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**FTTH MENA 2016**

**Kuwait 8<sup>th</sup> November**

**Government and Regulatory Roles in  
Successful Network Investments**

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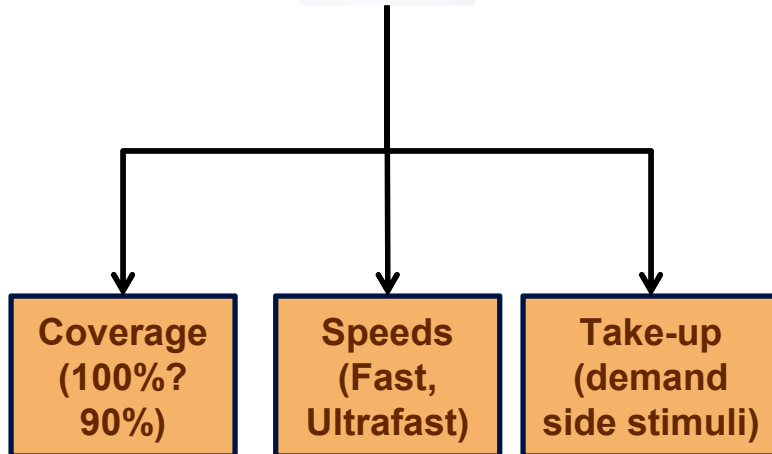
## Critical preconditions to investment:

- Clear government policy and objectives
- “Rule of Law” - a politically stable, predictable legal & regulatory regime
- Regulatory model promotes and encourages roll-out, infrastructure sharing and sustainable competition bringing consumer benefits
- Investors
  - able to achieve an appropriate return on investment
  - satisfied that there is likely to be sufficient demand to enable an appropriate return and a clear exit for financial investors
  - demand side stimulation, e.g., eGovernment services

# Policy and Regulatory themes

Policy and Regulatory issues for consideration

**No one-size-fits-all**



**NGN deployments require a mix of public and private investment:**

**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 – infrastructure sharing; forbearance and 'light touch'

**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**

## Open Access Models

**Mandated  
Wholesale  
Access**

**Accounting  
Separation**

**Functional  
Separation**

**Structural  
Separation**

**State Owned  
Network  
Companies**

# Optimal Regulatory Model

## Open Access

- Non-discrimination
- Transparency
- Monitoring
- Enforcement

## Optimal Regulatory Model (2)

### Open Access

- How to get right balance between ensuring investors can earn a fair return and protecting consumers from unreasonably high prices - e.g. revenue caps, price controls
- How to build proper incentive mechanisms into framework to ensure quality, availability and speeds are optimized
- Recalibrating the efficient number of networks in each area of the market to ensure right balance between competition and coverage - e.g. considering infrastructure sharing, co-investment etc

## How to accelerate the development of broadband infrastructure?

- Changes to regulatory frameworks to remove barriers to entry
  - Enhancing competition by allowing:
    - passive Infrastructure Sharing- 'poles and holes'
    - active Infrastructure Sharing – Utilities' 'dark fibre'
    - deployment of own infrastructure
- Non-discriminatory and transparent access to utilities' networks
  - enable utilities to wholesale capacity
- International and national interconnection regulation
- Wholesale bit stream access
- Regulation of leased lines
- Implement measures to decrease deployment costs such as coordinated civil works.

# Oman and Infrastructure sharing - Oman Broadband Company

- Ministerial action to permit utilities to open dark fibre to Oman Broadband on commercial terms for Oman Broadband to wholesale to OLOs
- Infrastructure sharing Oman - <https://www.tra.gov.om/telecommunication/licenses-en/authorisations/passive-infrastructure>

Forecasts for Oman Broadband as at 1 October 2016:

Rollout summary	2016	2017	2018	2019	2020
Homepass civil-cumulative no. of plots	60,905	83,523	128,139	184,882	248,736
Homepass FTTH (cabling)-cumulative no. of prem.	146,277	205,393	269,031	343,147	425,716
Home connections (takeup-cumulative no.)	11,641	28,643	47,635	76,356	130,440



## Changes from functional to legal and structural separation – NZ – Structural Separation

2008-2011

- operational (administrative) separation of Telecom NZ (TNZ) into three business units (an arms-length stand-alone network business unit and stand-alone wholesale and retail business units)

2011

- full structural separation of TNZ network business (Chorus) and retail business (Spark) as two totally separate legal entities, to facilitate ultrafast broadband (UFB) rollout

NB: Australia has “progressive structural” separation of Telstra as customers migrate to fibre

