



KPN response to the European Commission's public consultation on a revision of the recommendation on relevant markets

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Introduction

The appropriate identification of relevant markets susceptible to ex ante regulation is key to the overall functioning of the EU Regulatory Framework. It allows the National Regulatory Authorities (hereinafter, "NRAs") to focus their efforts on markets where competition is not yet effective and which are crucial for Europe's competitiveness.

The Commission itself recognizes that the Regulatory Framework is to reduce *ex ante* sector-specific rules progressively as competition in the market develops, and the Recommendation is an important tool in adjusting the regulatory policy to rapid technological change and market developments. The current Recommendation is not having that effect, however. Therefore, KPN encourages a new Recommendation since it recognizes that a stable and pertinent list of relevant markets is useful in view of legal predictability and thus stable business planning.

At the time of the last Recommendation in 2007 the electronic communication markets were characterised by three very distinct retail markets namely fixed telephony, broadband and television. At that time, copper still was the main infrastructure to offer these services. Since this last Recommendation, however, three important drivers have had a great impact on the electronic communication markets in the Netherlands. Namely technological changes, demand changes and the entrance of new players. KPN will develop in short how these three drivers are having a major impact in the electronic communication markets in The Netherlands.

- ./ KPN also refers to a recent article by TelecomPaper (attached hereto in annex 1) where it is clearly described what kind of (competitive/market) environment the main operators are confronted with, potentially all over the EU, but in any case in The Netherlands.

Driver 1: Demand

The demand for bandwidth will continue to increase. The Dutch institute TNO predicted a 30% annual increase of bandwidth. Up to now, that figure seems conservative rather than optimistic. The bandwidth demand is driven by applications that require more bandwidth and more devices per broadband connection. There is no indication that this growth rate will become slower in the foreseeable future.

The quality of consumer broadband lines is steadily increasing and therefore consumer quality broadband lines are becoming more and more an alternative for traditional business services, such as leased lines. One refers to this phenomenon as 'consumerisation'.

In the consumer market, a trend that has been going on for several years is the migration from separate single-play services to multi-play bundles; the bundle trend. Especially the triple play package consisting of TV, internet access and fixed telephony grows very fast. In this bundle, TV plays the most important role in customers choice, followed by the internet bandwidth. Fixed telephony hardly plays a role in the decision process of the consumer when it is considering to contract for a bundle of services. Since the cable companies (coax network) in The Netherlands have a better market position both in TV and in high-speed broadband internet, this bundle trend leads to a migration from copper to cable. Furthermore, the popularity of triple-play causes switching barriers for end-users. The marketing of all providers is in fact aimed at contracting consumers for an All-in-one package with internet, fixed telephony and television, while the provider does not assume this bundling when consumers terminate their contract. When a consumer terminates its broadband and fixed telephony contract through its new provider, then this termination does not automatically apply to television. This frequently leads to confusion, irritation and complaints by consumers.

Driver 2: Technology

Because of the technological upgrade of the coax networks these last few years in The Netherlands, these networks are now able to offer the same retail services as the copper network. This has led to intensive competition between networks specifically in the broadband market. And one can now say that there is a race between copper and coax which drives investments in access networks.

The coax network is beyond doubt in the lead with DOCSIS 3 technology speeds in excess of 100 Mbit/s with a more than 90% coverage in The Netherlands. Recent research by the Dutch institute TNO shows that speeds of up to 10 Gbit/s are possible on the coax networks without replacement of the passive infrastructure.

In an attempt to keep up with the cable on access speeds and television services KPN has invested a significant amount of money in the roll-out of FttH networks, with its joint venture Reggefiber. KPN considers FttH as the ultimate access infrastructure since the bandwidth that can be delivered on fibre is only limited by the active equipment and not by the passive infrastructure. The nationwide roll-out of FttH is, however, a long term objective that cannot be reached in the short term.

