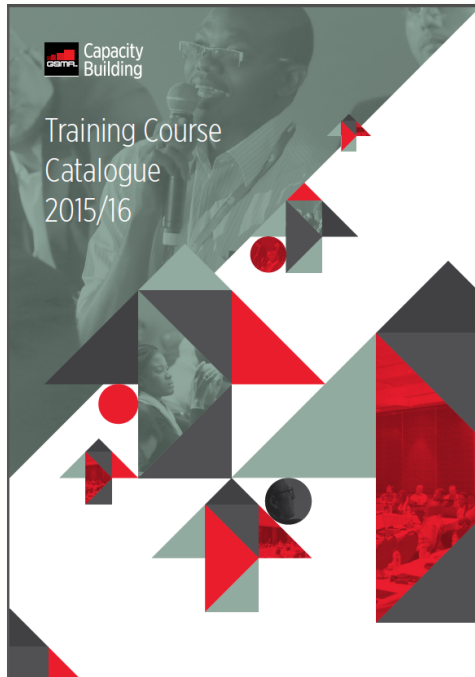
# Capacity Building training courses

Reaching out to policymakers and regulators.



- Policymakers and regulators play a key role in shaping the way the mobile industry responds to key issues
- As the global association of mobile network operators, the GSMA closely tracks changes in technology, policy and regulation worldwide
- Using this knowledge, we have created a range of high-quality, short training courses that offer unique insights into the latest industry, policy and regulatory thinking

# In-depth courses developed by experts



Course Title	Duration
Mobile Regulation for Socio-Economic Development	3 Days
Principles of Mobile Privacy	1 Day
Advanced Spectrum Management for Mobile Telecoms	2 Days
Radio Signals and Health	1 Day
Internet of Things	2 Days
Children and Mobile Technology	2 Days
Competition Policy in the Digital Age	2 Days
Internet Governance	2 Days
Mobile Money for Financial Inclusion	1 Day
Weighing the Merits of Universal Service Funds	½ Day
Mobile Sector Taxation	½ Day

# How we deliver our training

- The GSMA recognises that organisations, departments and individuals often have different training needs, which is why we can deliver our courses in a number of ways:



Via local partners



On-Site



Online

# Global Reach, Local Impact



- We've already trained students from over 100 countries around the world
- In 2015 alone, we delivered over 2000 student days of training

## ■ Key Training Partners:



# For more information

- Visit: <http://www.gsma.com/publicpolicy/capacitybuilding>
- Email: [capacitybuilding@gsma.com](mailto:capacitybuilding@gsma.com)

# Mobile for Socio-Economic Development

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Workshop on Mobile  
Regulation for Socio-Economic Development  
Ministry of Transport and Communications  
Naypyidaw, Myanmar

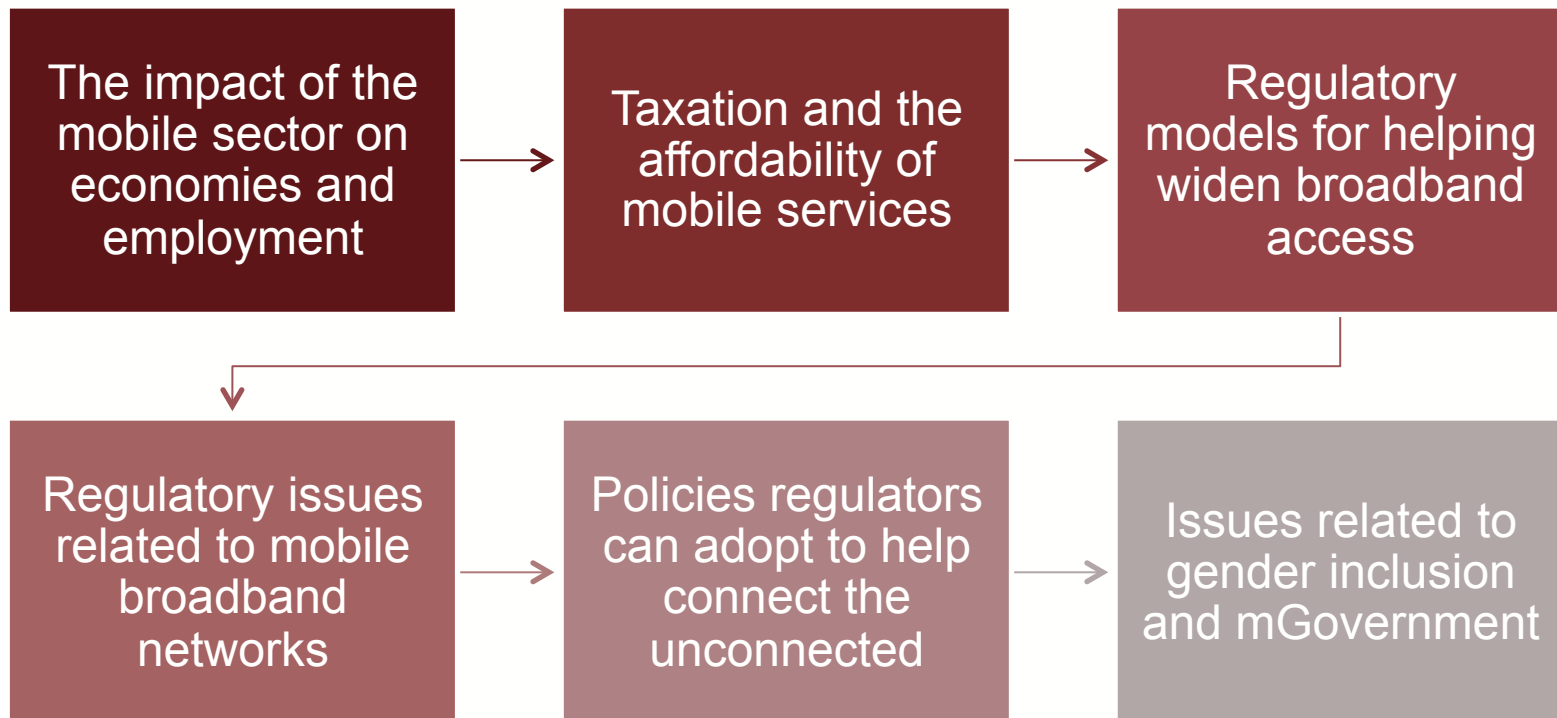




# Introductions

# Welcome

This course looks at the many ways mobile delivers socio-economic value.





# Course Objectives

Day 1 – Discover how mobile drives economic growth and delivers socio-economic benefits and learn how governments can help widen broadband access

Day 2 – Gain insights into the ways mobile can help connect the unconnected

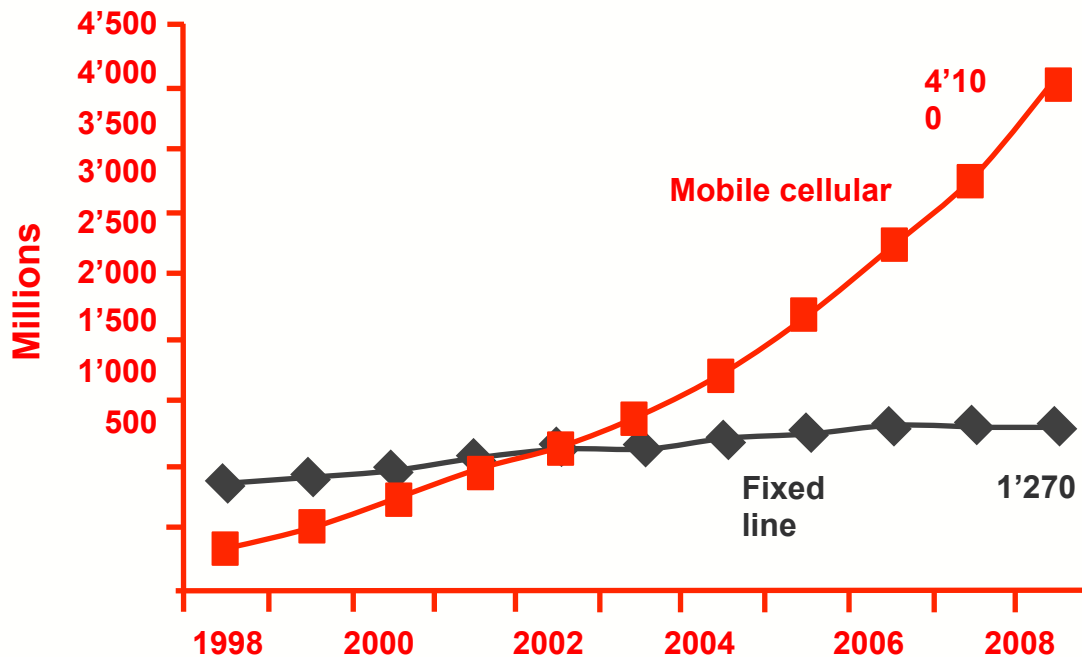


# Session 1: Mobile as a Driver of Economic Growth

- The impact of mobile on the economy and employment
- An overview of research on the impact of mobile
- Regional case studies

# Mobile technology is a huge success story

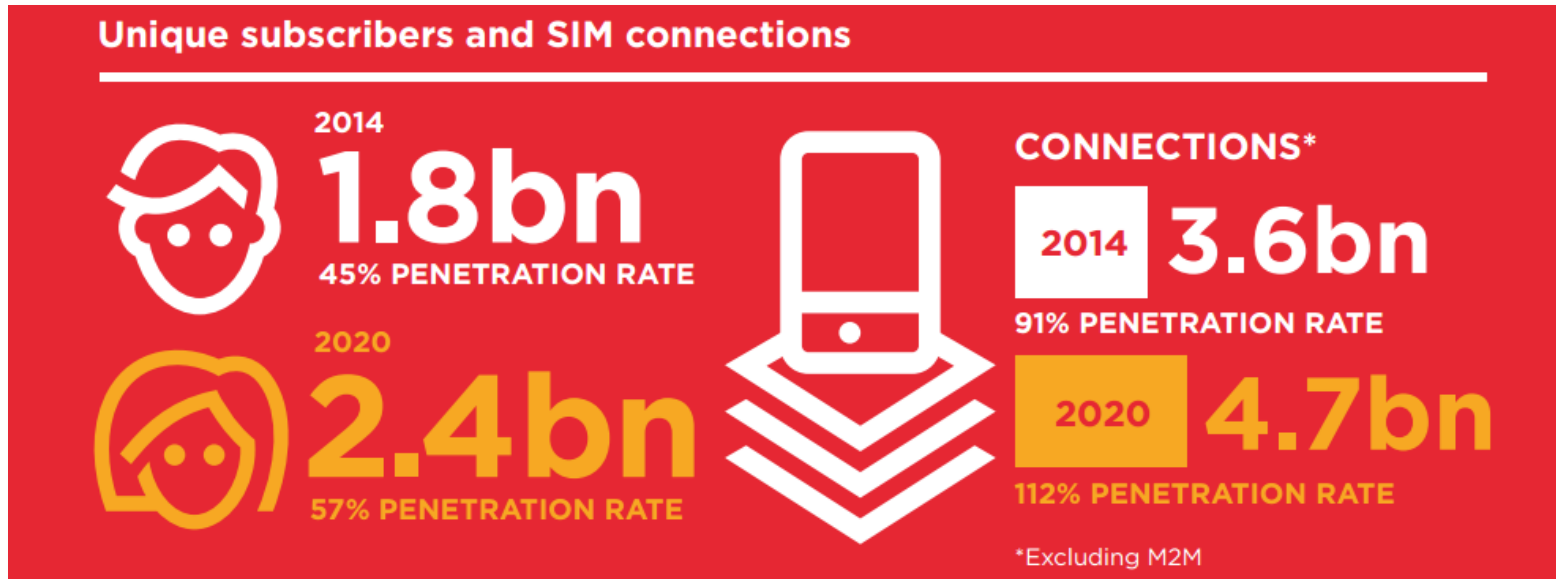
Mobile Cellular Subscriptions and Fixed Line Subscribers



- Even though the first mobile phone network was only built in 1979, data from the International Telecommunication Union (ITU) shows that the number of mobile subscribers had overtaken the number of fixed-line subscribers by 2002
- Mobile technology is still growing and continues to enhance people's lives in a multitude of ways

Source: ITU

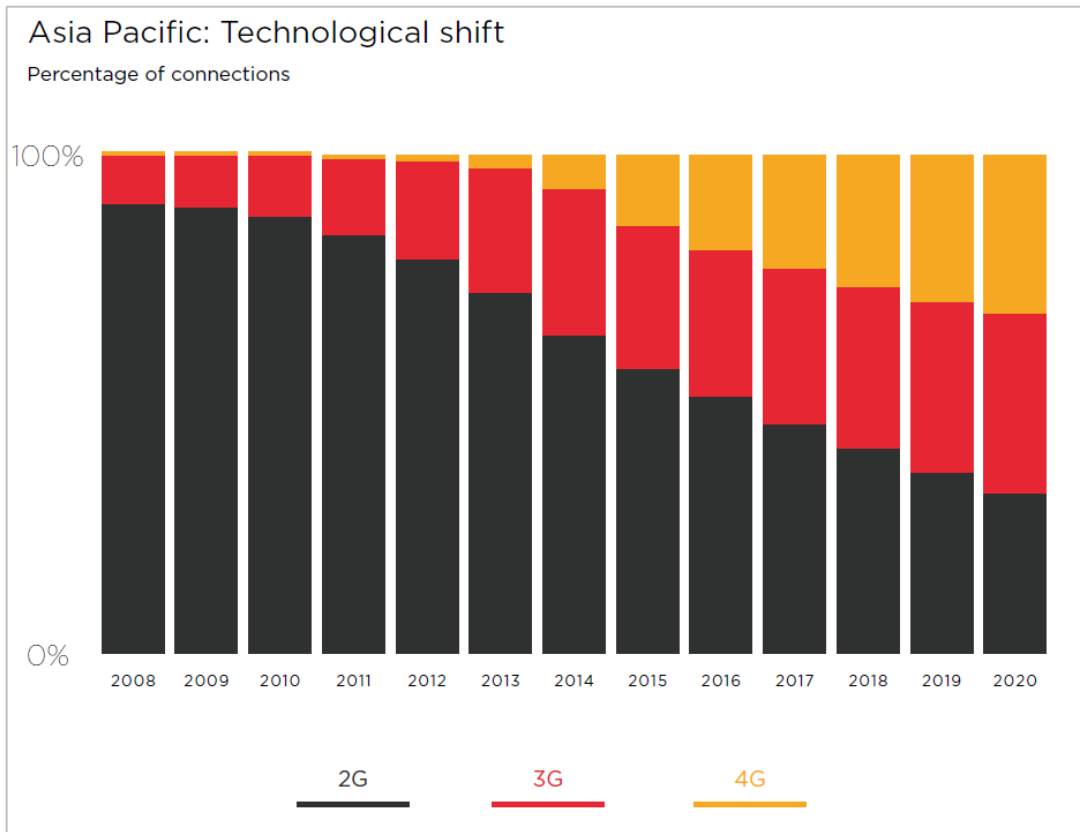
# Asia Pacific leads in both mobile subscribers and connections



Source: GSMA, The Mobile Economy Asia Pacific (2015)

- The Asia Pacific region had 1.8 billion unique subscribers and nearly 3.8 billion connections (including M2M) as of the first quarter of 2015.
- It dominates the global mobile industry, already accounting for half of the world's unique subscribers and connections.
- Subscriber growth is expected to continue at a faster pace than the rest of the world, with 600 million new subscribers expected by 2020.

