



# The Economic Impact of Fixed and Mobile High Speed Networks

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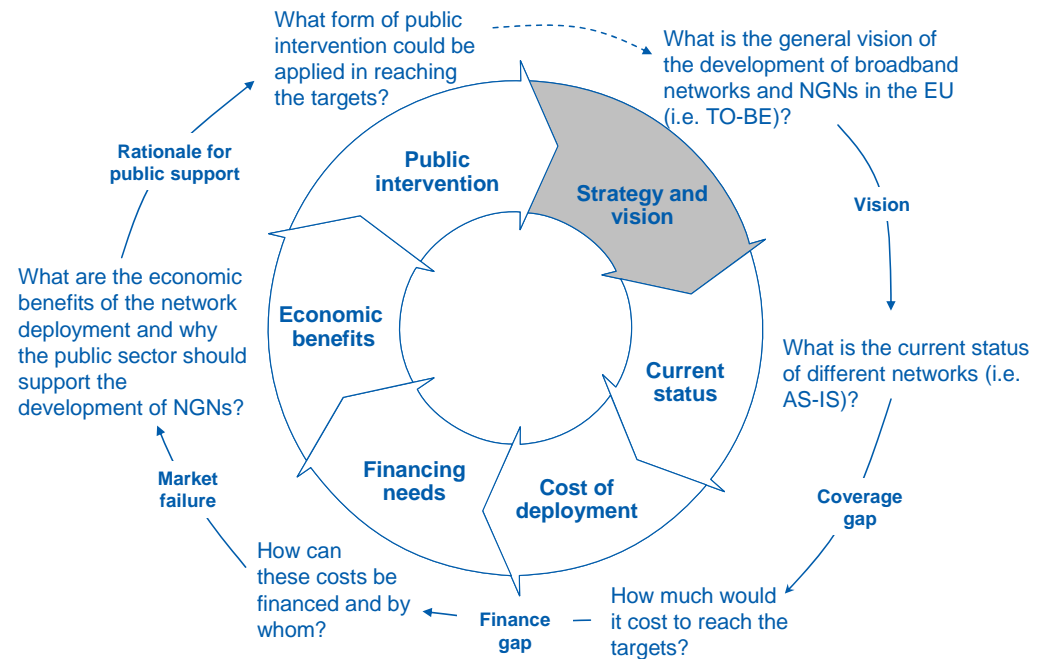
*27<sup>th</sup> October 2011*

*Luxembourg*

# Outline of the presentation



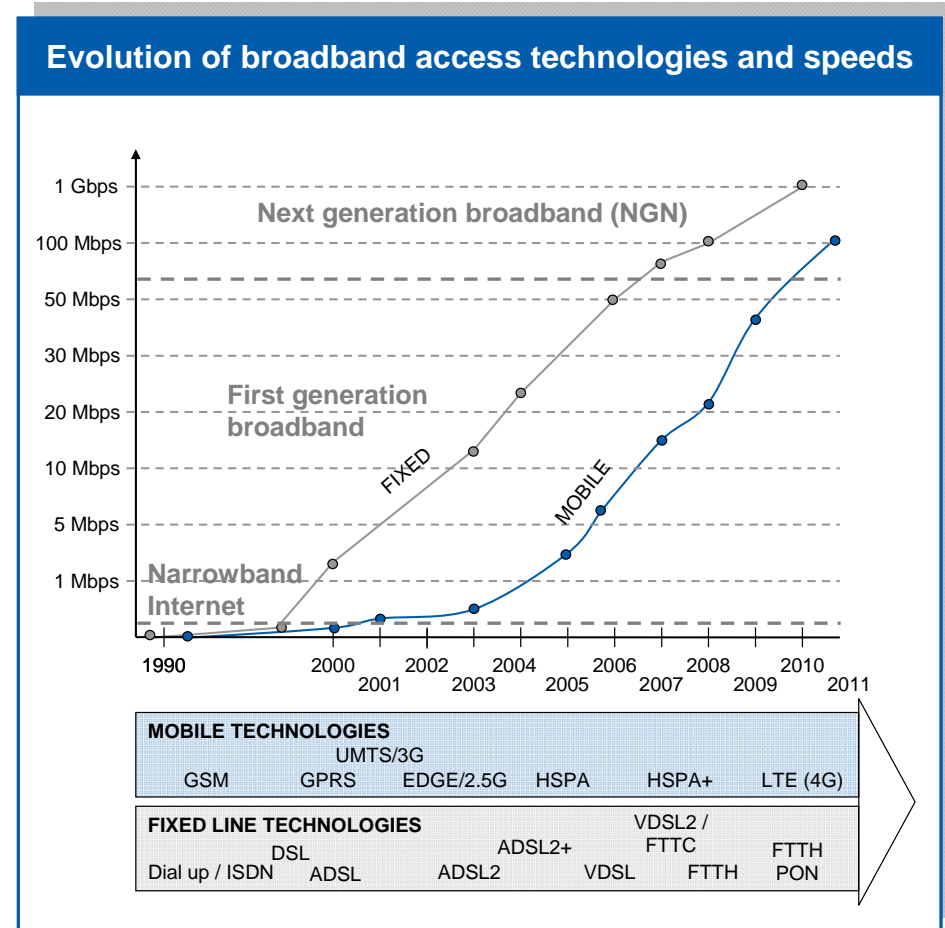
- ❖ Definition of Next Generation Networks
- ❖ Europe 2020 Digital Agenda Initiative
- ❖ Current status of communications networks in Europe
- ❖ Cost of network deployment
- ❖ Finance gap
- ❖ Economic benefits
- ❖ Finance mechanisms and PPPs
- ❖ Summary and conclusions