In the meantime, to remain competitive, KPN invests in the upgrade of the copper network (for example pair bonding, vectoring, phantoming). The possibilities for upgrading copper from the MDF are, however, limited so upgrading copper almost automatically means bringing fibre closer to the end user. The consequence is that the access nodes are becoming smaller while the investments per node are increasing. This makes the business case very challenging for all players on the copper network. KPN does not believe, therefore, that physical unbundled access to copper networks is future proof. On the contrary, the current regulation on copper networks will increasingly become a burden for innovations such as vectoring and phantoming.

Driver 3: New players-entrants

An increasing number of new players are entering the market for electronic communication. Over the top (OTT) services are delivered to end user over the open internet. Some of these services are competing directly with traditional services. Examples such as Whatsapp and iMessage compete directly with SMS and a number of VOIP services compete directly with traditional telephony services.

Also established players in other markets are entering traditional telecom markets. Microsoft for instance introduced "Microsoft Lync" over the open internet; a communication service that competes directly with traditional telephony services. Microsoft also owns Skype, a well-known OTT telephony solution. Facebook recently announced to make it possible for its users to call each other free of charge, which – given the large number of Facebook users - creates a strong and direct competition. For these OTT services, there is no need for national presence any more. Services delivered in one country, such as The Netherlands, can be hosted anywhere in the world.

There is a shift in the value-chain where less value is added by the telecommunication service providers and more value is added by equipment manufacturers like Apple on the one hand and content providers on the other. In this process, bandwidth is becoming a commodity with low added value.

The above mentioned three drivers have had and are having an enormous impact on the electronic communication markets. The current Recommendation does not take these drivers into consideration. It would seem that the current Recommendation might even lead to operators such as KPN being regulated on its copper network forever, even in spite of tough competition and though the market does not require regulation or a different form of regulation. KPN noticed for example that in the latest market analysis by OPTA the Recommendation was somewhat leading in the decision for OPTA to impose regulation on KPN and not on the cable, even though the cable in The Netherlands has a combined market share which is equal to that of KPN on the broadband market. In the television market the cable has a significant market share of more than 60% but since this market is not on the Recommendation no remedies were imposed even though television is the driving force in the increasing demand for triple play bundles.

Therefore KPN encourages a new Recommendation that takes into consideration at least the three drivers mentioned here above. KPN believes that if the above drivers are taken into consideration the new recommendation will lead to a technological neutral and simplified recommendation. KPN foresees a recommendation where there is one fixed access market that includes all forms of technology (a combination of the current markets 4, 5 and 6) and potentially still two terminating markets (mobile and fixed) (current markets 3 and 7).

Question 1:

What are the technological developments in the electronic communications sector at the EU level as of 2007 that have an influence on how the markets should be defined in the revised Recommendation from an ex ante perspective?

KPN would like to note first of all that most technological developments that have taken place in the electronic communication markets these last few years have been caused by an increase in competition between platforms. Platform competition has been the main driver for network providers to invest and upgrade their network. According to KPN the technological upgrades of these last few years have led to the following market effects:

- **Technological upgrades since 2007 lead to no single dominant network**

At the time of the last recommendation one could still notice a certain discrepancy between network infrastructures based on their technology. For example fixed telephony and internet access services were mostly transported over a copper network and television signals over a coax network. Since 2007 technological upgrades and developments have led to the fact that networks, such as fibre (FttH/FttC), cable, LTE and copper are now able to offer the same retail services. Today there is no single dominant network for a specific retail service such as fixed telephony, broadband or television services. All retail services can be offered over different network infrastructures and there is infrastructure competition.

Additionally, satellite and Wi-Fi broadband connections will deliver increasingly higher bandwidths. Both technologies will therefore remain an important alternative for broadband access especially in less densely populated areas.

