

AKHET Consulting
today's tomorrow...

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Streamlining Broadband Investment

An Overview

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Lessons for the Region

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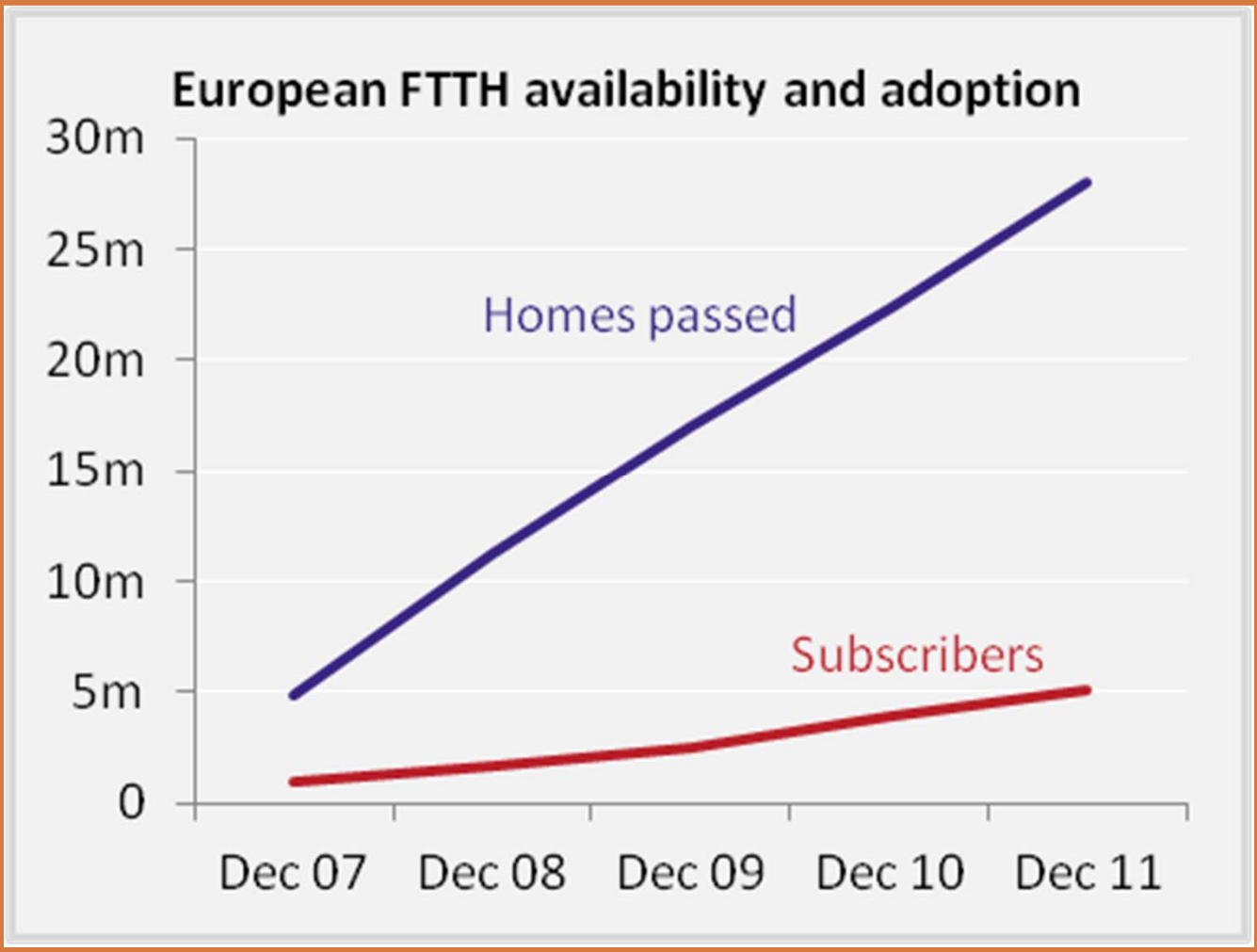
An Overview

Three critical preconditions to investment:

- A stable and predictable regulatory regime
- The investor is able to achieve an appropriate return on investment
- the investor is satisfied that there is likely to be sufficient consumer demand to enable an appropriate return on investment to be achieved



