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Impact on the Economy of Functional Separation: the case of Italy"

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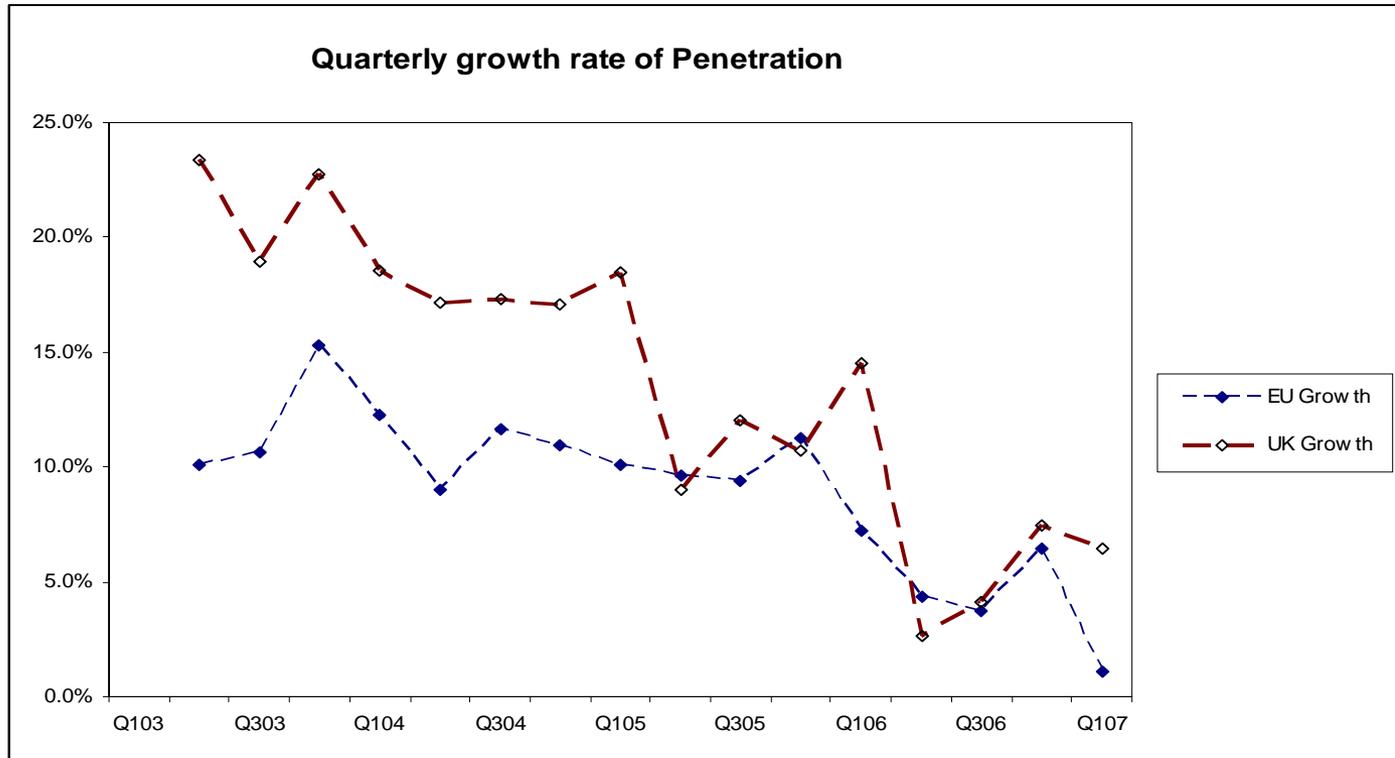
Goals

- ▶ **Assess potential pluses and minuses of functional separation (“FS”) in the current Italian context**
 - ▶ **Examine the UK template for functional separation and its application in the Italian context;**
 - ▶ **Provide indications of social benefits or costs from implementing similar policy with similar goals in Italy in 2008;**
 - ▶ **Rough indication of macro-economic loss from delayed implementation of NGN by Telecom Italia.**

