

Should next generation access be ubiquitous across the UK and how far is the market likely to deliver?

Antony Walker
CEO Broadband Stakeholder Group

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Broadband Stakeholder Group



- Independent advisory group set up by the UK government
- Forum for discussion and debate between companies and organisations across the value chain
- Published several reports on UK broadband policy, including Pipe Dreams? Prospects for Next Generation Access in the UK (April 07)

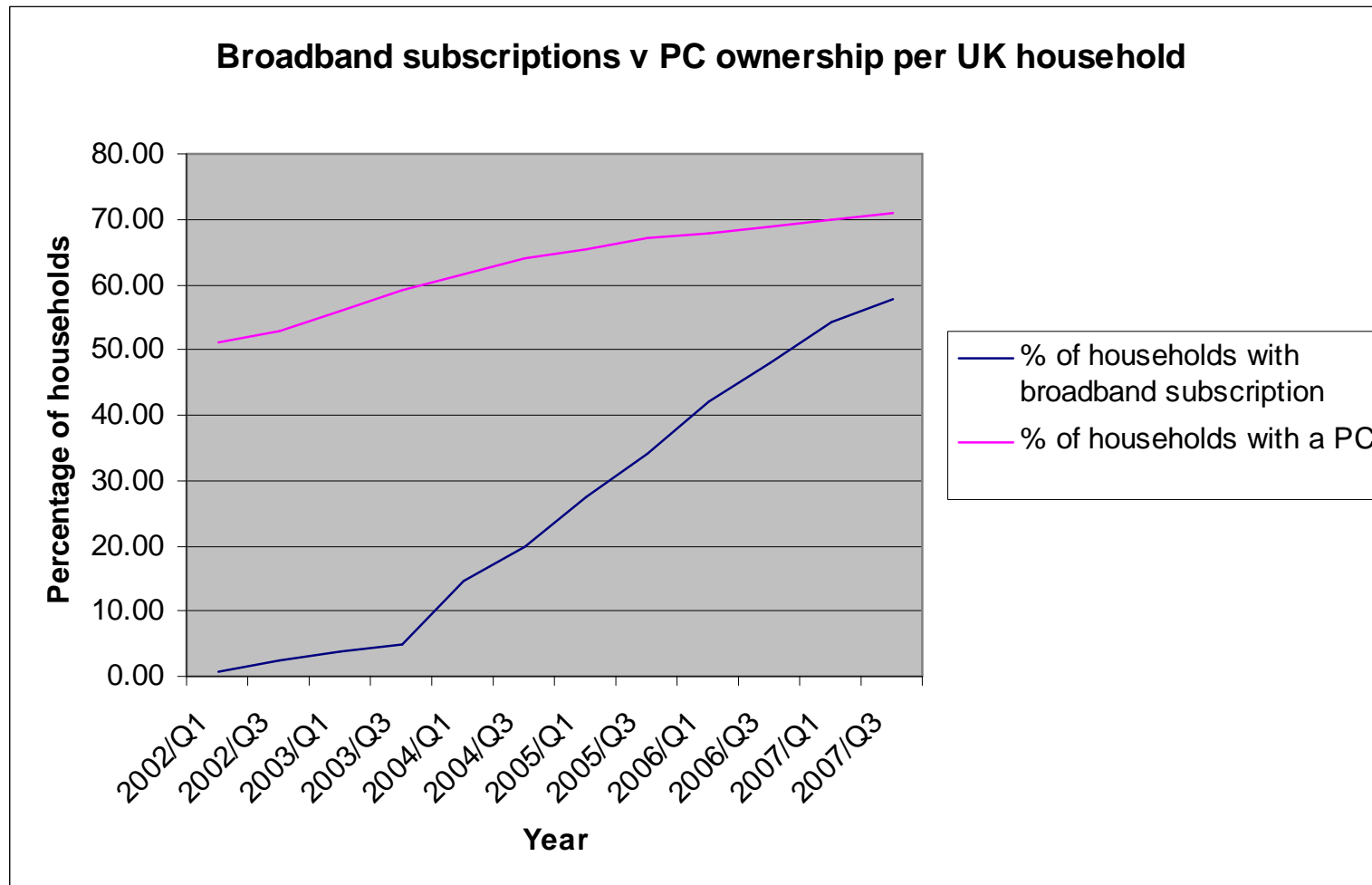
**We don't know
but we should find out.**