## Changes from functional to legal and structural separation – UK – Legal Separation

2005 functional separation of BT retail and access services division of BT, Openreach, from rest of BT business (including retail and wholesale)

- BT offered a functional separation undertaking to fend off a reference under the Enterprise Act, which might have resulted in full structural separation with Equivalence of Inputs

2016 Ofcom formally re-considered the case for full structural separation (like NZ)

- opted for middle ground "functional separation-plus" that includes legal separation and stronger independence of governance and funding
- both BT/Openreach businesses remain under common ownership, although separate legal entities (raises difficult questions about funding and pension liability)

Bahrain currently considering Legal Separation of Batelco in line with 4th National Telecommunications Plan

## Conclusion

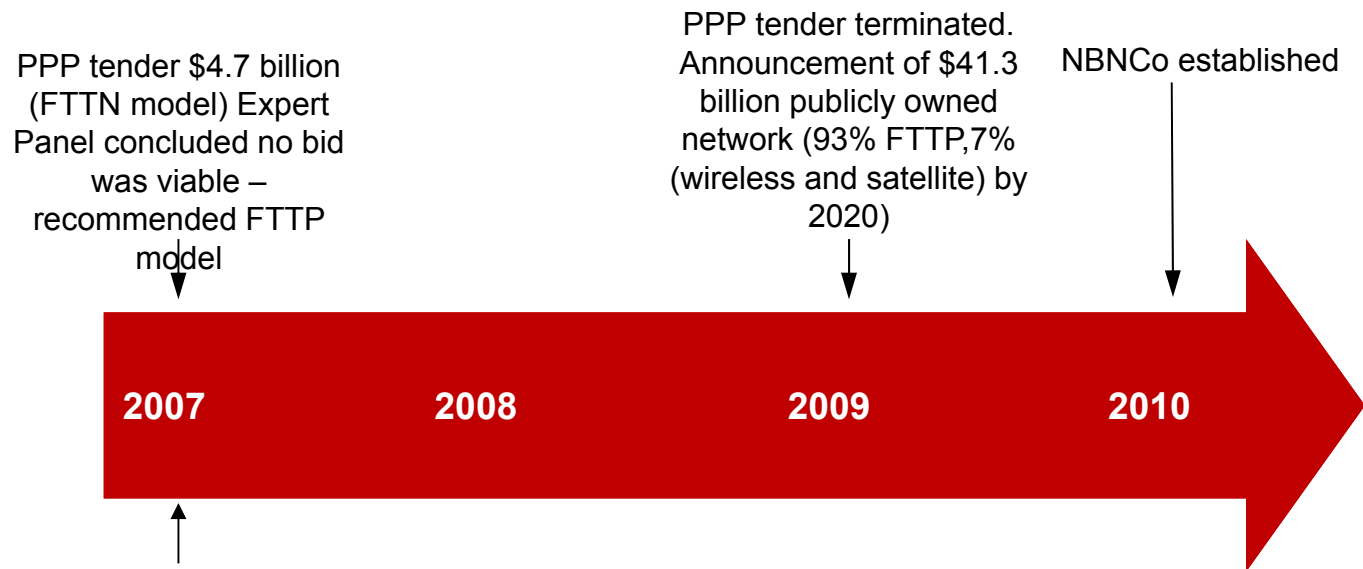
To streamline investment in broadband, what is required is:

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

# APPENDIX

# Australian & NZ Processes

- Australia



- New Zealand

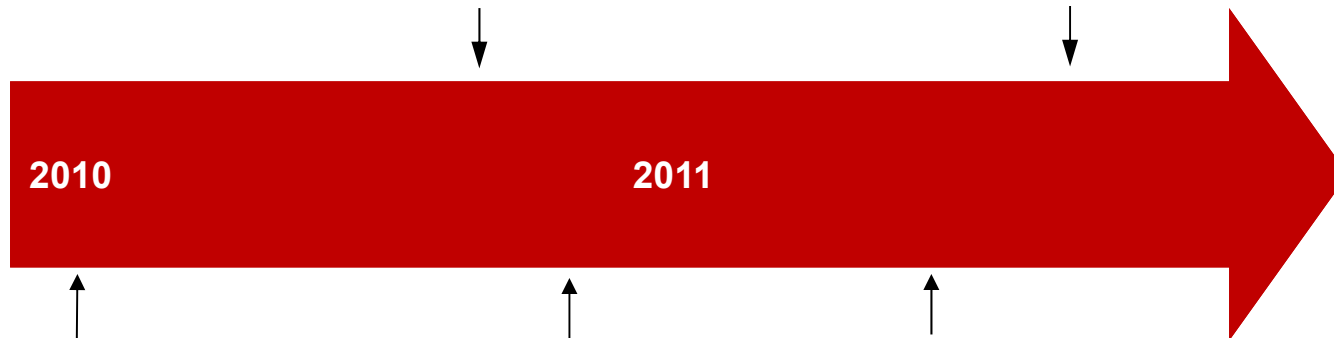
↑  
Telecom Op Sep Undertakings – 80% of lines capable of delivering 10 Mbps by 2011 with enforceable roll out obligations (FTTN)