- **Due to technological upgrades since 2007 copper is not the leading network regarding bandwidth**

Fixed NGA networks and cable on basis of DOCSIS 3.0 provide already today bandwidths in The Netherlands of 100 Mbit/s and more. Recent studies by TNO show that the current passive hybrid coax/fiber infrastructure is capable of delivering access speeds up to 10 Gbit/s. On the long run, only FttH is capable of achieving similar access speeds.

Technological upgrades of the copper networks are on-going, these upgrades try to make sure that the gap between cable access speeds and copper access speeds are not increasing further. Most of the copper innovations require fibre to be pushed further towards the end

user as higher speeds over copper require shorter copper loop lengths and smaller nodes¹. This trend towards higher copper speeds is also challenging with respect to spectral issues. Higher copper speeds require higher copper spectrum to be used which leads to higher levels of crosstalk. Another important spectral issue is the simultaneous use of copper from the MDF and copper from the SDF (or any other location closer to the end-user). These spectral issues require compromises between all users of the passive copper network and limit the innovation options available to the copper network.²

Until 2020 it is expected that fixed NGA will cover 72 % of households in Europe.³ In regions where fixed NGA networks are not available LTE advanced can be an essential driver of high-speed broadband if sufficient spectrum is provided. Estimates show that by 2020 LTE advanced will have the same coverage as 3G networks today.

This has a significant impact on how one should take into consideration a new Recommendation regarding relevant markets. The copper network was the leading network that led to regulation back in the days and therefore has always been seen as a starting point when considering market definitions. Given the technological developments in other networks, such as cable, and the advantage that especially cable networks have over copper networks it is no longer logical to use copper networks as a starting point when drafting a new Recommendation. The variety of networks that are capable of NGA access speeds as well as the fact that the copper network is no longer the most suitable network for NGA access speeds require a different – technology neutral⁴ – approach in the recommendation. A technology neutral Recommendation helps in adjusting the regulatory policy to rapid technological change and market developments.

- **Technological developments since 2007 lead to a blurring of wholesale markets**

Historically market 4 regulation was based on the presence of a point-to-point copper architecture where access could be delivered in MDF locations. Since a typical MDF location provides access to more than 5.000 subscribers, a business case for unbundled access appeared viable. Access to point-to-multipoint (coax) networks has never been considered since cable companies were considered to be challengers, rather than dominant incumbents.

With the announcement by some incumbents of the roll-out of passive optical networks (PON), the question has been raised how market 4 access can be implemented in these type of networks. It also became apparent that the business case for SDF access in copper networks is not obvious. Recent technological developments in copper networks like vectoring and phantom mode appear to be incompatible with physical unbundling. For these situations, a temporary solution was found in the form of virtual unbundling. Virtual unbundling is, however, only a special form of wholesale broadband access so the distinction between market 4 and market 5 is becoming less clear.

Also the distinction between market 5 and market 6 becomes blurred since Wholesale Broadband Access networks can be used to build leased lines. Since the delivery of leased lines no longer requires a separate network, supply side substitution leads to a blurring of markets 5 and 6.

- **Technological developments since 2007 lead to increasing role of internet based service and content providers**

¹ A technology like vectoring is in general only useable from the SDF. The number of lines from a typical MDF is too large to be processed in a typical vectoring configuration.

² The technical consequences of unbundling in relation to new techniques on copper networks are described in a TNO expert report. See: Unbundling issues, when boosting DSL bandwidth up to vectoring, dr. Rob F.M. van den Brink – TNO:
http://www.joepeesoft.com/Public/DSL_Corner/Docs/Presentations/PUB_2011_05_DSL_Seminar_SpM_Brink.pdf.

³ Expert report by Analysys Mason, page 30.

⁴ For instance market 4 regulation should be neutral with respect to the operator choice between a point-to-point architecture and a point to multipoint architecture.

Due to technological developments internet-based service provision has increased on an all-IP infrastructure. This reinforces competition even more as the underlying networks become less relevant for the services offered especially on consumer markets. OTT players increasingly provide products such as VoIP, messaging and media content over any network. Moreover, contents and services are and will be available at anytime, anywhere and on any device. Internet-based services have a major impact on the degree of competition in electronic communication services markets.

