ERG PUBLIC CONSULTATION ON REGULATORY PRINCIPLES OF NEXT GENERATION ACCESS NETWORKS

TELECOM ITALIA's RESPONSE

1. GENERAL REMARKS

Telecom Italia (hereinafter "TI") welcomes the opportunity to comment on the new scenario that the launch of Next Generation Access Networks (hereinafter, "NGAN") will create and the necessity to accommodate regulation to this technological development.

The European Regulator's Group ("ERG") consultation document raises different relevant issues that will need to be addressed by national regulators in the near future to cope with the emerging technological developments. However, as far as the ***scope of the consultation paper is concerned***, TI would have liked ERG to enter into a much more extensive discussion in order to reflect on the electronic communications market as a whole.

Inter-Platform technological competition

The consultation paper seems rather limited in its scope, because focused exclusively on wireline access. Furthermore, it lacks, more profound debate on alternative technologies and, particularly, on their impact on the potential application of regulation. For example, the potential of radio electric access in the competitive race vis-à-vis wireline networks should not be discarded a priori. Even WIMAX, although presenting some technical difficulties and limitations, can be considered an appropriate technology for offering broadband access in areas where wireline deployment (whether cable networks, fibre or copper) is not economically viable due to the high costs per user in low demographical density areas.

The role of market definitions in a NGAN scenario

It is important to stress – as also ERG states in its consultation document - that the European regulatory framework is based on **technological neutrality** and – with certain clear exceptions - aims at regulation of services and products regardless of the technology of the network used to deliver them. This means that any regulatory action – including any consequent remedies - must seriously take into account the service in question and not the network nor the technology with which the service is provided.

In order to decide whether to regulate or not a given service and, if so, how to regulate it, any market definition procedure should consider two dimensions:

- ✓ a product dimension
- ✓ a geographic dimension in which the product is offered at similar conditions.

From the point of view of product dimension of the relevant market definition process, it can reasonably be assumed that the class of services provided over NGAN will include both the traditional communications services and the new ones. Accordingly, the services that would be provided over NGAN will:

- ✓ In part substitute the existing services;
- ✓ In part not substitute the existing services.

It becomes therefore very important to determine appropriate criteria in order to differentiate the regulation and consequent remedies regarding the new services and those which may substitute the existing ones. These criteria can be based on determining a border to distinguish between the eligibility of a service as "a new one" or one of "legacy". To this aim, NRAs may set an appropriate bandwidth "threshold" over which new innovative services (ultra-broadband services such as IP TV

streaming services) can be provided adequately. The services above this bandwidth, to be updated by NRAs regularly in the market analysis procedure, would be considered as pertaining to a new relevant market and therefore the regulatory intervention may not be justified. As a matter of fact, a regulatory intervention on such services would drastically reduce incentives to invest therefore jeopardizing the migration towards new infrastructures of electronic communications.

We will further address the crucial relationship between existing services, substitute services and new services in a following section focusing on the impact of NGAN on market 12.

The ERG paper admits in its public consultation document that "there is no one-size fits all solution" and that **national realities, or, to be more precise, local geographies,** would define the approach to regulation – or lack thereof – of new access networks. A harmonised approach, where possible, is most welcome. However, TI – while supporting the general goal of a harmonised European internal market of electronic communications would like to point to the different market realities that exist at the national levels. Those differences need to be taken into account when implementing regulation. In this point, we cannot but fully support the statement made by the paper when recognising that the regulatory environment will need to be reassessed by national regulatory authorities taking national circumstances into account.

Moreover, and reinforcing the discussion of "geographical-specification" in the application of regulatory measures, it is recognised that the new access networks and their deployment and the state of competition in the market places would necessarily determine and define the geographical dimension of any given reference market. Market data shows that both wholesale and retail competition levels differ significantly at the sub-national geographic level: in densely populated /wealthy urban areas the level of infrastructure competition is high, while in isolated rural areas generally competition has flourished only at the service level.

In an NGAN world, it is very likely that geographic differentiation of the competition would increase, fundamentally requiring regulation of the sector to reflect the geographic specificities in the remedies both at the retail and at the wholesale level. These would come about through tailored remedies aimed at specific geographic markets with sufficiently homogeneous competitive conditions. TI supports that the relevant **markets could have a geographical dimension inferior to the national extension**.

For all the above-mentioned reasons, TI invites the ERG to revise the draft paper by also addressing in a specific chapter the methodological approach to be followed in terms of market analysis, with particular regards to the very complex step of market definitions in a NGAN environment, including both the product dimension and the geographic one.