Chart of Uptake





Example of a Govt. demandside initiative






	 E-EDUCATION	 E-HEALTH	 E-GOVERNMENT	 E-BUSINESS	 E-DEVELOPMENT
OPPORTUNITIES	<ul style="list-style-type: none"> Deliver high quality curriculum in schools regardless of where a child lives Promote digital literacy Provide greater development opportunities for teachers, and increase opportunities for collaboration and resource sharing Share procurement of internet access amongst schools at a better price for schools 	<ul style="list-style-type: none"> Rapid identification and treatment of people through improved diagnosis and transfer of patient information between health providers Improve diagnosis and treatment times by making access to medical experts within NZ and internationally Assist people to better manage their personal health, so they know when to seek medical advice Make the elderly to stay connected with healthcare and enable them to stay in their homes longer 	<ul style="list-style-type: none"> Make government data more accessible, to facilitate the development of new applications and services Cost savings and better quality service delivery through sharing assets, services and resources across agencies Reduce government costs and the costs of accessing government services by increasing the use of online channels Deliver front-line services to where they are most needed, at a lower cost 	<ul style="list-style-type: none"> Make it easier for businesses to internationalise, and grow within NZ, through better access to customers, suppliers and partners, investment and research and development Reduce capital and operating expenditures through access to a wide range of applications and business solutions, and increase productivity by providing timely access to people and services Increase firm flexibility through networking, and greater cost savings for customers through online research Early adoption of firm cloud hosts is a competitive advantage for NZ firms through the pricing, timing, and commercialising firm-based applications 	<ul style="list-style-type: none"> Wider community access to information and resources that promote understanding of the opportunities associated with faster broadband, leading to improved outcomes, closure of the digital use and broadband benefits divide Promote social inclusion and increased productivity by improving digital literacy, particularly in low socio-economic areas where access to technology is traditionally low Increase cost savings and business efficiency by coordinating planning and information sharing between local authorities and central government throughout deployment of UFB and IWB
GOVERNMENT-LED INITIATIVES TO FOSTER USE OF FASTER BROADBAND	<p>Network for Learning</p> <ul style="list-style-type: none"> Achievable strategic solutions with a high quality selection of the latest teaching and learning services <p>School Network Upgrade Programme</p> <ul style="list-style-type: none"> Upgrade schools' internal networking and power supplies <p>Use of broadband for Maori schools and ICT centres</p> <ul style="list-style-type: none"> App MoTeahe will provide advice <p>School leaders (drops)</p> <ul style="list-style-type: none"> Co-locate school server rooms to fibre at the school boundary <p>Teacher Professional Learning and Development</p> <ul style="list-style-type: none"> New technology able teachers to use faster broadband to raise student achievement, including providing laptops for teachers and students 	<p>Health Innovation Hub</p> <ul style="list-style-type: none"> Fast, collaborative, and encourage funding and uptake of health IT applications for fibre, through IWB. <p>NATIONAL HEALTH IT PLAN INCLUDING:</p> <ul style="list-style-type: none"> e-referrals, e-prescribing, and online records of medications <ul style="list-style-type: none"> enables remote filling of prescriptions and improves patient safety Access to surgical buses <ul style="list-style-type: none"> "virtually" transport medical experts from NZ and off-shore into the remote operating theatre anywhere in NZ Shared Care Records by 2014 <ul style="list-style-type: none"> links access to records and easily digital (maple) regardless of location improves record transfer between GPs Integrated Family Health Centres <ul style="list-style-type: none"> provide communities with remote diagnosis, e.g. via video conferencing into people's homes, or collaborating with other specialist health providers Better care for elderly <ul style="list-style-type: none"> is better health monitoring and video conferencing 	<p>New applications and services for Government</p> <ul style="list-style-type: none"> through the 'Open Data to Innovation' initiative, with support from the ICT Ministers Group, ICT Chief Executive Group, the ICT Council. <p>Better access to government data</p> <ul style="list-style-type: none"> enables citizens to directly download data and directions, enabling them to develop wide-range of online services and tools <p>Increased use of the web channel</p> <ul style="list-style-type: none"> The Health Online programme will reduce fragmentation and increase coordination of online services between agencies <p>Centralised ICT services, business processes, and information</p> <ul style="list-style-type: none"> deliver front-line services where they are needed most, at lower cost through cloud and infrastructure as a Service etc. <p>Other ICT initiatives now possible with faster broadband will develop within individual agencies</p> <ul style="list-style-type: none"> for example within NZTA, MSD and DOC 	<p>Information about the benefits of faster broadband to business</p> <ul style="list-style-type: none"> through Government business channels (e.g. business.govt.nz, NZTA and MBIE) <p>Digital tools and applications to enhance business productivity</p> <ul style="list-style-type: none"> through government funded NZTA programmes (e.g. the Digital Enablement Programme) <p>THROUGH MSI FUNDING SUPPORT:</p> <p>Wynyard Quarter Innovation Product</p> <ul style="list-style-type: none"> with a special focus on ICT, the Innovation Product will encourage the development, testing, and showcasing of applications and fibre and the development of ICT incubators <p>Project Landing Pad</p> <ul style="list-style-type: none"> assist NZ tech companies in analysis and prove their business or technology with a high-speed broadband connection back to NZ <p>ICT Entrepreneurs Scheme</p> <ul style="list-style-type: none"> support on-on ICT entrepreneurs for a year to set up businesses 	<p>Provide access to priority customers in local communities and promote community benefits of the UFB and IWB</p> <ul style="list-style-type: none"> bi-monthly regional IWB stakeholder meetings Chorus, UFB, and OTE are working with local government in Auckland and Christchurch, and also running other digital leadership forums in communities <p>IWB National Advisory committee</p> <ul style="list-style-type: none"> identify businesses and organisations for priority deployment provide feedback on roll-out, and raise and track for use of IWB services <p>Work with Ngā Pū Waea, the Maori broadband group</p> <ul style="list-style-type: none"> this online opportunity for Maori from IWB and UFB <p>Improve digital literacy and confidence to use faster broadband services</p> <ul style="list-style-type: none"> Facilitate broadband access to services at communities Deliver ICT programmes (Computer Clubhouse and Computers in Homes) <p>IWB to all libraries</p> <ul style="list-style-type: none"> encourage use of resources communities but for broadband access to remote communities improve digital skills