Structure

1. First generation broadband
2. Continued evolution
3. Do we need NGA at all?
4. Should it be ubiquitous?

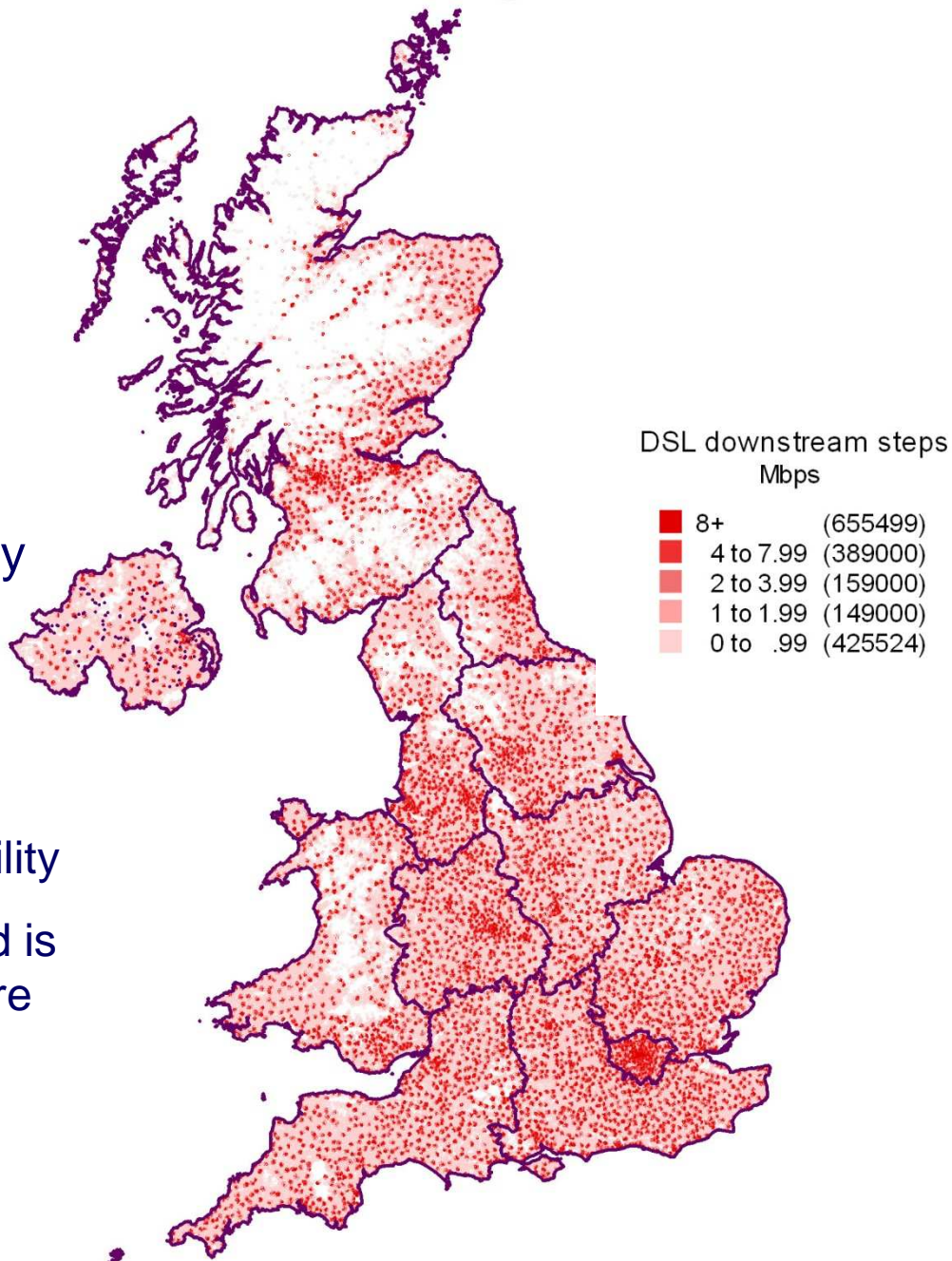
First generation broadband

UK broadband subscriptions