# Asia Pacific showing rapid migration to mobile broadband networks



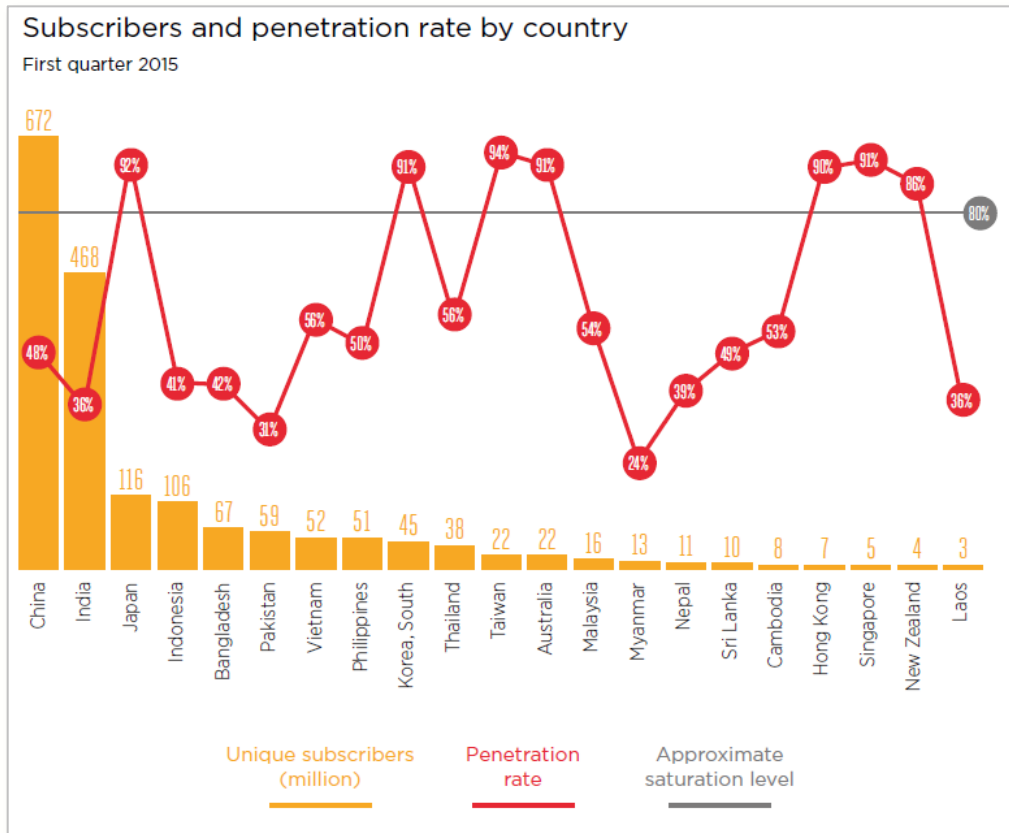
There is a large divide in the region regarding 4G deployments between the leaders and laggards.

Over the next three years, 4G network coverage will for the first time reach a majority of the region's population.

However, at a country level, large differences in 4G coverage will remain.

Source: GSMA, The Mobile Economy Asia Pacific (2015)

# Penetration rates are still low in many 'discover' markets



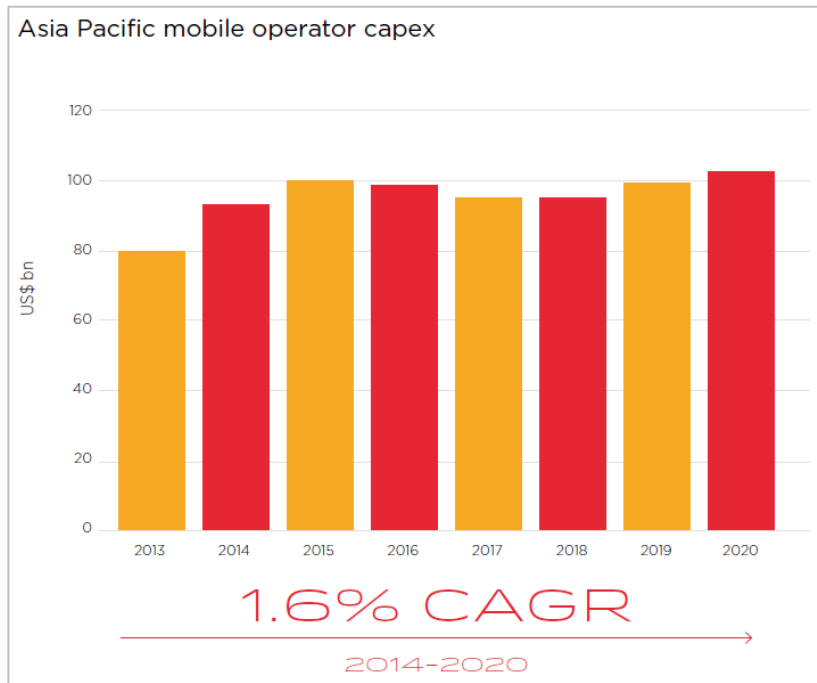
- Although Asia-Pacific is home to some of the world's most advanced mobile markets, overall penetration rates continue to lag the global average.
- The region contains a number of populous but relatively underpenetrated markets e.g., India, Pakistan and Bangladesh.
- Connecting the still unconnected populations across the region remains one of the major challenges facing both the mobile industry and policy makers over the coming years.

Source: GSMA, The Mobile Economy Asia Pacific (2015)



# Operators are making substantial capex investments to accommodate growth

Operators in Asia Pacific made over US\$90 billion of capital investments in 2014, a ratio of nearly 23% of total revenues and growth of 17% from 2013.



- These figures reflect the requirements for coverage expansion, capacity increases and network upgrades to 4G.
- As 4G coverage expands and data growth drives the need for increased network capacity, capex levels are likely to increase further.
- Overall, capex over the 2015 to 2020 period will total nearly US\$600 billion, representing over 20% of total revenues generated in the same timeframe.

Source: GSMA, The Mobile Economy Asia Pacific (2015)

# An overview of research on the impact of mobile

The GSMA and a number of other organisations have carried out assessments of the socio-economic impacts of the mobile industry.



# Research shows positive impacts

## GSM Intelligence

- Mobile operators have invested more than \$1 trillion over the last six years across the globe
- The mobile ecosystem directly contributes \$336 billion to public funding
- There are 10.5 million jobs supported directly by the mobile ecosystem across the globe

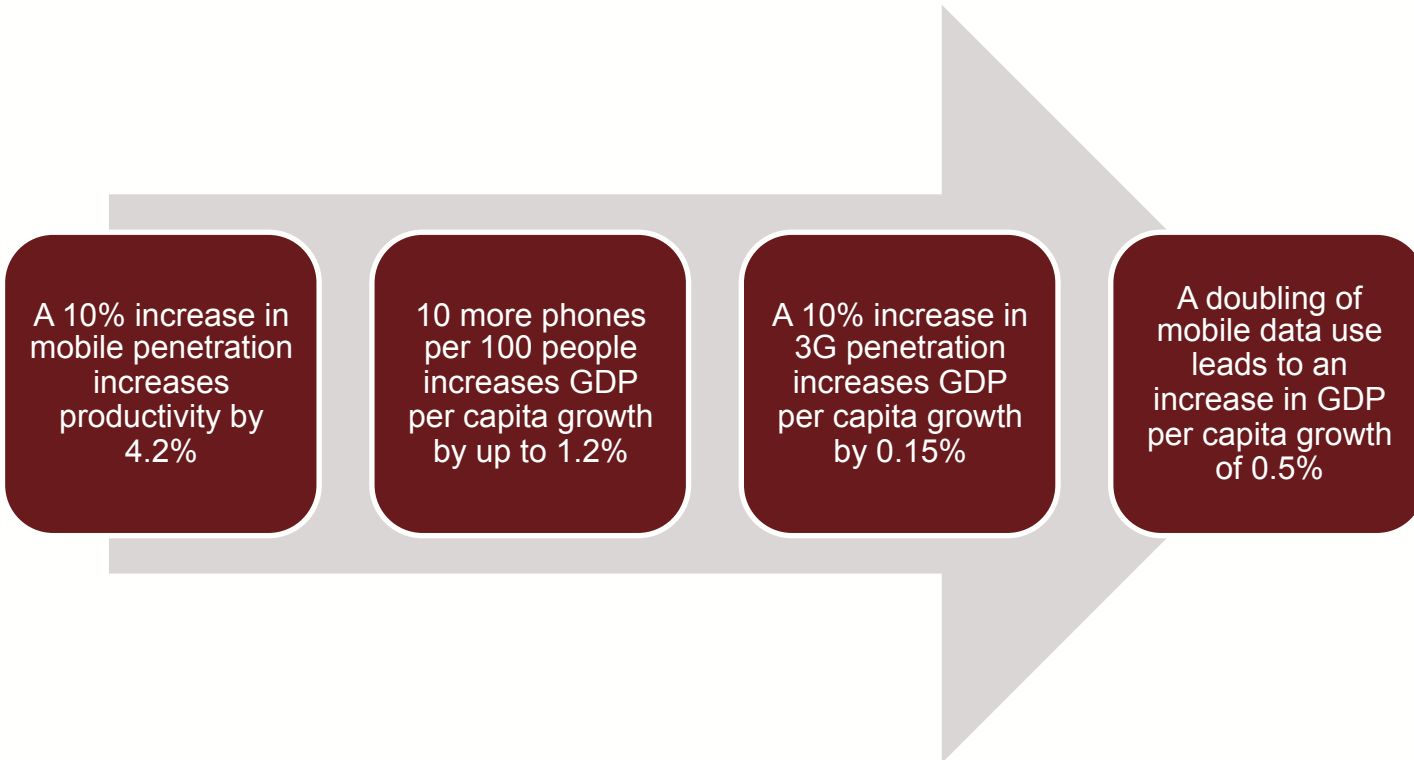
## The World Bank

- Mobile broadband has a higher positive economic impact than fixed line broadband, particularly in emerging markets
- A 10% increase in mobile broadband penetration drives a 1.4% increase in GDP for low-to-middle income countries

Source: GSMA, The Mobile Economy (2014), World Bank analysis

# The power of mobile and data

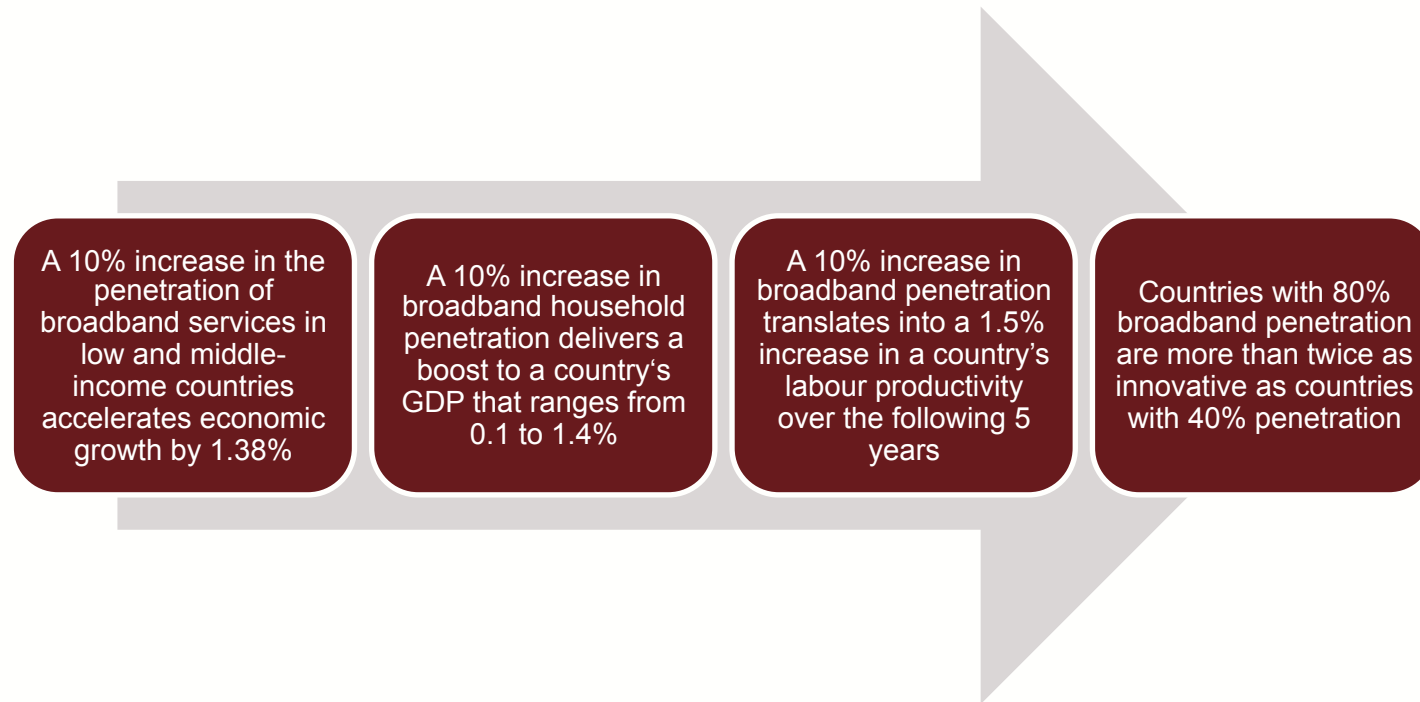
Increased mobile penetration and data usage reaps rewards.