# Process (2)

- Australia

**Aug:** First release sites (5 areas); build commences

**Aug:** Second release sites (15 areas); build commences



- New Zealand

Ultrafast Broadband Initiative (UFB) \$1.35 billion PPP for FTTP to 75% of lines by 2020 (+RBI for rural areas: FWA, and extending FTTN to 90%) Tender process in 33 candidate areas

**Dec:** Selection of Northpower (1 area) and WEL Networks (2 areas)

**May:** Selection of Enable Networks (2 areas) and Telecom (Chorus) 24 areas

**Nov:** Demerger of Telecom into separate network and services companies -network build commences

# Process (3)

- Australia

Strategic Review  
recommends technology  
change to 26% FTTP, 44%  
FTTN, 30% HFC, + FWA  
and satellite

2013

Statement of Expectations –  
transition from FTTP model to  
“optimised multi-technology  
mix” model

2014

- New Zealand

Renegotiation of Chorus  
repayment terms

FTTP extended to  
80% of lines (\$150m-  
\$210m)

# Regulatory Framework – ownership and services

## Australia

## New Zealand

NBN Co state owned and operated network – able to be privatised after 2020, subject to Productivity Commission review	PPP for the 3 LFCs (A and B shares); Chorus funding arrangement (equity and debt securities)
Wholesale layer 2 provider only – unbundling possible after 2020	Wholesale layer 2 provider only – required to supply unbundled layer 1 services from 2020 (EOI-capable)
Non-discrimination and transparency obligations	Non-discrimination and transparency obligations
No participation in retail services	No participation in retail services



## Regulatory Framework – prices and roll out

### Australia

### New Zealand

<p>Prices and service offerings set out in Special Access Undertaking (SAU), subject to acceptance by ACCC following public consultation</p>	<p>Prices and services set by contract with CFH through tender process</p>
<p>Roll out obligations set by NBN Co in three year plan approved by shareholding Ministers</p>	<p>Roll out obligations set by contract with CFH through tender process</p>

## Regulatory Framework – structural separation

### Australia

Progressive structural separation of Telstra as customers migrate to fibre

Existing copper services subject to “robust, effective and appropriate equivalence”, but less than functional separation

### New Zealand

Structural separation of Telecom NZ a pre-condition to its participation in UFB

De-merger of Telecom NZ into separate listed network and retail companies in November 2011

