Benefits of Broadband Networks and why Europe is not reaping them of?

COCONUT Workshop, Feb 5th 2016

Dr. Ioannis Tomkos

COCONUT Steering Board Member

Past Chairman of the Greek NGA Group for the Digital Agenda 2020

Presentation Outline

- **Drivers for FTTH and expected socioeconomic benefits**
  - New residential services that enhance the quality of life of end-users
  - Wider socioeconomic, macroeconomic and environmental benefits expected
- **Why FTTH has not happened in mass scale yet in Europe?**
  - The costs are still high (but this is the case elsewhere in the world…)
  - Policy/regulation decisions/actions have failed to stimulate supply and demand!
- **Does FTTH NGA infrastructure market resembles characteristics of a “natural monopoly”?**
  - In that case what are the possible options?
    - → New regulations
    - → Open access networks could be another solution to the problem
- **Summary and conclusions**

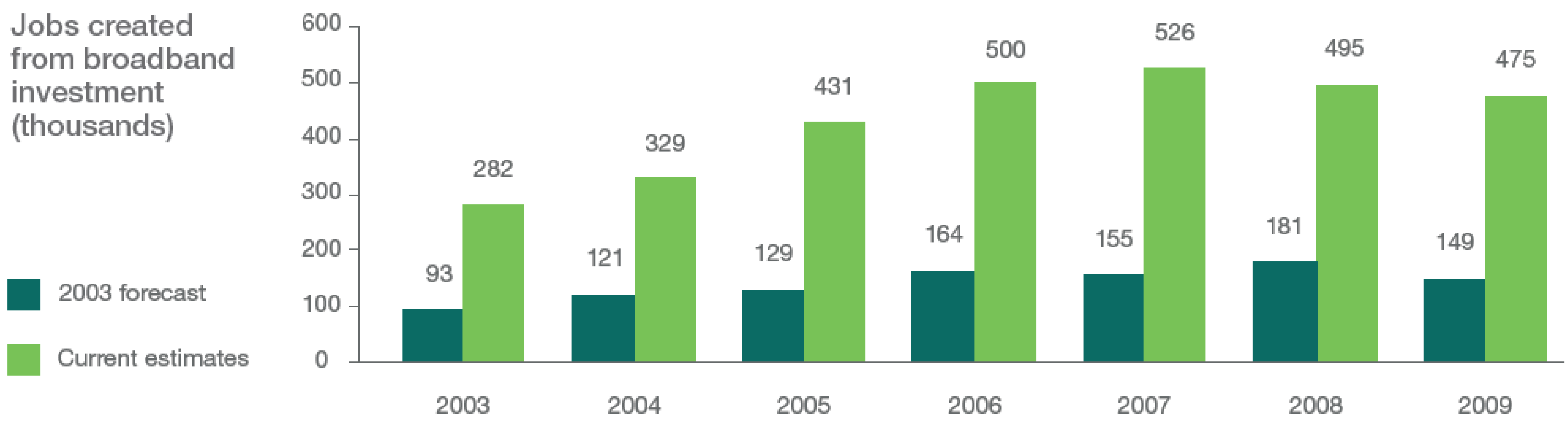
Drivers for NGA FTTH deployments

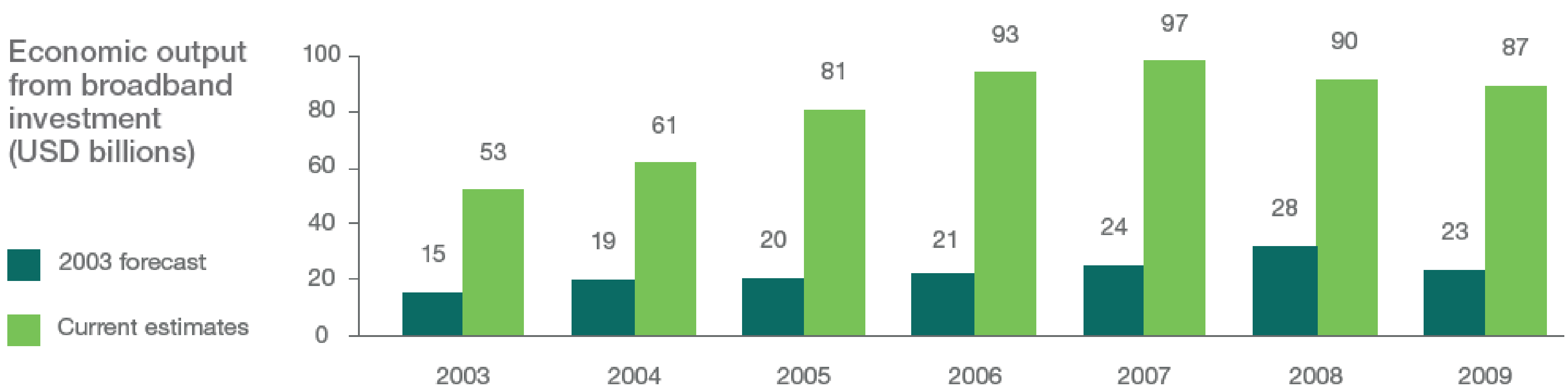
But FTTx is expected to have a major impact to our lives, beyond just e-entertaiment