Non continuity of the current regulatory framework

Also, as the ERG document recognises – along with national regulators also consulting in parallel on this topic – the **NGAN are not a continuation of what already exists**. On the contrary, they represent a technological revolution that certainly **cannot be regulated as the legacy network** has been regulated so far. Hence, TI is somewhat concerned about the argumentative line of the document under consultation, according to which, a mere modification of the definition of a given and already defined relevant market (with the consequent potential effect of extending the existing obligations on the incumbent operator onto new technologies) could be the answer to the implementation of NGAN. This would certainly mean favouring the "easy" route of trying to replicate the decisions already in place with regard to the copper access networks for the new investments on fibre. TI firmly believes that this approach would not respond to the challenges

posed by new developments, and would risk hindering or impeding new investments and innovation.

It may be necessary to emphasise that any outcome of this process cannot obviate the pillar objective of the European regulatory framework for the electronic communications, that is, the need for regulators to find the right balance between fostering investment and innovation and long term competition.

The current framework is mainly focused on regulating access to the legacy network of former monopolists (i.e. a "mature" network built in a monopoly regime). This choice was made because at that stage of the liberalisation process, alternative infrastructures did not (generally) exist and alternative operators had to rely on the infrastructure of the incumbents to be able to provide services to their customers. Today, there are numerous OLOs that have deployed their own networks and new technological solution already in place (or ready to be deployed). Consequently, regulation of access to the incumbent's future network should not be determined on the same premise as in the 1990s. At this point, the fundamental issue is whether access ex-ante regulation should be applied to a new situation where major and risky investments are required by the first mover (whether it is an incumbent or an alternative operator). This issue does not appear adequately addressed by ERG.

This issue is further discussed in following sections regarding the impact of NGAN on Market 11 and Market 12.

Regulation of enduring economic bottlenecks – Not of Emerging markets

It is TI's opinion that the regulatory approach towards NGAN should be to limit ex-ante access regulation to "enduring economic bottlenecks"[1]. In absence of permanent bottlenecks, the market should not be subject to ex-ante access regulation.

The innovation of the NGAN requires a different treatment with respect to the copper loop. The local loop was an essential facility already in place, built by incumbent operators in a monopoly regime. Therefore the current framework focuses mainly on regulating access to the legacy network of former monopolist since this was considered as being fundamental in opening telecommunication networks to competition.

The situation is completely different now, in particularly with regard to NGAN. As a matter of fact, the perspective development of NGAN changed the regulatory assumption. A legacy advantage (main reason to justify the *ex-ante* regulation) given by a metallic local loop considered as an essential facility will remain only with regard to the so called subloop, a network component being already regulated. Operators will have the choice either to invest or not. Therefore, generally, these new infrastructures should be considered as an investment opportunity and cannot be seen, by definition, as an essential facility. As well known, the European Court of Justice[2] defined a facility as essential in the presence of technical, legal or economic bottlenecks i.e. in the presence of

[1] Ofcom in its Strategic Review of Telecommunications defines an "enduring economic bottleneck" as the part of a network where the economics of alternative supplies are such that competition, through further market entry or innovation, is very unlikely to emerge in the relevant time horizon.

[2] JUDGMENT OF THE COURT (Sixth Chamber) in Case C-7/97 Oscar Bronner GmbH & Co. KG c. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Mediaprint Zeitungsvertriebsgesellschaft mbH & Co. KG e Mediaprint Anzeigengesellschaft mbH & Co. KG,26 November 1998.

technical, legal or economical aspects making it impossible (or unreasonably difficult) for another operator to replicate the infrastructure. Furthermore the European Court of Justice pointed out that:

- it does not represent such an obstacle the fact that an alternative infrastructure is not viable in view of the small circulation;
- a facility cannot be considered as essential when built by a company using its own resources in a competitive marketplace.

As a matter of fact, NGAN - as with other alternative infrastructures based on different technologies - could be deployed by OLOs. The identification of the relevant market subject to regulation has to be conducted taking into account that regulatory interventions, once introduced, are very difficult to remove and strongly distort companies' and consumers' decisions, with long term effects particularly risky in newly emerging markets. Therefore, ex-ante interventions should be called for only when NRAs demonstrate the presence of "essential" or "indispensable" facilities which can not be duplicated or substituted by innovative facilities. Only these kinds of facilities represent a durable barrier to entry which gives rise to market failures that competition law may be insufficient to prevent.

Furthermore, it is worthwhile noting that the future development of NGAN infrastructures will bring along the "shortening" of the distribution network and, therefore, the diminution of the number (and importance) of assets exclusively belonging to the incumbents.

It is exactly for these reasons that TI believes the 3 criteria set by the Recommendation to define a relevant market need to be adjusted in order to better tackle rapidly evolving technologies in electronic communications markets and accelerate the transition from ex-ante regulation to competition law. The current first 2 criteria should be replaced with the existing case-law definition of "durable essential facilities" or "enduring economic bottleneck."