Structural separation applies to copper as well as fibre services

# Regulatory Framework – migration

## Australia

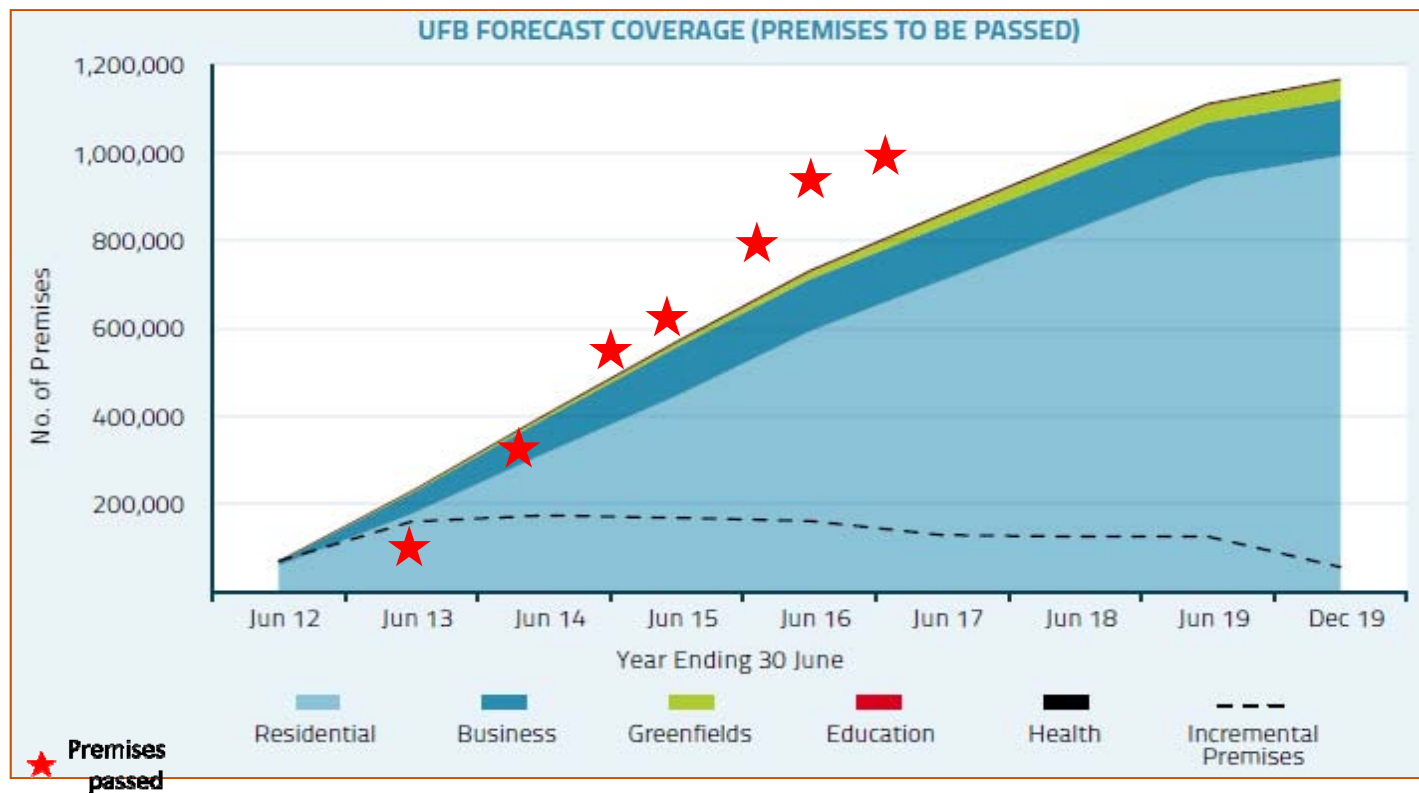
Mandated migration (18 months from date of service availability)

## New Zealand

Migration left to market forces

## Impact of UFB (NZ)

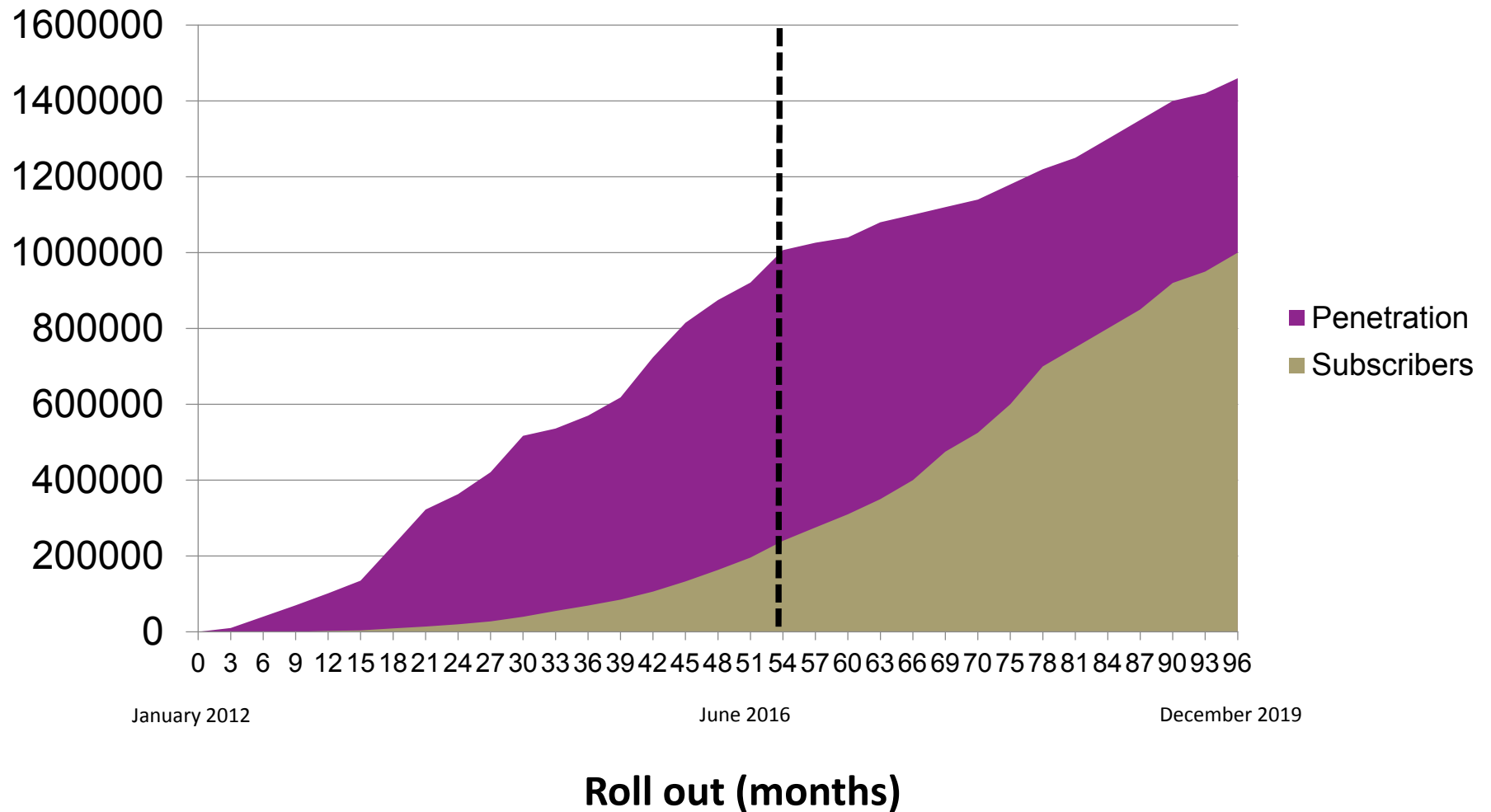
- Roll out ahead of schedule (68% mark reached in June 2016)



