## The role of the technology mix in enhancing competition and reducing costs

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## Agenda

- The Digital Agenda for Europe (DAE) and NGA
- What does the DAE really mean?
- Basic coverage in Europe
- Basic coverage in the USA
- The challenge of achieving fibre-based NGA
- Food for thought



## Introduction

- The European Union is committed to an ambitious Digital Agenda for Europe (DAE).
- The DAE includes
  - full broadband availability in 2013,
  - 100% availability of 30 Mbps in 2020, and
  - 50% adoption of 100 Mbps by 2020.
- It is widely acknowledged that meeting these goals is extremely challenging.



## **DAE Objectives: Ambiguities**

- What is basic broadband coverage?
- Should access speeds be interpreted as
  - guaranteed speeds, or as
  - theoretical or advertised speeds, or as
  - something in between?
- To what extent must speeds be symmetric?
- For remote areas, might something less be acceptable?



## **Cost of meeting DAE objectives**

- Costs of satisfying DAE objectives varies by:
  - Objective;

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- Interpretation of bandwidth;
- Whether cable is deemed acceptable as part of the mix.
- In the most relevant scenarios, cable could reduce costs substantially, but more in some Member States than in others.

Source: EIB Hätönen (2011)





The four scenarios (Minimum, Base, Advanced, Maximum) refer to different levels of quality in fulfilling the Digital Agenda targets (see Section 5.1)

## **Traffic characteristics**

Traffic is growing, but the growth rate is declining.
 Average traffic/HH in 2020 is less than 2 Mbps.



Building the European Digital Infrastructure, ITRE, 20 June 2012

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## Meeting coverage objectives

- All estimates to date have been based on Commission data on broadband coverage.
- The quality of that data is uncertain, especially as regards the newer Member States in the east.
  - Assumes that the fixed telephone network reaches all homes in nearly all Member States.
- Does not explicitly consider line quality or length.
  Even for the first objective, costs are probably higher than has been assumed.



- The FCC sought to identify households served by less than 4 Mbps downstream / 1 Mbps upstream.
- Fastest available wired broadband appears below.



#### FCC, The Broadband Availability Gap, April 2010



 The FCC then calculated a Broadband Investment Gap in NPV, distinguishing CAPEX from OPEX.

Gap per household









FCC, National Broadband Plan, March 2010

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## The most expensive 0.2% (250K) of unserved households represent about half of the gap.



## Calculation of four NGA architectures with detailed data for all regions in Germany





#### How much additional ARPU is required?

Either customers must pay cost oriented prices per cluster of €30 - 70, or all customers must pay an additional ~ €6 per month



# Cross subsidy can reduce the investment deficit



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### Results

Full fibre coverage in Germany under today's circumstances cannot be profitable.

- Investment volume of €70-80 billion needed.
- ➢FTTH profitable for 25-45% of German lines.
- Coverage expansion options:
  - Higher ARPU: ~€44 per month needed.
  - Investment subsidy: up to €2.500 per access.
  - Cross subsidy: not sufficient for full coverage
- >Results are probably typical of many Member States.



### Results

- There is moderate certainty about the deployment costs of fibre-based NGA.
- How much certainty is there about the price of ultra fast broadband (not just via fibre)?
- A small delta in the retail price produces a big change in the level of subsidy needed.



## Food for thought (1/2)

- Is the service that DAE seeks to make available (under one interpretation or another) the service that consumers really want, and will really use?
  - Are we paying enough attention to conventional broadband deployment?
  - Are we paying enough attention to adoption?
  - Have we defined what we mean by speed?
  - Have we considered how these requirements relate to consumer demand?



## Food for thought (2/2)

- We are paying a great deal of attention to fibrebased NGA.
- Have we thought enough about wireless
  - For areas that are low density, or hard to reach?
  - Where mobility is needed?
  - As a competitive alternative to fibre-based NGA?
- Have we thought enough about cable
  - As a much cheaper alternative to fibre?
  - As a competitive alternative to fibre-based NGA?
- What balance between competition and roll-out?