In the following sections we respond to the specific questions asked by ERG in its public consultation.

2. DO THE SCENARIOS DESCRIBE THE RELEVANT ROLL-OUT ALTERNATIVES FOR NGA?

The description of FTTx technologies given by ERG is certainly interesting and TI substantially shares it with regard to its features and potential. Nevertheless, the ERG consultation document does not enter into many details regarding the implementation of such technologies. As an example, ERG does not describe FTTE and, as a consequence, the possibility of coexistence of solutions relying on the present copper access network and solutions assuming active equipment in the street cabinets at the streets and/or by the client premises in certain geographical areas.

More in detail, the ERG consultation document focuses – with regard to the technological aspects – on NGAN scenarios based on a wired network access. On the contrary, the ERG document does not take into consideration - as potential alternatives - technologies such as wireless (i.e. WiMAX) and mobile technologies which could provide fixed-mobile convergent technologies. TI therefore suggests ERG to take into consideration a wider technological picture in order to consider technological alternatives. Such a new picture will clearly show that ERG conclusions on the increase of SMP position and/or bottlenecks on access network in a NGAN scenario would not be demonstrated.

3. DO YOU AGREE/DISAGREE WITH REGARD TO THE CONCLUSIONS ON ECONOMIC AND BUSINESS CASE STUDIES?

TI acknowledges that the ERG consultation document makes a significant effort in chapter 3 in surveying and addressing the implications of NGAN access/backhaul upgrades for the economics of the electronic communications sector. However, TI considers the approach suggested quite limited and the evidence proposed incomplete. Therefore, TI disagrees with regard the overall conclusions on economics and business case studies.

To start with, TI remarks that the overall approach followed in this chapter seems to reinforce the idea expressed in the consultation document that NGAN do not represent a profound paradigm shift in terms of networks architectures, offering of services and market structure, and lead to a reinforcement rather than a fundamental change in the economics of local access networks. This evaluation implies that NGAN developments do not require a fundamental change in regulation, but only adjustments to preserve a level playing field for competition.

Instead, TI believes that NGAN represent a profound revolution where the electronic communications market becomes heavily integrated with information society services with far reaching implications for network architectures, market development, and the need for new approaches to policy and regulation.

Furthermore, the approach followed by ERG in this chapter, is quite limited because it is too focused on wireline access technologies as the only way to provide Next Generation Network services. Instead, the viability of a plurality of access technologies, based not only on wired solutions but also on wireless technologies, such as WIMAX, HSDPA, and converging fixed and mobile technologies seems to be a well established outcome in the industry and also among some regulators.[3]

Moreover, the evidence proposed by the analysis of the business case studies, would seem incomplete, because affected by what can be called the *Incumbent's replication mode.*

In fact, the analysis of the economics of wireline deployments of NGAN, proposed in the consultation document, while recognising that "*different technologies may be deployed in different geographic areas and … that it is likely that the most effective strategy for NGA deployment will utilise a mixture of technologies*" in practice it seems to be lead by the idea that all players in the market should follow the architecture chosen by the incumbent operators. The conclusions drawn by the ERG's document from the analysis of the results of the JP Morgan study are a case in point.

While, as reported in the ERG's document, the JP Morgan study states that "unless *regulation forces the incumbent to provide access to its street cabinet, the option of deploying a VDSL network of their own may not be available to all or most of the ULL operators active today*". The same report clearly suggests that the VDSL solution changes today's ULL paradigm but calls also for new choices from ULL operators. In fact, since the very first page, the JP Morgan report states that in the large scale fibre deployments in Europe, "*the incumbent's choice is VDSL, which is difficult to replicate; the alternative operators choice is FTTH, bypassing the incumbent network altogether*". The JP Morgan study emphasizes that **there is a FTTH business case for alternative operators** in Europe's metropolitan markets, as demonstrated by Iliad in France and NetCologn in Germany. In these cases, where alternative operators have sufficient market share and access to

[3] See on this the CMT (2007), "*Consulta publica sobre redes de acceso de nueva generacion"*.

infrastructure (ducts from the municipalities) paybacks of six years or less can be justified without assuming market share or ARPU gains.[4]

Actually, the limits of the single architecture approach have been well known in the literature since the late 90s.[5] In fact, the single technology solution, such as last century's domination of the twisted copper pair for telephone networks and the coax cable for cable television, is based on the old paradigm that maximizing network efficiency will automatically maximize customer value. Today, this approach is challenged by different factors:

i. different carriers may have different strategies;
ii. there is a much higher level of technological uncertainty associated with the new architectures than in the past;
iii. there is a different evaluation among carriers of the technology evolution;
iv. competition is expected to take different forms;
v. the market appears to be fairly segmented by a range of services and willingness to pay for them.