The UK Context

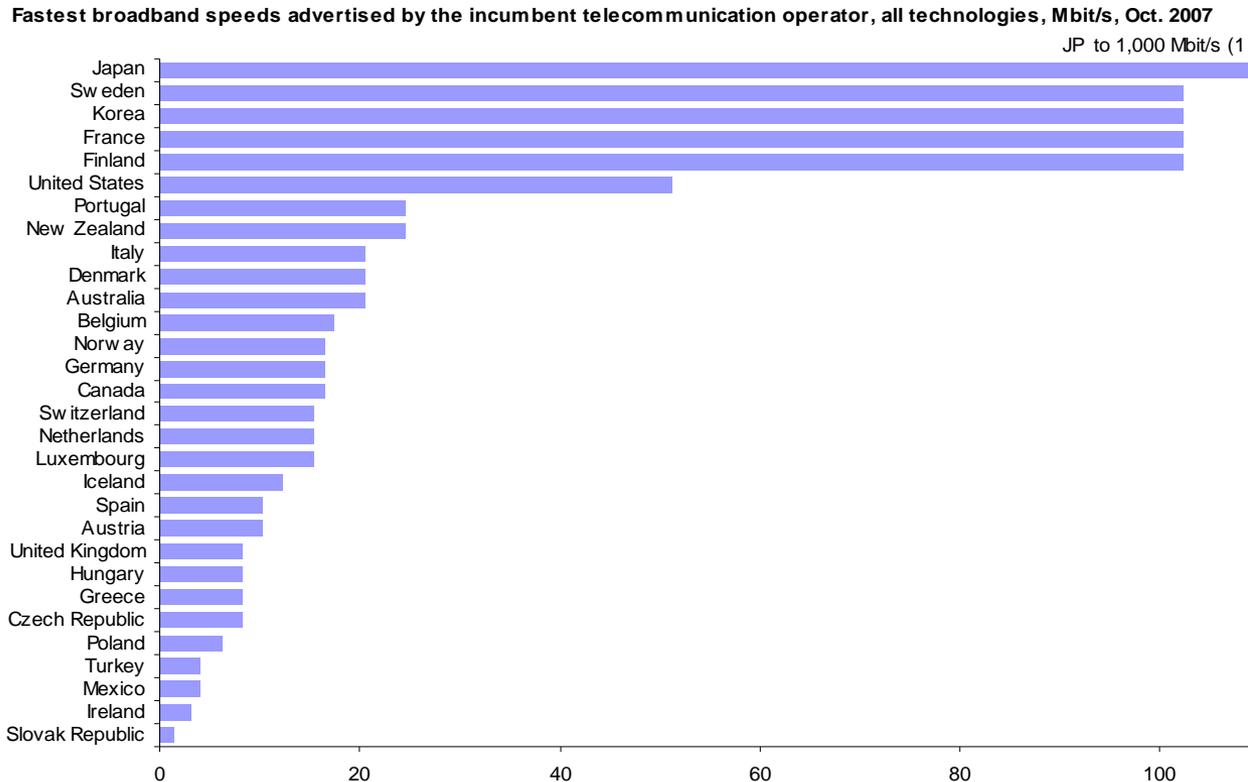
- ▶ **Functional separation in the UK**
 - ▶ Aimed to address the issue of non-price discrimination by BT, particularly against access-seeking parties that wished to utilise LLU options;
 - ▶ UK in 2005: penetration growing fast, BT market share lower than it is currently, bit-stream access dominant mode of competitor provision (other than cable), LLU levels very low;
 - ▶ UK in 2007/08: penetration growth rate about same as most other EU countries, some evidence of market saturation in the near-future, BT market share slightly higher than in 2005, LLU levels much higher.
- ▶ **Some evidence that FS has helped transparency, trust and confidence**
 - ▶ But significant increase in LLU attributable also to pricing decisions on IP-Stream and LLU taken in 2005;
 - ▶ Aggregate market dynamics not fundamentally transformed.