Question 2:

What are the changes in structure and functioning of the relevant markets (e.g. supply and demand side developments, bundles, convergence, geographic scope), which should be reflected in the revised Recommendation from an ex ante perspective?

- **Demand side changes**

Demand for bandwidth has increased yearly and will continuously increase. KPN refers here to the TNO rapport in which it is stated that increase in broadband with demand will increase 30% per year. Another characteristic of the retail demand is the increase in demand for triple play bundles. The Netherlands has already more than three million triple play subscribers.⁵ Television is the predominant driver for the consumer when choosing a bundle from an operator. Fixed telephony is increasingly just an add-on in the triple play bundle. The reason why fixed telephony is mostly seen as an add-on has to do with the fact that there are other relevant substitutes for fixed telephony such as VoIP and mobile telephony. The retail demand for fixed telephony services is therefore not only less and less relevant in a bundle but demand for it as a separate retail product is also decreasing.

The following statement from a recent research regarding bundles by TelecomPaper confirms these facts:

“At the end of September 2012, the Netherlands had 3.44 million consumers subscribing to digital TV, broadband and fixed telephony from one provider. The majority uses cable infrastructure, but FTTH and DSL are catching up. Ziggo with 40 percent and UPC with 25 percent are the largest triple-play providers, but they have been losing market share to KPN and other providers. Growth in triple-play is expected to continue in 2012, although at a slower pace, as 71 percent of digital telephony subscribers and more than 50 percent of broadband subscribers already have triple-play subscriptions. “

TelecomPaper Research, Dutch Triple Play Growth slows to 3,7% in Q3 2012,

Another relevant demand side trend is ‘consumerisation’, because of technological upgrades the achieved broadband width for consumers is for many business customers fulfilling their demand. Which means that more and more business customers choose broadband packages that are initially intended for the consumer market.

Finally one should also notice that consumers when choosing a specific retail product such as broadband, television or in some cases fixed telephony or a bundle of these, is not interested in the network over which these services are offered. A consumer is indifferent whether his broadband is offered over a copper, coax or fibre network. A consumer will base his choice on the specificities of each product and customer service/quality. This aspect is important because it accentuates the fact that the new Recommendation should take technological neutrality as a basis when defining markets.

All these demand changes have impact on how one should look at retail market definition. Keeping a strict delineation between fixed telephony, television and broadband is already outdated or will be outdated in the near future. Furthermore, regarding a new Recommendation one should ask himself what is the relevance of fixed telephony in the near future

⁵ See Telecompaper, Dutch Triple Play Growth slows to 3,7% in Q3 2012.

and will other applications have taken over the function of fixed telephony as we know it today.

- **Supply side changes**

Since 2007, the Netherlands has seen an increase in the number of new market players. Most new entrants have entered the market with their own infrastructure/network (Eurofiber, Relined, and many local fibre initiatives) or have upgraded their own infrastructure as to be able to serve different retail markets (cable).

These new entrants have not always rolled out their network fully (yet), which leads in some cases to an increase in difference in the amount of players per area. Competition becomes geographically segmented.

But as stated not only new/upgraded networks have led to an increase in the amount of market players, but also other suppliers have come to play an increasing role in the electronic communication markets. OTT players, such as Microsoft, Google and Apple and other content players play an increasing substantial role in the way the electronic communications markets are shaped. These new OTT players make the current market 1 and market 2 of the recommendation not relevant anymore.

Question 3:

Can you identify any market bottlenecks which in your view cannot be addressed by ex ante regulation via a revision of the Recommendation alone? How in your view can such market bottlenecks be addressed?