Sources: GSMA, Deloitte, What is the impact of mobile telephony on economic growth? (2012)  
Waverman, Meschi and Fuss, The impact of telecoms on economic growth in developing countries (2005)

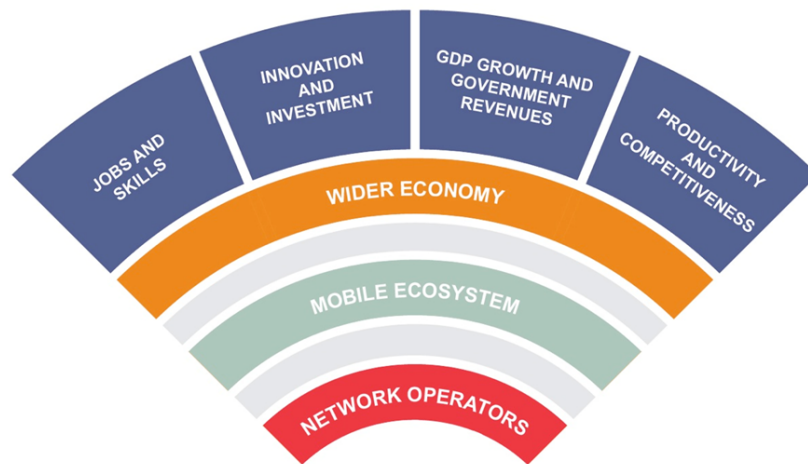
# Mobile broadband uplift

Mobile broadband brings huge benefits to economies:



Sources: World Bank, McKinsey & Company, Mobile broadband for the masses (2009), Booz & Company, Digital Highways: The Role of Government In 21st-Century Infrastructure (2009)

# The impact of mobile on the economy and employment



The mobile sector has become a cornerstone of the global economy

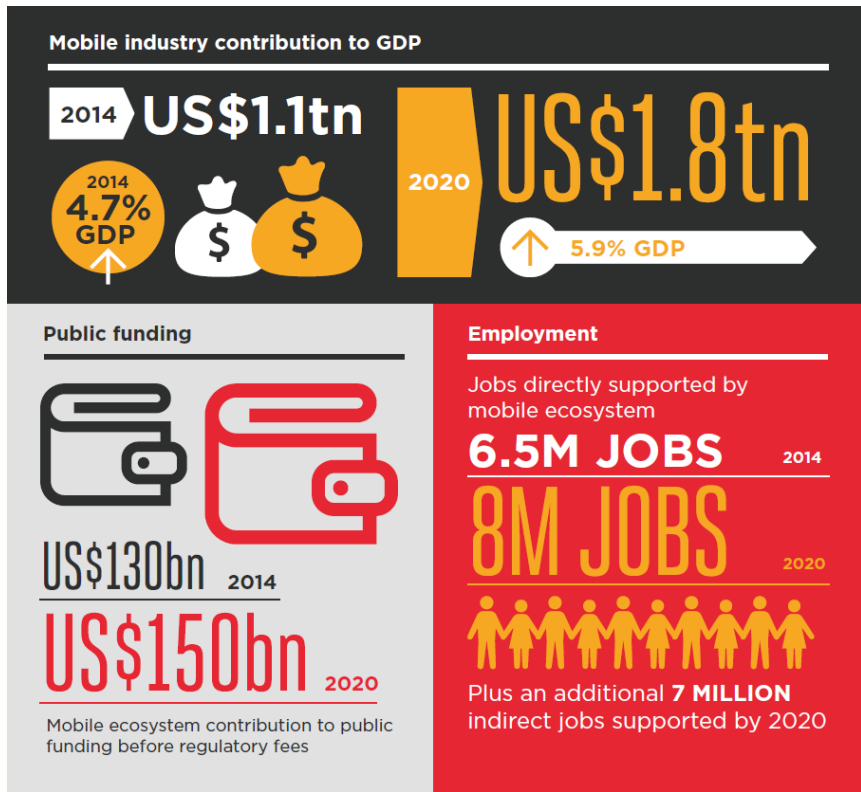
It is an industry that creates value that then radiates out through economies

In 2015 it contributed around 4.2% of global gross domestic product (GDP), equivalent to over \$3.1 trillion

This figure is expected to increase to \$3.7 trillion by 2020

Source: GSMA, The Mobile Economy (2016)

# Regional transformation

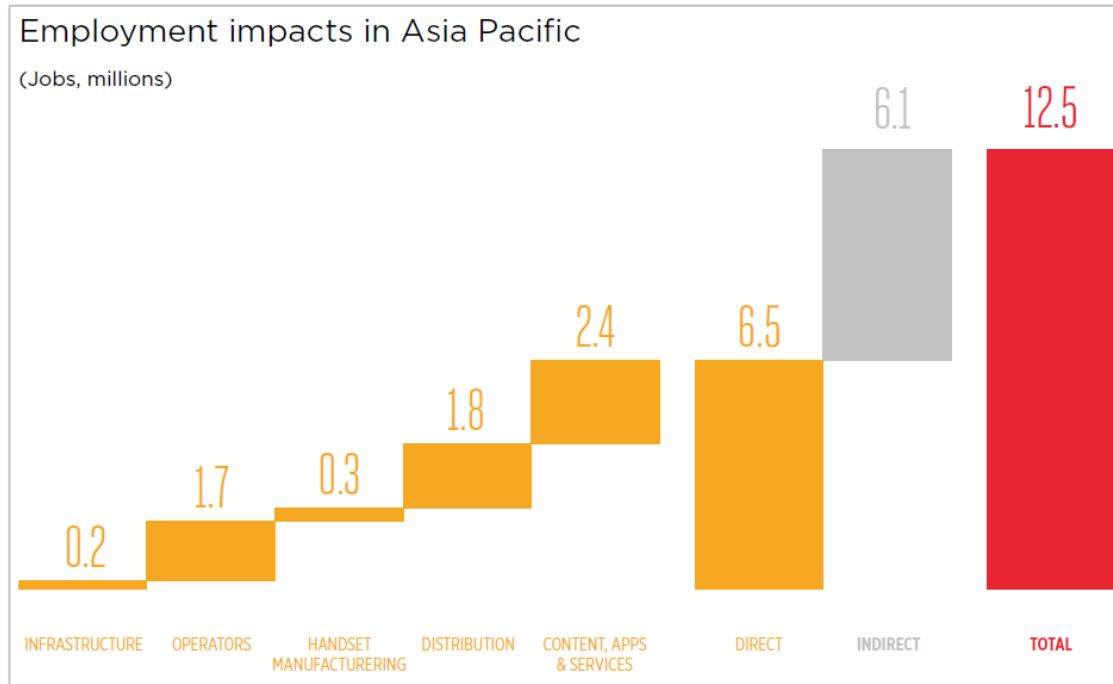


The rapid development of the mobile industry has had a transformative impact on individuals and countries across the Asia Pacific region:

- In 2014 the broader mobile ecosystem accounted for 4.7% of GDP in the Asia Pacific region
- By 2020, this figure is forecast to rise to almost 6%
- The industry currently employs 6.5 million people
- By 2020, this figure is set to jump to 8 million
- The public funding contribution from mobile operators is expected to grow from \$130 billion in 2014 to \$150 billion by 2020

Source: GSMA, Mobile Economy Asia Pacific (2015)

# Positive impact on employment

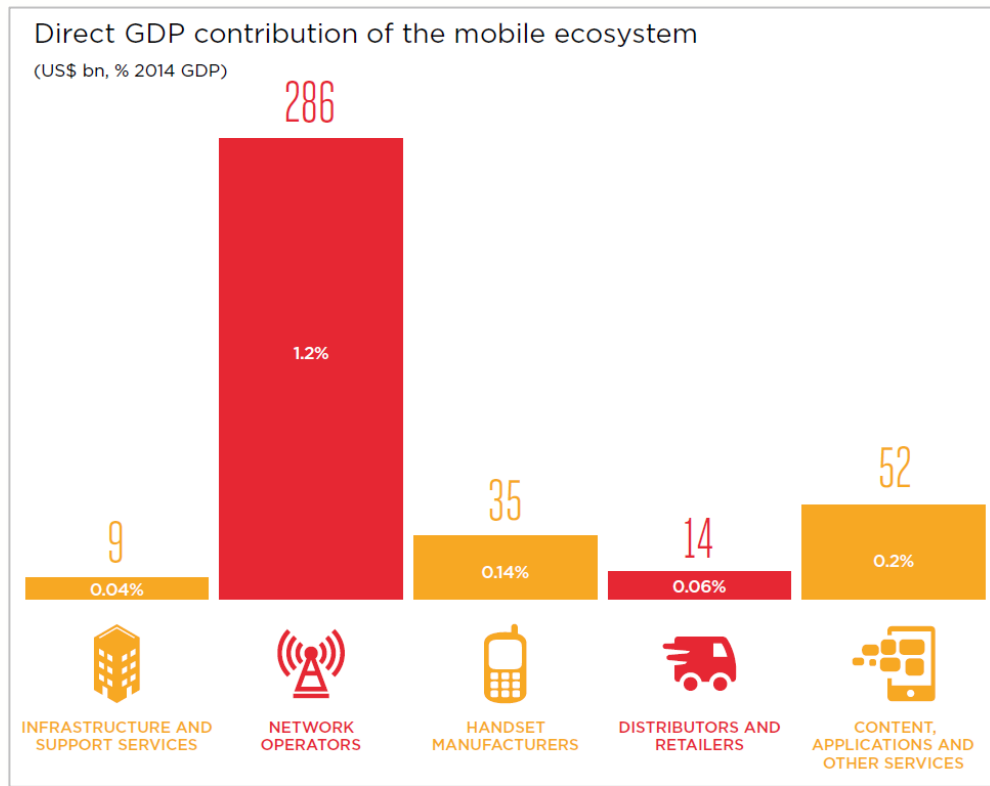


Source: GSMA, Mobile Economy Asia Pacific (2015)

- In Asia Pacific alone, the mobile industry directly employs 6.5 million people.
- The largest portion of these people (2.4 million) are employed in the content, applications and services sector.
- Additional jobs were also indirectly supported in other industries, in particular in the direct supply chain.



# Supporting other businesses



The industry sustains a broad range of other businesses:

- Device manufacturers and operating system developers are driving innovation in the race to make smartphones faster, lighter and more intuitive to use
- Network infrastructure vendors are striving for further efficiencies, as they seek to support the network demands of tomorrow at lower cost
- Content providers are harnessing new hardware and software innovations to generate new products and services

Source: GSMA, Mobile Economy Asia Pacific (2015)

# Mobile increases productivity

As well as helping to create employment and entrepreneurial opportunities, mobile helps bridge the digital divide and improves education, health and agriculture productivity, leading to improved quality of life for individuals and their families.

- Among nearly 300 other mHealth products and services, associations such as Mobile Alliance for Maternal Action (MAMA) are providing mobile based health services to 2 million women, families and caregivers in Bangladesh and India alone.
- Airtel recently partnered with Million Lights — an online certification platform, to provide certified basic computing courses to consumers via mobile internet.
- Similarly, mobile operators are leading about one third of agriculture value-added services in the Asian continent. Services such as Krishibazar (Bangladesh), Digital Mandi (India) and Nongxintong (China) are examples of these among nearly 50 other services in the region.



Source: GSMA, Mobile Economy Asia Pacific (2015)

# India: A mobile-enabled ATM for Water

In India, 700 million people do not have access to clean water. This has serious consequences, as 60% of the diseases in adults and 85% of diseases in children are caused by contaminated water.



- The Sarvajal project equips a local entrepreneur with a ‘water ATM’ that provides safe drinking water at affordable prices.
- The ATM is embedded with 25 sensors and a SIM card, and transfers information in real-time in order to monitor water pressure and filtration, helping to reduce maintenance of the system.
- Customers pay for water using prepaid smart cards, with Sarvajal selling a litre of water for as little as INR 0.25 (<US\$ 0.01), cheaper than large bottled containers or small water pouches.
- In India, where water is available but unsafe, these types of kiosk solutions are critical to increasing access to clean water.
- Sarvajal is now serving 300,000 people daily across 12 Indian states.

# Skills training in Bangladesh

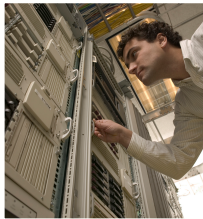
BBC Janala is a large-scale mobile-based English teaching tool which has effectively transformed mobile phones into a low-cost educational tool.



- Users can dial a short code and access bi-lingual audio-lessons and also test their English language skills through their mobile phones.
- The service is easily accessible on any handset, across all networks and costs as low as \$0.004 per lesson.
- In Bangladesh and much of South East Asia, English language proficiency is considered critical to improve employment and income opportunities.
- A user, Mishti, who lives in western Bangladesh and works for an insurance company, describes the transformative impact of learning English has had on her life and work. By learning English through this service, she is no longer afraid of interacting with foreigners or her bosses and says, “I need English because if I want to do well in my career, knowing how to speak English is critical.”

# Supportive regulatory policies spur investment and growth

The potential of mobile technologies to deliver these socio-economic benefits depends on a supportive regulatory environment.



Operators and investors need stability and clarity to secure the huge investment needed to extend coverage and deliver higher speed connectivity



Over regulation can stifle innovation, raise operating costs, limit competition and, ultimately, harm consumers



Regulation is most effective when policymakers work closely with the mobile industry to keep abreast of trends and ensure policies support, rather than hinder, investment and innovation



Break: 10:30 – 10:45



# Session 2: Case Studies

- Financial Inclusion
- Mobile Learning
- Health service delivery
- Rural communities
- Gender inclusion
- Disaster recovery
- mGovernment

# Case Studies

Case studies provide us with insights into how governments, mobile operators and other organisations, including NGOs, can work together to deliver real-world benefits to people around the world.



# Financial Inclusion: Sri Lanka

Sri Lanka adopts a progressive and innovative approach to mobile banking regulation

# Sri Lanka — progressive regulation drives adoption of electronic payments

The key issues:

- Sri Lanka has a population of 20 million people and 9.3 million unique mobile subscribers.
- According to the International Finance Corporation (IFC), Sri Lanka has high penetration of bank accounts, but low access to electronic payments, such as debit and credit cards due to the slow rollout of ATMs and Point of Sale devices.
- In 2007, the Central Bank of Sri Lanka (CBSL) authorised National Development Bank to launch a mobile money service called eZ Pay with Dialog, a leading Sri Lankan mobile operator.
- However, the service failed to take off, and by 2012 there were only about 13,000 registered eZ Pay users.



# Sri Lanka — progressive regulation drives adoption of electronic payments

The approach:

- With eZ Pay struggling to take off, the CBSL, Dialog and Hatton National Bank PLC (another commercial bank), worked together to understand why the service was unsuccessful.
- After analysing the experiences of countries where mobile money was thriving, the CBSL issued new guidelines in 2011 on two distinct mobile money products: an e-wallet linked to a bank account and an e-wallet provided by a non-bank.
- In 2012, Dialog was awarded a licence to provide non-bank, mobile money services, under the eZ Cash brand. The CBSL also agreed to let Dialog register users without requiring them to have a bank account and opted for proportional, risk-based KYC requirements for new users.



# Sri Lanka — progressive regulation drives adoption of electronic payments

The outcomes:

- The evolution of CBSL's approach created an open playing field for bank and non-bank providers, allowing mobile operators to launch a competitive set of mobile money products.
- This enabling regulatory environment extended the benefits of sending and receiving money electronically to a broad segment of society that had previously been excluded.
- In the first month, over 300,000 customers signed up to eZ Cash, and after a year it had more than a million customers.
- In May 2013, 330,535 transactions were conducted through eZ Cash with a total value that exceeded Rs435 million (\$3.32 million).



# Mobile Health: South Africa and Indonesia

Hello Doctor brings mobile-based health services to South Africa and Indonesia.