Growth Rate in Penetration



Source: ECTA BB Scorecard, Q3 2007

Innovation in the broadband market



Source: OECD Broadband Portal

The UK had and still has the lowest incumbent market share for broadband (i.e., most service competition), but not the most innovation.

The Italian Context in 2009

- ▶ Italy has relatively low broadband penetration, with the growth rate of penetration tailing off already
 - ▶ Demand-side factors may play a big role in explaining relatively low Italian level of penetration.
- ▶ But local loop unbundling in Italy is far stronger than the UK in 2005
 - ▶ Italy had 400,000 shared loops and 2.5 million fully unbundled loops by end-2007.
- ▶ Unclear whether Openreach template applies here
 - ▶ FS designed to prevent non-price discrimination and strategic exclusion. *Prima Facie* these problems are less severe in Italy in 2009 than UK in 2005.
 - ▶ Openreach model appears to have worked in the limited context of bolstering LLU. How relevant is this to Italy's needs today?

Conclusions on UK-Italy Comparison

- ▶ **UK context in 2005 was very different from Italian context today**
 - ▶ **In the UK, LLU-based access was struggling in the context of robust market growth and robust market demand**
 - ▶ **In Italy, LLU-based access is thriving, but in the context of a much weaker market picture.**
- ▶ **Functional separation has boosted LLU-based access in the UK, but hasn't fundamentally transformed the market dynamics in the UK.**
- ▶ **Unclear why UK-style radical reorganisation of Telecom Italia is warranted in 2009.**
- ▶ **This is especially the case when one considers how the industry has evolved since 2005....**

Risks of FS

- ▶ **Vertical integration is not just about price squeezes and foreclosing the downstream market**
 - ▶ **Traditional economic theory actually minimises these anti-competitive costs of vertical integration and concentrates on efficiency benefits (cf. Stigler’s “one monopoly profit” theory);**
 - ▶ **More recent literature finds that non-price discrimination or sabotage is an issue when there is binding input price regulation, but not otherwise (Kaserman, Mayo and others);**
 - ▶ **Empirical work on vertical separation in electric utilities find significant efficiency losses (Kwoka 1996; 2000) arising from separation.**
- ▶ **Even without the NGA issue**
 - ▶ **The risks from FS are non-negligible.**

The NGA complication (1)

- ▶ **NGA changes the picture even more**
 - ▶ **In 2005, regulators, BT and entrants had good information on what business models and what modes of access were being used;**
 - ▶ **The emergence of Next-Generation Access significantly complicates this picture. Raises serious questions about division of network assets and infrastructure;**
 - ▶ **The LLU model may not be viable as most operators will want to use GPON architecture in their FTTP networks;**
 - ▶ **Wholesale pricing flexibility to incentivise NGA could weaken incentives to engage in “sabotage” (cf. Kaserman and Mayo). Absent binding price regulation, vertical integration may prevent hold-up and agency problems, without increasing anti-competitive concerns in the downstream market;**
 - ▶ **In this light, any separation arrangement made today carries the risk of requiring drastic revision tomorrow. Might prove very disruptive to the entire industry.**

The NGA Complication (2)

- ▶ **Incentives matter**
 - ▶ **Telecom Italia's actual NGA deployment plan is premised on the firm being an integrated entity;**
 - ▶ **There are significant inter-dependencies between different parts of the network that might come under different management if functional separation were to happen;**
 - ▶ **Alignment of incentives might be required to secure optimal effort from ALL parts of the firm, even if the primary benefits accrue to one part of the firm;**
 - ▶ **Some degree of design freedom and information flow between retail and network/access divisions is desirable. FS severs or at least weakens such links.**
- ▶ **Processes matter**
 - ▶ **Functional separation requires a significant re-alignment of processes and of systems (e.g., IT systems);**
 - ▶ **This is costly in sheer money terms;**
 - ▶ **But it is arguably costlier in terms of the diversion of managerial effort and attention, which could hurt the roll-out of Telecom Italia's NGA network.**