Figure 20: Five point government action plan for faster broadband (Source: MED)

Optimum Regulatory Model

Open Access

- Non-discrimination
- Transparency
- Monitoring
- Enforcement

Open Access Models

**Mandated
Wholesale
Access**

**Accounting
Separation**

**Functional
Separation**

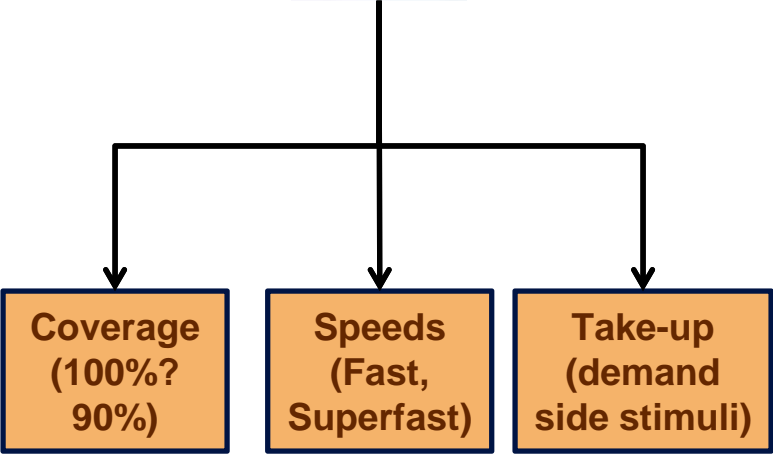
**Structural
Separation**

**State Owned
Network
Companies**

Policy and Regulatory themes

Policy and Regulatory issues for consideration

No one-size-fits-all



NGN deployments require Government intervention:

- key tool for productivity and growth
- revenues not necessarily comparable to high capital costs and deployment time

Government initiatives:

- Tax incentives and loans, co-investment, subsidies, grants
- Enabling regulatory frameworks

Market characteristics decide level of intervention:

- market structure
- level of economic prosperity
- population to land mass
- plus technology neutrality
- fixed vs mobile/mss
- technology mix

No one-size-fits-all in terms of each of the markets and some of these markets are moving at different speeds

Optimum Regulatory Model

Open Access

- Non-discrimination
- Transparency
- Monitoring
- Enforcement

Is price regulation needed where take up is low?