### UFB Initiative

- FTTH to 75% of NZ over 10 years
- Govt funding of \$1.5b in private/public arrangements
- Separated layer 2 wholesale only open access networks
- Pricing set by contract with Govt until 2020

# Impact of UFB Penetration and Uptake



# NBN Co Rollout information as at 6<sup>th</sup> October 2016

Increase in penetration and uptake, but most of it is FTTN not FTTH



## National Broadband Network – Rollout Information

The data contained in this document reflects NBN Co's position for the week ending 06 October 2016

### Weekly Summary

This weekly report by NBN Co of network rollout progress reflects the Government's requirements for greater transparency as set out in the Statement of Expectations to NBN Co. This shows rollout progress as of last Thursday 06 October 2016.

A total of 24,318 additional lots/premises were passed/covered by the network during the week, of which 19,696 were in Brownfield and 2,368 were in New Development areas. Fixed wireless coverage increased by 3,257 premises. nbn's long term satellite network was launched effective week ending 28th April 2016.

During the week an additional 19,037 premises had services activated on the network, including 16,623 on fixed line services and 2,414 using satellite and fixed wireless technologies.

Week ending	Brownfields				New Developments (Greenfields)		Satellite		Wireless		Totals	
	Premises Declared RFS*	Premises Serviceable <sup>1</sup>	Premises at Service Class Zero (SC0) or equivalent	Premises Activated	Lots/ Premises Passed	Premises Activated	Premises Covered	Premises Activated	Premises Covered	Premises Activated	Lots/ Premises RFS Incl. Satellite <sup>2</sup>	Premises Activated
	(A)	(B)	(C)=(A-B)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(A+E+G+I)	(D+F+H+J)
ACT	46,498	45,509	989	30,515	11,573	7,291	357	35	0	0	58,428	37,841
NSW	709,027	690,915	18,112	323,789	78,254	50,730	122,791	19,070	126,126	38,572	1,036,198	432,161
NT	65,115	62,023	3,092	32,033	5,737	3,188	11,240	1,244	4,849	1,626	86,941	38,091
QLD	427,581	414,051	13,530	201,365	63,280	35,284	95,744	12,501	92,536	28,879	679,141	278,029
SA	144,919	141,665	3,254	74,575	9,481	4,971	34,000	3,602	36,338	10,071	224,738	93,219
TAS	128,891	126,410	2,481	76,310	1,047	463	14,416	2,697	33,669	11,776	178,023	91,246
VIC	357,862	349,025	8,837	185,437	90,768	61,158	75,759	7,924	121,072	41,090	645,461	295,609
WA	190,142	185,889	4,253	89,090	46,248	25,777	60,119	6,857	26,606	6,046	323,115	127,770
06-Oct-16	2,070,035	2,015,487	54,548	1,013,114	306,388	188,862	414,426	53,930	441,196	138,060	3,232,045	1,393,966

# Example of a Govt. demandside initiative






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

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

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