NGN project requires a strong integration within the network unit 1/2

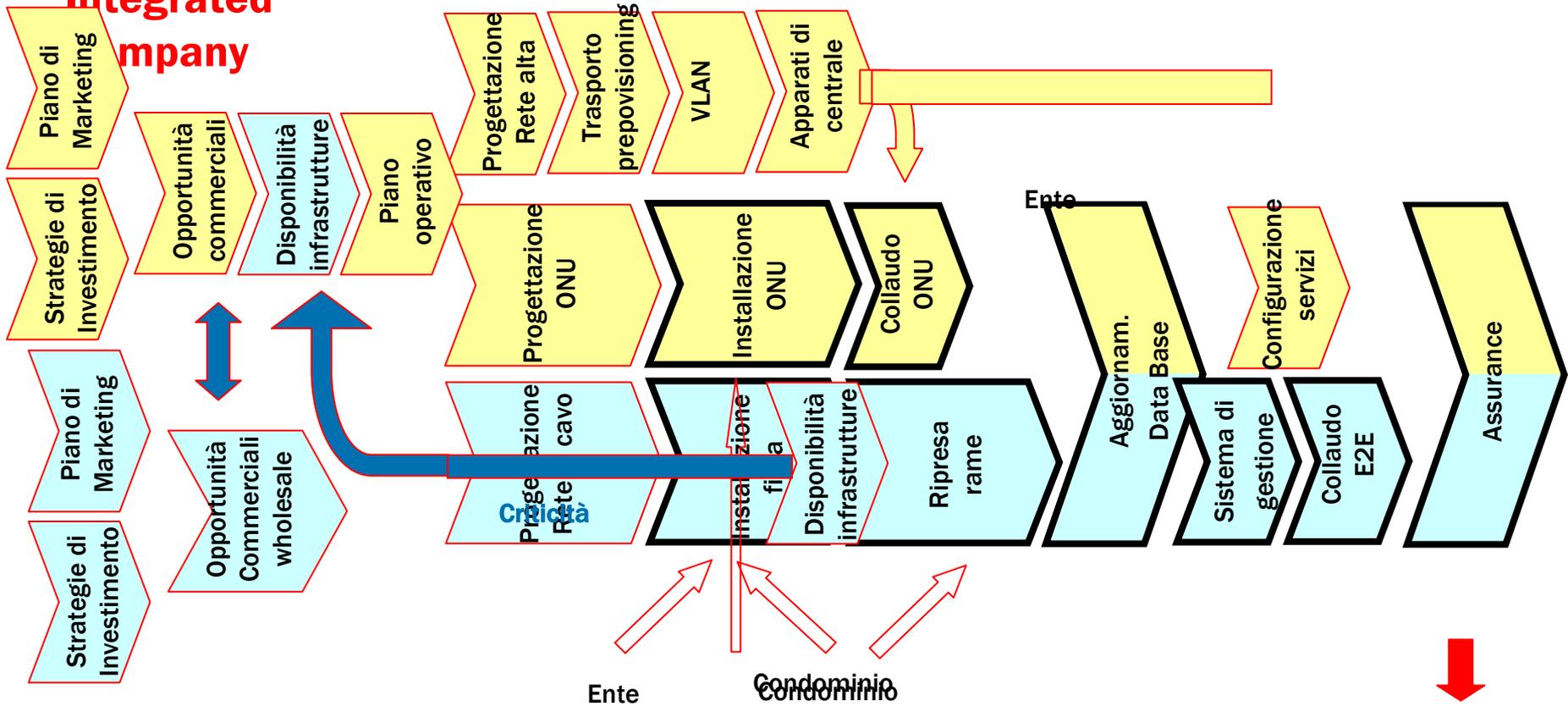
- ▶ **To implement a technology all IP, increase the customer bandwidth and allow for remote maintenance and configuration, the electronics is located as close as possible to the client , blurring the traditional division between passive network, transport and electronics.**
- ▶ **DEPLOYMENT: to guarantee efficiency it requires an integrated management of the en to end functions:**
 - ▶ **Integration between the fiber connection and the electronics**
 - ▶ **There are conflicting needs that need to be reconciled:**
 - ▶ **Fiber needs to be closer to the building**
 - ▶ **Electronics needs to be closer to the energy meeter**
 - ▶ **Copper needs to be closer to the telephone terminatio (impact on home networking)**
- ▶ **Coordination problems with Metroweb in Milano : There is a need for a “super partes” unit to guarantee the overall control!**