Availability of service – bandwidth

DSL bandwidth availability by unit postcode



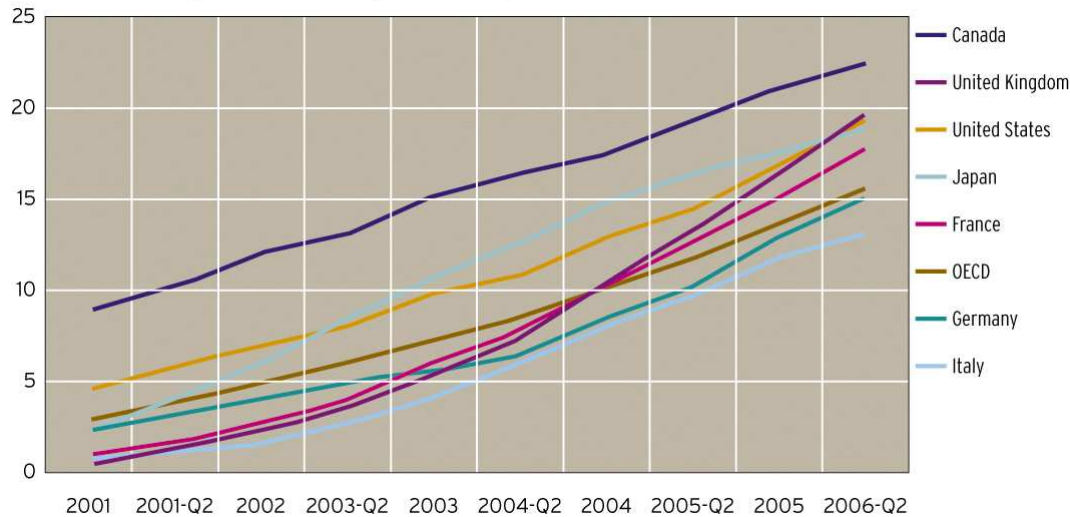
99.6 % broadband availability

First generation broadband is certainly ubiquitous. Is there now a case to make it universal?