The following bottlenecks that are playing an increasing role in the electronic communication markets and that cannot be solved by a revision of the Recommendation alone are the following:

- **Economic cycles.** The current crisis has a major impact on investment possibilities for telcos. Regulation up to now always has stimulated new entrants into investing. However, now that the market has matured one should maybe also take into consideration when regulating electronic communication markets how NGA investments by incumbent operators can be safeguarded specifically when there is an economic crisis. Such an issue could be addressed in the manner how remedies are imposed.
- **The role of content providers (Google/Apple/Microsoft/Facebook).** The Recommendation focuses on electronic communication markets. However, as pointed out in the answers above there are different forces that cause bottlenecks that are not addressed in the Recommendation or via other regulation. Content is becoming more important and therefore content providers such as Google, Apple and Microsoft can have an enormous impact on the electronic communication markets. Issues such as refusal to supply or discriminatory practices by content providers, for example, can have disastrous effects on network providers. These bottlenecks should be resolved by ex post competition policy. That means, however, that a significant amount of issues that are resolved through ex ante policy could and should also be resolved by ex post competition policy.
- **Regulatory flexibility.** Although KPN is in favor of a new Recommendation because it can solve problems regarding inflexibility, KPN would also like to note that the current Recommendation is not easily adaptable to quickly changing markets, which is the case when regarding electronic communication markets. This therefore is a bottle neck of the Recommendation itself.

Question 4:

In your opinion, is the three criteria test, as defined in the Recommendation, an appropriate instrument in defining the relevant markets susceptible to ex ante regulation or would alternative means to identify relevant markets be more suitable?

Yes, the current three criteria test is an appropriate instrument.

Question 5:

Should, in your view, criteria be added or removed from the list or should the criteria be formulated in a different manner? Should additional guidance be given to the existing criteria?

The three criteria for identifying whether a market qualifies for SMP-based asymmetric regulation have overall proven to be sound.

An emphasis should be put on ensuring a thorough, forward-looking assessment of the criteria both by the Commission and also by NRAs at national level.

One aspect that should be taken into consideration when somehow reviewing the three criteria test is the way it is applied. It seems that some random comes into play when applying the three criteria. Also the time horizon that is applied for each criteria is not clear. Some more specificity regarding the criteria could be considered.⁶

Question 6:

How, in your view, can legal certainty be best ensured in identifying the markets susceptible to ex ante regulation?

Legal certainty is already ensured regarding market definition. Regarding remedies this does not seem to be the case, however.

Question 7:

In your opinion, should the scope of any relevant market(s) identified in the Recommendation be changed? If yes, please explain why, referring to the relevant market.

Yes, the scope of the relevant markets should be changed. Markets 4, 5 and 6 should be consolidated due to the fact that there is demand and supply substitution. Furthermore self-supply should be taken into account when defining a wholesale market, such as markets 4, 5 or 6. Merging markets 4, 5 and 6 should be considered as these markets are at the moment not defined on a technology neutral base. The current market 4 is not future proof. Higher speeds over copper require higher copper spectrum to be used, which leads to ever increasing spectral issues between several unbundlers.⁷ At the same time, higher speeds mean that fibre is pushed further towards the end user which makes the business case for unbundled access more challenging. Virtual unbundling, which is applied as a temporal measure in market 4, should be a permanent measure, rather than a temporal one. Virtual unbundling is comparable with wholesale broadband access and therefore a product in market 5. A merger of markets 4 and 5 therefore is a logical next step.

⁶ See an analyses in Liyang Hou, The Application of the Three Criteria Test: an Empirical Research on Media Transmission Markets. Electronic copy available at: <http://ssrn.com/abstract=1379523>.

⁷ See TNO report in footnote 2.

Question 8:

If the answer to the previous question is yes, please specify the qualitative and quantitative impact of such changed scope on consumers (users), competition, and development of the internal market. Please provide separate reasoning for each market subject to a new scope.