Furthermore, even the Analysys report for OPTA, emphasizes that subloop unbundling for **VDSL solutions** to around 1000 of the largest street cabinets **in dense urban areas may be economically viable** for an alternative provider with 10% market share under some specific circumstances related to SLU tariffs and reasonable expected ARPU increase.

Therefore, the concept that each player can choose a different technology and architecture to fit its need should be at the heart of NGAN development.

According to TI, NGAN development calls for a much more flexible approach from regulators, based on the understanding of the different technologies solutions available, the different level of infrastructure competition already in place especially in metropolitan areas and the different geographic market conditions in order to limit the potential regulatory intervention only to enduring economic bottlenecks.

Furthermore, TI recognized the importance of "*Other factors impacting on the feasibility of NGA roll-out* " as mentioned in the ERG Document. However, while TI shares the ERG view's that, among operators the right approach to overcoming these barriers is by arrangements based only on commercial solutions, TI suggests looking at a more active role that municipalities can play in making more contestable the access market such as clearing the way to more easily built new infrastructure (symmetrical sharing of all ducts available, etc)[6].

TI recognizes the importance given in section 3 of the ERG document to the issue of insuring that "*potential investors in assets that may constitute enduring economic bottlenecks can be confident that they will be allowed to earn an appropriate rate of return*". In fact, if some wholesale services provided by NGAN will be regulated, after a market analysis based on relevant geographic markets has been conducted, it is of paramount importance to guarantee the right return to the investment consistent with the risky nature of these investments.

[4] This thesis is also supported by a careful reading of the ARCEP FTTH case study in the Annex 3 of the ERG Consultation Document. Unfortunately in the ERG document the viability of the FTTH business case for new entrant is not mentioned at all!

[5] See on this L. Pupillo & A. Conte, 1998, "*The Economics of Local Loop Architectures for Multimedia Services*" Information Economics and Policy 10 (1998) 107-126.

[6] The viability of some of these models is discussed in A. Banerjee and M.Sirbu (2007),"*FTTP Industry Structure: Implications of a wholesale retail split*", Carnegie Mellon University.

As suggested in Williamson (2007)[7] there are two reasons why the investment in NGAN are particularly risky:

1) These networks require a large up-front investment ahead of demand rather than incrementally in response to demand ;
2) Investors tend to evaluate telecoms' investment assuming no revenue uplift from new services will be available, but only cost savings from the adoption of the new technology.

However, TI believes that ERG should be more proactive in suggesting the adoption of different ways to better remunerate the capital invested in NGAN. As suggested in OFCOM (2006)[8] there are many ways to accomplish this goal. Actually, TI believes that an interesting approach could be to use different methodologies for different wholesale services to be regulated in order to take into account the differences in terms of risk between regulated wholesale services. TI believes a different approach should be adopted for new technologies and services, provided by these technologies, requiring new networks architectures and therefore **a long term plan** of investments.. A forward looking approach should be applied and therefore the cost capital remuneration can not be based on "traditional" assets and associated risks .
As a result, TI believes that the remuneration of capital invested in NGAN requires a particular emphasis due to the relevant amount of investment that could be required in a long term prospective and the significant impact on the market in terms of services and competition. Therefore, TI believes that the Real Option approach could be used for the remuneration of NGAN capital invested. However, is important to underline that the cost of capital for NGAN shall be considered separately from that of copper-based networks ("traditional" assets) in order to obtain an higher cost of capital remuneration for NGAN.

4. WHAT IS YOUR OPINION ON THE REGULATORY IMPLICATIONS AND ON THE EVOLUTION OF THE LADDER OF INVESTMENT? ADDITIONALLY PLEASE PROVIDE MORE SPECIFIC COMMENTS REGARDING THE ISSUE OF MULTICAST CAPABILITIES AND THEIR REGULATORY TREATMENT

In this section we concentrate on the following issues addressed in chapter 4:

a. Impact of NGAN on market 11;
b. Impact of NGAN on market 12;
c. Regulatory implication of the FTTC scenario;
d. Regulatory implication of the FTTH/FTTB scenarios;
e. Evolution of the ladder of investments

a. Impact of NGAN on market 11

TI believes that current Market 11 definition should not be expanded to cover fibre optic. It should continue to relate only to the legacy network based on copper. Only those elements of the legacy network that are absolutely necessary to offer new services shall be included as obligations to the SMP operator.