Conclusion

To streamline investment in broadband, what is required is:

- a stable and predictable open access regulatory regime;
- which allows an appropriate return on investment;
- together with programs to encourage uptake of broadband through - proactive education, health and government services initiatives.

Lessons for the Region

There is significant consumer and enterprise demand for broadband-enabled communication services in GCC.



Consumers want fast, reliable, and easy access to Internet and emerging 'over the top' services (from TV to education and healthcare services)



Businesses seek improved access to GCC national, regional and new international markets for products and services, and to capture operating efficiencies through video-conferencing (telepresence) and enabling 'home-shoring'



GCC and other regional Governments wish to promote social inclusion, drive GDP growth and foster innovation and entrepreneurship through ICT investment

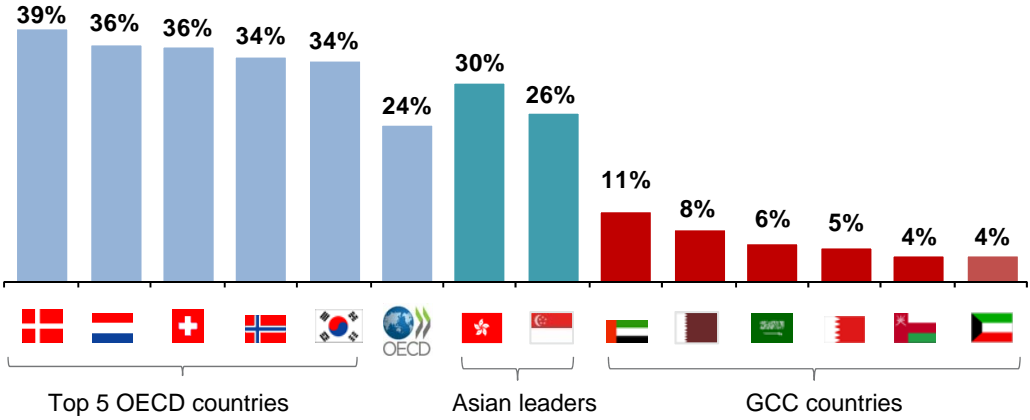


Telecoms operators wish to offer high-speed Internet access and advanced broadband-enabled services to consumers and enterprises

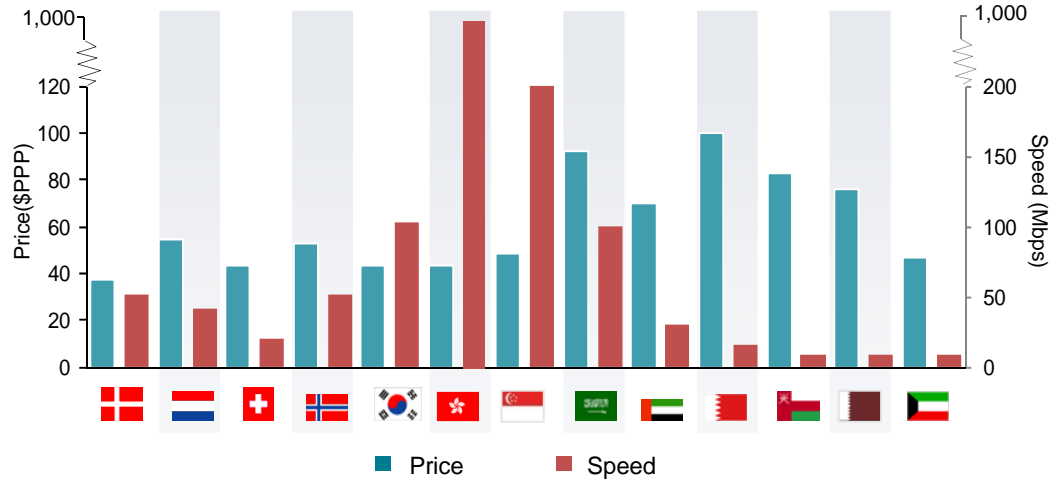


The current lack of pervasive, affordable broadband constrains service growth in GCC