Government/Policy needs/targets

- Most policy makers are convinced by now that *investments in broadband fiber based network deployments is for this century as important as were the investments in roads and railways in the past century*
  - **Jobs creation** for the construction of the network and from the operation and use of the network
  - Stimulus for wider **economic development/growth**
  - **Better government/society operation**
  - (Better quality of life for the citizens)
- Numerous studies (from OECD, ITU, Companies, Universities, Consulting firms, etc.) provide well documented justification and measurable targets/KPIs

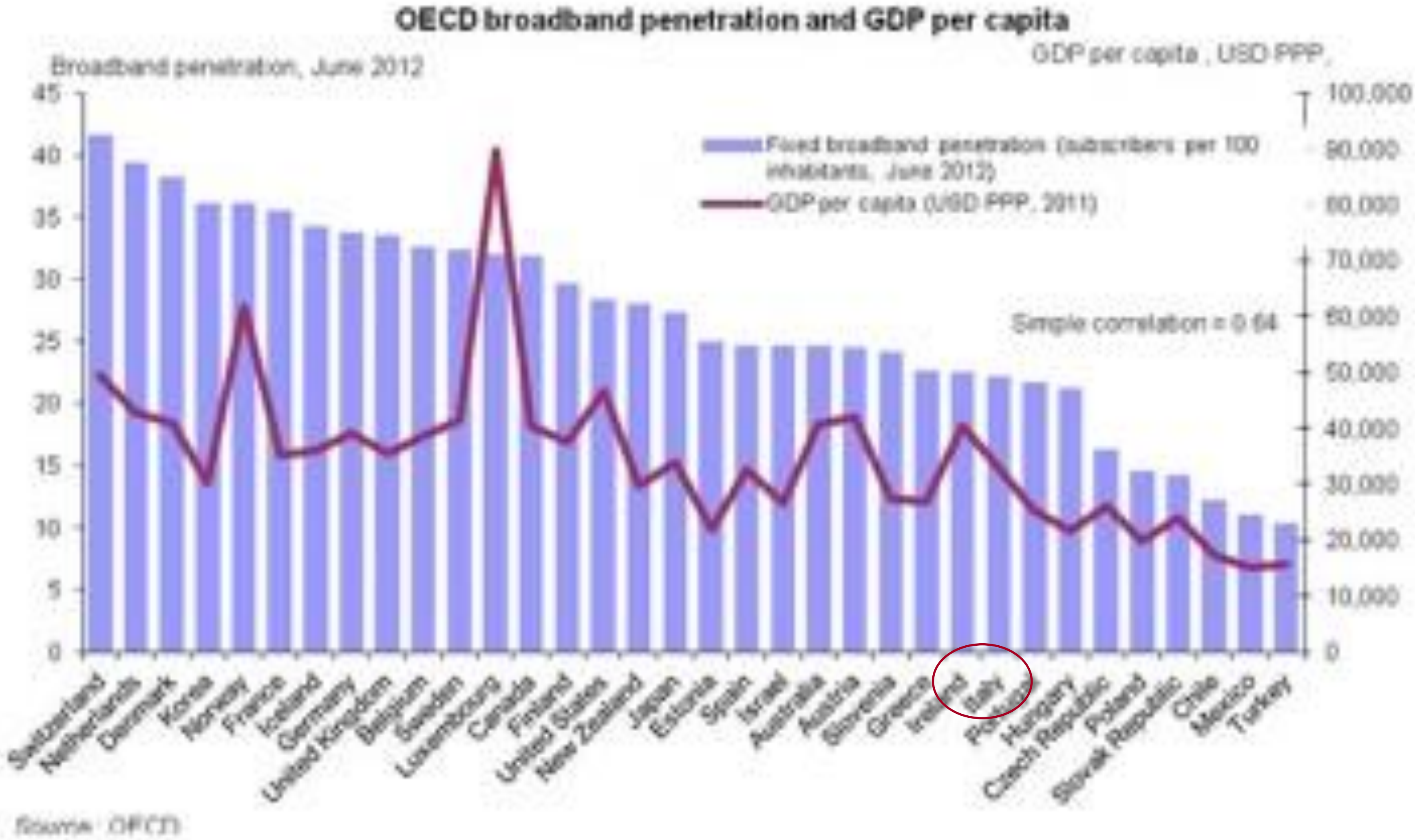
Job creation and economic benefits in USA