[7] B. Williamson (2007) "*Risk, reward and efficient investment in access networks*", Indepen Consulting.
[8] OFCOM (2006), " *Regulatory Challenges posed by next generation access networks*".

TI also points out that in case in a given country competitive conditions indicate the need for regulatory intervention on specific components of new fibre networks, NRAs could certainly broaden current definition of market 11 as established in the so-called Article 7 procedure. Such an approach would certainly be more appropriate to address a specific competitive problem in a given country than an overall change of market 11 definition in the forthcoming Recommendation on Relevant Markets. In addition, the revision, if any, of the definition of market 11 at the national level would also allow the identification, if required, of specific geographic markets.

On a related topic, ERG document addresses the issue whether availability of the incumbent's ducts should be included as an ancillary service within the market 11 related obligations. TI reiterates that incumbents should only suffer access obligation on those elements of the legacy network that are absolutely essential to offer new services. These, if proven necessary, could include ducts. Anyway, in order for an asset to be considered as a legacy one it has to show both these two features: 1) they must be in concrete exploitable for the deployment of new access infrastructures; 2) they should be enduring economic bottlenecks. However, availability of ducts should not be included as an ancillary service imposed as an obligation on the incumbent. TI favours commercial agreements. Only in the case that the parties should not reach an agreement, the Authorities may intervene by establishing symmetrical obligations. This means that the intervention would be on all capacity/ducts available in the market place.

b. Impact of NGAN on market 12

ERG statement that Market 12 definition does not need to be amended as it already covers all technologies is simplistic and does not enter into a profound analysis that the new technological and market scenarios would require.

In particular, ERG document fails to include an analysis of the market developments. In this regard, it specifically fails to analyse the divergent possibilities regarding the future potential regulation of market 12 in the light of the services that could be provided over improved or updated infrastructures differentiating between: (1) existing services that could also be provided over new infrastructures, (2) substitute services to the existing ones that are to be provided over the new infrastructures and (3) new services that are provided over the new infrastructures.

Only the first case should lead to the potential imposition of the already existing obligations on the legacy network. In that case, it could be understood that offering a service over a new infrastructure would not justify the imposition of different obligations to the general obligations associated with the relevant market to which the existing service pertains. In the second case, before deciding to impose new obligations on the new networks, Authorities should evaluate the sufficiency of the imposed obligations only on the legacy network elements. As for the third case, TI believes that the novelty of the new retail service would lead to the non imposition of wholesale obligations on the new infrastructures. The latter conclusion should clearly hold irrespective of whether the new service is considered in market 12 or outside of it (i.e. the correct decision).

TI insists that the above taxonomy should be carefully considered by ERG, as well as by national Authorities before taking any decision regarding the adjustments required in market 12 in order to take into account the emergence of NGAN.

As regards multicasting, ERG seems to consider it as a feature similar to bitstream on Ethernet technology and, therefore, included in market 12. As a matter of fact, multicasting is closely linked to the distribution platform of IPTV content and not to the provision of broadband services.

Therefore, should NRAs decide to regulate multicasting, this service should be deeply analysed in market 18.

c. Regulatory implication of the FTTC scenario

In the following paragraphs we will address the main regulatory concerns raised by this scenario focusing on the following issues:

- ✓ Co-location at the street cabinet;
- ✓ Backhaul/duct sharing;
- ✓ Migration.

Co-location at the street cabinet

ERG points out the scarcity of space for co-location in or by street SMP operators' cabinet bringing along the need to plan in advance the dimension of cabinets with consequences in terms of timing, co-location costs and allocation principles. The co-location issue (as presented by ERG), therefore, brings along the choice between the following three options: i) obliging the SMP operator to reserve space in its own street cabinets reducing delivery time for co-location; ii) obliging the SMP operator to provide additional space after the deployment; iii) the option of locating competitors' equipment in new cabinets near to SPM operators' ones.

As already stressed, TI deems the innovation of the NGAN to require a different treatment with respect to the copper loop. Not being an essential facility but an investment opportunity (nevertheless risky), which would entail issues such as limited space in cabinets, uncertainty regarding returns on these investments, TI believes a different solution (rather than the one provided in the new regulatory framework in order to grant access to local loop) should be adopted. Since TI deems important for the flourishing of infrastructure based competition that each operator (included SMP operators) projects and build new street cabinets for NGAN, we strongly believe that it should be envisaged – as best option - the installation of a new OLO's street cabinet near the SMP's street cabinet.

However, should the co-location be possible, TI believes that there should not be an obligation on both SMP Operator and OLOs to provide the co-location service but this service should be left to commercial agreements with other operators.

As a matter of fact, the LLU experience pointed out that unbundling was not required by alternative operators for all local exchanges but for a limited portion of them. We can assume that such a situation could be replicated also with regard to NGAN. Therefore, requiring SMP operators to reserve space in their own street cabinet would not grant efficiency.