# Next generation broadband networks (NGN) refer to technologies allowing super high speed connectivity



- ❖ **Narrowband Internet (<126 kbps)**
  - ❖ Technologies: Dial-up (ISDN) connections over phone lines; GSM and GPRS data connection in mobile
  
- ❖ **First generation broadband (256kbps – 50 Mbps)**
  - ❖ Technologies: DSL technology over phone lines its evolutions (ADSL, ADLS2 etc.); EDGE and UMTS/3G technologies in mobile
  
- ❖ **Next generation broadband (NGN) (>50 Mbps)**
  - ❖ Technologies: Fiber based fixed solutions; Long Term Evolution (LTE) in mobile



*While the 1<sup>st</sup> generation broadband was achieved through technological advancements on existing networks infrastructures, NGNs require new infrastructures to be deployed*

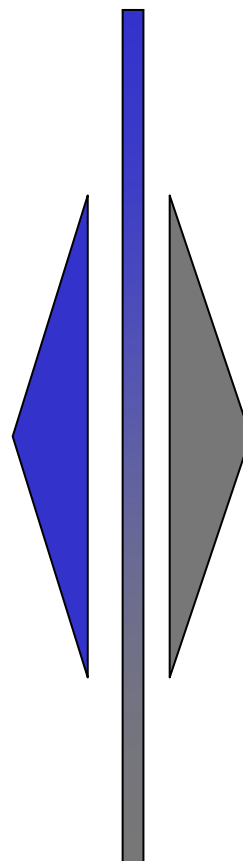
# The Digital Agenda for Europe agenda puts forward ambitious targets for broadband development



DIGITAL AGENDA

**DIGITAL AGENDA  
BROADBAND TARGETS**

1. It restated the objective to bring Broadband access for all Europeans by 2013
2. Seeks to ensure that all Europeans have access to much higher internet speeds of above 30 Mbps by 2020
3. Seeks to ensure that 50% or more of European households subscribe to internet connections above 100 Mbps by 2020.























**ISSUES OPEN FOR  
INTERPRETATION**

- What is the definition of Broadband in target 1?
- Do the access speeds refer to upload, download, both?
- Are speeds guaranteed speeds, advertised, theoretical speeds?
- Meaning of “Have access to”: regulation in place, access at the workplace, village, building passed, home passed, etc?
- For target 3: Pan European average or 27x national average?