# Hello Doctor – The doctor will call you now

The key Issues:

- Healthcare services around the world are struggling to deliver medical services to communities that face geographic or economic barriers to access
- Hello Doctor, a mobile-based health platform, was launched in South Africa in 2010 with the aim of addressing these issues
- One of the country's first mobile-based health services, Hello Doctor gives users the chance to chat to a doctor or access the latest healthcare advice 24 hours a day, seven days a week, while also offering advice on how to follow a healthier lifestyle



# Hello Doctor – The doctor will call you now

The approach:

- Hello Doctor operates a ‘freemium’ business model – healthy living advice is provided for free; Q&A text consultations are available at very low cost; and in-depth telephone medical consultations are charged at less than \$4
- Regulators have not been receptive, especially the Health Professions Council of South Africa which opposes the service, so Hello Doctor has had to clear a number of hurdles in order to achieve its currently level of success
- As a result, the service is a strong illustration of what can be achieved when mHealth service providers work closely with mobile operators and industry groups to deliver on wider public health objectives



# Hello Doctor – The doctor will call you now

The outcomes:

- Serving over 600,000 users in South Africa with just over 100 doctors on-call, it proves mHealth services can achieve significant scale
- Following its initial success, Hello Doctor is starting to expand throughout Africa and Indonesia, led by mobile operators Vodacom, MTN and Telkomsel





# Mobile Learning: Kenya

Bridge International Academies uses mobile technologies to deliver low-cost learning

# Bridge International Academies — delivering low-cost learning

## The key Issues:

- Kenya's 'free' public education system often leaves parents with demands for fees that are sometimes as high as \$12 a month
- Founded in 2008, Bridge International Academies was set up as a for-profit venture to bring low-cost education to deprived areas
- Primarily operating in Kenya, it plans to expand to other countries including Nigeria, Uganda and India
- From the outset its Academy in a Box approach was designed for huge scale to allow the company to quickly expand its number of schools, and thus pupils covered, for as low a cost as possible
- It keeps costs down by using mobile technology in innovative ways and relying on a highly standardised curriculum



# Bridge International Academies — delivering low-cost learning

## The approach:

- Bridge's software runs on refurbished tablets
- When teachers arrive at school, they use the tablets to check-in to ensure teacher attendance
- Teachers download lesson plans, which are scripted word for word, to their tablets before each class
- The vast majority of non-teaching activities, such as expense management, payroll processing and prospective admissions, are automated and centralised through a combination of a smartphone application and the teachers' tablet application, which links back to custom back-end Enterprise Resource Planning software
- Parents can pay school fees via the M-Pesa mobile money service



# Bridge International Academies — delivering low-cost learning

The outcomes:

- Funding secured from high profile investors such as Bill Gates, Omidyar Network and Khosla Ventures
- So far over 300 schools have been built in Kenya, serving more than 100,000 students
- A new school is being opened by the venture every two hand a half days
- Schooling costs are averaging at just \$6 a month
- The project expects to reach half a million students by 2016, when the venture also expects to become profitable
- By early 2015, Bridge will have academies in Nigeria and Uganda, with India following soon after



# Gender Inclusion: India

Uninor and Hand in Hand work together in India to empower female entrepreneurs

# Uninor and Hand in Hand — supporting female entrepreneurs

The key issues:

- Globally, 21% fewer women than men have a mobile phone
- Operators are now starting to address this issue by bringing women into the retail chain
- In India, operator Uninor and NGO Hand in Hand worked together to encourage female entrepreneurship in poor communities
- The collaboration has built a network of citizen information centres, managed by female entrepreneurs, in low income areas
- These centres provided entrepreneurship opportunities to other women by training them to sell mobile products and services
- These women then train their peers, so skills are passed on



# Uninor and Hand in Hand — supporting female entrepreneurs

The approach:

- Hand in Hand loaned each woman entrepreneur INR 30,000 (\$613) to purchase equipment including a computer, printer, desk, chairs and a power generator
- Every month the entrepreneur made an INR 2000 (\$40) repayment towards this loan over 24 months
- All entrepreneurs received business training in bookkeeping, commission structures and how to complete Customer Acquisition Forms
- They also received training on how to use a mobile phone, how to activate new SIMs and how to sell Mobile Top Ups



# Uninor and Hand in Hand — supporting female entrepreneurs

The outcomes:

- The women have proven to be highly successful entrepreneurs and mentors – between August 2010 and July 2011, sales of SIMs and Top Ups rocketed from 30,000 to 120,000, and women entrepreneurs were training 75,000 people across Tamil Nadu
- The initiative is snowballing, with each centre catering to around 4,000 people and more centres spreading from Tamil Nadu to states across the country
- The project was found to be so significant internally at Uninor that the pilot has been scaled up and integrated into Uninor's core business strategy





# Disaster Recovery: Philippines

The Philippines prepares for the worst to deliver the best mobile communications when disaster strikes

# The Philippines — preparing for when disaster strikes

The key issues:

- Sitting within the Pacific's geologically volatile 'ring of fire' and the region's typhoon belt, the Philippines is subject to a range of natural threats including earthquakes, volcanic activity and severe weather events
- This has prompted government, mobile operators and aid agencies to come together to develop a coordinated communications response strategy
- The Government has been very responsive in producing strong legislation and has also made the mobilisation of the private sector key to the success of the strategy



# The Philippines — preparing for when disaster strikes

The approach:

- Regulation has helped encourage mobile operators to invest in building resilient infrastructure designed to withstand all but the most severe shocks
- One of the Philippines' leading wireless providers, SMART Communications, has tightly integrated itself into both governmental and NGO disaster relief services
- SMART has also developed good relations with national meteorological institutes, which have co-located weather monitoring equipment at SMART's base stations, ensuring that it has virtually real-time access to severe weather warnings



# The Philippines — preparing for when disaster strikes

The outcomes:

- Mobile phone operators in the Philippines now lead the field in effective cooperation to save lives in disasters, as they are highly responsive to the needs of affected populations and the various government agencies involved in disaster recovery
- The government's disaster response systems now uses a range of channels including text, internet and social media in times of emergency to reach as many people as possible, as quickly as possible
- Collaboration ensures that mobile operators, in concert with government and NGO agencies, can act swiftly to restore communications links should disaster strike





# Session 2: ACTIVITY



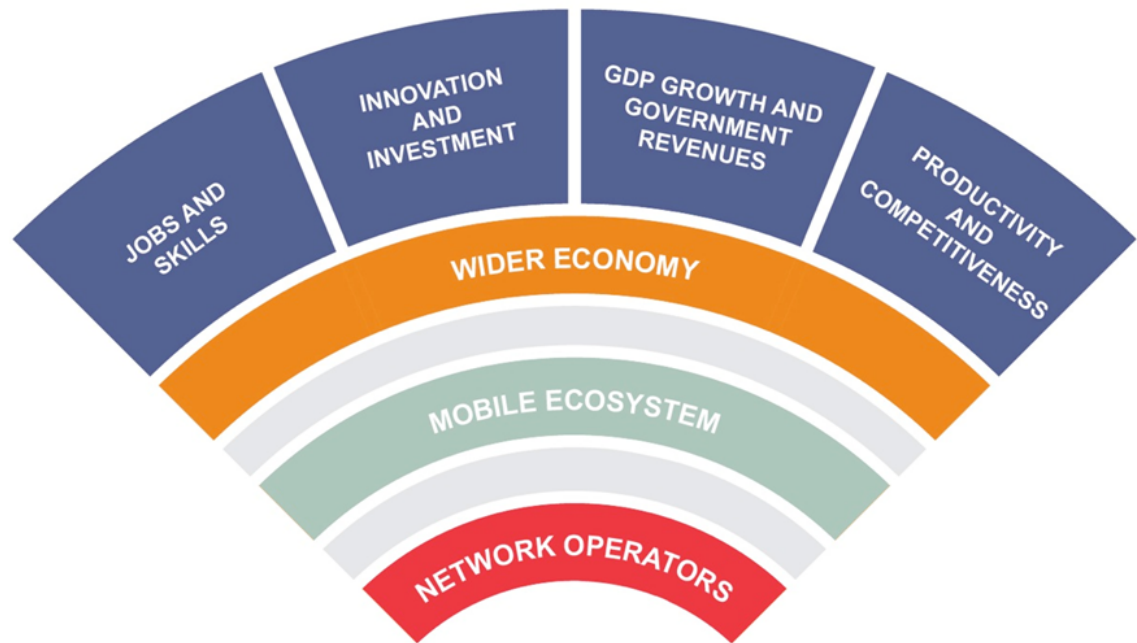
Lunch: 12:30 – 13:30

# Session 3: Group discussion

From your own experience, give examples of how technology and mobile have benefitted the wider economy.

One example per group:


- Jobs and skills
- Innovation and investment
- Growth
- Productivity





Break: 14:00 – 14:15





# Session 4: Enhancing Affordability Through Best-Practice Taxation

- Government policy and affordability
- Taxes on mobile consumers
- Fees and levies on operators
- Other telecom-specific taxes
- Regional case-studies

# Mobile services must be affordable to have most impact



Despite the widespread growth of mobile, the cost of mobile devices and services remains a significant barrier to further adoption of mobile technology

In order to be able to reach the poorest, whose lives the mobile phone has the most potential to change, mobile services must be affordable

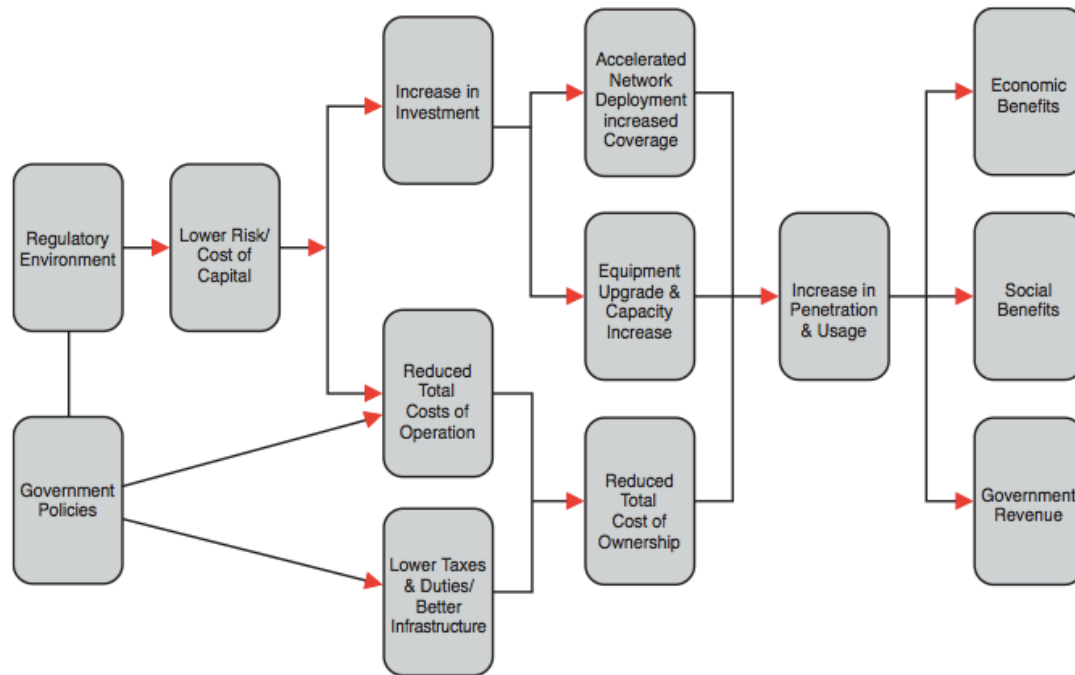
Government policy has a significant influence on the 'cost of ownership' for consumers and businesses

# Policy and affordability



- Policy decisions taken across a range of areas flow through to costs to the consumer
- Operational costs determine the economic viability of base station sites, directly impacting coverage
- To bridge the digital divide the overall regulatory environment must encourage investment and use

# Policy and the digital divide



Source: PwC, Regulation and the Digital Divide(2006)

- Indirectly, the overall regulatory and policy environment has an impact on the cost of capital and therefore the affordability of investment capital
- Directly and indirectly government policy has a major impact on the affordability of services and the potential to bridge the digital divide
- Government policy can have a direct impact on the cost of operations through fees, charges and taxes
- Policies can also have a direct impact on the cost of use of services through SIM tax and usage tax

# Principles of effective taxation

General principles of taxation based on research by the World Bank, IMF and OECD:



Taxation should be broad-based



Taxes should account for the wider socio-economic effects of the sector and products



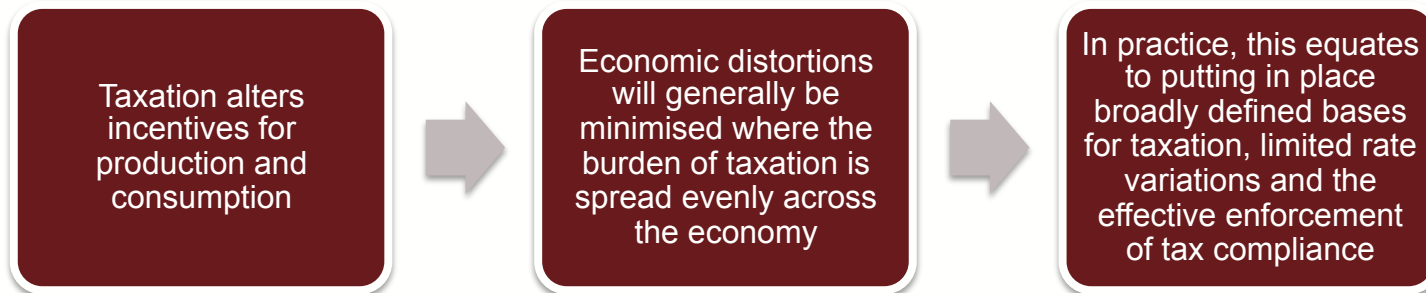
The tax and regulatory system should be simple, easily understandable and enforced



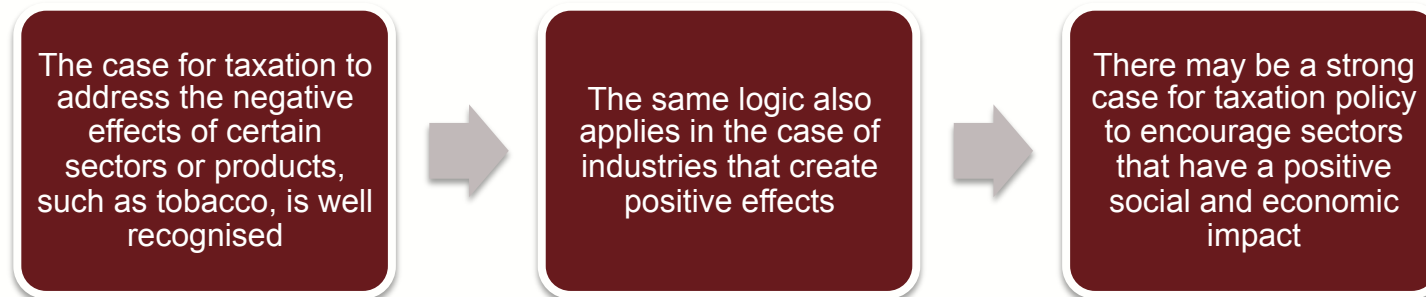
Different taxes have different economic properties, with a general consensus in favour of broad-based consumption tax