In fact, the number of operators which an operator could host per cabinet will necessarily vary in relation to the area involved (cabinets in an urban area will certainly be more attractive to a large number of operators rather than cabinets in rural areas due to a greater density and consequently to the possibility to reduce connection costs). This implies that a one size-fits-all solution cannot be adopted since – otherwise – there would be cabinets with more (unused) capacity then needed, and more capacity means higher costs and a huge environmental impact, which not all municipalities could accept (let us imagine what a big cabinet would mean in front of Santa Maria Novella in Florence or in little medieval towns). On the other hand, differentiating the number of operators each cabinet could host would be inefficient for the operator who could not rely on economies of scale with regard to the planning and buying of the new cabinets.

In addition, TI also points out that - apart from the difficulty of imagining co-location obligations in an uncertain market scenario in which operators still have undefined technical conditions for services and have not yet signed a related contract - co-location based on commercial agreements would help operators to test the interest of other operators in the possibility of sharing the cabinet (therefore allowing the operator to plan its network in advance) and would allow alternative operators to share the costs of cabinets.

As a matter of fact, the sharing of infrastructures (cabinets as well as ducts) left to commercial agreements is certainly possible and there are clear examples in this sense. In Italy, for example, there is no obligation to share mobile infrastructures; notwithstanding, H3G and Wind recently signed an agreement to share their radio base stations and thereby cut costs.

TI contends that the best solution would therefore be to leave the co-location to commercial agreements amongst operators while requiring the operator who would build the cabinets to provide them with the facility of interconnection..

Only in the case that commercial agreements fail, TI believes that an obligation of negotiating co-location could be imposed. Either way, we deem this obligation to be **a symmetrical obligation** on every operator having infrastructure. As a matter of fact, if the reason for such an obligation is to open cabinets of an operator being considered as non replicable, it follows that such a symmetrical obligation should be imposed on every operator owning its street cabinets.

Backhaul/duct sharing

The same issues we outlined regarding co-location arise – to some extent - for ducts. TI is absolutely in favour of the possibility of sharing ducts and backhauls: on top of all environmental aspects, town planning issues (in order to minimise inconvenience to inhabitants), legal barriers (local authorizations), backhaul and ducts are deemed to represent the largest component of investment costs for NGAN**.**

TI believes that the possibility of sharing ducts should be left to commercial agreements amongst operators. In fact, such infrastructure cannot be considered to be the exclusive asset of incumbent operators. *[… Omissis*

This clearly shows that there are other subjects that are able to provide infrastructures enabling NGAN. This is therefore a market where commercial agreements amongst the playing actors are certainly possible. The Italian regulatory experience confirms our assumption. In fact, while articles 86 and followings of the Italian Code of electronic communications regulate the building, co-location and sharing of passive infrastructures, article 89 states that the Italian NRA shall encourage co-location and sharing of such infrastructures. As a matter of fact, the Italian regulatory framework clearly points out how co-location and sharing of infrastructures by means of commercial agreements (therefore in a joint and symmetrical way) should be favoured. On this basis, we can affirm that the Italian approach seems to be in no way oriented to an (asymmetrical) ex ante regulation of these infrastructures. Furthermore, TI fully shares this view and strongly believes that commercial agreements between operators are certainly the right route to address the issue of duct sharing.

On the other hand, only in the case that commercial agreements should fail, an obligation of duct sharing should be imposed. Also on this issue the Italian regulatory framework – which TI, would like to recall – is absolutely advanced. As a matter of fact, article 89 par. 2 of the Italian Code of electronic communications states that– when there are not valid alternatives due to the need to protect the environment, the public welfare, the public security or for purposes of urban or rural planning - the Italian NRA may impose co-location or sharing of infrastructures **symmetrically on all operators** managing electronic communication networks. TI strongly believes in this approach and supports an eventual modification of article 12 of the Framework Directive in this direction.

Therefore, such obligation should be symmetrical in order to grant all operators access to infrastructures which are not only those of historical operators. Since the availability of third parties infrastructures, enabling NGAN is widespread (as pointed out with regards to the Italian experience), TI's stance on these infrastructures is therefore, at least in some geographic areas, absolutely similar to that of alternative operators. As a practical example, we can point to the agreement reached in Milan where TI is buying capacity from Metroweb since the capacity of its own infrastructure is not sufficient. Being obliged to resell such a capacity in virtue of its SMP position would certainly be inappropriate and not proportionate.