*The way the Digital Agenda targets are interpreted influences the scale and the type of available technologies to be deployed and further to the cost of deployment*

Europe is lagging behind other digitally developed nations in super fast broadband availability and penetration



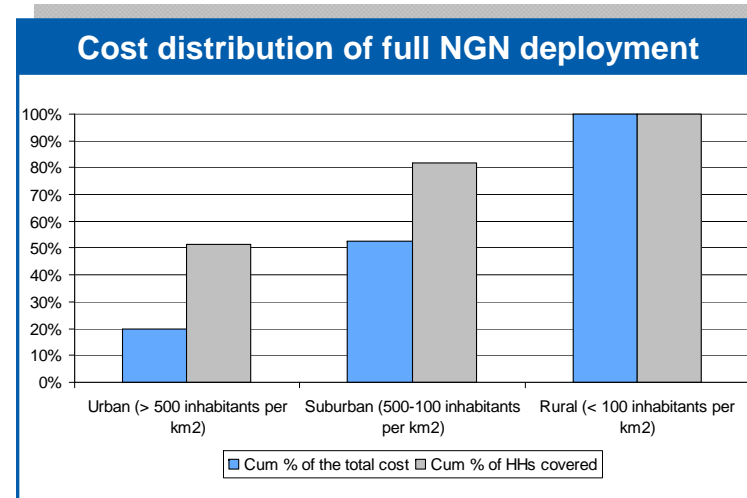
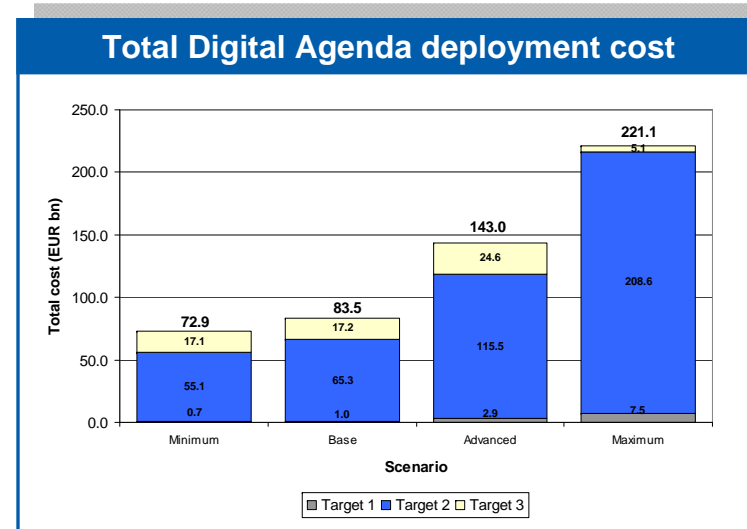
Broadband household penetration	 61%	 67%	 67%	 72%	 100%
Average subscription speed (Mbps)	 3.4	 5.0	 5.3	 8.1	 14.4
% of subscriptions over 5Mbps	 16%	 30%	 39%	 55%	 60%
FTTx household coverage/availability	 0%	 4.5%	 13%	 67%	 87%

Data sources: World Broadband Information Service (WBIS), OECD, Akamai

# Significant investments are required to reach the Digital Agenda broadband targets

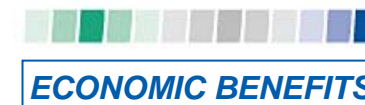


- The total cost of reaching the Digital Agenda targets range between EUR 73 and 221 bn
  - 76-94% of the total cost is required to fulfill the target of 30 Mbps to all
  - Suburban and rural areas account for 75% of the total investment, although accounting less than 50% of the European population
  - EU15 countries account for higher share of the NGN cost than its population
  
- A full EU wide FTTH deployment would incur an estimated cost of EUR 209 billion
  - 20% required to cover 50% of the EU households in urban areas
  - 30% required to cover 30% of the EU households in suburban areas
  - 50% required to cover 20% of the EU households in rural areas