A merger of markets 4, 5 and 6 leads to a technology neutral regulation. In this way, access products will become uniform, regardless of the underlying infrastructure. Competitors who depend on regulated access have a more uniform, technology independent access so there is no need to re-invest when the incumbent replaces or changes the network. The dominant operators have more flexibility in how to roll out and implement their network, which will lead to lower cost in the whole chain. Also, important blockings of copper innovation will disappear since there is no need for a compromise on spectral issues.⁸ The increased speeds and coverage on copper networks will lead to substantial consumer benefits.

Question 9:

On the basis of the three criteria test carried out at EU level, should any of the markets listed in the Recommendation be removed from the list in the revised Recommendation? If yes, please provide comprehensive reasoning thereof.

Traditional voice services face increasing competition from broadband based services such as VoIP, instant messaging, e-mail and communication via social media. Markets 1 and 2 can therefore be removed from the Recommendation. Keeping these markets on the recommendation will give and leave a distorted view of the voice retail market.

As stated in the answer to question 8, KPN believes that markets 4, 5 and 6 can be merged into one wholesale access market.

KPN also invites the Commission to critically investigate the necessity to maintain markets 3 and 7 from the list of relevant markets. In a prospective analysis, it is questionable whether the termination markets in the near future will any longer fulfil the three criteria. The strict ex-ante regulation in recent years has created a situation where competition law and symmetric regulation under Article 5 of the Access Directive seem to be sufficient to counter any potential market failure on these markets.

From a market analysis perspective it is important to note that the main reason to delineate separate call termination markets used to be the 'call termination monopoly'. A call towards an individual subscriber could only be routed via the customers' number. This very aspect of the service is under rapid change, driven by the new ('app based') OTT services that use other identifiers (e-mail, specific customer chosen codes, etc.) to reach the customer on the same device. Reaching customers using devices such as smartphones, tablets, laptops is no longer dependent on the (mobile or fixed) number and thereby the telephone access. Any device connected to a broadband network can now potentially be reached via a multitude of services (including messaging, social media, VoIP) and that leads to the necessity to revisit the concept underlying the current recommendation. The 'caller' has a choice in the way (and associated costs) he chooses to reach the person using the device.⁹

Therefore KPN suggests removing markets 3 and 7 from the current Recommendation. But even if an in-depth investigation would show that it would be too early to do so, the current regulation on this market should be revisited and adapted to the new market environment, which can no longer be based on earlier paradigms.

⁸ See TNO report in footnote 2.

⁹ This also leads to the necessity to revisit the call termination recommendation of May 9, 2009, although we realise that to be outside the scope of the current evaluation. If call termination can no longer be considered as 'the last service' to compensate joint and common costs, the 'pure BULRIC' approach seems no longer the right approach and should be replaced by a plus BULRIC costing methodology.

Question 10:

If the answer to the previous question is yes, please specify the qualitative and quantitative impact of such removal of markets on consumers (users), competition, and development of the internal market. Please provide separate reasoning for each market you propose to delete from the list.

KPN refers to her answer to question 9.

Question 11:

On the basis of the three criteria test carried out at EU level, should any of the markets regulated by NRAs on the basis of national circumstances (such as SMS termination or broadcasting transmission services) be added to the list in the revised Recommendation from an ex ante perspective? Please provide comprehensive reasoning.

No

Question 12:

If the answer to the previous question is yes, please specify the qualitative and quantitative impact of adding those market(s) on consumers (users), competition, and development of the internal market. Please provide separate reasoning on the impacts for each market you propose to add to the list

Not applicable

Question 13:

On the basis of the three criteria test carried out at EU level, can any other markets be identified that should be added to the list in the revised Recommendation, from an ex ante perspective? If yes, please provide comprehensive reasoning thereof.

None

Question 14:

If the answer to the previous question is yes, please specify the qualitative and quantitative impact of the relevant markets(s) you propose to add on consumers (users), competition, and development of the internal market. Please provide separate reasoning on the impacts for each market you propose to add to the list.