Moreover, TI believes that such a regulatory intervention should take into account not only all the infrastructure of telecom operators but also that built by other utilities (such as electric companies, aqueducts, sewer trunk lines, municipalities). In this connection – and following the French example – the opportunity given by the development of NGAN should be taken in order to urge a correct regulatory policy for the development of infrastructure.

Therefore, a regulatory intervention should be considered as the second best (i.e. only when a failure in commercial agreements is ascertained) and in this case it should be (symmetrically) imposed on all operators (i.e. historical as well as alternative operators, telecom operators as well as other utilities).

In addition, it is worthwhile noting, as such symmetrical obligations are often already imposed (on local a basis) by various municipalities. Therefore, providing NRAs with the possibility of introducing asymmetrical regulation could raise problems of harmonizing local and national regulation.

From a different view point, it would be interesting to understand how such an asymmetrical obligation could be imposed. The ERG in its consultation document on Regulatory Principles of NGA assumes this obligation as possibly being part of market 11. Actually, TI believes this is not appropriate, since this would lead to asymmetrical obligation as highlighted before. However, in

case asymmetrical regulation were deemed to be necessary, TI would favour the identification of access to ducts as a separate new market with a geographic segmentation set by NRAs in order to allow all local specificities to come up. As a matter of fact, the deployment of NGAN will enhance even more the geographical specification of the access market since the economics of such a network will vary in relation to the adopted technology as well as the features of geographical areas (density of population, expected revenues, existence of infrastructures already available, such as fibre, ducts, …)

Migration

Historical operators abandoning traditional assets in the near future should be considered as the natural consequence of technological evolution as well as of the natural obsolescence of copper based technology. This evolution will clearly involve all the operators willing to be competitive on the electronic communications market. Such a complex process will cause modification of present technological assets for all operators involved with the consequential need to coherently bring technical solutions and business choices up to date.

Therefore, roll-out of NGAN by the incumbents will certainly have an effect on the OLOs and their current situation in the market place since they still rely on some infrastructure elements of the existing copper access network of the incumbent. Clearly OLOs have carried out investments in infrastructure over the past years, which should be taken into account carefully.

In general we believe that most of historical operators will orient the introduction of new generation technological platforms to an "overlay" approach: new technological platforms will stand by present infrastructure. This means that the transition to NGAN will not be a disruptive process.

This process will certainly require forms of coordination among operators linked to the shift from unbundling to sub loop unbundling as well as to the development of own access networks.

Nevertheless, as shown by the Swedish and the Dutch experience (in which PST and OPTA suggest – as desirable solution - agreements between the historical and alternative operators), solution to migration issues should be solved by market driven deals. As a matter of fact, regulatory interventions would run the risk of distorting competition therefore deterring possible investors.

d. Regulatory implication of the FTTH/FTTB scenarios

TI recognizes that both civil engineering costs and in-house wiring could be possible barriers affecting the roll-out of FTTH/FTTB networks.

Civil engineering costs

As regards civil engineering costs, they represent the most relevant cost factor in a FTTH/FTTB scenario. Accordingly, access to existing ducts, owned by a number of different operators or municipalities and suitable for fibre deployment, can significantly reduce the overall costs.

As already expressed in the previous section regarding the regulatory implications of the FTTC scenario, TI is absolutely in favour of the possibility of sharing ducts and backhauls. Nevertheless, TI does not agree with the proposition of duct sharing as a remedy to widened market 11. Such a proposition would lead to an asymmetrical obligation of sharing on historical operators (generally

being dominant in the copper access market) leaving aside alternative operators (having often – as testified by the Italian experience - fibre access networks) or municipalities.

TI reiterates that the possibility of sharing ducts should be left to commercial agreements amongst operators. As a matter of fact, there is already a market for ducts with a significant number of players (regarding the Italian situation, please see chart in the previous section) and we are already experimenting a form of sharing of infrastructures on contractual basis in the mobile communications sector. Therefore, there are no reasons to believe that such commercial agreements in this field should not work.

Only in the case of commercial agreements failing, the imposition of an obligation of ducts sharing would be justified. Such a regulatory intervention should in any case be (symmetrically) imposed on all operators: (historical operators as well as alternative operators, telecom operators as well as other utilities) as suggested by ERG in Section 4.4.3.2 of the consultation document. As already pointed out, this possibility is foreseen in the Italian regulatory framework (art. 89, par. 2 of the Italian Code of Electronic communications) and we also deem that art. 12 of the Framework Directive should be reviewed in this direction.

Should ERG opt for duct sharing as SMP regulation TI reiterates that access to ducts should be considered as a separate new market (rather than part of market 11) with a precise geographical segmentation in order to allow all (local) specificities to emerge. As a matter of fact, not to consider it a separate market, would lead (as mentioned above) to asymmetrical obligation on historical operators having SMP on the overall (widened) market 11 but not on the overall infrastructures enabling NGAN. This would lead to a double effect: i) imposing inappropriate and non-proportionate remedies on historical operators and ii) impeding the community from enjoying the benefits which stem from other operators' (or utilities' or municipalities') infrastructures.