Source: Point Topic for Ofcom

International comparisons

Broadband penetration, historic, G7 countries



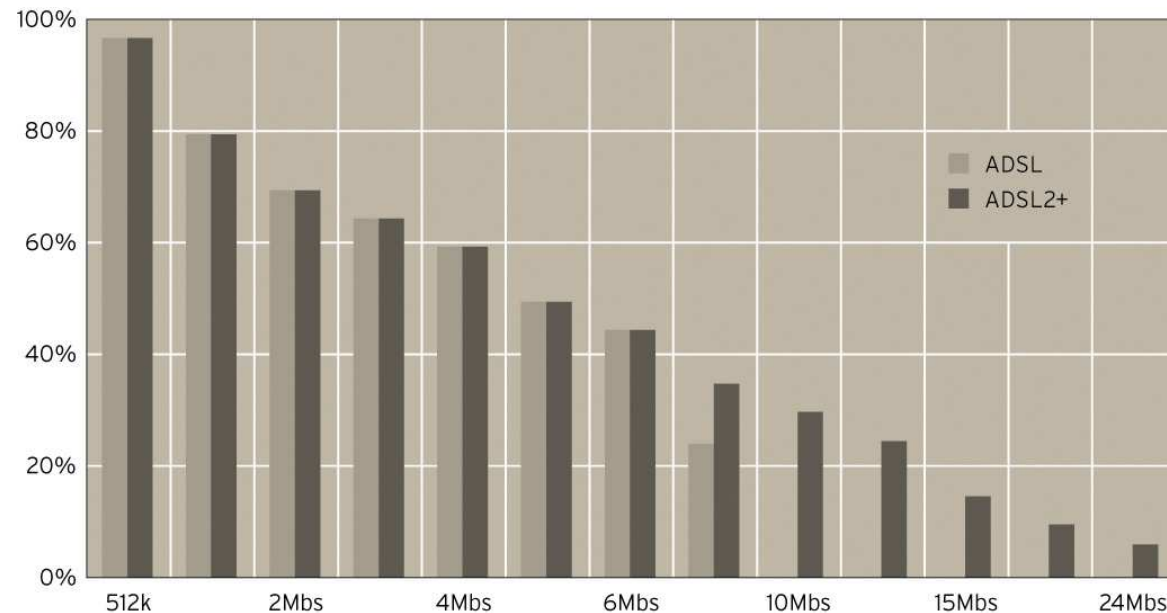
Source: OECD

UK leading in G7 and 10th in OECD in terms of broadband adoption

- **UK has one of the highest growth rates in the G7**
- **99.6 % availability**
- **high degree of consumer satisfaction with the speed and overall performance – but declining**

Continued evolution

The capabilities of copper



Peak access speeds of ADSL and ADSL2+ available to UK households

Source: BSG Pipe Dreams Report 2007

- **40% of households will benefit from higher speeds through ADSL2+**
- **Only 10 % would achieve 20Mbps+**
- **ADSL2+ remains heavily asymmetric**

UK – current scenario

- continued investment in ADSL2+
- possibility that Virgin Media will deploy DOCSIS 3.0
- FTTH on green field developments
- patchwork broadband market where speeds limited and variable
- performance will vary between 1 and 24 mbps per user
- this data suggests that 40 per cent of households will benefit from higher broadband download speeds through the deployment of ADSL2+ (8 Mbps and above). However only 10 per cent of households would achieve 20 Mbps+.
- most services remain heavily asymmetric
- strong possibility that demand could exceed current technologies in the medium term

Do we need NGA at all?

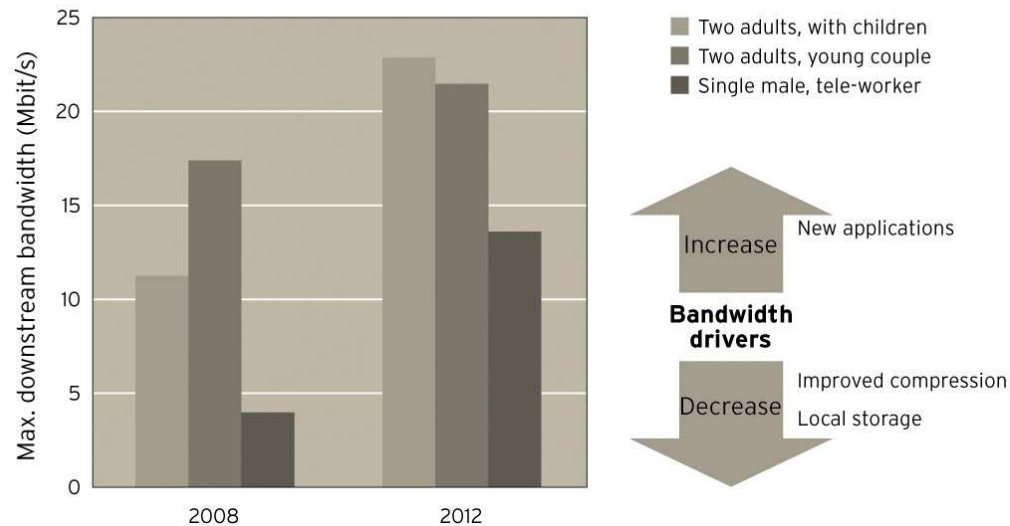
Do we need NGA at all?