Limited GCC broadband penetration today vs others



Broadband prices are relatively high and access speeds low



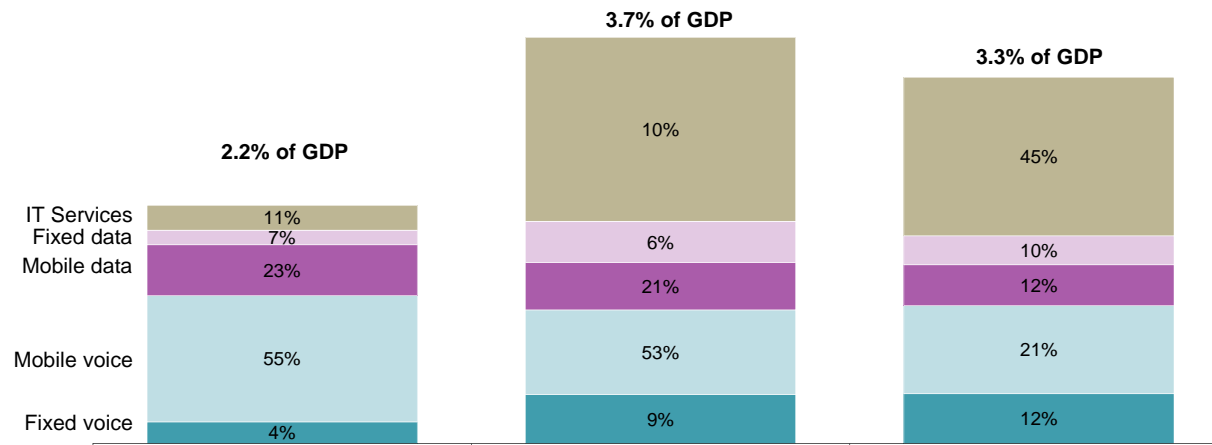
Key constraints today

- 1 **Low broadband penetration** means many consumers cannot access basic Internet services, hindering development of content and cloud-based applications
- 2 **Low speeds** limit high bandwidth, low latency application usage (e.g. e-education, e-health, video streaming, telepresence)
- 3 **High broadband prices** constrain take-up rates

Source: Organisation for Economic Co-operation and Development (OECD); ictQatar; Economist Intelligence Unit (EIU)

International ICT market structure

ICT market revenue as a proportion of GDP, selected leading markets 2011(%)



Penetration KPIs

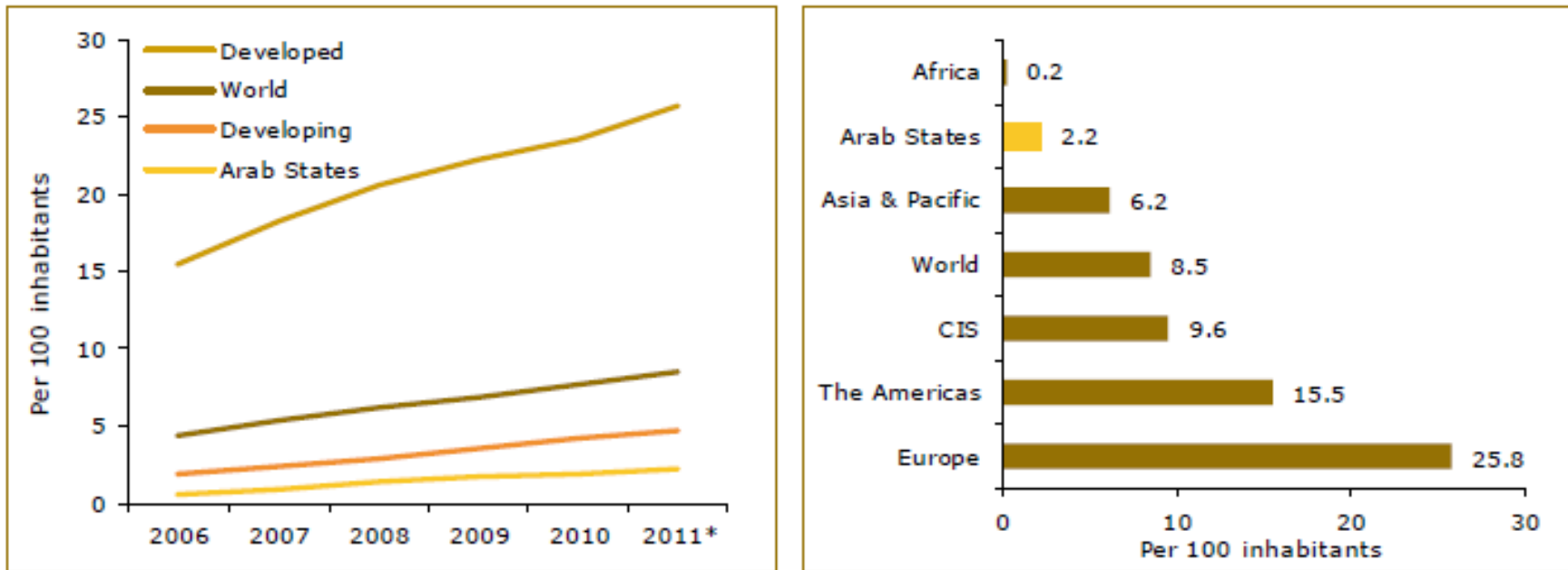
	GCC Average	OECD Average	EU Average
Mobile (per inhabitant)	177%	103%	128%
Fixed line (per household)	83%	79%	75%
Fixed broadband (per household)	35%	68%	66%