Not applicable

Question 15:

On the basis of the three criteria test carried out at EU level, can any transnational market(s) be identified in the revised Recommendation, from an ex ante perspective? If yes, please provide comprehensive reasoning thereof.

No

Question 16:

If the answer to the previous question is yes, please specify the qualitative and quantitative impact of the relevant market(s) you propose to introduce on consumers (users), competition, and development of the internal market. Please, provide separate reasoning on the impacts for each market you propose to introduce.

Not applicable

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Annex 1

Telecom sector under pressure - what's to be done?

Tuesday 4 December 2012 | 14:31 CET | Author: Tim Poulus, TelecomPaper

The telecom sector is under pressure from a number of sources: cable operators, over-the-top (OTT) providers such as Google and WhatsApp, and newcomers on the mobile market. At the same time, the level of investment is high, due to spectrum auctions and the roll-out of next-generation networks for FTTH and LTE. Furthermore, all these new technologies ('all IP') are much more efficient than what was used previously, allowing the operators to run their networks with a lot less people. To top it all off, there is also the economic crisis. This is all leading to pressure on results, dividends, balance sheets and ratings. What can be done? Go in search of cost savings as well as new revenues sources.

Costs

When it comes to costs, the big telecom operators have a wide range of options. Finding new revenue sources is a bit more difficult, as we're talking about network companies and sales organisations that don't exactly have innovation at the heart of their endeavour. The alternative has to be then developing new propositions.

Let's start with the cost savings. Apart from yet another round restructuring and trimming costs, the telcos have shown there are many more options:

- Selling towers.
- Network sharing for cost savings.
- Local mergers for cost savings: Japan (SoftBank and eAccess), the US (T-Mobile and MetroPCS) and possibly India (Telenor and Tata).

International mergers and acquisitions to realise synergies: America Movil (Netherlands and Austria), SoftBank (Japan and the US).

Others are listing subsidiaries on the stock market: Telefonica (Germany and likely Latin America), Teli-aSonera (MegaFon and Kcell) and Bharti Airtel (infrastructure arm). The joint venture EE, owned by Deutsche Telekom and France Telecom, may also be planning an IPO. While listings don't lead to cost savings, the proceeds can be used to pay down debt, hence lowering interest payments. A danger here though is that a very profitable business or quickly growing activity is sold, leading to a reduction in revenues.

Splitting up the company, which is apparently under consideration at Telefonica and Telekom Austria (the home market from respectively Latin America and East Europe), as well as Vivendi (telecom from media), is also unlikely to lead to direct savings. This is more about creating investment vehicles with a better balance of risks and returns.

Revenues

In terms of revenues, a few initiatives have emerged at various operators:

- Launching their own OTT services. T-Mobile USA has Bobsled, T-Mobile Poland has free-yah, Telefonica has TuMe and Orange has LibOn. Together, with Vodafone as well, they are bringing Joyn to the market (text, voice, video calls).
- Venture capital and the creation of 'digital' divisions (see our commentary 'SingTel makes new strategic step').

There is another, completely different trend underway to protect revenues: regulation. The incumbents are lobbying hard at the national regulators and in Brussels and at the ITU for a more friendly regime, where they will be able to capture more revenue from OTT players (by levying an extra charge for delivering content, a highly contentious measure) and from wholesale customers (which Vodafone is already contesting).

Conclusion

It's clear the telecom sector is going through a difficult period. But it should be noted that there are any number of ways to reduce all sorts of costs. Cultivating new revenue sources is probably more difficult. Telecom companies would do well then, in this period of efficient next-generation networks, to re-assess themselves. What do we do well, what don't we, and what can we leave to partners? This includes issues such as connectivity and innovation on various levels (technology, equipment, services, propositions).

And which structure is best for these choices? This implies a choice between vertical integration and a structural separation of networks and services. It remains to be seen if the sector can survive the current phase with the ongoing initiatives, or if more drastic measures are needed, such as big mergers or structural separation.