1. NGA is already starting in UK
 - Virgin Media
 - BT – FTTH in green field locations
2. Will supply keep pace with demand?
 - Seeing continued traffic growth and service innovation
3. Does the UK need to keep pace with international competitors?
 - What is happening internationally?
 - Does connectivity impact upon competitiveness?

Demand

- 2006 BSG Green Paper suggested a level of demand from the most bandwidth intensive households for both upstream and downstream services that would exceed the capability of existing access infrastructures

Maximum downstream requirements
(three most bandwidth intensive households)



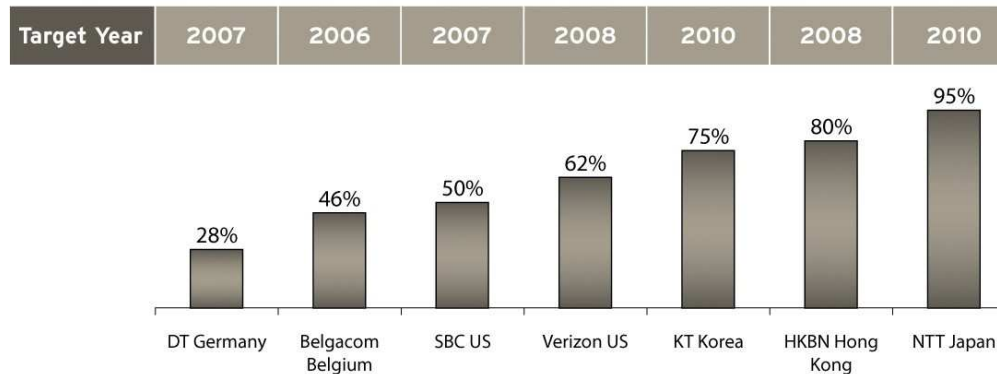
New video rich services will generate very short and intense bursts of demand for bandwidth, making peak access rates more important

Developments worldwide

Next generation is no longer hypothetical – where broadband operators can find a business case, based on commercial opportunity, commercial threat, regulatory and or policy incentives, they are deploying next generation broadband