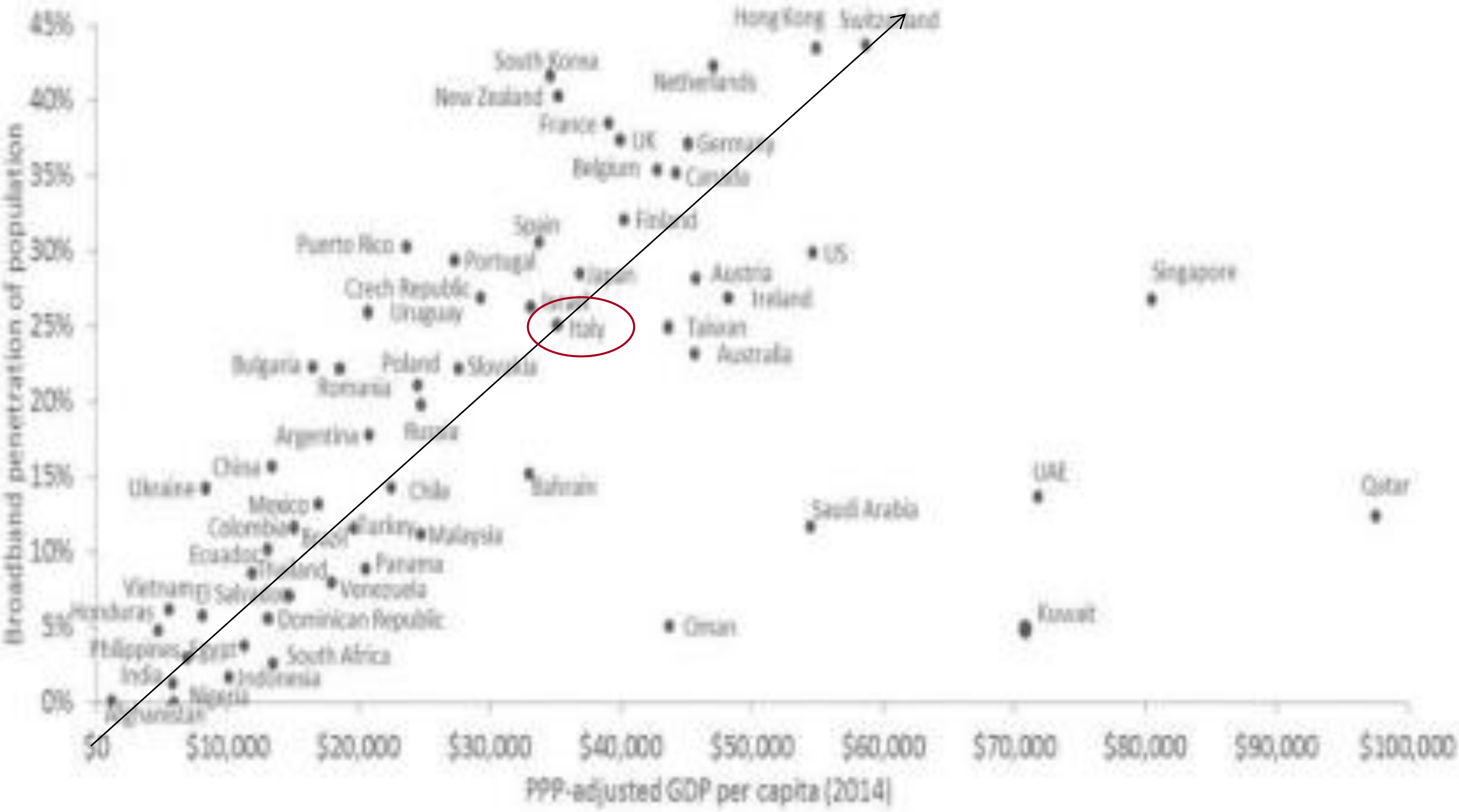


- It is important to note that the reality ***outperformed*** significantly the original forecasts!

Broadband penetration and PPP-adjusted GDP per capita (2012)



Broadband penetration and PPP-adjusted GDP per capita (2014)



AIT

SEVENTH FRAMEWORK PROGRAMME

Impact of broadband on Environment

- Usage of FTTH-services has a positive impact on the environment
  - More power efficient infrastructure
  - Less commuting and, therefore, less traffic
  - Less business travel
  - Less long distance transport of patients

- Key Result of a study of Price Waterhouse Coopers:
  - Using FTTH saves CO_2 equivalent of driving with a car 4,600 km per year – for every household!