- Notes:
- (a) IT services includes consulting, development and integration, hardware maintenance and support, IT management, process management and software support;
 - (b) The fixed data and internet figure for OECD and EU countries includes consumer fixed broadband, leased lines, legacy packet data and IPVPN;
 - (c) OECD countries exclude Estonia, Iceland, Luxembourg and Slovenia;
 - (d) EU countries excludes Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, Romania and Slovenia;
 - (e) Mobile broadband includes technologies enabling high-speed packet access: WCDMA, HSPA, LTE, CDMA2000 and WiMAX. It excludes GPRS, EDGE, GSM and CDMA2000 technologies.

- Source:
- (1) Gartner;
 - (2) ITU;
 - (3) Wireless Intelligence;
 - (4) Ovum;
 - (5) Economist Intelligence Unit (EIU);

Fixed (wired)-broadband subscriptions

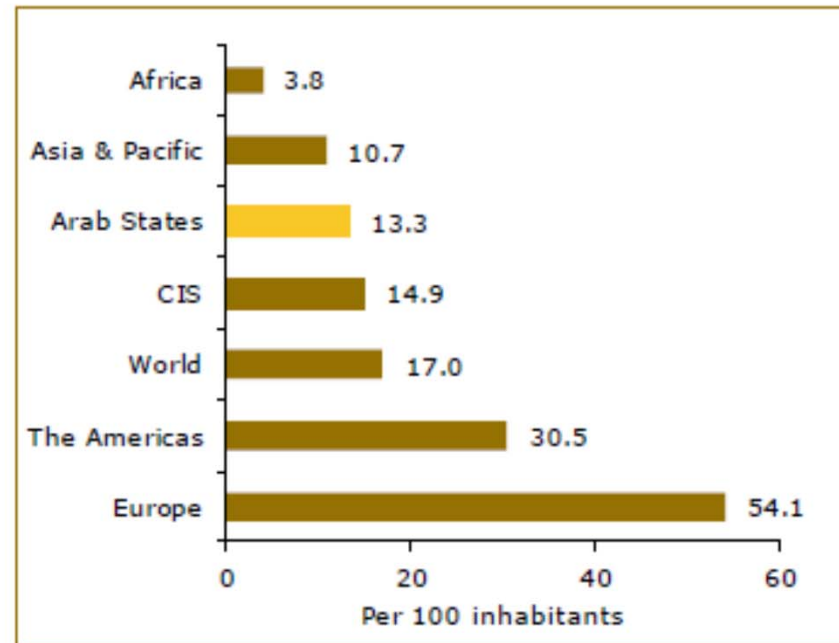
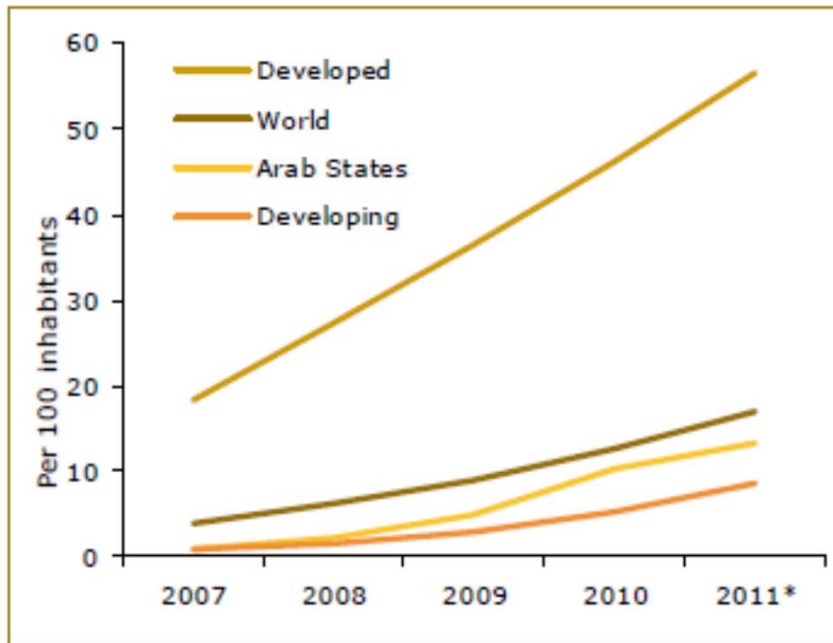
Fixed (wired)-broadband subscriptions*, 2006-2011** (left) and 2011** (right)