Planned next generation broadband deployments.
Source: Capgemini

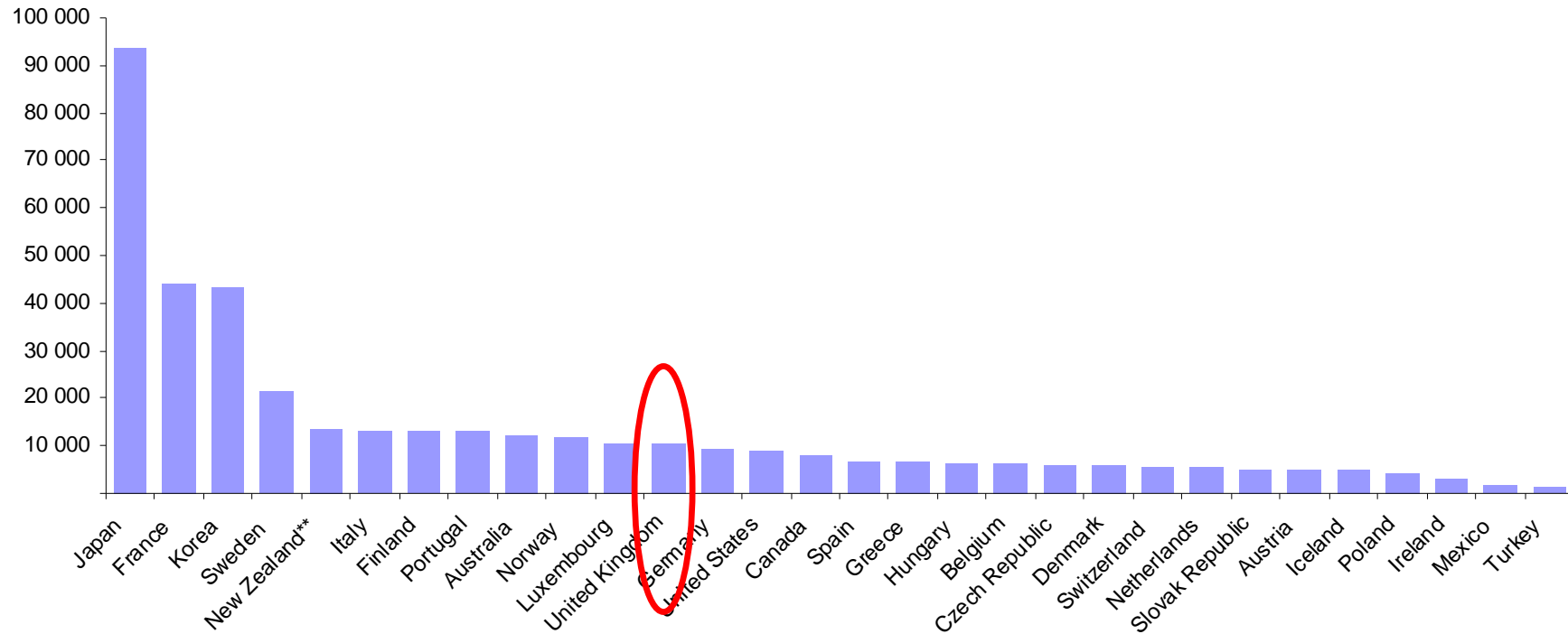
Targets Announced by Select Operators, (% Homes to be Passed with Fibre^a)



Operator	2007	2006	2007	2008	2010	2008	2010
Target Homes (million)	11	2	16	20	12	1.8	47
Investment Planned	€3bn	€300mn	€3.4bn	€6.7–8bn	N/A	€100mn ^b	€37bn
Technology	FTTN	FTTN	FTTN	FTTH	FTTH	FTTH	FTTH