# Principles of effective taxation

## Taxation works best when it is broad-based



## Taxes should reflect wider effects



# Principles of effective taxation

## Simplicity is best

The tax and regulatory system should be simple, easily understandable and enforced



A lack of transparency over taxation systems and liabilities may deter investors and is also likely to increase enforcement costs for government

## Consumption tax – less distorting

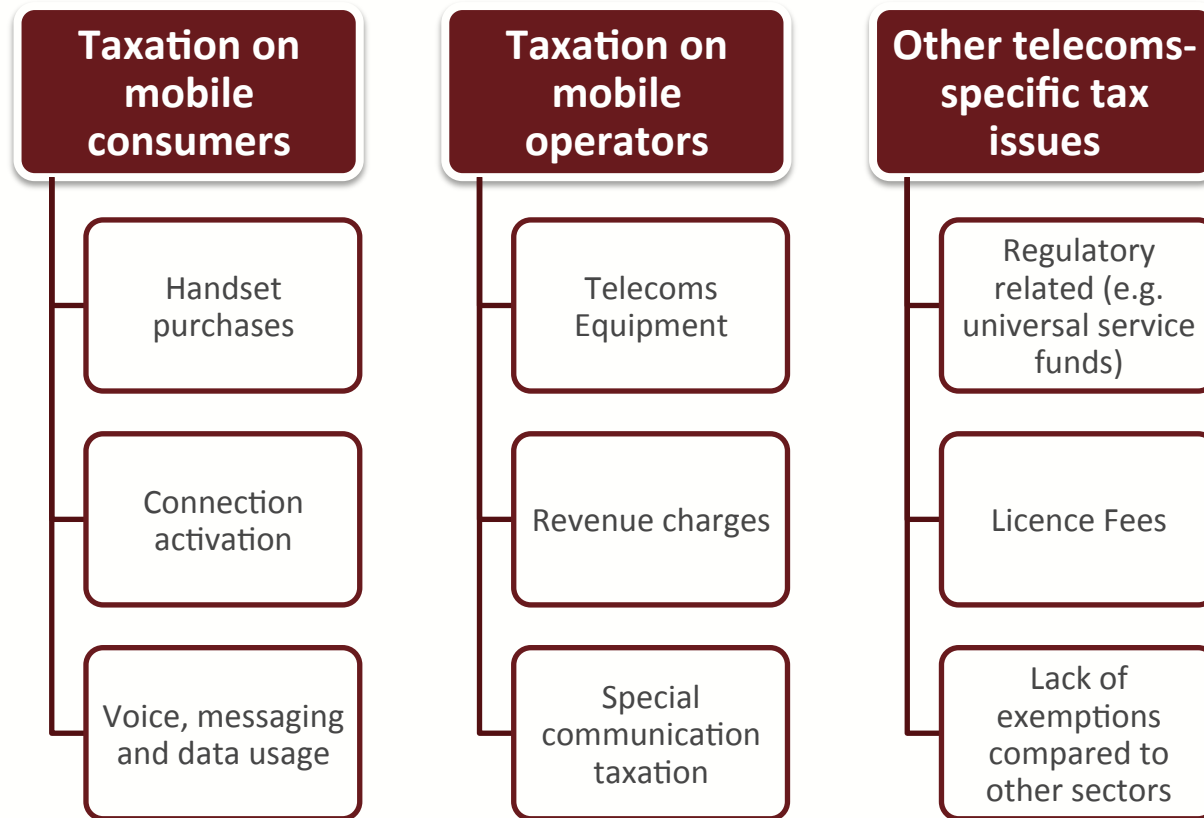
Different taxes have different economic properties



There is a general consensus that, for most products, a broad-based consumption tax is less distorting than taxation on income or profits

# Mobile taxation

Taxes on the mobile sector takes a number of different forms.





# Balancing taxation and affordability



Affordability of mobile services can be affected when governments impose sector specific taxes and fees

These include special communication taxes, such as excise duties on handsets and airtime, and revenue-share levies on mobile operators

Best practice taxation strikes the right balance between encouraging the growth of the digital economy and fair revenue collection

# Problems of unbalanced taxation

If taxation fails to strike the right balance it can ultimately prove counterproductive — especially in the developing world.

Unbalanced taxation policy has the potential to:



# High and increasing mobile tax burden in some countries

The GSMA and Deloitte have conducted an in-depth comparative analysis of mobile taxes and fees across 26 markets including Brazil, Cameroon, Croatia, Kenya, Mexico and Turkey. Key findings include:



In 11 of the 26 countries studied, over \$3 in every \$10 of mobile revenue was transferred to the government in the form of taxes, regulatory fees or other charges



High taxes on mobile restrict the growth of the sector and the use of networks

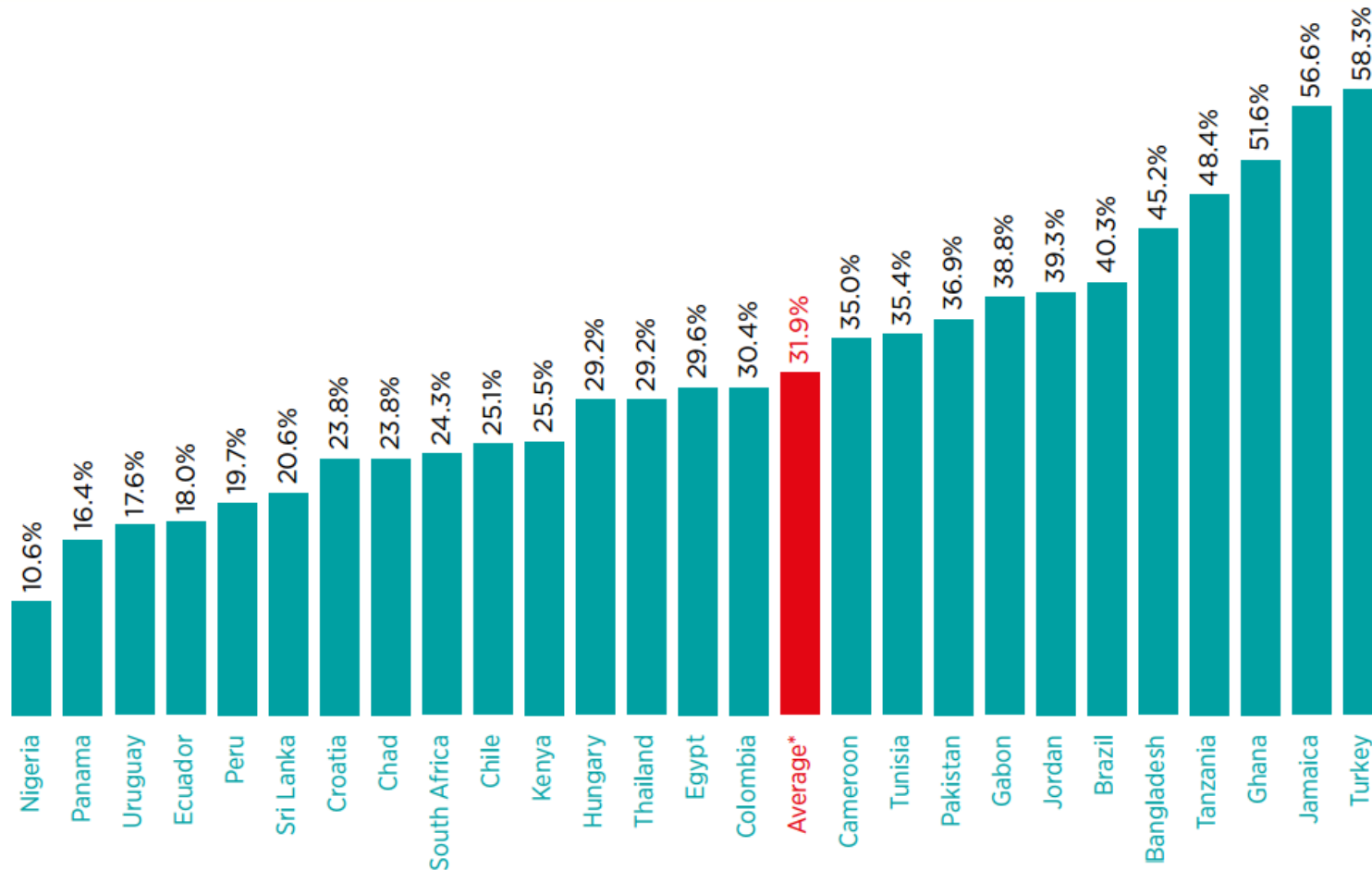


Countries that have reformed taxation (e.g. Uruguay and Kenya) have seen growth in the sector and a boost in vital economic activity

Source: GSMA and Deloitte, Digital inclusion and mobile sector taxation (2015)

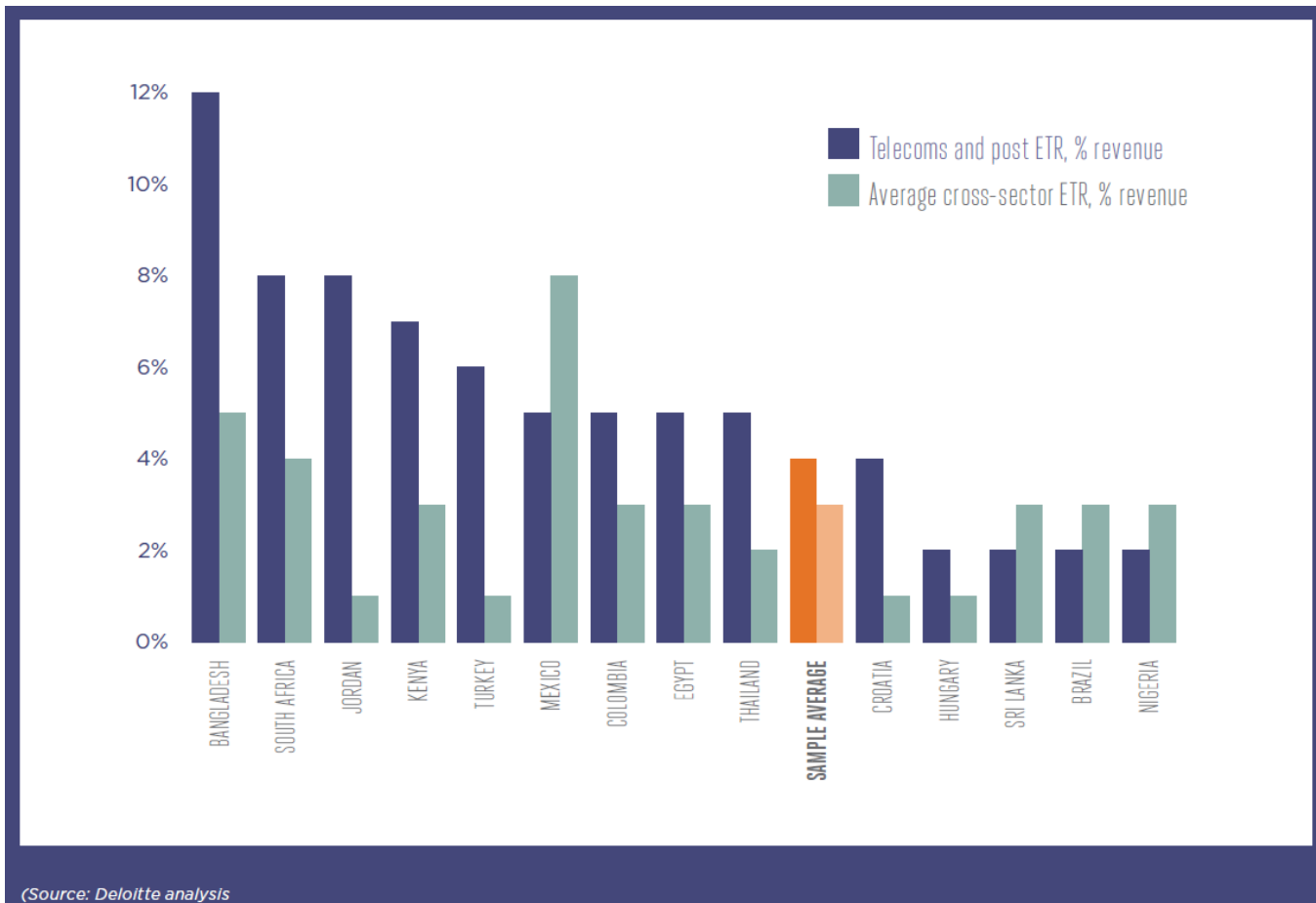
# Mobile taxation comparison

Cross-country comparison of mobile tax and fees burden (2013)



\*Across 26 selected countries. Source: Deloitte analysis based on GSMA Intelligence Database and operator data

# Taxation compared across sectors



There is discrimination against mobile in raising tax revenues  
Mobile makes a higher tax contribution than most other sectors

# Research into effects of taxation

Research data shows the significant impact taxation has on foreign investment and the adoption of mobile services.

A 10% increase in penetration may result in a 1.2% increase in gross domestic product (GDP)

A 1% tax reduction on mobile broadband would result in an up to 1.8% increase in penetration and an up to 0.7% increase in GDP over five years

More affordable mobile services (due to reductions in taxes, for example) lead to economic growth that is high enough to offset the direct medium term negative effect on tax revenue

A review of over 400 different studies found that, on average, a 1% increase in the rate of tax on capital led to a 4% decrease in the level of foreign direct investment

Empirical research has identified a negative relationship between uncertainty over future taxation and investment

GSMA and Deloitte, Global mobile tax review 2006-07 (2007).