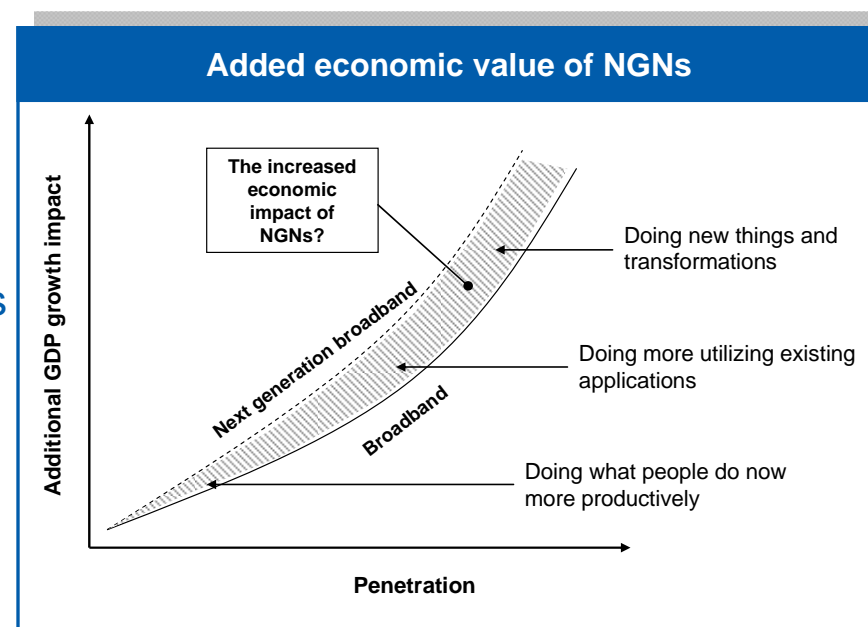


Data sources: Study commissioned by the EIB

# The socio-economic value of NGNs has not been widely explored so far



1. Doing what people do now but more productively
  - ❖ Only an average one minute daily time savings per EU inhabitant from faster networks would generate economic value equal to the deployment cost
2. Doing more utilizing existing applications
  - ❖ Within SMEs a full adoption of cloud services would generate annual productivity gains of some EUR 23 to 32 billion, which is above the cost of deployment
  - ❖ Regarding large corporates an additional cost savings in the range of 0.5 to 1.5% just in four sectors of electricity, education, transport and health would generate productivity gains beyond the deployment cost
3. Doing new things and transformations
  - ❖ As these solutions do not exist at the moment, the economic potential is impossible to assess. History has however shown that services are developed once the enabling infrastructures are in place.



*Increasing coverage does not lead to economic benefits, but the uptake of the super fast broadband access and the use of value-adding services do!*

Data sources: Plum Consulting, OECD

## There exists various ways how governments and public authorities can support NGN deployments



1. Setting of an appropriate regulatory regime to support private sector investments on NGNs
  - Tool to reduce barriers to invest, but does not per se promote investments
2. Public support and subsidization of private sector investments (i.e. state aid)
  - Suitable for widespread deployments, yet private operators need to initiate and design project even before any certainty of a potential subsidy
3. Co-development initiatives (i.e. Public Private Partnerships, PPPs)
  - Although PPPs enable financial stability to the projects and allows maximizing the socio-economic returns, there is an added bureaucracy and potential conflicts of interest which may complexity and slow down the deployment process

*There is no one-model-fits-all solution to support NGN deployments, but the appropriateness of the model derives from the characteristics of the area, technology, demand environment etc.*

## Although beneficial from economic point of view, there is a persistent finance gap in reaching the DA targets



- ❖ Significant investments are required to reach the Digital Agenda targets for faster Internet speeds
  - ❖ The investment requirement varies greatly on how the targets are interpreted
- ❖ There exists a clear finance gap in the deployment of fiber infrastructures in rural and remote areas in particular – public support is required
  - ❖ In theory through market driven investments a FTTH coverage of up to 70% of the EU population could be achieved, but which is less than half of the total investment requirement
  - ❖ Relying purely on market to deliver the networks would lead to decreased digital inclusion and potentially adverse effects on regional development
- ❖ There exists arguably increasing economic returns on speed, although decreasing rate of return
  - ❖ It is the uptake, not the coverage, that enable the economic benefits!
  - ❖ Services that enable the economic benefits increasingly require symmetric speeds
- ❖ There is an increasing need for industrial and cross-industrial coordination in fiber deployments
  - ❖ Due to the high share of civil works from the total cost, coordination with other sectors such as electricity, water and transport should be endorsed