NGN project requires a strong integration within the network unit 2/2

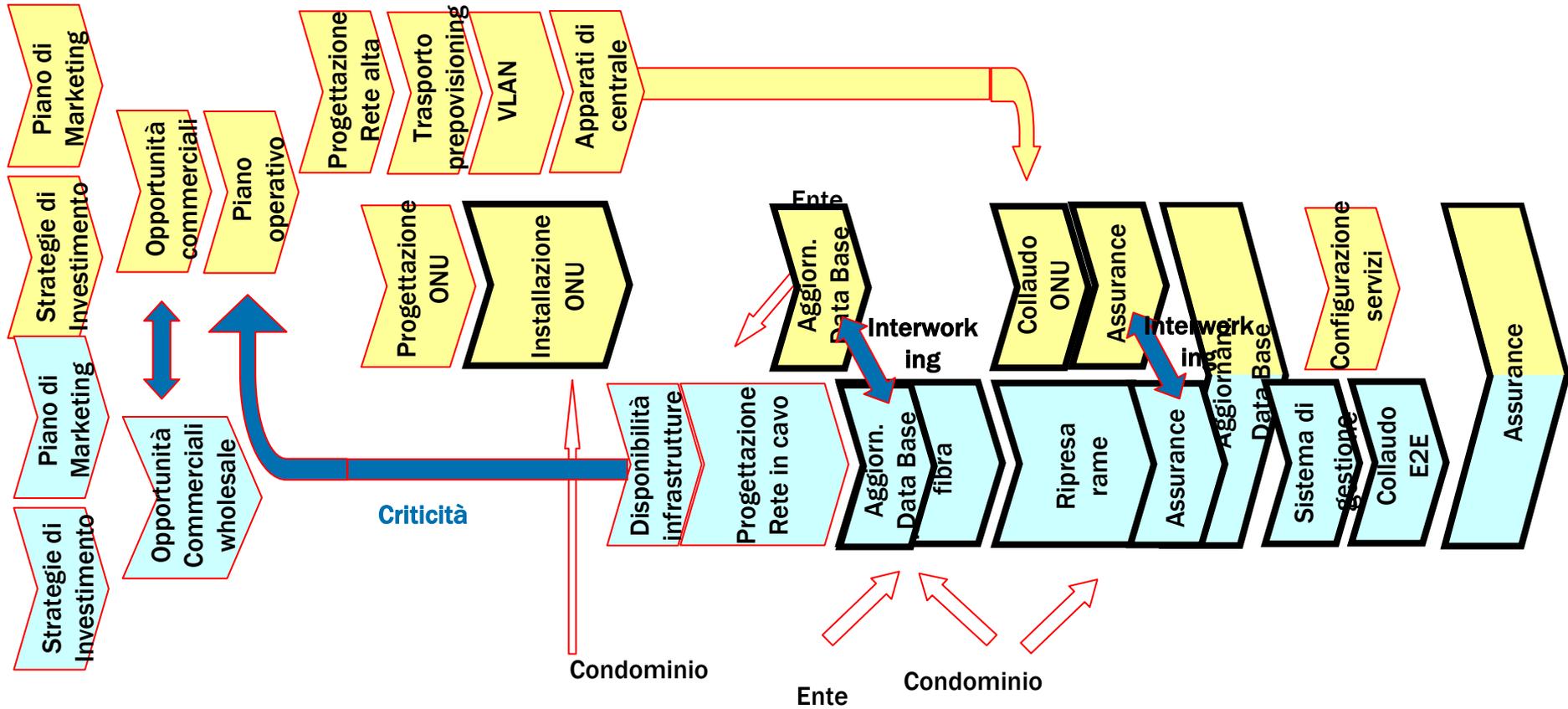
- ▶ **DELIVERY** : The NGNA allows for a complete remote control ! To be efficient , should be managed by one entity only !
- ▶ **ASSURANCE** : The presence of different units would reduce the efficiency of troubleshooting especially before emergencies ! In fact, it would require an ad hoc process only to identify who should be in charge of the repair.