GSMA, The impact of taxation on the development of the mobile broadband sector (2012)

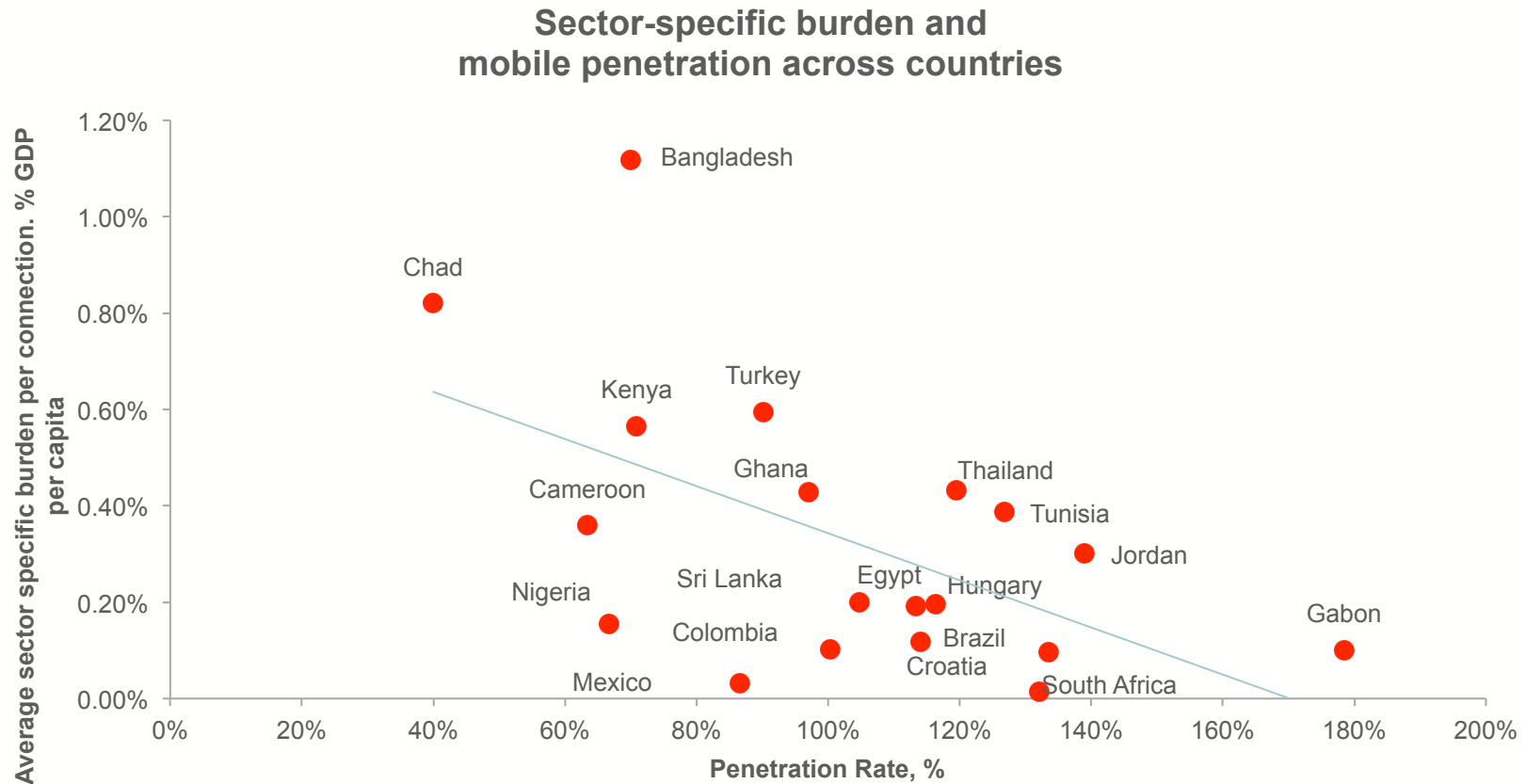
GSMA, Taxation and growth of mobile in East Africa (2007)

Mooij and Ederveen, Explaining the variation in empirical estimates of tax elasticities of Foreign Direct Investment (2005)

Edmiston, Tax uncertainty and investment: A cross-country empirical examination (2004)

# Taxation versus mobile growth

Higher taxes can hinder the adoption of mobile technology.



Source: *Mobile taxes and fees: A toolkit of principles and evidence*, February 2014

# Transitioning to a more balanced tax policy

## **Address problems early, especially for new services:**

- This offers countries the potential to maximise the economic/productive opportunity from those services with lower fiscal costs

## **Consider alternatives:**

- The research shows that even for broad-based taxes, mobile is making an undue contribution
- Moreover, World Bank research finds that most governments have significant capacity to increase tax on economic 'bads' such as pollution, tobacco and alcohol

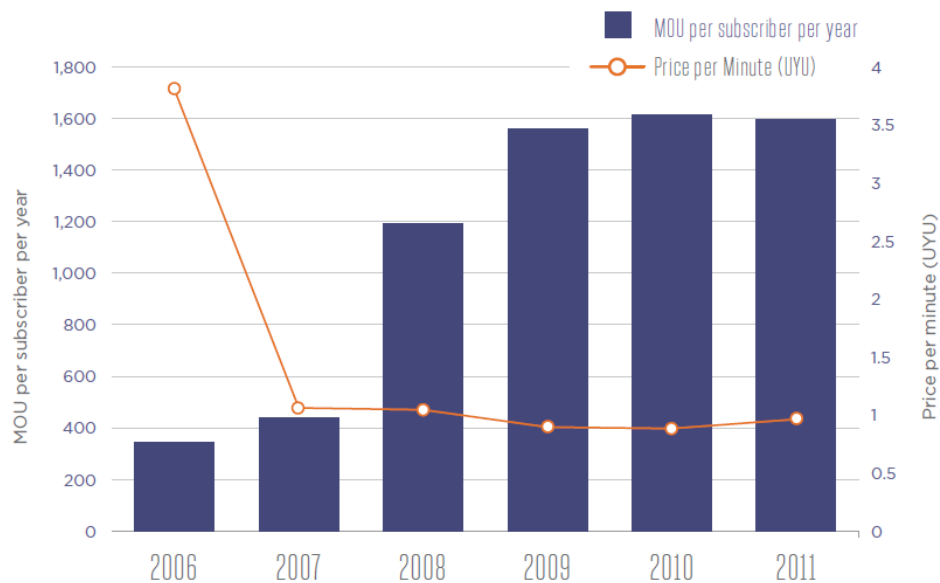
## **Phased reductions may help:**

- Studies show tax cuts can be fiscally neutral within a few years due to a combination of stimulated economic growth and general sector expansion



# Uruguay – case study

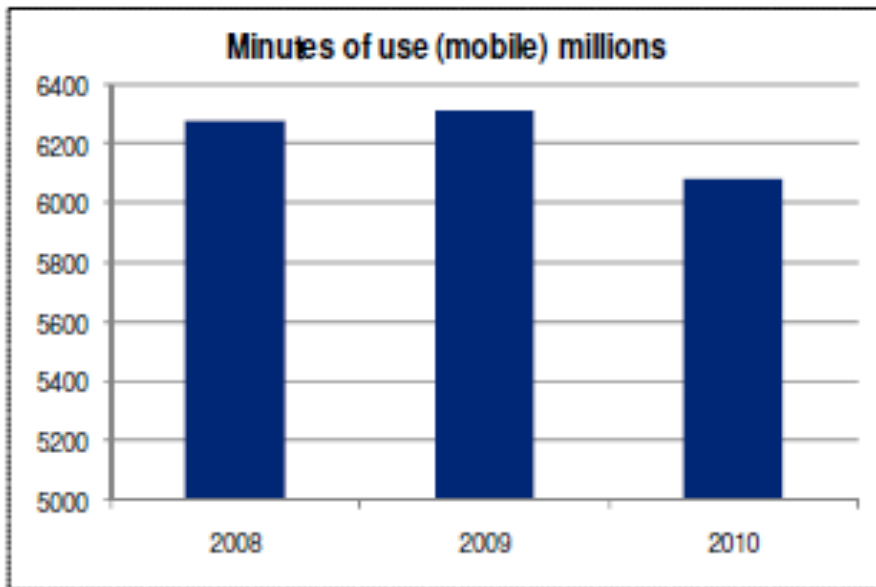
The Uruguay government abolished an airtime tax in 2007 that had accounted for between 30 and 50 per cent of calling costs.



- In the year immediately following, prices fell by over two thirds, from UYU 3.75 per minute to around UYU 1.00 per minute
- Penetration has since more than doubled from 65% in 2006 to 141% in 2011
- Network use has risen from just under 400 annual minutes per subscriber in 2006 to 1,600 in 2011

# Croatia – case study

In 2009, as part of its response to the economic crisis, the Croatian government imposed a six per cent tax on mobile gross revenues related to voice, SMS and MMS.



- In the year following the introduction of the tax, Croatia suffered the **first ever fall** in voice and SMS volumes
- Volumes of mobile calls decreased by 4% and volumes of SMS messages decreased by 14%.
- Continuing the differential treatment of MNOs, by taxing them at a higher rate than other businesses in Croatia, risked reducing productivity and consumer benefits.
- In 2012, the tax was finally abolished as part of an attempt to promote additional infrastructure investment



# Session 5: Regulatory Models for Widening Broadband Access

- Universal service funds and their limitations
- Single wholesale networks and network sharing
- Private/public partnerships

# The desire for broader access



Telecommunications regulators want to make services available to the widest possible number of people at the most affordable prices.

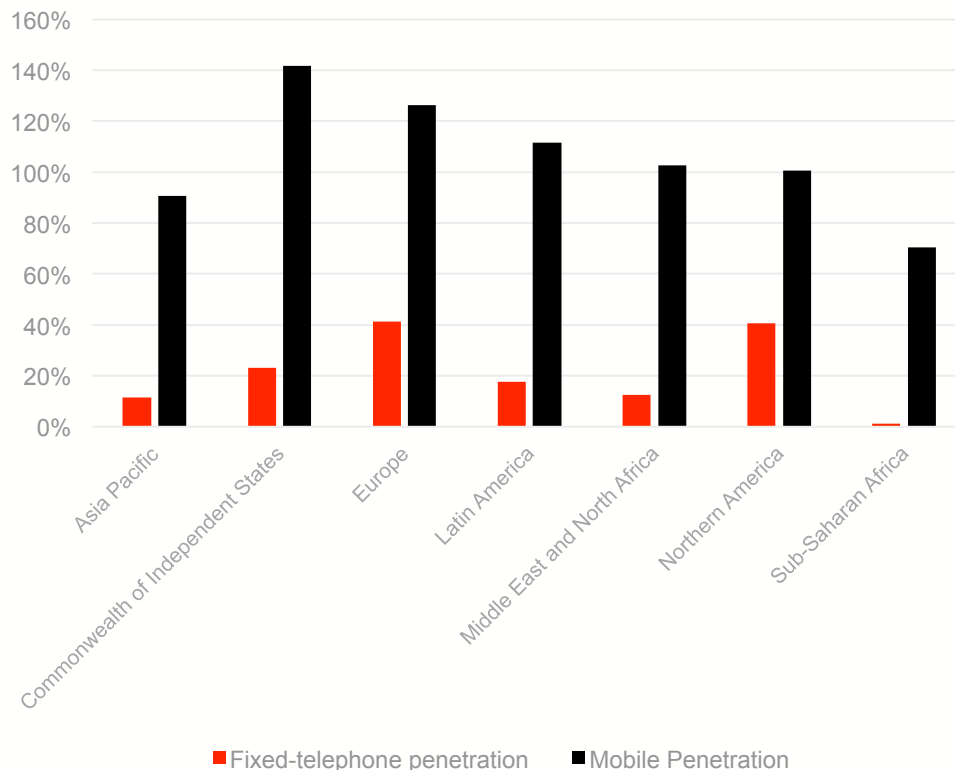
Competition has succeeded in delivering telecommunication services to the vast majority of the world's population.

In many regions universal coverage remains a challenge due to geographic location, economic climate, population density or other factors.

Policymakers have explored a number of regulatory options to increase access in these hard to reach areas.

# Mobile networks reach far more people than fixed networks

Fixed-line vs Mobile Penetration Based on Connections, 2014



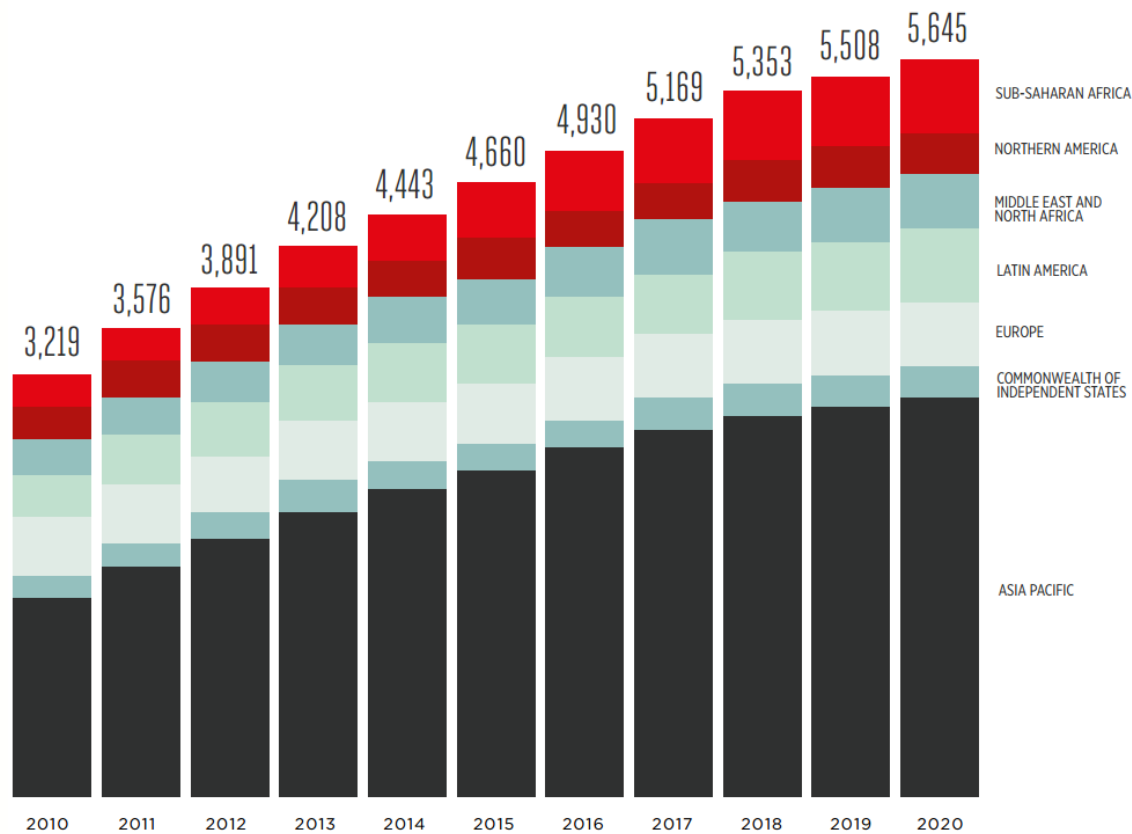
In every region around the world, mobile penetration is far higher than the penetration of fixed networks

Due to the lack of fixed-line infrastructure in many developing countries, mobile will be the enabling technology for getting the vast majority of unconnected people online in the future

Source: GSMA Intelligence, ITU

# Mobile continues to extend its reach

The mobile industry is dynamic and continues to find new ways to extend connectivity to more people.