Average speeds

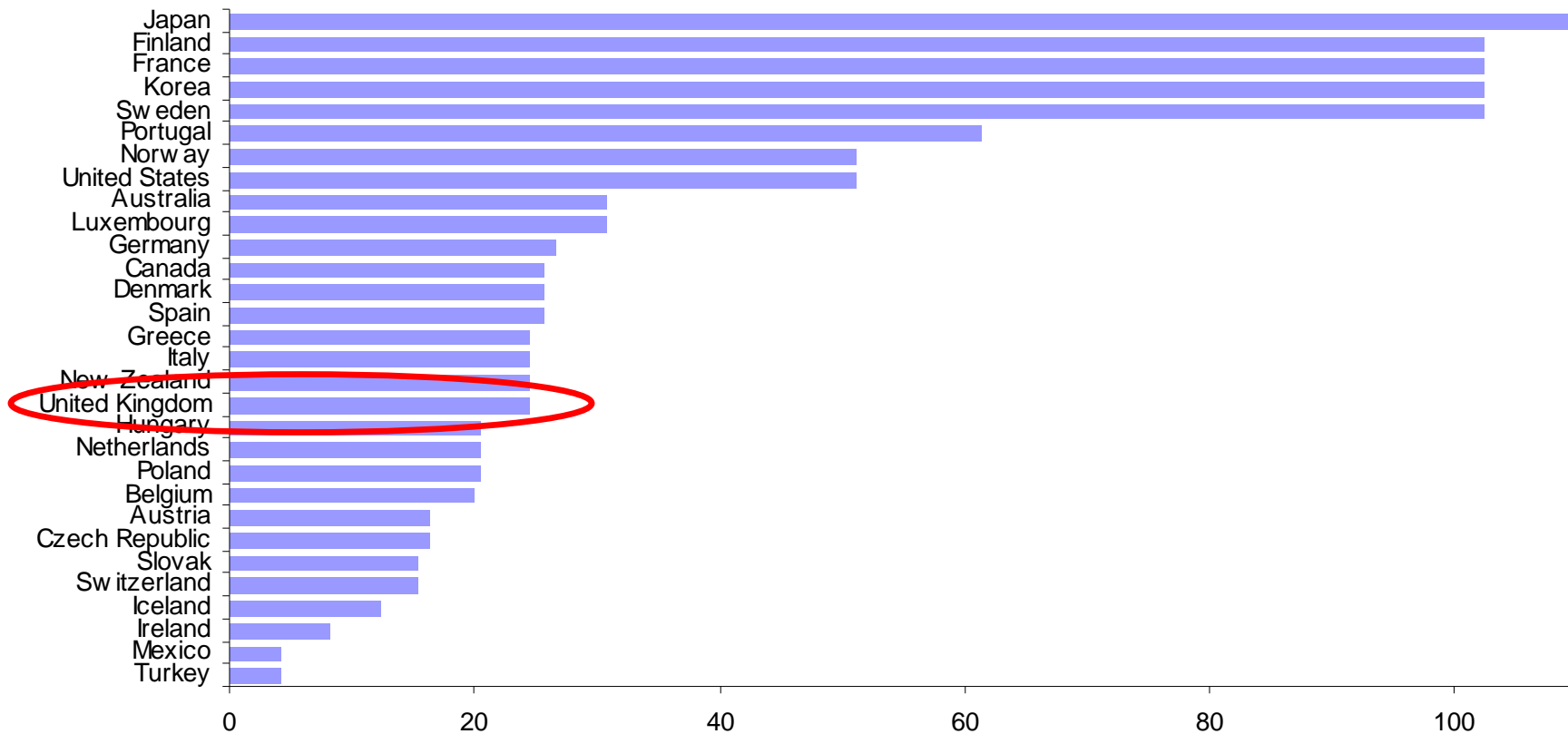
Average advertised broadband download speed, by country, Mbit/s, October 2007



Headline speeds

Fastest advertised broadband speed, all technologies, Mbit/s, Oct. 2007

JP to 1,000 Mbit/s (1)