COCONUT

EU Digital Agenda 2020 targets

2013

100% internet coverage

2020

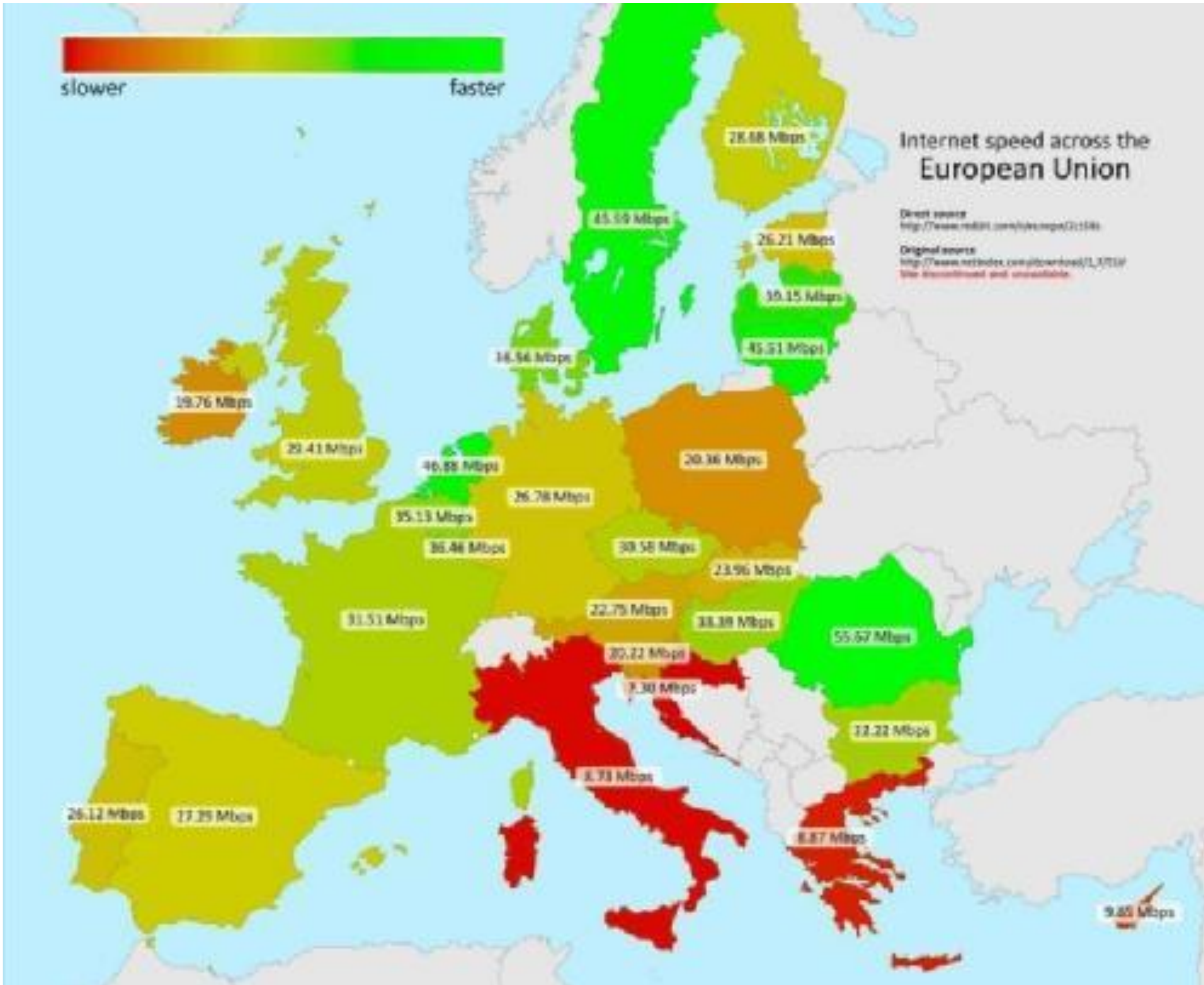
100% coverage of ≥30Mbps

50% household take-up of <u>≥100Mbps NGA networks</u>

Based on current status it is highly unlikely to achieve the goal of 50% take-up of NGA networks achieving >100Mb/s by 2020!

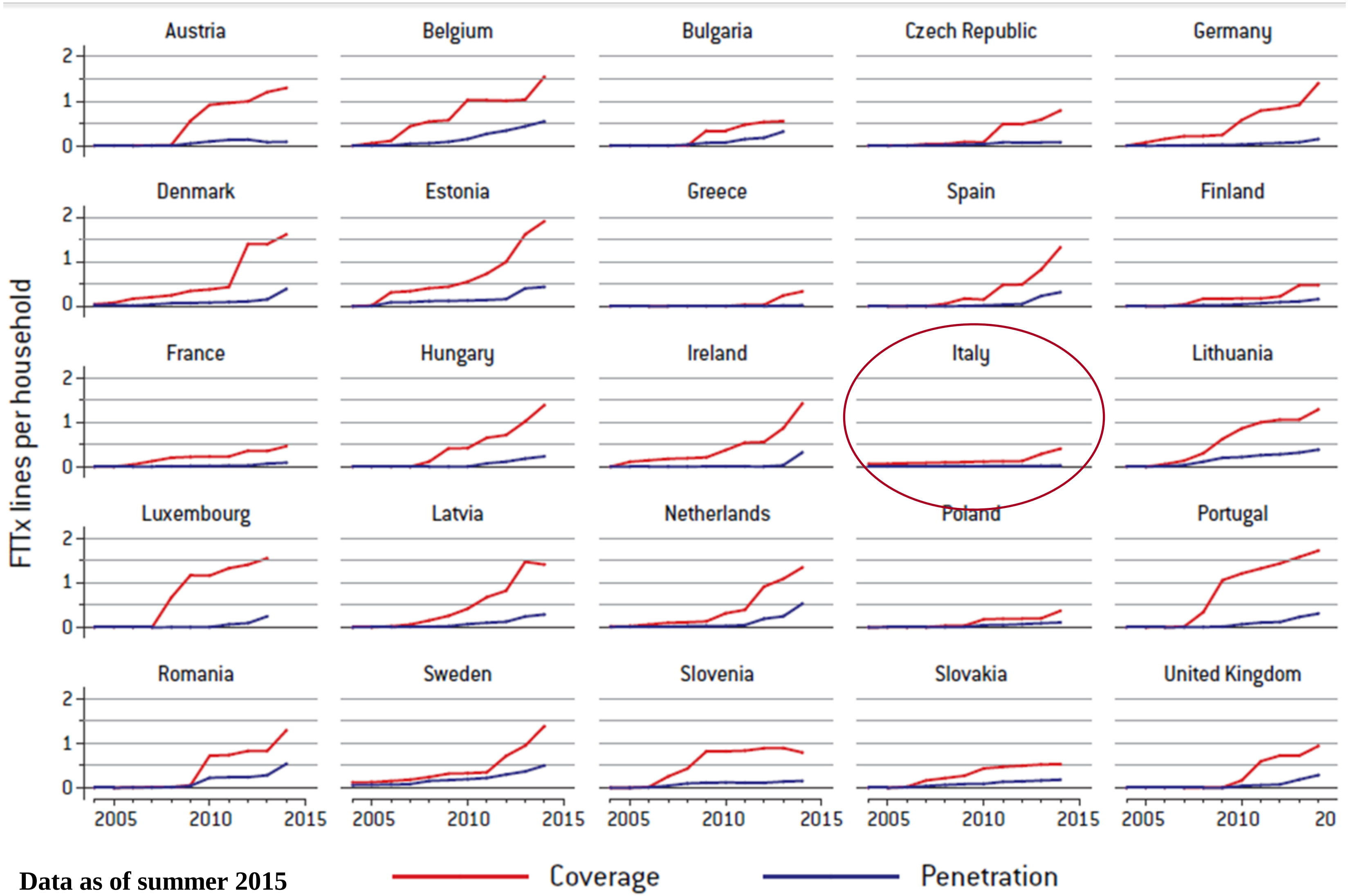
(not to mention that <u>even 100Mb/s is a very low target</u>, result of an effort by EU to make compromises, that even wireless networks will surpass by then)