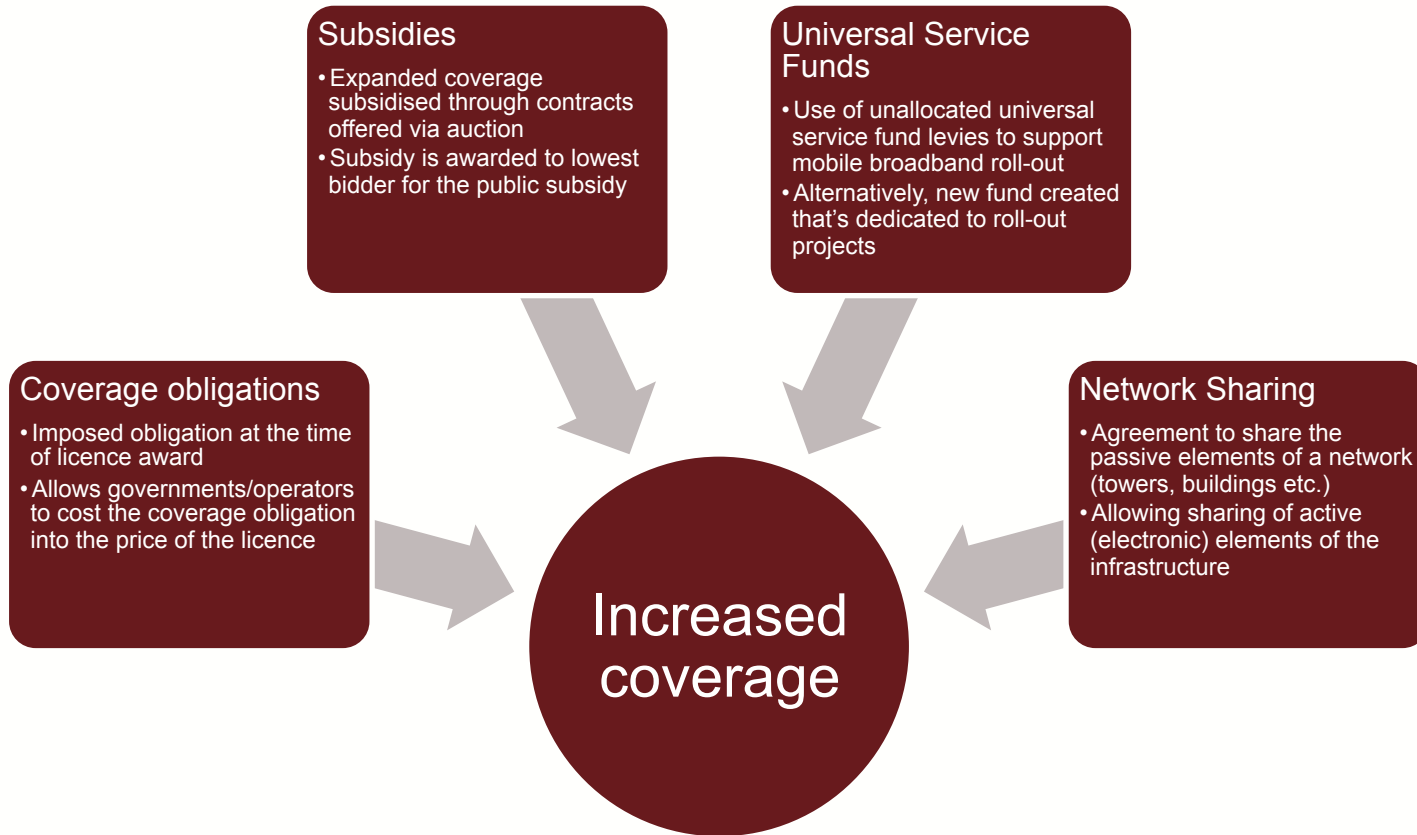
- It is expected that a further one billion subscribers will be added by 2020

# There is still a connectivity gap

- Despite the success of competition in extending access to vast numbers of people around the world, we must recognise that there are still many people who remain digitally excluded
- According to a recent study by McKinsey & Company concerning the barriers to mobile internet adoption, 4.4 billion people across the globe are still offline
- The report found that about 75 percent of the offline population is concentrated in 20 countries and is disproportionately rural, low income, elderly, illiterate and female

# A range of policy options

There are a number of regulatory tools that can be used when trying to increase coverage in underserved areas.





# What is a universal service fund?

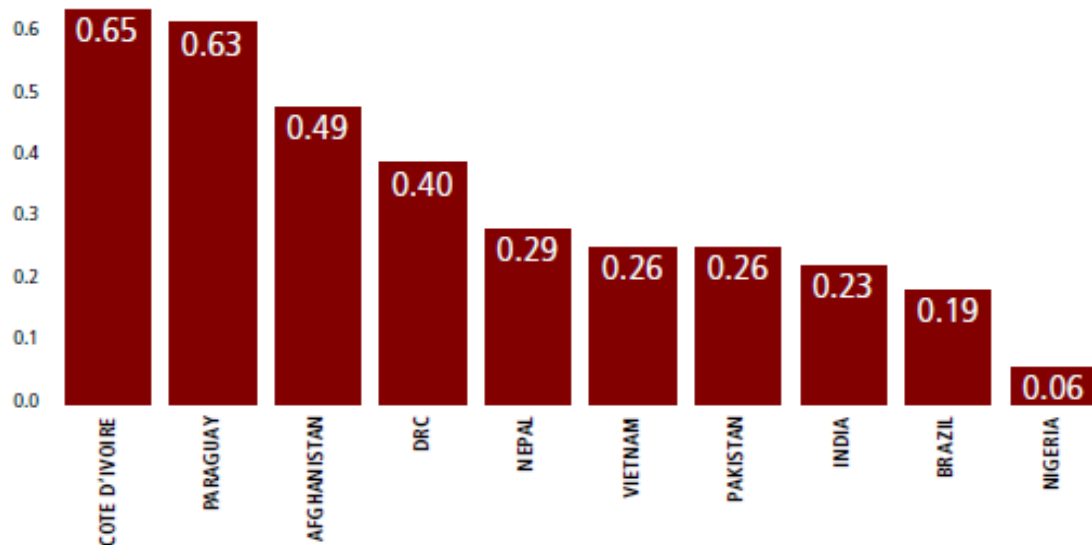
Universal Service Funds (USF) have become an increasingly common approach to try to achieve the universal service goal.

- USFs are designed to offer financial incentives for operators to provide universal service
- They are typically financed through contributions from telecommunications service providers
- Contributions can be fixed monthly, quarterly or annual fees, or alternatively charges calculated as a percentage of gross revenues
- In some countries, the USF fee is not a separate levy but instead a portion of an overall regulatory or licensing fee
- Fees may go directly to the USF or may be collected by the national regulatory authority and then transferred to the fund manager or administrator
- There may be other sources of funds such as proceeds from spectrum auctions, licence fees, direct government contributions and private industry contributions

# USFs have limited impact

A 2013 report commissioned by the GSMA that surveyed 64 USFs found most were inefficient and ineffective.

TOP 10 USFs WITH FUNDS HELD > \$30 MILLION AS A % OF GDP

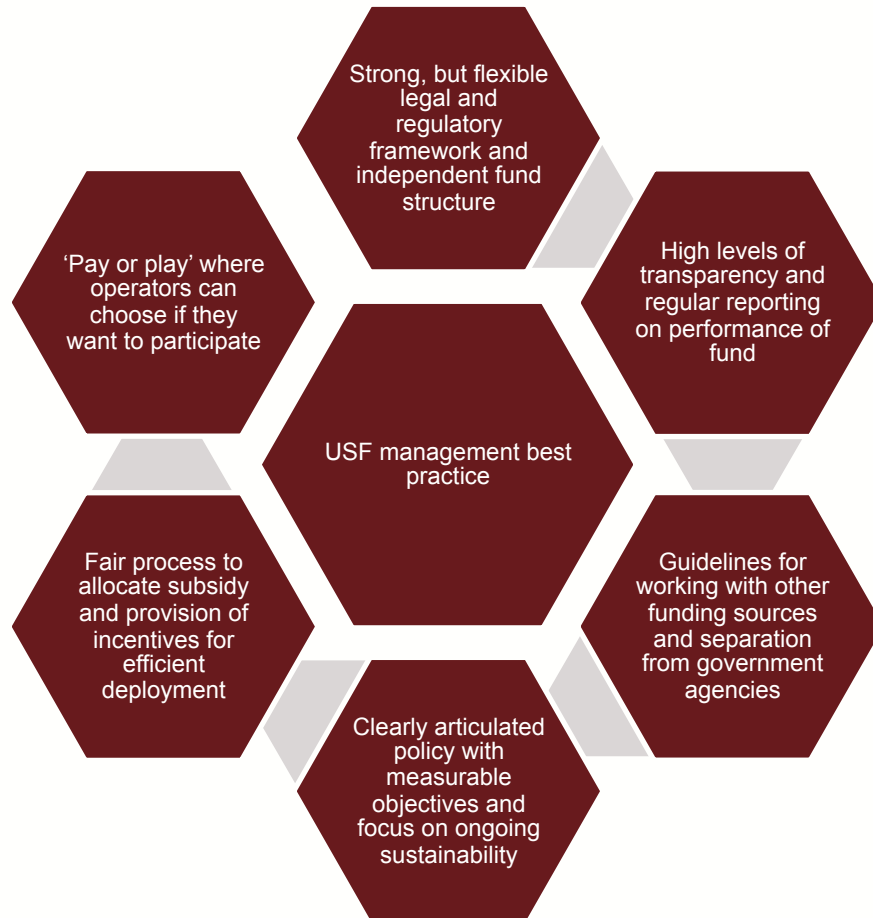


- The USFs had more than \$11 billion waiting to be disbursed
- More than a third had not distributed any of the levies collected
- Very few funds appeared to disburse everything they collected
- The money held represented a lost opportunity for countries seeking to stimulate economic growth as the money is effectively taken out of circulation

# Reasons why USF fail



# Best practices for managing existing USF policies



There are very few examples of well-conceived and well-implemented USF policies. As a result, it's extremely difficult to point to funds that embody all of the positive elements that would make them successful.

# Do USFs have a future?

Many now see USFs as a legacy regulatory instrument that has proved ineffective.

- There is little evidence that USFs are an effective way to achieve universal service goals
- Many USFs have been counterproductive, because they tax communications customers, including those in rural areas, and therefore raise the barrier to rural investment
- There is strong evidence that governments can better achieve their objectives by phasing out universal service funds and discontinuing the collection of USF levies
- USF monies are likely to be better utilised if they are returned to operators and directly used to extend mobile services to remote areas
- Existing USFs can be improved somewhat by making them more targeted and time-bound, while increasing the transparency of their management
- Existing funds can work better if they're allocated in a competitive and technically neutral way, in consultation with the industry

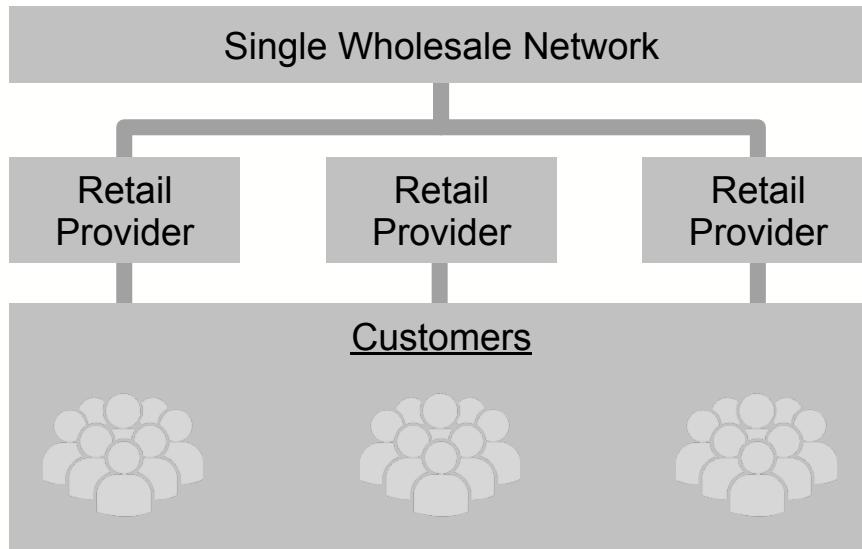
# Single wholesale networks

- Policymakers in a number of countries are evaluating the creation of a single shared network, known as a Single Wholesale Network (SWN), to extend access to underserved areas.
- Under this model a single government-initiated network monopoly would be created to deliver wholesale services to operators.
- The objective of the SWN is to deliver affordable national mobile broadband coverage.

# What is an SWN?

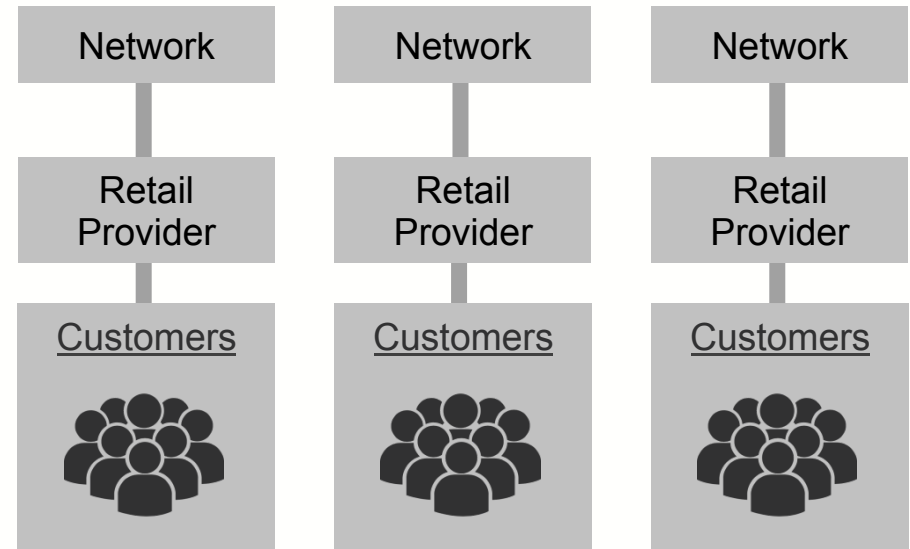
## SWN

- One wholesale network is used to supply all retail providers
- The wholesale network is initiated by the government
- Requires regulation and targets



## Network Competition

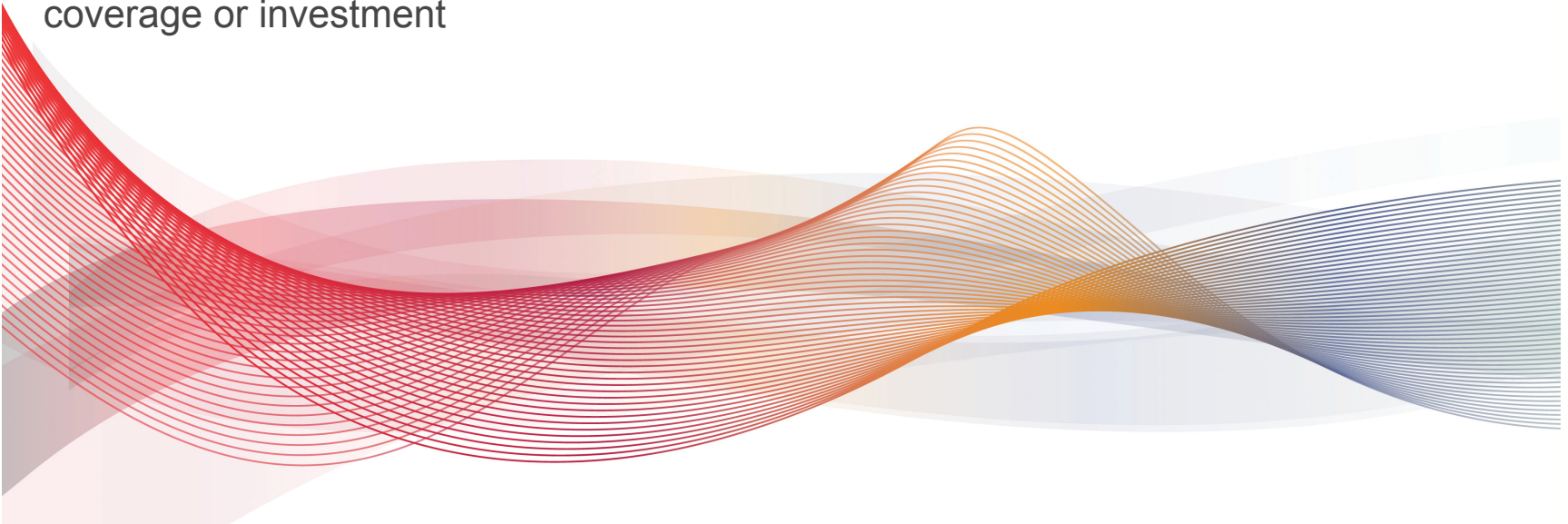
- Operators use their own networks to provide services to customers
- Competition occurs at both the network and retail levels
- Infrastructure is duplicated across networks



# Supporting arguments

Supporters of SWNs argue that they can solve problems that arise when applying the traditional model of network competition to some markets. These issues generally include:

- Inadequate or slow coverage in rural areas
- Inefficient use of radio spectrum
- A lack of incentives among foreign-owned operators to maximise coverage or investment





# Potential issues with SWNs

There is strong evidence that SWNs will lead to worse outcomes for consumers than network competition.