In-house wiring

Also with regard to in-house wiring, TI contends that the best option is to encourage market forces to find out right balance. Infrastructure sharing can be the result of freely negotiated agreements rather than the result of a regulatory intervention. Again, TI points out that only in case of market failures the second best option is to address the in-house wiring issue by means of symmetrical regulation. In other words, each operator owning the in-house network, should offer the access to its house network.

In case of FTTH, ERG also suggests that the sharing of in-house wiring might also entail that "*any first operator reaching a building grants access for all its competitors at a node consisting of a kind of optical distribution frame, at which level every end user connected is linked in point-to-point optical fibre*" (page 39 of the ERG consultation document). TI believes this condition could be established either by means of agreements between operators or by means of symmetrical regulation.

[… Omissis …

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As regards the possible modifications of markets 11 and 12 brought about by the roll-out of FTTH/B networks, TI makes the following comments.

Market 11

Even in the framework of a FTTH/B scenario, the extension of the market 11 definition, at the level of the EU Recommendation, so as to include fibre optics would entail a wave of unnecessary asymmetrical regulation on SMP operators rolling out their NGAN. We stress again that any competitive problem that may stem from the deployment of the NGAN should be tackled at the national level by NRAs by means of the existing European consultation procedures.

In particular with regard to the FTTH scenario, we stress that all the additional obligations regarding a possible unbundled access to the optical local loop (envisaged by ERG on the ground of the "extended" definition of market 11) may negatively affect the rolling out of NGAN since the burden of these measures would be borne solely by SMP operators. Instead we reiterate that such a regulatory approach is essentially wrong since it neglects the existence of other fibre networks that could play a fundamental role in the transition towards NGAN especially in metropolitan areas.

[…Omissis …

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Market 12

Even in the framework of a FTTH/B scenario, TI insists that it is not sufficient to state, as put by ERG, that "*Market 12 does not require a change of the Recommendation as by definition it comprises already now all kinds of wholesale broadband access products*". We insist that a more rigorous market assessment is required. To this end we stress that NRAS have to investigate the complex relationship between existing broadband access products, substitutes broadband access products and, finally, new broadband access products. This taxonomy, as already argued, has a number of relevant regulatory implications. In particular, TI contends that in no case a regulated, if any, wholesale bitstream offer for access based on FTTH/FTTB should include new broadband access products (i.e. services which are not substitutes of the existing ones)

e. Evolution of the ladder of investments

The flexibility of the existing regulatory framework should aim at encouraging investment and innovation. It is for the NRAs to solve the "*trade off between protection of consumers in the short term (lowering of the prices today) and protection of their interests in the medium to long term (greater choice and innovation, as well as lower prices, through more sustainable competition tomorrow)*" (European Commission Staff Working Document for the Review). It has to be underlined that opting for one or the other approach implies a choice between two different regulatory strategies: (1) price based competition and (2) infrastructure based competition.

TI favours infrastructure based competition and supports the view of ERG that it is "*associated with greater dynamic efficiency given the prospects for innovation. Competition over competing infrastructure has many advantages.*"

Telecom Italia believes that the extension of the application of the ladder of investment tool to NGN should not be envisaged in a mechanical way simply in order to reproduce the same level of access rugs that are available at this stage of the implementation of the current framework (ULL, subloop, WLR, bitstream, backhaul, …) to new investments[9].

In this framework, TI supports the ladder of infrastructure investment also in the context of NGA.

TI agrees with the NGA ladder of investment presented by ERG. As the business case studies reviewed by ERG point out, in given geographies new entrants can indeed climb up the ladder of investment either by means of FTTCab investments or by moving directly towards FTTB/H technologies.

Finally, TI also suggests that ERG presents the "NGAN ladder of investment" by further stressing that for a specific operator the ladder of investment could be substantially different depending on the economics of NGAN in specific geographic areas.

[9] As Martin Cave recently pointed out: "*Thus current ADSL competitors will be shortly be confronted by the challenge of new network architectures based on IP and fibre. Access options will change, possibly offering a difficult choice between reverting to something akin to resale (which might be withdrawn) or a major investment in a competing fibre. It would be a mistake for regulators to perpetuate the current known world of bitstream, full loop unbundling etc. in the presence of such a disruptive change.*" (Martin Cave, "The regulation of access in telecommunications: a European perspective" mimeo - Warwick Business School, University of Warwick, UK, April 2007).