Current status across all EU countries with respect to the average broadband speeds



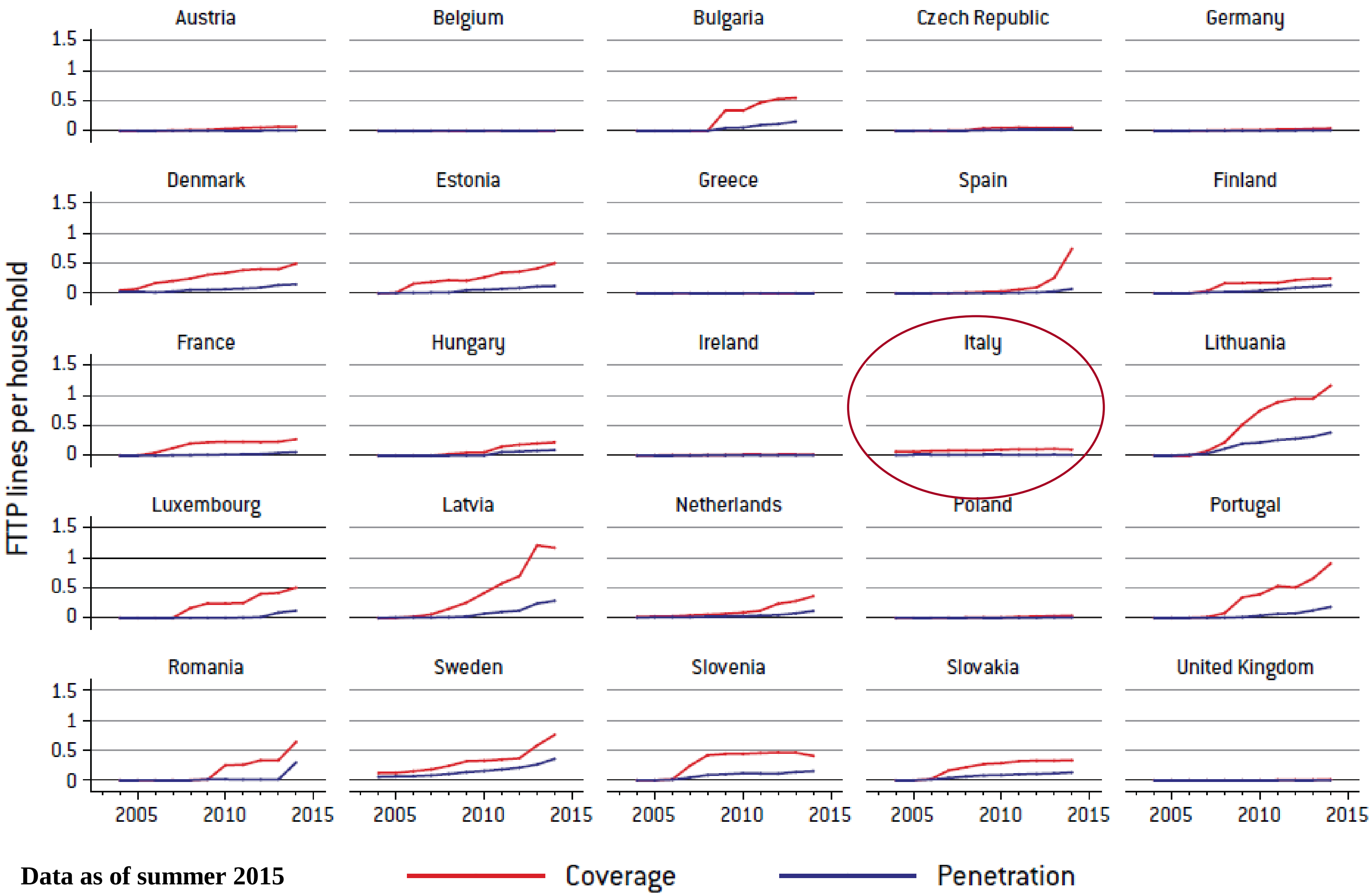
AIT

Current status across all EU countries with respect to realization of the 30MB/s target



Data as of summer 2015

Current status across all EU countries with respect to realization of the 100MB/s target



Data as of summer 2015

Where Europe stands with respect to FTTH compared to other countries?

