

An overview of Fiber

**European (Muni and other)
Fiber to the Home and
Fiber backbone projects**

With a special section on France by

Benoit Felten and Olivier Jerphagnon

*Dirk van der Woude
Programme manager FttH & broadband services
City of Amsterdam
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Preface

The following overview was compiled with care. However, translation and other errors may have lead to misunderstanding, for which of course all responsibility is mine. Corrections and information on unmentioned projects are highly appreciated at dirkvanderwoude@gmail.com.

I am very grateful to Benoit Felten of the internationally acclaimed blog Fiberevolution¹ and Olivier Jerphagnon for their consent to include their overview on France.

New in this edition: Europe taking off on FttH?

All European member states are equal, some even more so. In the last category one certainly finds France, the UK and Germany. On the subject of FttH until recently only France was manoeuvring itself in the strong and leading position it nowadays is. However, in September the new UK government expressed its ambition of entering the race. Still, no word except regulation wise holidayed VDSL was heard from the Diesel engine of the European economy, the Bundesrepublik Deutschland.

In October 2007 this changed dramatically, as three of the country's Top 5 city's now on break neck speed are rolling out. Muni Cologne is exploding, muni telco M-net will massively roll out in München and, being owned by that and the other Bavarian city's, soon as well all over the Bundesland Bayern.

And then Hamburg, home of 50% of all the media industries in the country. Over there HanseNet, a 100% daughter of TI will now roll out FttH t 15,000 homes and then expand rapidly to 100,000 homes.

Other developments:

- British Minister Timms wants FttH in the UK: "If must be the government should consider partaking in the investment"
- Then the old European City of Russian St Petersburg is preparing for the transfer from ADSL copper to FttB en FttH. Says the local telco:
"According to our managers, the quality of demands is to change in 2010, as a person will not be interested in the broadband access only but in speeds. ADSL will be replaced by other technologies, i.e. optics, Ethernet", - Mr. Akoulich states.
- Almere, Netherlands: Reggefiber rolls out FttH to all of the city, incumbent KPN will use the network as a SP and stimulate its copper subs tot transfer to FttH
- And of course it's remarkable that in Japan on the 4th of July the hurdle of 10 million FttH subs was reached. On average for the last five quarter per month was some 260,000 so by November 1, 2007 the number op FttH subs in Japan could be around be above 11 million.

Fiber on the rise

In a press release the OECD in October 2006² stated:

"Fibre to the home is becoming increasingly important for broadband access, particularly in countries with high broadband penetration."

On July 5th, 2007, Point-topic published a new edition of its famous Global Quarterly Broadband statistics:³

During the first quarter of 2007, FTTx continued to out-perform cable modem in terms of quarterly growth. By the end of Q1 2007, the world FTTx subscriber base had reached 31.4 million lines, with a growth of 46% in the past year.

Although the overall market share of FTTx is still very low (10.7%), compared to DSL (66.1%) and cable modem (20.3%), FTTx is gradually gaining ground in market share

¹ www.fiberevolution.com

² http://www.oecd.org/document/9/0,2340,en_2649_37441_37529673_1_1_1_37441,00.html

³ <http://point-topic.com/home/press/dslanalysis.asp> (obligatory free subscription)

terms. From the beginning of 2005 until the end of 2006, the number of FTTx subscribers has been increasing at a rate of over 10% every quarter. In Q1 2007 this growth has slowed down by 5%, down to 5.8%. Of the seven global regions, North America (primarily the USA), and Asia-Pacific have displayed the most impressive growth rates above the average of 17.3% and 8.3% respectively during Q1 2007.

One of the drivers for this continuous growth is the increasing popularity and demand of Value-added-Services (VAS) such as IPTV and, in Japan, Video-Conferencing. They consume a large amount of bandwidth for delivering video content and TV channels over broadband connections. As a general requirement, TV-over-Broadband (TVoBB) needs at least 3Mbps bandwidth in order to deliver a seamless service. High-Definition (HD) TV can require up to 8Mbps of bandwidth, so conventional ADSL services are unlikely to be able to accommodate this bandwidth hungry service.

Some migration of DSL customers to FTTx can be observed in Japan, South Korea and Taiwan. Taiwan presents the most interesting case with the incumbent Chunghwa posting a growth in FTTx of 31.3% and only a growth in DSL of 0.52% in Q1 2007. In the previous quarter the FTTx saw a growth of 109.74% and the DSL had even posted a loss of -0.80%. (...)

The growth of FTTx has been significant in the Asia-Pacific region. With the subscriber base growing twice as fast as that of cable modem, the market share of the FTTx continues to out-perform cable modem in the region. As reviewed in our Q3 2006 report, the market share of FTTx in the Asia-Pacific region (20.4%) was a tick higher than that of cable modem (20.2%). By the end Q4, the gap between the two increased by more than 2%. By the end of Q1 2007, the figure increased further to 23.7% for FTTx services compared to 19.9% for cable modem services.

In regions where the broadband market is dominated by DSL and cable modem, the increase in FTTx market is slow but steady. For instance, in North America (primarily the USA), the market share of FTTx services has increased from 1.4% of the total broadband share in Q1 2006 to 2.3% in Q4 2007. Although the growth is slow, it is beginning to gain market share. In addition to the USA, Taiwan, France, Japan and Italy also report robust growth rates for their FTTx services of between 31.3% and 8.3%.

Lafayette, LA, USA

It's outside the scope of this overview, however I do want to congratulate Lafayette (LA, USA) with its successes: the FttH network will be rolled out⁴ and with exciting features⁵.

Japan: 10 million FttH on July 4, 2007

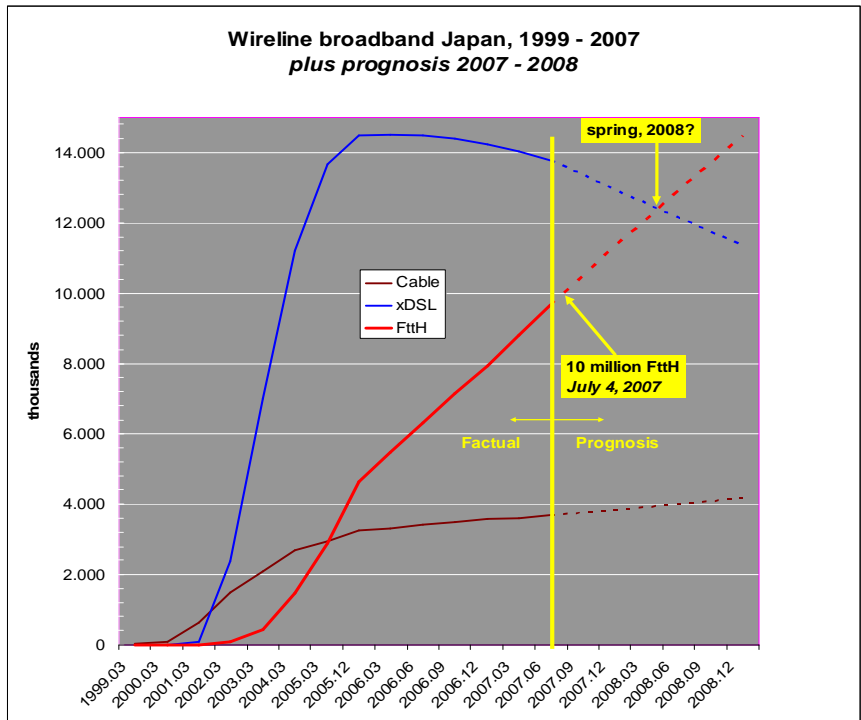
The Japanese Ministry of Information publishes the country's impressive FttH statistics⁶. They show that on July 4th the number of FttH subscriptions grew past 10 million, or 36% of all broadband connections. As the pace of DSL decrease seems to grow as well at some point next spring fiber will surpass xDSL.