Separated Companies

Integrated Company



Separated Companies



Sharing of cost savings from NGA

	% Share of Savings	Beneficiary
Provisioning and Assurance	55%	Network and Access divisions
Central Office Energy Costs	7%	Network division
Base Station Rentals	6%	TIM
Copper Network Op-ex	17%	Access
Central Office Rentals	15%	Network

Open question about incentivising appropriate effort levels across divisions when cost savings are not equally shared.

Drawbacks of current fiber open access models

- ▶ **Dark Fiber Provision (STOKAB) :** The biggest drawback to this approach is aligning the investment and the maintenance objectives of the dark fibre company with those of the ISP. ISPs may need network upgrades in the future to support their services and there needs to be a mechanism in place to prompt for new investment or maintenance.
- ▶ **Managed IP Networks:** In this model, the entity building the network moves a step higher in the distribution chain by actually lighting the fibre and running a basic IP based network. The drawback of this approach is that all the services providers are locked into basic connectivity streams that the network provider offers. ISPs could not install their own equipment and jump from 10 to 1000 Mbit/s if they wanted to. If the network operator does not upgrade to faster speeds then the service providers are limited as well. Just as in the dark fiber provision, there are concerns about upgrade and maintenance incentives.

Quantitative analysis

- ▶ **Telecom Italia plans to invest € 6.5 billion in the NGA over the next several years**
 - ▶ Utilising a “total economic return” methodology developed on the Roeller-Waverman paper of 2001, **LECG concludes that the total economic benefit from this investment might be reasonably between €8.5 billion and €16.5 billion;**
 - ▶ This sum is the Net Present Value of all future economic benefits derived from the investment, or alternatively, the Net Present Value of the **entire stream of incremental future GDP generated by the investment;**
 - ▶ It can also be interpreted as the lump-sum payment that would need to be paid to Italian society today in order to make it indifferent between having the investment and not having the investment;
 - ▶ The premise is that the average social return on NGA investment **over the lifetime of the NGA network** is similar to the social return estimated by Roeller and Waverman for fixed-line network investment made between 1970 and 1990.

Costs of disruption to NGA investment

- ▶ **A two-year delay in NGA rollout can be modelled as the reduction in the NPV of economic benefit that would result if the same benefit stream was realised but with a two-year delay**
 - ▶ **Note that we are not assuming abandonment of NGA investment or a reduction in the investment quantum, just a delay in network roll-out.**
- ▶ **Estimated “economic loss” from a 2-year delay of between 1.4 billion and 1.9 billion Euros under conservative assumptions about social rates of return from the investment**
 - ▶ **In other words, to compensate Italian society for the delay to the NGA roll-out, would require a lump sum payment of between 1.4 and 1.9 billion Euros to be made today;**
 - ▶ **This is a significant economic loss, equal to more than 20 Euros for every Italian citizen;**
 - ▶ **Thus even “innocuous” delays are socially quite costly.**

Overall conclusion

- ▶ **Functional separation is a risky policy for Italy, and implementing it in 2008 makes it a risky remedy at a risky time**
- ▶ **Functional separation need not prevent investment in NGA network, but**
 - ▶ **It raises the explicit and implicit costs of such investment relative to a less interventionist regulatory solution;**
 - ▶ **It may prove quite disruptive to the process of making the investment. Such disruption is not costless.**