- Besides some specific EU countries, Europe as a whole lags behind America, Middle East, Asia and Oceania with respect to FTTH!
  - It only does better than Africa…

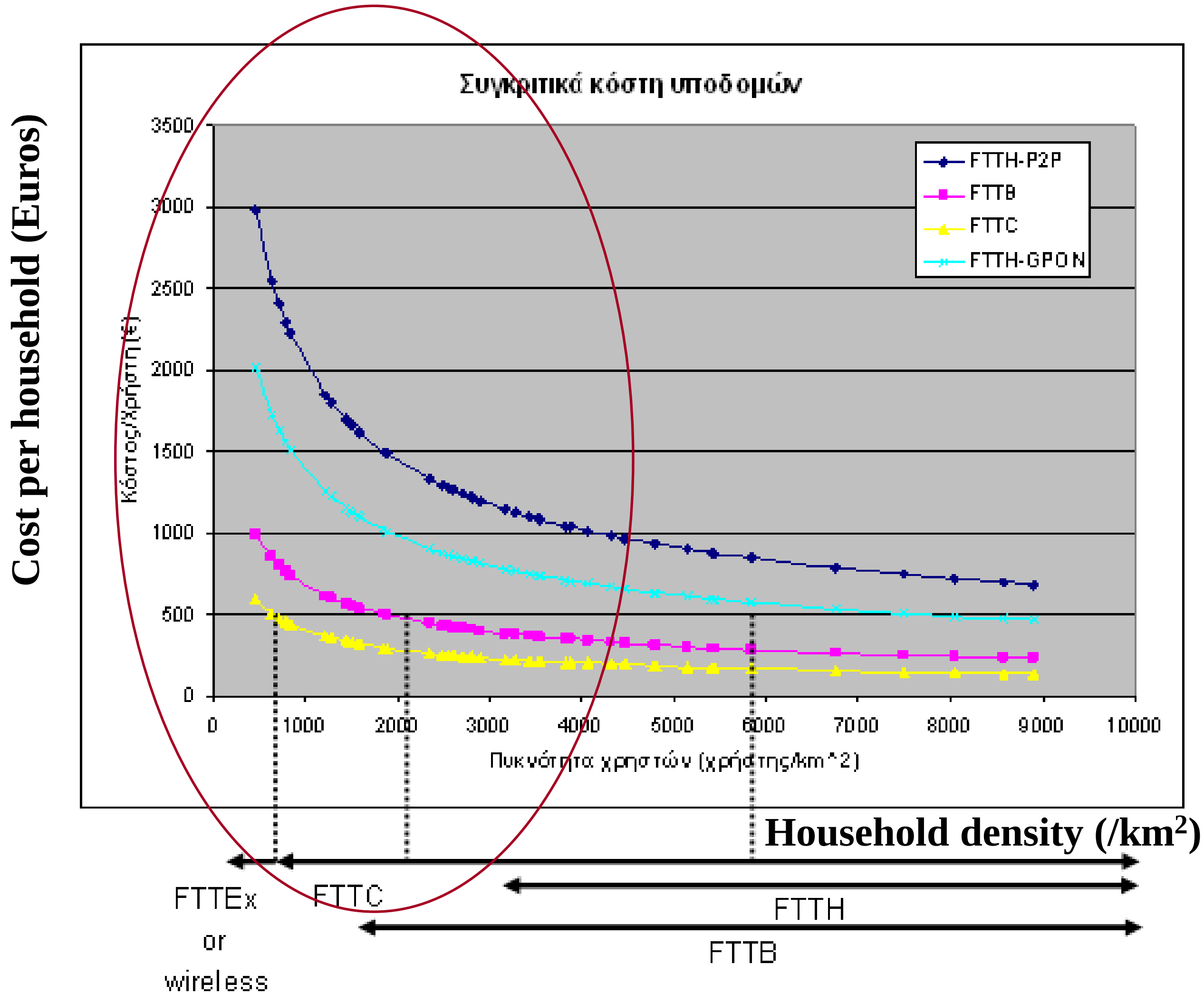
- In Europe there are only very few national scale FTTH deployments
  - Most deployments are scattered in selected municipalities/areas and are supported mostly by municipal administrations, small companies and enthusiastic investors
  - Incumbent PPTs have in some cases national scale deployments plans that evolve quite slowly (due to lack of major competition and significant motivation)

- Based on current penetration figures, announced deployment plans, policy decisions, and regulation framework, it seems impossible to realize the 2020 Digital Agenda goals/targets the way that Europe is currently progressing…

Why FTTH has not happened in mass scale yet in Europe?