Below I have graphed the statistics – and a conservative prognosis up to December 31st, 2008.

⁴ <http://tinyurl.com/29lvsf>

⁵ <http://lafayetteprofiber.com/Blog/2007/06/huval-reveals-plans-martin-luther-king.html>

⁶ http://www.soumu.go.jp/s-news/2007/070918_4.html



Fiber roll outs with public support

All over Europe fiber networks are rolled out, in many cases with public subsidies or investment. As the chart below shows the Amsterdam project is comparatively quite small.



FttH in the EU, some examples

	Köln NetCologne 200,000 FttH	Vienna 1 million FttH	Paris, Iliad 1 million FttH	Hauts-de-Seine FttH	Milan FttB	Stockholm Dark fiber	Amsterdam 40,000 FttH
services operator passive							
Market Public Support Subsidy		n.a.					
Municipal financial participation	250 million	n.a.	75 to 100 million worth of support	Up to 70 million subsidy	100 million	100 million	6 million of 30 million (passive layer)
Open network?	No	Aim: yes	Yes?	n.a.	No	Yes	Yes

Problem for EU?



An analytical overview of the French FTTH offers⁷

By Benoit Felten and Olivier Jerphagnon

The French market is probably the only one worldwide where four different providers are currently offering FTTH, albeit to a limited geographical footprint. In September 2006, Free (Iliad) announced its intentions to launch FTTH which prompted the incumbent Orange to precipitate its launch in the FTTH space, alternate operator Neuf to join the fray and cable operator Numéricable to revise its approach to very high bandwidth services.

Industry expert **Olivier Jerphagnon** and myself thought it would be interesting to analyse the existing offers being rolled out in France. You can find detail of the offers in the following table (a larger version at the link in the footnote⁸)

As of Oct. 15th; 2007



Price / month	30 €	30 €	60 €	45 €
One-time cost	Equipment: free with deposit Installation: free for existing ADSL customers	Equipment: free but termination fee (up to 99€) Installation: 59€ (free until Jan 08)	Equipment: free for 12 month contract Installation: 60€ (30€ until Nov. 07)	Equipment: free for 12 months contract except for STB (3€ / m after 6 months) Installation: 1 euro (promotional, duration regular price unknown)
Internet service	100Mbps / 50Mbps	50Mbps / 50Mbps	100Mbps / 5Mbps	100Mbps / 10Mbps Option: 100Mbps / 100Mbps (20€ / m)
Telephone service	Unlimited national calls except to GSM (charge) Unlimited calls to 70 countries including USA	Unlimited national calls except to GSM (charge) Unlimited calls to 50 countries including USA	Unlimited national calls except to GSM (charge)	Unlimited national calls except to GSM (charge)
Television Service	100TV and HDTV channels; Integrated DVR Digital audio channels VoD service (200 titles) Option: 100 additional channels	67 TV and HDTV channels Free music download service VoD service (2500 titles) Option: 150 additional channels (11-40€ / m) Option: DVR Box (5€ / m)	National TV channels Option: 100+ TV and HD channels (charge) Option: HD/DVR Box (7€ / m)	50 TV channels VoD service (1000 titles) Option: 100+ TV and HDTV channels (charge) Option: DVR Box (5€ / m)
Mobility	Wifi	Wifi	Option: Wifi for 79€	Wifi
Storage	Option: 2-25 Gb for a charge 25 Mb for web-page	9Gb for data back-up and sharing 100Mb for web-page		Option: 150 Mb for web-page
Security	Option: security pack (5€ / m)	Option: security pack (5€ / m)	Option: security pack (5€ / m)	Option: security pack (5€ / m)
Other	Personal TV (personal content broadcasting) Capability to handle 2 TV sets	Convergent billing with SFR's mobile services		Combined bill for GSM/broadband services Option: 2 TV sets (7€ / m)

More detail on these offers available here (in French) at the respective companies: [Free \(Iliad\)](#), [Neuf Cegetel](#), [Numéricable](#), [Orange](#). (of course these pages are translatable by Google Translate⁹ and Altavista Babelfish¹⁰ - dvdw)

There are a number of striking differences between these offers.

⁷ <http://www.fiberevolution.com/2007/10/an-analytical-o.html>

⁸ <http://www.fiberevolution.com/2007/10/an-analytical-o.html>

⁹ http://www.google.com/language_tools

¹⁰ <http://babelfish.altavista.com/>

Pricing structure

Overall, N9UF and FREE are providing the most aggressive and attractive FTTH service offering. In contrast Numericable is clearly the least attractive in terms of price but it is also a different technical model that can theoretically address a much larger proportion of the market currently. One can expect changes in the months to come as the footprint of the other offers extends. With the exception of Numericable, Orange is the operator that can deploy FTTH the fastest by leveraging its large operations base and France Telecom's existing ducts in the streets and buildings.

It is important to note that FREE and N9UF are offering a similar FTTH service at the same price as their ADSL service (30 euros per month) while the Telco and Cable incumbents offer the FTTH service at a premium. Two important factors can explain this:

- **Facility-based vs. overlay model:** The alternative operators (FREE and N9UF) are saving 10 euros per month (cost of leasing copper line from France Telecom) so they are actually increasing the operational margin significantly. This being said, they now have to operate their own network (facility based model) as opposed to operate their service over the incumbent's infrastructure (overlay model). This has a cost, but it doesn't seem to be valued in their pricing models. Chances are they consider this cost to be lower than the current cost of managing outsourced DSL. Time will tell if they were right or not.
- **Protecting customer base vs. protecting revenues:** The alternative operators like FREE are willing to migrate to FTTH their current ADSL customers for free so they can protect their customer base and accelerate adoption. On the other side of the spectrum, Numericable wants to protect its existing TV revenue stream as shown by the fact they kept the various TV packages as premium offers. Orange is also protecting the revenues of its incumbent telephony service by limiting free telephony to France only.

Another interesting component (or rather, lack of) is that installation costs range from non-existent to extremely low. The French DSL market overall managed to curb up-front subscriber costs by going early on for self-install models (with the exception of Numericable). With fiber, this is simply not possible, and a reasonable estimate would put installation costs for the operator upwards of 250 EUR per customer. Nowhere is this reflected in the price structure of any of the players and while this could be understandable very early on, it won't be sustainable for long.