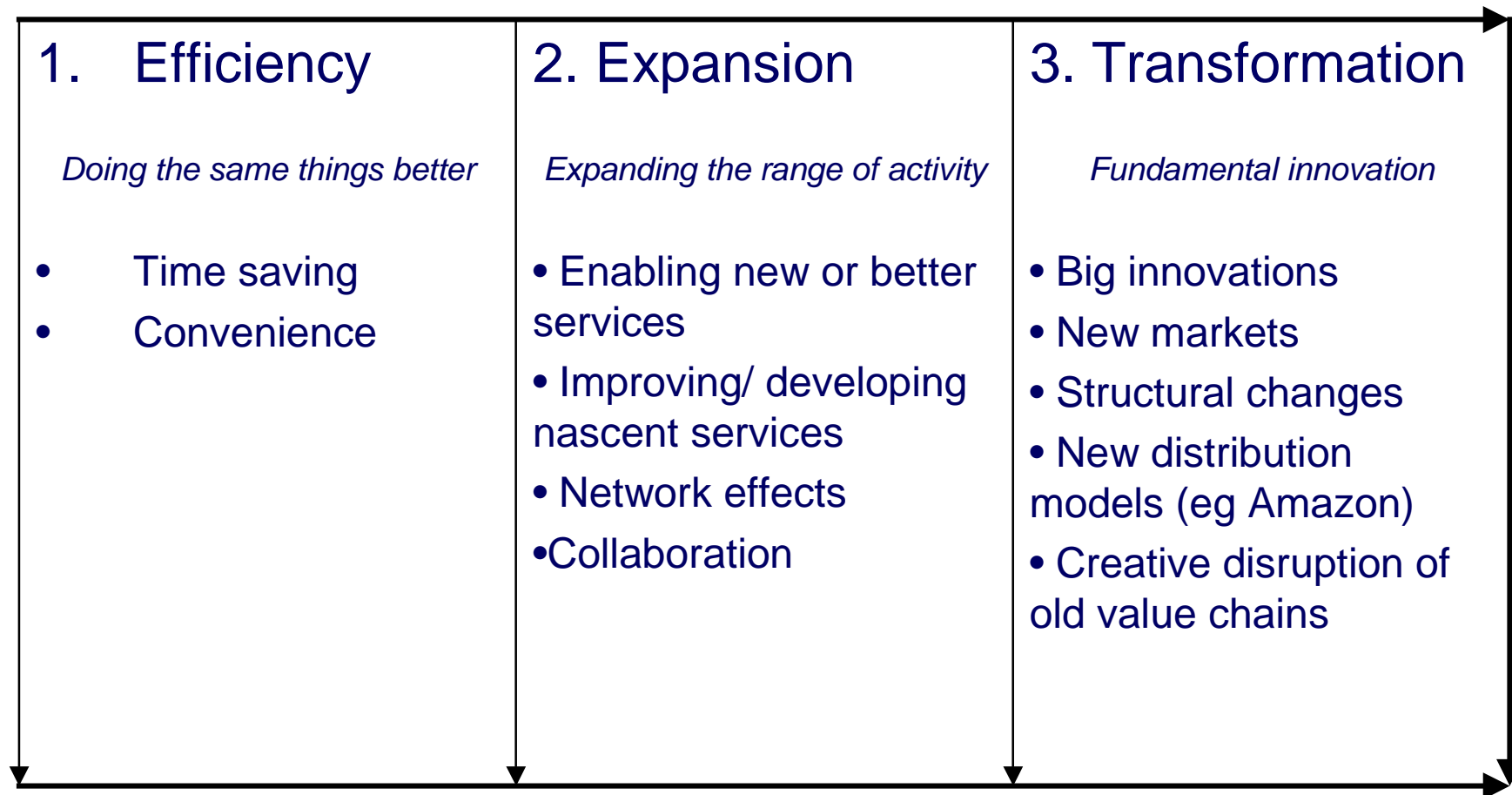
Should NGA be ubiquitous?

Should NGA be ubiquitous?

1. Requires a strong cost benefit analysis
2. BSG working to develop a framework to understand the economic and social value of next generation access
3. Basic network effects suggest that ubiquity will be important
4. Australian election suggests that issues of social equity will also be important

NGA Effects

Static ←————→ Dynamic



Building a Value Framework for NGA

	1. Efficiency	2. Expansion	3. Transformation
Private Value/ Consumer			
Private Value/ Investor			
Public Value/ Wider economic			
Public Value/ Social			

Costs are still uncertain

Private

- Network: FFTH, FTTx, Wireless?
- Overlay or replace?
- Overhead, ducted or buried?
- PON or P2P?
- Fast or slow deployment?
- Coverage 50%, 75% 100%?

Public

- Disruption from digging
- CO2?
- Visual impact of overhead?
- Competition effects?
- Compensation for capital write offs
- Installation time (offset by low fault rate)

Net Present Value (NPV)

A. Start point

- A single contiguous entity (eg a small town)

B. End point

- 100 per cent coverage via a technology mix

Develop an NPV range for A and B

We still don't know how far the market will deliver

- Information uncertainty
 - Uncertainty about demand
 - Uncertainty about potential value of value added services
- Regulatory uncertainty
 - Price flexibility
 - Price level
 - Restrictions on technology choices
 - Additional requirements
 - USO
 - Competition requirements on other players
- Policy uncertainty
 - Uncertainty about impact of Public funding
 - Uncertainty about impact of Public procurement
- Innovation uncertainty
 - Future innovation in technology capabilities and costs
- Bargaining uncertainty
 - Difficulty of bargaining across the value chain

Thank you