- The costs are very high (but this is the case elsewhere in the world…)
- **Policy/regulation decisions/actions have failed to stimulate supply and demand**

FTTx – Cost comparison (quantitative)



Source: The speaker

Does the NGA FTTH market has characteristics of a "Natural Monopoly"?

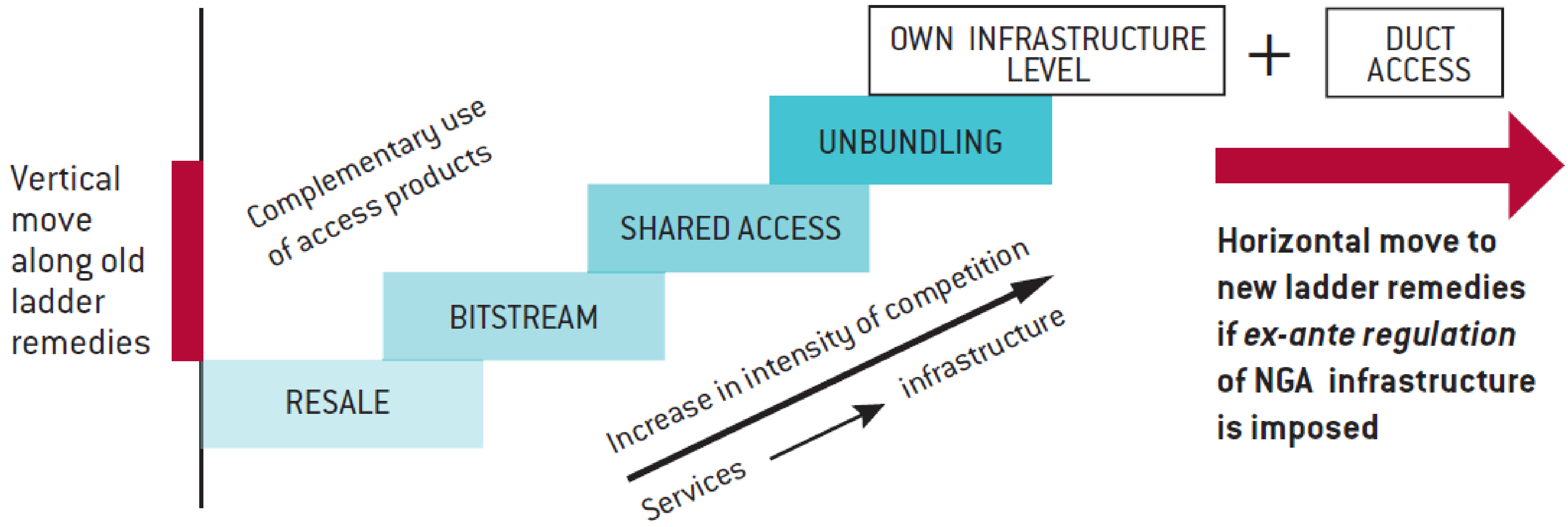
- As "natural monopoly" we define the market (i.e. same range of products offered at the same geographical area) at which, <u>due to the high entry costs primarily</u>, only one market player can operate in a sustainable way
  - E.g. "natural monopoly" is the water distribution

- The telecom market used to be seen as a "natural monopoly" (before the early '90s), but proper regulations (i.e. LLU – local loop unbundling) changed this perception and enabled a regulated competition among many network operators and services providers

- However, we have to re-examine the situation in the telecom market for the NGA part and decide if it is (or not) a "natural monopoly"
  - If it is not, then we should continue doing what we do (whatever that is…)
  - If it is (and I believe so!), then we should change the way we regulate this market!
    - →Either allow "regulatory holidays" for FTTH deployments OR support government funded FTTH deployments OR encourage the deployment of "open access networks" (implemented via "functional separation" or the formation of new companies)

Issues with NGA regulations in Europe

- Legacy-based (outdated) infrastructure regulation…
- The figure shows the hierarchy of access options (based on the ladder-of-investment hypothesis), as viewed by the European Commission, that have dictated the broadband market regulations in Europe since 2002.



Source: European Commission (2010).

- This particular approach works well for the copper-based broadband network regulation, but it is inappropriate for FTTH NGA networks!