Is there any market space for new entrants? Unless a competitively priced unbundled fiber line offering emerges, it seems unlikely that any other player could enter the market. A new operator offering FTTH service will face a huge barrier to justify the infrastructure cost (N9UF et FREE were the only alternative operators to play because they reached a critical mass with about 20% each of the ADSL market in France). The trump card may be in the hands of the local governments in rural areas and/or tier 3 cities. They could play a critical role in accelerating the deployment of FTTH outside large urban areas and therefore attract pure service providers.

In the long term though, these low margin offers raise even the question of the viability of the existing players. Despite the various analysis of the business models underlying the offers (especially for Free and Neuf) it seems clear that the ARPU needs to increase significantly for these players to survive independently. Indeed, some French economic newspapers have started to wonder if the right move for Free and Neuf might not be to merge ([La Tribune - Oct. 1st, 2007](#)) arguing that the combined operation would be much more efficient and have access to more significant financing...

Services

Obviously, bandwidth is a differentiator in the existing offers, but it may become a more

significant one in the future. Despite rumours to the contrary, Free launched its offer at 100Mb/s asymmetrical. It could be that Free leverages its point-to-point architecture to increase the bandwidth provided to levels where competitors cannot easily follow. Industry analysts believe that providing bandwidth over 100Mb/s makes no sense from a service usage point of view, and they are probably right considering today's ecosystem of services, but the fact is that throughout the ADSL Bandwidth war in France (the one that followed the Price War) Free kept its leadership in acquisition amongst competitive operators by always being the first to reach higher levels of bandwidth. So, irrespective of whether it makes sense or not, it's likely that bandwidth will continue to constitute an important facial argument in FTTH offerings.

While capacity may be an important facial differentiator, the increased QoS may be of more short-term importance to the operators since it will allow them provide - at last - high quality TV service. Not only will this allow them to become less dependent on aspects that crippled DSL TV offerings (like distance from the CO), it should enable them to boost subscription to premium TV channels (customers are notoriously sensitive to quality when they pay a premium) and allow them to launch full fledged HD TV services. In that respect, the arrival of FTTH levels the playing field between the operators and Numericable, who currently has a home-corner advantage on TV.

The offers as they stand - especially Free's and Neuf's - seem to capitalise on three main axis:

- **Content:** premium and HD TV, VoD and S-VoD, music are already part of the service portfolio and chances are things are going to move further in that direction.
- **User-friendliness:** this is where the multi-TV capability and/or the single billing fit, but Free and Neuf also offer a load of small but clever services like the Freeplayer, an interface which allows the user to view on his TV content stored on his hard drive, or Neuf Neuf Giga, which allows for online storage and massive filesharing.
- **On-net Community:** TV Perso is Free's first foray into this arena, but it's a promising one. By encouraging the usage of customer dedicated services - especially bandwidth hungry ones - operators will give additional value to the FTTH services, and they will limit their costs by keeping the traffic on-net.

Ultimately, though, customers are going to want their FTTH connection to allow them to benefit from services that plain old DSL didn't allow. And operators want to do that not only to satisfy this legitimate expectation but to capitalise on audiences they control in order to sell additional services and move into advertising business models similar to those leveraged by internet pure players like Google.

But even this won't suffice. Early FTTH players need to be at the forefront of the development of services that require such capacity, and since they probably can't afford to do it internally, they need to help those who would develop such services design and commercialise them. If I was in Free's shoes, I'd try and set up a, FTTH service incubator by offering storage capacity and billing facilities to these innovative service providers, taking a cut of the revenues on the way. Similar kiosk models look promising on the mobile side. Let's hope the competitive FTTH providers see it as an opportunity to be at the forefront of a more holistic service offering where access and services become one and the same...

Back to the Overview of Fiber...

○ France

In 2007 France got itself a new President, M Nicolas Sarkozy. Before that time he simultaneously was Minister of the Interior, Chairman of his party – and Chairman of the Department Hauts-de-Seine. In his last quality in 2005 he personally proposed to have all of the inhabitants and businesses connected with FttH, as “copper is not gonna cut it”. To get private enterprise starting the roll out, M Sarkozy as well proposed to set aside a subsidy of up to 70 million euro. See below for more on Hauts-de-Seine.

M Fillon, a good friend of the new President, was named Prime-Minister. In the '90s M Fillon was the French telecom minister who started regulation policies, nowadays embodied by ARCEP¹¹, one of the most active regulators of Europe. One of M Fillon's then most important advisers was Mme Gabrielle Gauthey, who later on became a Member of ARCEP's executive board. Mme Gauthey might well be the one regulator that understands FttH the best, considering her articles¹² and presentations¹³. From one article (nov. 2006):

“We are on the eve of an evolution that is essential, and somewhat revolutionary in the history of telecommunications – the transition from broadband to very high-speed broadband, made possible by the use of fibre in the access network.”

Mme Gauthey was quite involved in realizing the French law (Loi 1425¹⁴ of June 2004) that ensures that local authorities are entitled to deploy communication networks on their territories.

So there you have it: a smart country and a telco sector now under a leadership that understands and promotes real broadband, real competition and real progress.

- In 2006/7 that competition showed in the now raging ‘Fiber battle for Paris’, partly based on the city's smart decision to lower tariffs for access to its more than man high Hausmannian¹⁵ sewer network, resulting in four companies rolling out (see above the text of Messrs Flten and Jerphagnon).

Before the ‘Paris fiber battle’ the French already had some strong going on's:

- Sipperec¹⁶ is a collective of some 60 communities around Paris. Together they operate an energy corporation; in the 1990's they decided to roll out a fiber backbone network (100% government owned, map through footnote¹⁷). The network is exploited and expanded by long term (18 years) concessionary Irisé, a PPP now owning 470 Km of ducts and 1,237 POP's, covering 84 communities. Irisé rents out fiber to private service providers as well as to institutions like universities. In 2004 Irisé started to be a profitable project, as it is used massively by competitive broadband providers.¹⁸

Interestingly enough one of the long term private leaseholders happens to be Noos. In May 2004 this company at a price of euro 660 million¹⁹ became²⁰ a 100% subsidiary of Liberty Global International. This company, whose CEO John Malone in the '90- ties was dubbed by Al Gore as the “Darth Vader of the Information Highway”²¹, normally does not have a favorable view towards muni fiber projects²² nor is it known to carry the conviction that FttH is necessary.