Note: *Data on fixed (wired) – broadband subscriptions exclude WiMAX subscriptions ** 2011 data are ITU estimates
Source: ITU World Telecommunication/ICT indicators database

Active mobile-broadband subscriptions

Active mobile-broadband subscriptions, 2007-2011* (left) and 2011* (right)

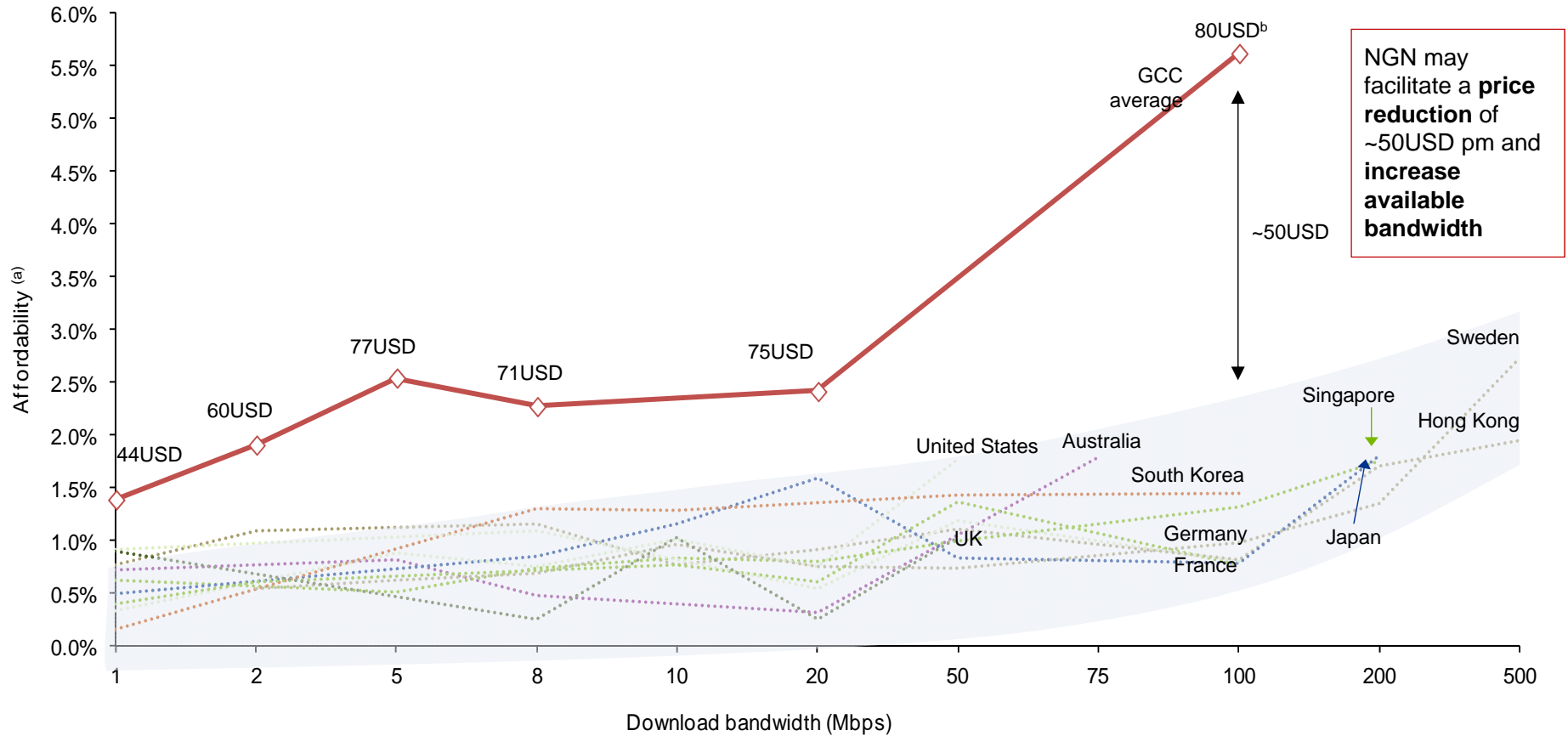


Note: *2011 data are ITU estimates

Source: ITU World Telecommunication/ICT indicators database

NGN insights: customer proposition

International broadband propositions: speed and affordability



Note: (a) Annual cost of broadband (the cheapest tariff for a given bandwidth) as a proportion of the average GDP per capita
 (b) 100Mbps is only offered by Saudi Arabia
 (c) GCC average only considers Saudi Arabia, Kuwait and UAE

Source: Telegeography; KPMG analysis

NGN in region

Investment on the rise

Middle-East & South Asia as regions been bullish promoting fibre networks - need huge capital requirements, thus progress been slow in some countries. Nevertheless:

- Qatar – in 2010 Qtel invested USD 165 Million in first phase of FTTH Project
 - Qtel plans to roll out a 100 megabits per second nationwide network with VoIP and television service by 2013
 - ictQatar consulting on Q NBN
- UAE - Etisalat invested more than USD 1.36 billion in deploying a FTTH network expected to be completed by end 2011
 - Around 56 per cent of premises in the UAE have been deployed with fibre-to-the-home (FTTH) technology by the end of 2011.
 - Abu Dhabi - Etisalat completed FTTH roll out for 85% of households in 2010 and 100% coverage expected by 2011
- India - telecom regulator proposed an investment of USD 6 billion to set up a national broadband network to meet its broadband target by 2015
- A number of countries consulting on appropriate national broadband policies – e.g. Oman
 - Raises important policy issues such as viability of infrastructure competition, NGN access and transparent ownership structure of NGN

NGN in region

Development of a modern communications network via a PPP and the telecommunication services for the Ministry of Communications Kuwait (1)



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Project brief KPMG with Atkins and SNR Denton