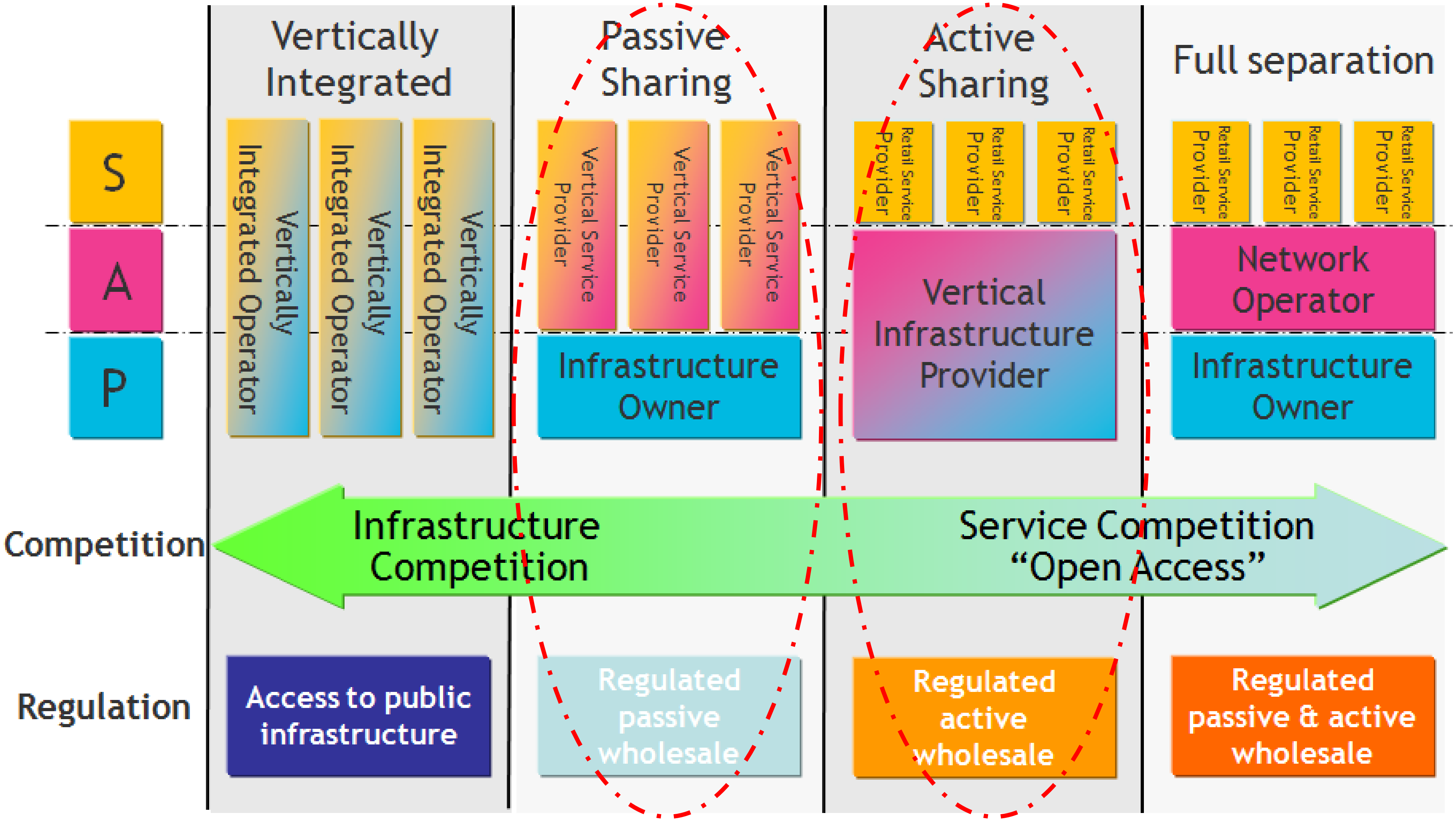
Europe's actions towards NGA infrastructure regulation

- The directives of the eCommunications framework have been supplemented by the European Commission recommendations in order to form the relevant EU regulatory framework for the emerging NGA infrastructure.
  - → "regulated access to next generation access networks" (European Commission, 2010), and
  - → "consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment" (European Commission, 2013)

- However, the Commission's approach to the regulation of NGAs can be seen as nothing more than a direct extension of the old eCommunications framework that was created for the 'first-generation' legacy networks…
  - →Judging from the results, this approach has failed to stimulated investments in FTTH broadband networks. Fully fledged "facilities-based competition" as the final target needs to be de-emphasized!

- A new regulation framework and a different approach by the policy makers is needed if we want to see the Digital Agenda 2020 targets being realized in the future (for sure it will not be the case across Europe by 2020!)

Open access models for FTTH networks



Source: FTTH Council Europe

My preference is a hybrid model among the open-access ones

Open access model for success?

- The passive infrastructure company (which should also be allowed to operate a subsidiary that will act as one of the possible active infrastructure provider companies), should be supported financially by all involved market players which could benefit directly or indirectly from the deployment of FTTH networks and who will become shareholders in the new company
  - Real estate companies
  - Construction companies
  - Equipment vendors
  - Service providers
  - The government
    - → through a PPP with co-funding, or/and by offering infrastructure, or/and by offering incentives to the other co-investors, or/and by forcing the access network operator part of the ex-incumbent telecom operator to contribute (or even lead) to the new scheme
- Besides committing funds to the formation of the company, they should make also other commitments to the whole endeavor
  - Service providers to commit within a certain time-plan to shift customers from copper to fiber
  - Real-estate companies to commit to perform the in-building wiring
  - …

Summary & Conclusions

- There are many and significant benefits when broadband penetration and speeds increase at a region/country

- Certainly Europe needs to change its policy with respect to FTTH deployments!
  - A number of options exist but need very strong political support in order to be adopted and implemented…

- We presented some thoughts on how FTTH deployments could be realized in order to reach the EU Digital Agenda 2020 targets

Thank you for your attention!

For more information contact:

Dr. Ioannis Tomkos

itom@ait.gr