¹¹ <http://www.arcep.fr/index.php?id=1&L=1>

¹² <http://tinyurl.com/3xd3ch>

¹³ <http://tinyurl.com/2o6dqh>

¹⁴ <http://muniwireless.com/municipal/825>

¹⁵ http://en.wikipedia.org/wiki/Baron_Hausmann

¹⁶ <http://www.sipperec.fr/telecom/presentation.htm>

¹⁷ <http://www.sipperec.fr/telecom/irise.htm>

¹⁸ <http://www.journaldunet.com/0507/050713irise.shtml>

¹⁹ <http://www.suezenergyna.com/press/documents/SUEZSellsCession.pdf>

²⁰ <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/04/652>

²¹ <http://www.videomaker.com/scripts/article.cfm?id=7843>

²² http://www.lightreading.com/document.asp?doc_id=98529

However, in 2005 UPC/Noos started its own FttH-pilot near Paris²³. Later on in 2006 UPC for euro 1.25 billion sold its French branch Noos to Cinven.²⁴

- A famous muni FttH-project is that of Pau Broadbandcity²⁵, a project in which 'Professeur Fibre' Jean Michel Billaut²⁶ had some apostolian role. In 2006 the project was acquired by competitive telco Neuf Cegetel.
- In the 15th Arrondissement of Paris district CLEC Citefibre started to offer FttH²⁷, in october 2006 the company was acquired by Iliad (see below).
- In 6 suburbs France Telecom is piloting with up to 100/100 FttH²⁸.
- Earlier on in January '06 President Chirac (right wing) and Paris Mayor Delanoë (socialist) both stated in that they want respectively all of their country and city to get super broadband, i.e. FttH and VDSL²⁹. M Delanoë as well wants small to midband (and financially low threshold wireless in his city. Of course as well on the famous Paris beach³⁰ ;-)

- **Iliad**

This competitive and highly successful telecom group is lead and largely owned by a famous and visionary entrepreneur, M Xavier Niel. He made his first billion(s?) with content offerings on the worlds first really interactive system Minitel.³¹

Minitel in a way integrated the interactivity into the French culture, as Calient's³² Olivier Jerphagnon³³ explained to me in 2006: "It may well be that the French took some time to start using internet. However, interactive we have been for a long time and that may well be part of the explanation why so many French now adapt to blogging etc." I think one should add to that the rich and admirable French tradition of public and political discourse.

In this culture in September 2006 Iliad announced investments up to Euro 1 billion in the roll out of FttH, starting with connecting 2.1 million inhabitants in the city of Paris³⁴. Technically this project is not muni fiber, however the business case of Iliad includes valuable support of the City of Paris, like lowered rights of way costs for use of city sewers etc.

In accordance to European rules these benefits are not given exclusively, they are open to other network roll outs as well³⁵ resulting in three other groups rolling out as well.

Nevertheless, as an open FttH network tends to be a natural monopoly of course the first to roll it out gets a boost from this kind of (perfectly legal) municipal support. Of course, Paris being a large city, it could well be big enough for several FttH providers, each to different districts. Map through footnote³⁶ (and when you 're at it, see map of France as well³⁷). Historically Paris is noted as the City of Light. It seems they do not want to be eclipsed by FttH-frontrunners like Tokyo or HongKong.

An important partner in Iliad's Paris project, in which some 2 million km of fiber will be used is the Amsterdam based company Draka Comteq.³⁸

²³ <http://www.vnnet.fr/fr/vnnet/news/2005/10/19/exclusif-noos-upc-teste-100-mbits-fibre-optique-domicile>

²⁴ <http://www.journaldunet.com/0603/060327-rachatupc-noos.shtml>

²⁵ <http://eco.agglo-pau.fr/Initiatives/PBC/pbc.asp>

²⁶ <http://billaut.typepad.com/>

²⁷ <http://www.citefibre.fr/citefibre.htm>

²⁸ http://www.francetelecom.com/fr/espaces/journalistes/communiqués/CP_old/cp060725.html

²⁹ <http://muniwireless.com/municipal/825>

³⁰ <http://www.parisdailyphoto.com/2006/07/paris-plage-2006.html>

³¹ <http://en.wikipedia.org/wiki/Minitel>

³² <http://www.calient.net/>

³³ http://www.calient.net/corporate/management_team.php

³⁴ http://www.iliad.fr/presse/2006/CP_12092006.pdf

³⁵ http://212.27.33.10/presse/2006/CP_11092006_cp1.pdf

³⁶ http://www.tactis.fr/IMG/gif/FTTx_PARIS_vTACTIS_Bati_lit.gif

³⁷ <http://tinyurl.com/2o7wva>

³⁸ http://212.27.33.10/presse/2006/CP_12092006.pdf

On 20 October 2006 Iliad announced³⁹ the acquisition of CiteFibre, a company already rolling out FttH in one of the Parisian districts.

“This move will confirm Iliad’s front-ranking position in the development of optical fibre services in France of the type described in its announcement dated 11 September 2006.

Citefibre was established in November 2004 and has more than 500 clients, 3,000 kilometres of optical fibres and 130 buildings with optical fibre cabling (representing some 4,000 households which can be connected to the network) in the 15th arrondissement of Paris. Citefibre also currently holds authorisations allowing it to connect another 4,000 households.

Citefibre has 25 employees, whose skills and experience will underpin those of the Iliad Group’s own teams, particularly with respect to vertical cabling in buildings. Between them, Iliad and Citefibre have all the necessary expertise required for carrying out an optical fibre project of the sort announced by Iliad last September.” (source see footnote 11)

- Then there is the department of **Hauts de Seine**. In 2005 Hauts de Seine’s General Council, acting on a proposal of its then chairman M Sarkozy, decided to have all homes and all 100,000 companies connected to FttH⁴⁰, at ‘speeds of several 100’s to a 1,000 megabits per second’. The department, the western side of greater Paris, has the highest income per capita of France. The project is to be a two phased private-public, the department has set aside already a subsidy for the first phase of Euro 25 million, in later phases in total 70 million. There is even an online videocast, made by aforementioned M Billaut, of the meeting in which the Council decided upon FttH⁴¹. Talking about a country understanding interactivity...
- **Montpellier** In June 2007 the City of Montpellier (pop. 250,000) announced to have signed a contract with Iliad with the aim to roll out FttH in all of that (already very innovation oriented) city.⁴²
- **Valenciennes** (pop. 45,000): Iliad will connect all homes in this Northern French city. However, Valenciennes is a central point in the Lille Metropolitan area (pop. 1.9 million) which is a major one on a European scale. So it seems a strategic choice for a roll out.
- **Bordeaux, Grenoble, Metz, Nantes, Nice, Lyon, Marseille, Toulouse et Poitiers** are cities where France Telecom (Orange) will roll out FttH in parts or the whole of the city⁴³.
- Next there are many, many muni- and departmental empowered local fiber projects in France, a list is attached to this text.
- A very special project that should not be omitted is the one in **Saint-Nom-la-Bretèche**, just a few miles west of Versailles. What one man can do... In his own words⁴⁴:

I’m a telecommunications economist in Paris and I spend a lot of time thinking about and using broadband. We’ve chosen to live in a beautiful area of southwest Paris but one which has limited broadband options. In fact, broadband is terrible for everyone in our village. The incumbent operator (France Telecom) hasn’t