Evidence from markets with single networks show they have been much slower to perform upgrades and embrace new technologies, such as 3G

As monopolies, shared networks will always create incentives to keep prices high and expenditure low, including spend on increasing coverage

Voluntary sharing agreements and the commercial incentive of being first to market in an area can produce greater network coverage

Limited benefits of aggregating spectrum for use by multiple operators

Evidence suggests that the design, financing, and implementation of shared networks are likely to raise formidable difficulties

Investment in power and other utilities, which would help reduce opex costs for operators, could have more influence on network expansion

# SWNs could stifle innovation



Innovation has a major effect on reducing the costs of services, extending coverage and determining the range of services available on networks.

- Research has shown that innovation, driven by competition, has been behind the push from basic, slow first generation networks, to today's advanced, superfast 3G and 4G networks
- A mobile market with network competition is more likely to quickly introduce new technologies for two reasons:
  - competition encourages operators to bring new technologies to market as soon as possible
  - vertically integrated operators can ensure that both network and mobile terminal upgrades are co-ordinated to ensure efficient usage

Source: Frontier Research, Assessing the case for Single Wholesale Networks in mobile communications (2014)

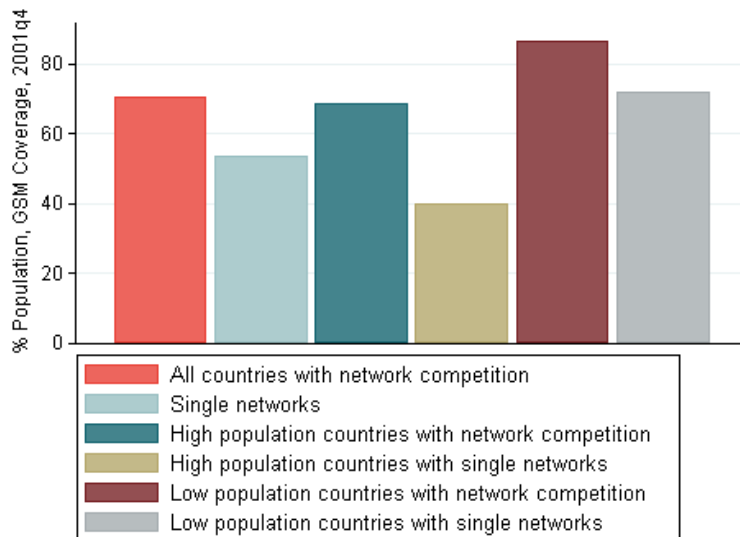
# SWNs unlikely to lead to reductions in mobile costs

Advocates of SWNs assume that reducing the duplication of certain assets in the network will lead to lower overall costs, which in turn could lead to lower prices for consumers.

- In practice, however, the ‘static efficiency’ cost savings that the SWN can achieve from removing duplication are limited and will be outweighed by the loss of ‘dynamic efficiency’
- Network modelling results show that ‘static efficiency’ savings achievable under SWNs are only slightly above what network competition can deliver through network sharing agreements
- While there are clearly some benefits to large contiguous allocations of spectrum under a SWN model, the magnitude of these benefits is relatively small in practice
- Moreover, they are counterbalanced by the dynamic benefits of upgrading networks more quickly to new technologies which deliver far greater spectral efficiency without any aggregation

# SWNs may not be effective in extending coverage to rural areas

There's little reason to expect an SWN to produce significant coverage improvements compared to network competition.

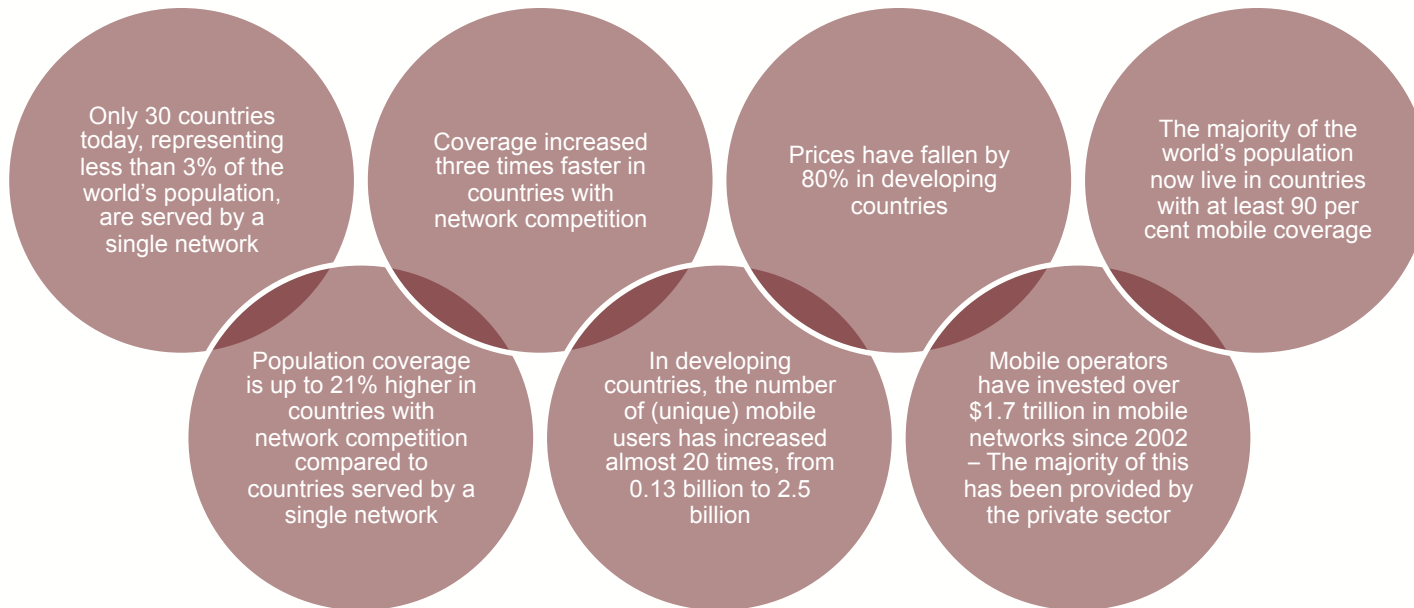


- Analysis shows that overall population coverage is considerably higher in countries with network competition (70.4% compared to 53.4% when including all countries regardless of their size)

Source: Analysis based on GSMA data

# The benefits of network competition

In 2000, as many countries were served by a single mobile network as by competing networks.



Sources: Frontier Economics, Assessing the case for Single Wholesale Networks in mobile communications (2014)  
World Bank, Measuring Financial Access around the World (2010)

# Commercial network sharing

Instead of creating an SWN, governments may want to investigate the option of encouraging commercial network sharing agreements between operators.

## Benefits of commercial network sharing

- It retains competition in the market and so does not require the intensive, ongoing regulation that an SWN would necessitate
- It creates positive incentives among operators to provide services in underserved areas because the cost reductions available mean less revenue is required to justify serving low demand areas
- The retention of network competition helps deliver greater innovation and encourages operators to adopt the latest technologies
- Sharing agreements can provide additional capacity in congested areas where space for sites and towers is limited
- It gives operators flexibility to decide (on a commercial basis) the parts of the network infrastructure they want to share and in what locations they want the sharing to occur
- An estimate by Vodafone shows that network sharing between two operators can achieve cost savings of up to 30%, while still allowing operators to preserve full control over their logical networks

Source: Vodafone, Network sharing in Vodafone (2009)

# Policy guidelines for commercial network sharing agreements

Ideally governments should have a regulatory framework in place that allows voluntary sharing of infrastructure among mobile operators. These frameworks work best when they:

Allow sharing to result from commercial negotiation, not because they are mandated or subject to additional regulatory constraints or fees

Facilitate all types of infrastructure sharing arrangements, including both so-called passive and active sharing

Allow for infrastructure sharing agreements to be governed under commercial law and, as such, subject to assessment under general competition law

Make access to government-owned trunk assets available on non-discriminatory commercial terms, at reasonable market rates

# Regulatory safeguards

Regulators usually prefer to adopt a management-by-incentives approach

It is not uncommon for them to put safeguards in place, particularly to mitigate any anti-competition concerns. Examples of safeguards include:



Capacity being sold on a first-come, first-served basis



Operators being required to log all infrastructure sharing activities and the logs to be made available to the regulator, if requested



Regulator acting as a negotiator to move along commercial negotiations



Infrastructure sharing permitted and commercial negotiations encouraged, but with mandated access and conditions should negotiations fail



# Public-private partnerships

There are many policy instruments that retain the advantages of the network competition model, but nonetheless allow the extension of coverage to areas that would not otherwise be served.

Alternative solutions, such as public-private partnerships, are likely to produce better results than USFs or SWNs for the extension of communications to rural and remote areas.

These partnerships allow government and industry to work together to identify the specific problems, before addressing them in a pragmatic and flexible way.

# Other subsidy options

A number of alternative policies can be considered when trying to increase coverage in underserved areas. These include:

Incorporating coverage obligations into operators' spectrum licences

- Increasingly governments are imposing coverage obligations at the time of licence award for new spectrum

Reducing the private cost of coverage, or increasing the expected revenues that could be earned by an operator from providing 'additional' coverage

- This would close the 'access gap' for that provider, without providing an explicit subsidy

Granting an operator a local monopoly over a particular area for a given time period


- Revenues to the operator will be more certain, allowing it to recover the fixed costs of roll-out

Stimulating demand in rural areas (for example, by deploying mGovernment applications)

- Stimulating demand could increase the profitability of covering the underserved area

# Pre-licence award obligations

Licence obligations are usually imposed when licences are being awarded. They are now a common feature of competitive processes for awarding new mobile licences.



Coverage obligations set out the scope of coverage and the timescales on which it is to be achieved

Policymakers face a trade-off between coverage and licence prices, as licensees will pay more for a licence with less extensive coverage obligations

This difference can be seen as the amount the government is willing to contribute to roll-out services in underserved areas

# Case study – Brazil

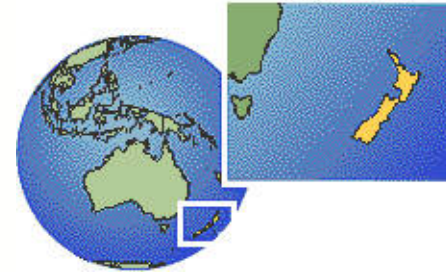
Coverage obligations produce desired effects in Brazil.

- When issuing new licences for third generation (3G) mobile services in 2007, the Brazilian government imposed more expansive coverage obligations than it had before
- Areas of low demand were not licensed in their own right, but were included as coverage obligations along with the more populous licences
- For example, winners of the profitable licences covering the São Paulo metropolitan (in the southeast of the country) were required to provide service with specific coverage obligations in the unprofitable areas of the northern states
- Based on data provided by the Brazilian regulator, Anatel, by May 2012 the mobile operators had provided coverage to 5,564 municipalities, equating to a population coverage level of 99.9 per cent, all without the benefit of access to the FUST (Brazil's USF)
- Only one municipality of 8,000 inhabitants – Nazária – remained unserved by any mobile operator

# Case Study – New Zealand

Government steers clear of ‘one size fits all’ coverage obligations.

In 2013, when New Zealand was auctioning the 700 MHz band freed up by the switchover to digital television, the government set different coverage obligations according to whether successful bidders were new entrants or existing players in the market.



- All successful bidders who purchased three or four lots were required to build five or ten new cell sites each year for five years, in areas they did not already cover via their own infrastructure
- Successful bidders that already operated mobile networks were required to upgrade 75 per cent of their existing 850/900 MHz 2G/3G cell sites in rural areas to 4G using 700 MHz – within five years – up to a maximum of 300 cell sites each
- Successful bidders that did not already operate mobile networks were subject to coverage obligations of 50% of the national population, including 30% in each region, within five years (for a successful bid for 15 paired MHz)

# The way forward for universal service

As USFs are not the most appropriate mechanism for providing universal access and service, existing funds should be carefully managed or disbanded, and alternative methods used in the future.

- Avoid introducing a new USF if the goal is to extend coverage
- If a USF is currently active, consider revising its associated levy downward so it reflects current requirements
- With existing USFs, there may be a need to embark on major improvement programmes to deal with defects in the fund's structure and administration
- If the fund contains a lot of money that hasn't been disbursed, suspend levy collection and start using the money in a transparent and technology-neutral way
- Where feasible, in the case of completely inactive funds, disband the USF and returning the monies to operators so they can invest it in extending coverage
- Where the previous option is not feasible, gradually reduce the levy collected (especially for inactive or low activity funds), and phase out the fund
- Explore the use of alternative methods to achieve universal service, such as promoting private network sharing and public-private partnerships, or introducing service obligations into new spectrum licence awards



# Discussion

If you could only do one thing to deliver rural connectivity what would it be?

Other than the policy enablers mentioned – what other factors influence rural adoption?



# Session 6: ACTIVITY



THANK YOU

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