- Development of a modern fixed line next generation network, with nationwide coverage in Kuwait;
- Assistance to realise the full potential of modern, affordable telecoms services;
- Generate benefits for the wider national economy including local job creation and improved productivity and securing the potential for Kuwait to develop its status as an international financial centre;
- Create a modern network by commissioning via a PPP, a qualified private sector partner to develop and manage the network; and
- Biggest telecom project in region for 2011/12.

Key roles

- Lead and financial advisor;
- Accounting separation of Telecom and other activities
- Review of current market size and structure, demand trends and fixed line KPIs, including primary research and international benchmarking;
- Feasibility study including options evaluation, financial modelling, valuation, and PPP modelling and planning;
- Assistance to secure procurement including management of the entire bid process until financial close;
- Stakeholder management; and
- Project administration during project implementation phase (at client's option).

NGN in region

Development of a modern communications network via a PPP and the telecommunication services for the Ministry of Communications Kuwait (2)



Key issues include...

- Government monopoly on fixed line;
- Older wireline technology predominates in access network;
- Low broadband subscriber penetration with government controls (*Control is related to international links and backbone, which drives up cost*) and expensive internet access;
- No independent regulatory authority;
- Young, highly urbanized and growing population;
- Mobile subscriber penetrations increasing; and
- Tight timetable and delivery requirements.

“Those nations taking the first step in seizing the opportunities of next-generation broadband may not always be the most efficient nor always the most successful in deployment, but they will surely be better off than those nations that remain on the sidelines, paralyzed either by fear, cost or the unknown.”

ITU *Confronting the CRISIS, ICT Stimulus Plans for Economic Growth*, 2nd edition October 2009

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