³⁹ http://www.iliad.fr/en/presse/2006/CP_201006_Eng.pdf

⁴⁰ <http://www.hauts-de-seine.net/portal/site/hds/menuitem.79b018ec45ba2c367b61fea37813e1ca/?vgnextoid=39620528b50eff00VgnVCM10000087311eacRCRD&Id=1863>

⁴¹ http://billaut.typepad.com/jm/2006/03/le_92_dlibre.html

⁴² <http://www.dsivalley.com/fibre+optique+montpellier+choisi+free+pour+son+reseau+tres+haut+debit-26-06-2007.html>

⁴³ http://www.memoclic.com/news_3373/haut-debit-france-telecom.html

⁴⁴ <http://byobroadband.blogspot.com/>

upgraded our own exchange for DSL and that means that people in the village are connected through one of two towns, each roughly 5 km away. I subscribe to broadband via DSL and cable. At 4.5 km from the DSL exchange I receive 1 Mbit/s via the competitive operator Free - too slow for me to take advantage of their IPTV offer for example. I also subscribe to Noos for cable Internet. I pay for a 30 Mbit/s connection but receive only 3 Mbit/s - and even that is traffic shaped. Even 200 euros of calls to the helpline at 34 cents a minute hasn't solved the problem. I am not alone. It seems that almost everyone I speak with here has similar problems and people are getting fed up. There is talk around town that France Telecom has offered to upgrade the exchange if the town will pay the costs (roughly EUR 50K). I say no. We're going to build this network ourselves. We are going to bring our own broadband to our homes. Our goal is simple. We want a fiber to the home network capable of gigabit speeds which will be open to services from any operator. I've spent enough time writing about "open access" networks and infras.

- **Germany**

Energy giants RheinEnergie and RWE started the German take off on FttH, parallel to Deutsche Telekom's roll out of hybrid fiber-VDSL networks in 25 odd cities. The energy corps have local ISP's – and they strive to be free of incumbent Deutsche Telekom's tariffs. DT on its part deploys a country-wide fiber/VDSL network, but demands a regulatory holiday on it. To which chancellor Merkel already has agreed, however Brussels does not agree. In June 2006 Commissioner Reding decided to take the government of Chancelloress Merkel to court:

BRUSSELS, Belgium: EU regulators took legal action against Germany on Wednesday for Berlin's refusal to change a law shielding Deutsche Telekom AG's high-speed Internet network from rivals.

The European Court of Justice will now have to decide if Germany can keep a law giving Deutsche Telekom a de facto monopoly on a glass-fiber DSL internet network it built to allow it recoup the cost without of setting up an infrastructure with sharing it with others.

The EU executive's arm said this departure from normal regulation breaks Europe-wide telecom rules giving new providers the right to use telephone and Internet networks.

"The Commission has repeatedly warned Germany that its new telecoms law violates EU telecom rules but without success," said EU Telecom Commissioner Viviane Reding. "We want to ensure Germany can benefit from a healthy, competitive and fully functioning market."

Despite last-ditch negotiations, the EU said the German government was unwilling to change the law the way the EU wanted and continued to defend its position.⁴⁵

Recently some German muni and other FttH projects became public.

- **Köln (Cologne)**

In the German city of Köln (Cologne) a FttH network is rolled out parallel to a VDSL network by the incumbent DTAG.

The FttH network is deployed by NetCologne AG, a 100% municipal corporation. (NetCologne is a 100% subsidiary of GEW AG⁴⁶, which is a 100% subsidiary of Stadtwerke Köln⁴⁷, which is a 100% subsidiary of the Köln Municipality⁴⁸).

Update June 2007: the roll out seems to go well, NetCologne opened a special site for the project, for which now the name 'CitynetCologne'⁴⁹ has been selected. From the Amsterdam perspective an interesting choice ;-)

⁴⁵ <http://tinyurl.com/2sbsbq>

⁴⁶ http://www.netcologne.de/unternehmen/nc_unt_unterseite_323.php

⁴⁷ http://www.stadtwerkekoeln.de/swk/download/pdf/Beteiligungsuebersicht_gb_05_2006.pdf

⁴⁸ http://www.stadtwerkekoeln.de/swk/download/pdf/Beteiligungsuebersicht_gb_05_2006.pdf

⁴⁹ <http://www.citynetcologne.de/>

The corporation is already DSL and telephony market leader in the greater Köln-Bonn-Aachen area. On 3 July 2006 NetCologne started the roll out of its Fibre-to-theHome network and on 25 October 2007 the company announced that in 2008 it will connect several ten thousands of apartment buildings in the city⁵⁰:

Ausbau von „CityNetCologne“ geht in die nächste Runde

NetCologne gibt Ausbauplanung des Glasfasernetzes für 2008 bekannt. Weitere zehntausende Gebäude möchte NetCologne in 2008 an sein neues Glasfasernetz anbinden.

Seit Sommer 2006 baut das Kölner Telekommunikationsunternehmen in der Kölner Innenstadt sein hochleistungsfähiges Netz „CityNetCologne“ aus, mit dem Internetanschlüsse bis zu 100 Mbit/s möglich sind. NetCologne bietet damit nicht nur ein Netz, das fit für moderne Anwendungen wie beispielsweise IPTV und Streams in HDTV-Qualität ist, sondern es sieht den Netzausbau als langfristige Investition. Denn mietet das Kölner Unternehmen bisher noch die so genannte „letzte Meile“ der Leitung zum Kunden über die Telekom an, so macht sich NetCologne mit dem Ausbau des Netzes davon Schritt für Schritt unabhängig.

Für 2008 hat sich NetCologne nun eine Zielgröße von potentiellen 10.000 Gebäuden gesetzt, die an CityNetCologne angebunden werden sollen. Das Unternehmen wird dabei in den folgenden Kölner Vierteln bauen: Altstadt Nord, Chlodwigviertel, Deutzer Freiheit, Deutz Ost und Süd, Ehrenfeld Nord, Ost und West, Teile der Innenstadt zwischen Hohenstaufenring und Neuköllnerstraße, Mülheim Nord und West sowie Nippes Ost. (*more*)

○ **München / Augsburg / Bayern:**

On 16 October 2007 telephone and ADSL provider M-net, active in all of southern German *Bundesland Bayern* announced that it has started the roll out of FttH in München, one of the five largest cities of Germany. M-net is owned by the utility companies of the cities of München, Augsburg, Erlangen as well as collective banks⁵¹ so this does qualify as a muni roll out.

M-net states that the new network will support symmetric speeds of 100 Mb/s per home and it will be open to other SP's as well⁵².

The ambitious roll out scheme:

- 2007: 600 homes
- 2008: 110.000 homes
- 2011: 60% of all 720,000⁵³ homes in München

M-net startet Netz-Offensive München mit 100 Mbit/s ins Datennetz

München, 15.10.2007 – Die Netz-Offensive München sieht die sukzessive direkte Anbindung von Münchener Immobilien mit einem Glasfaseranschluss vor, der im ersten Schritt eine Internetanbindung von 100 MBit/s pro Haushalt ermöglicht.

(...)

Bei der sukzessiven Erschließung verfolgt die M-net zwei Strategien. „Wir suchen einerseits die enge Zusammenarbeit mit Immobiliengesellschaften, um deren Nachfrage nach Glasfaseranschlüssen zu befriedigen“, erläutert Dr. Hans Konle, Vorsitzender der Geschäftsführung der M-net Telekommunikations GmbH. „Auf der anderen Seite wird die hochmoderne Infrastruktur vorrangig in den Stadtteilen verlegt, wo die Dichte an Wohneinheiten am höchsten ist. Schwabing, die Isarvorstadt, Neuhausen und Neuperlach werden daher zu den ersten zählen.“ Bei der sukzessiven Erschließung wird nach der so genannten Cluster-Bauweise vorgegangen. D.h. innerhalb eines Stadtviertels werden

⁵⁰ http://www.netcologne.de/unternehmen/presse/pressemitteilung.html?tx_ttnews%5Btt_news%5D=306&tx_ttnews%5BbackPid%5D=374

⁵¹ http://www.m-net.de/ueber_m_net/unternehmen/gesellschafter.html

⁵² http://www.m-net.de/ueber_m_net/presse/pressemitteilungen/pressemitteilung/article/placeholder-ws1-39.html

⁵³ http://www.mstatistik-muenchen.de/themen/bauen_wohnen/jahreszahlen/jahreszahlen_2006/p-it070517.pdf

beispielsweise 100, 500 oder auch 1.000 Gebäude gebündelt und an das Hochgeschwindigkeitsnetz angeschlossen.

(...)

„Die Netzzoffensive München ist eine Investition für die nächsten Jahrzehnte“, verdeutlicht Dr. Konle. „Der Hochgeschwindigkeitszugang mit 100 MB/s ist nur der Ausgangspunkt in eine neue Zukunft“. Mit der Verlegung von Glasfasern vom Abschlusspunkt im Keller direkt in die Wohnung sind auch Bandbreiten von 1.000 Megabit pro Sekunde und mehr realisierbar. „Das ist sicherlich noch Zukunftsmusik aber wir können heute schon sagen: Die M-net steht für einen weiteren Ausbau bereit“, so Dr. Konle.

○ **Hamburg:**

On 24 October 2010 the authoritative German magazine Capital announced that competitive telco Hansenet, a full daughter of Telecom Italia (and as such a sister to Bbnet, the active provider on the Amsterdam fibernet) intends to roll out FttH in Hamburg, the second city of Germany. Hansenet has some 2.2 million DSL customers in the country. The FttH planning in Hamburg is to connect 15,000 homes under Hansenet's brand 'Alice' in the next year and expand that to 100,000 homes⁵⁴

***Hansenet schließt mehr als 100.000 Haushalte an Glasfaser an
Next door to "Alice"***

Als erster bundesweit tätiger Telekom-Konkurrent will Hansenet unter seiner DSL-Marke "Alice" eine gesamte Innenstadt mit einem eigenen Glasfasernetz bedienen. Das erfuhren Capital aus zuverlässiger Quelle. Das Tochterunternehmen von Telecom Italia plant, in der City von Hamburg bald 15.000 Häuser mit deutlich mehr als 100.000 Haushalten mit einer direkten Glasfaseranbindung zu versorgen. Das macht es leichter, Kunden für neue Angebote wie Internetfernsehen und Videokonferenzen zu werben.

Hansenet vermarktet dann Online-Anschlüsse mit rund 100 Megabit pro Sekunde, doppelt so schnell wie die bisher schnellsten Anschlüsse der Telekom. Der Ausbau ist für Hansenet-Geschäftsführer Harald Rösch ein Test, bevor er weitere Hamburger Ortsteile und andere Städte an die eigene Infrastruktur anschließt. Bundesweit hat Hansenet 2,2 Millionen DSL-Kunden; nur die Telekom und United Internet (1&1) haben mehr Verträge.

Hansenets Pläne richten sich direkt gegen die Deutsche Telekom. Dem Ex-Monopolisten drohen damit weitere Kundenverluste in Deutschlands zweitgrößter Stadt. Dort ist bereits jetzt rund jeder zweite DSL-Nutzer Kunde von Hansenet. Bislang versorgt die Telecom-Italia-Tochter ihre Kunden mit DSL und Telefonie über die Kupferleitungen der Deutschen Telekom. Dafür erhält der Bonner Telekom-Konzern derzeit 10,50 Euro im Monat pro Haushalt. Bei jedem Kunden, dessen Online-Anschluss künftig über das neue Hansenet-Netz läuft, entfällt diese Zahlung dagegen. Zudem will Hansenet seine Glasfaserleitungen auch weiteren Konkurrenten der Deutschen Telekom wie Arcor oder Freenet zugänglich machen. Damit will Firmenchef Rösch die Investitionen von voraussichtlich mehr als 50 Millionen Euro wieder reinholen.

- Next, the city of **Schwerte** project comes under the auspices of (Stadtwerke Schwerte, or Cityworks Schwerte) Ruhrpower, which is 47% owned by the municipality of Schwerte, 23.5% by the City of Dortmund, and 23.5% by RWE again. (The other 6% is owned by a joint venture vehicle owned by the three partners.) Ruhrpower's ISP/telco is Ruhmet, majority owned by Ruhrpower, with a local collective bank and Versatel as minority partners.⁵⁵
As these utilities are completely, or for a large part, municipal owned, these projects fall into the category of muni fiber.

⁵⁴ <http://www.capital.de/unternehmen/100008050.html>

⁵⁵ <http://eurotelcoblog.blogspot.com/2006/02/whos-that-behind-you-couple-of-days.html>

- Until fall 2006 it seemed (to me at least) that there were only few FttH projects in Germany. Then the famous Fraunhofer Institute, together with the Dresden University, published to the Federal Ministry for Economic Affairs and Technology the report "Technologische und ökonomische Langfristsperspektiven der Telekommunikation"⁵⁶

It mentions next to Köln FttH projects in Norderstedt, Hamburg, Gelsenkirchen, Dessau, Magdeburg). The authors expect these projects to be successful and ousting other technologies.

Obwohl die technische Reichweite von Glasfaser-Anbindungen im Jahr 2010 auf die Gesamtzahl der Haushalte in Deutschland gerechnet noch gering ist, hat sich diese Zugangstechnik in einigen Städten sehr schnell durchsetzen können und dadurch die anderen Zugangstechnologien rasch verdrängt. Insbesondere in Städten oder Ballungsgebieten mit innovativen Städtetzbetreibern (City Carriern) hat sich die Glasfaser-Alternative entwickelt. Angefangen hatte dies in den Jahren 2005 und 2006 mit den Städtetzbetreibern NetCologne (Köln) und Wilhelm.tel (Norderstedt und Teilen von Hamburg) sowie einer Reihe weiterer regionaler Netzbetreiber (z. B. in Gelsenkirchen, Dessau und Magdeburg), die die Chance ergriffen hatten, ihre Netze komplett auf Glasfaser umzurüsten, als die Preise für Komponenten und Endgeräte rapide fielen. Sie wurden damit in Deutschland zu Vorreitern einer Entwicklung, die weltweit zu beobachten war und die über das Jahr 2010 hinausreichen wird. Erfolgsfaktoren für die Städtetzbetreiber sind dabei: Langfristige Unternehmensstrategien, Erfahrungen mit dem Betrieb eigener Infrastrukturen, Kenntnis der lokalen Märkte und der relativ späte Einstieg in die Welt der bereits liberalisierten Telekommunikation. Diese Faktoren erlauben es den City Carriern, ein Geschäftsmodell zu realisieren, bei dem zwar die aufwändige Neuverlegung von Glasfaserleitungen finanziert werden muss, das aber dennoch langfristig profitabel ist.

- **Austria:** The city of Vienna (pop. 1.5 million) has decided that all of it will be FttH-ized through the 100% subsidiary Wienstrom of the 100% municipal owned utility giant Stadtwerke Wien⁵⁷.
In september 24, 2007 the announcement below appeared⁵⁸

Swedish access infrastructure vendor PacketFront AB has landed a multimillion-euro deal to provide the network and home gateway systems for a fiber-to-the-home (FTTH) project in the Austrian capital of Vienna.

The contract, which will be announced Tuesday, has been awarded by Wien Energie Wienstrom, a utility company owned by the city of Vienna, which has devised a plan to hook up all of the capital's 800,000 homes with high-speed fiber access connections.

The first phase of the rollout, which has a euro 10 million (US\$14 million) capex budget, will connect 50,000 homes during the next two years. The city-owned company will run and manage the infrastructure as an open access network, with multiple service providers offering their access and content packages to the Viennese customers, a model already popular in Sweden and which has also been adopted by the Amsterdam CityNet fiber access project. (See Amsterdam Fires Up Muni Broadband.)

While many other European FTTH rollouts are using GPON technology, where bandwidth is shared among a number of connected households, Wien Energie has opted to deploy an active Ethernet infrastructure, with a dedicated and managed connection to each household, another decision that mirrors the Amsterdam project. French triple-play pioneer Iliad (Euronext: ILD - message board) has also opted for an active Ethernet-based strategy. (See Amsterdam Gets Active With FTTH and Iliad Gets Active With FTTH.)

⁵⁶ <http://tinyurl.com/yp9lpp>

⁵⁷ <http://www.heise.de/english/newsticker/news/68912>

⁵⁸ http://www.lightreading.com/document.asp?doc_id=134599&_src=lightreading_gnews

The fiber is being run through the utility company's existing ducts, with the access links connected to PacketFront's Advanced Services Router (ASR) and managed using the vendor's BECS operating software. The vendor is also supplying its home gateways for installation at the customer premises.

The above implies that in the Vienna network the municipality will for 100% be responsible for the passive as well as the active network. Elsewhere, in an interview with a Boardmember of UPC Austria⁵⁹ is learned that the network will however be open to all service providers.

o **United Kingdom**

The UK, until recently, seemed to be the country of "No broadband please, we 're British". That perhaps undeserved analysis was partly based on a scenario study ordered by the Broadband Stakeholders Group concluding that 12 Mb/s for a small part of the day for a fraction of the population would be the maximum necessary for the next decade.

However, things have changed. BSG got itself in Kip Meek a new and insightful chairman⁶⁰ and another change was in the government where Mr Brown became the new PM.

One of the people that got promoted to a full Minister is Stephen Timms, who before his political career had one in ICT. In October 2007 Mr Timms stated the necessity of futureproof broadband, after in September already warning that his country is running the risk to fall behind:

Timms:

Home workers will need fibre access⁶¹

19 Oct 2007

Competitiveness minister Stephen **Timms** says fibre-to-the-home will be necessary for home workers who need high-quality videoconferencing. The minister for competitiveness, Stephen Timms, has renewed his calls for fibre access to be rolled out across the UK — this time claiming that high-quality videoconferencing makes it necessary. Speaking at the 2007 Parliament and the Internet Conference in Westminster on Thursday, Timms said a growing demand for flexible working meant that the national telecommunications infrastructure needed an upgrade to fibre.

Although the "backbone" of the nation's infrastructure is already fibre-based, the connections between local exchanges and homes themselves are almost always based on copper, thus restricting access speed. Ofcom, the communications regulator, is currently consulting on how to overcome this bottleneck, with the most significant questions being those of demand and who will pay for the upgrade.

"UK broadband is in a leading position in terms of availability and use — it's already made an important contribution to UK economic success," said Timms on Thursday. "Data traffic has become more intense. We want to support new access to technology, and not encourage the digital divide."

Timms pointed out that high-speed networks would in any case be needed to support the widespread uptake of high-definition TV, but he also singled out the growth in flexible working as a justification. "A growing number of people are working from home who will need high-quality, two-way video conferencing [and advanced audio]," he said. "The quality of graphics applications is pushing up bandwidth needs."

"Effective use of technology enables economic growth," Timms continued. "We have hardly any fibre-to-home connections. As far as I'm aware, we have none."

⁵⁹ http://www.extradienet.at/jaos/page/main_aktuell_content.tmpl?article_id=21541

⁶⁰ http://www.broadbanduk.org/component/option,com_docman/task,doc_download/Itemid,9/gid,927/

⁶¹ <http://news.zdnet.co.uk/communications/0,1000000085,39290146,00.htm>

There are 900,000 in the US and eight million in Japan. We're not suffering yet, but communications applications with higher [bandwidth] needs are not far behind. We need timely take-up." Part of Ofcom's consultation involves looking at alternatives to wired access, but Timms claimed that wireless and satellite-based technology was "not enough to support our future bandwidth". "The infrastructure needs to be able to deliver high-speed broadband to all, based around fibre rather than copper, with the important addition of wireless, satellite and 3G," he said.

Prior to his political career, Timms spent many years working in the IT and communications industry. A former Treasury official, his current responsibility for UK e-commerce and competitiveness came about with his appointment to the Department for Business, Enterprise and Regulatory Reform in July of this year.

Government may back fibre rollout to homes⁶²

18 Sep 2007 16:16

Minister for competitiveness Stephen Timms has warned of the danger of falling behind other countries in broadband speeds. The UK government may intervene to promote the deployment of fibre connectivity across the country, according to the minister of state for competitiveness.

Stephen Timms, formerly the UK's e-commerce minister, made a speech on Tuesday in which he warned of the danger of falling behind other countries in broadband speeds. The speech was made to the Broadband Stakeholder Group (BSG), which recently called for a fibre rollout to keep the UK competitive. "When I became e-commerce minister five years ago, the UK was neck-and-neck with Croatia on broadband availability and use," Timms said. "Together, thanks in no small measure to the work of the Broadband Stakeholder Group, we fixed that problem and put Britain in a leading position. However, today we face a new challenge. Other countries are starting to invest in new, fibre-based infrastructure, delivering considerably higher bandwidth than is available in the UK today."

"As minister for competitiveness, I see it as one of my highest personal priorities that we have a high-performance telecommunications infrastructure in every part of the country, enabling us to compete successfully on a global basis," Timms continued. "That is why I have decided to chair a high-level summit later this year to consider the circumstances that might trigger public-sector intervention, the form that intervention might take, and at what level it might sensibly take place."

According to sources at the BSG, that summit is likely to take place in November or December, with delegates from industry, the regulator Ofcom and the government taking part. The BSG is also apparently keen to see the government set targets for measuring the UK's broadband infrastructure against its main economic rivals.

Although the UK's broadband infrastructure is based on a fibre backbone, the "last mile" connections between homes and telephone exchanges are almost entirely copper-based. With high-bandwidth applications such as IP television becoming a reality, many industry figures are concerned at the potential bottlenecks this situation could create. However, BT is reluctant to commit to upgrading copper connections to fibre because, under the current regulatory environment, it would then have to open up that infrastructure to its rivals. However, the price of copper is rising and BT's outgoing chairman, Sir Christopher Bland, hinted recently that fibre to the home (FTTH) could become a reality in the UK, as it has elsewhere in Western Europe.

⁶² <http://news.zdnet.co.uk/communications/0,1000000085,39289409,00.htm>

- **Yorkshire**

A little known, at least until recently to me (*so hat tip to Keith McMahon*), FttH aiming project is that in Yorkshire⁶³. It seems that this is for certain a muni empowered broadband project involving a stunning 500,000 households. However it is yet uncertain whether it will be FttH to all of those households or as I hear maybe FttH to half that number and fiber-VDSL to the other less affluent half of the territory.

From the site⁶⁴ it becomes clear that the project will be going into the roll out phase somewhere in mid 2007. As I am still researching this, for now I 'll sail on James Enck's trusted compass⁶⁵:

“The Digital Region South Yorkshire project will be bigger than Amsterdam, covering 1.5m population and 500k households, and from what I'm able to gather, there are some other regional projects in stealth mode which are looking to this as an indicator of how to proceed. It will also be intriguing to see how the BAFO (best and final offer) stage, which would appear to be happening now, (at least according to the timeline outlined in the site) comes out, in light of the short list of candidates.

The other day a valued friend and mega-uber value reader said I should shout more loudly about past predictions I have made which have come to fruition. I won't bore you with a list now, but one of which I'm proud is that in January 2004 I wrote a long note in which I highlighted UTOPIA, Stokab, and a handful of citizen-driven projects as indicators of a coming wave of tension between the agenda of telco/cable broadband service providers, and the social/economic development agendas of local and regional governments, in their pursuit of broadband self-determination. Well, it's happening all around us now, and finally in the UK, so hold on to your flat caps.

UPDATE: A mega-uber value reader writes in to say that this project may not be strictly comparable to Amsterdam, as Amsterdam is explicitly a FTTH project, whereas specific technologies are not mentioned in the Digital Region brief. Additionally, he argues, the lower housing density in South Yorkshire would make FTTH a more expensive option, so they're probably starting with FTTC and VDSL, possibly eventually migrating to FTTH. I would suspect the same, and I should have made this clear in the post. However, as an example of a muni (actually multi-muni, quad-muni?) broadband initiative, it would still be bigger than Amsterdam, if not faster.”

However, the latest progress report on the project's site dates from late 2006. Somebody out there who knows more?

Update 27 June 2007: the Tender appears to be won by a consortium of Kingston⁶⁶/ Alcatel/Thales, resulting in FTTC/VDSL, at least at first. Contenders losing out appear to be BT and Sky/Easynet.

- *Open Reach rolling out FttH in greenfields (again a hat tip to Telebusillis⁶⁷ Keith McMahon):*

BT's Openreach has made it known in a Consultation Document, dated 28th March 2007⁶⁸ that it will roll out FttP (which I think equals what we call FttH at the other side of the Channel) in “Greenfield sites (of sufficient viability) across the UK”. Openreach expect that this policy will lead to some 200,000 new premises to be connected to fiber, every year to come.

says Openreach:

⁶³ <http://www.digitalregion.co.uk/index.html>

⁶⁴ http://www.digitalregion.co.uk/how_far.html

⁶⁵ <http://eurotelcolog.blogspot.com/2006/09/hear-all-see-all-say-nought.html>

⁶⁶ http://en.wikipedia.org/wiki/Kingston_Communications

⁶⁷ <http://telebusillis.blogspot.com/>

⁶⁸ <http://www.openreach.co.uk/orpg/news/tiles/downloads/FTTP%20Industry%20Consultation%20Issue%201.pdf>

“Once FTTP has been approved for installation at a site, it is intended to be Openreach policy NOT to provide copper to that site. This will impact on the ability to provide existing copper-based services to that site.”

Below from their Consultation Document:

Openreach’s objective is to develop efficient and effective products and services that meet the needs of Communications Providers (CPs) and their end users. We aim to do this whilst balancing the demands on our organisation, recovering our costs and making a financial return on our investments.

As an industry, we are seeing requests from land developers of large residential Greenfield sites for ‘fibred homes’, leading to the need for the development of services over networks based on Fibre To The Premises (FTTP) delivery which has major implications for end user experience, end user services and significantly for the end user viewpoint.

Having undertaken some preliminary analysis of the deployment of FTTP and the associated development of wholesale services to be delivered over FTTP networks, Openreach intends to deploy FTTP at Greenfield sites (of sufficient viability) across the UK. Openreach therefore wishes to engage with and receive input from the wider telecoms industry to identify the possible characteristics of such services, and the potential levels of demand. As well as the requests from developers in the UK, the potential for FTTP delivered services has been recognised throughout the world, and is also addressed in Ofcom’s consultation regarding Next Generation Access. Openreach considers that now is an appropriate time to start developing service offerings to Greenfield sites utilising FTTP.

As such, Openreach currently intends to offer and enable FTTP delivered products at Ebbsfleet in Q2 2008. Ebbsfleet is a Greenfield site currently under development by Land Securities (www.landsecurities.com). Ebbsfleet is expected to have around 10,000 End User premises and up to 9 million sq. ft. of commercial offices, retail, leisure and community facilities.

Following initial delivery at Ebbsfleet, Openreach anticipates that a planned rollout will be carried out to other Greenfield sites across the UK. According to research, approximately 246,000 new residential and business premises are built every year. It is anticipated that over time, FTTP will be the access architecture of choice for 200,000 of these premises.

Because of the nature of FTTP delivered services, Openreach is taking the opportunity to consult with CPs as to the type of service(s) CPs would expect to see developed to address the needs of End Users served by FTTP. FTTP delivered services are expected to be offered to both Residential and Small Business/Home Worker End Users. It is not intended that these replace services currently delivered to larger businesses over point to point fibre, though it is recognised that some larger businesses may prefer to use them.

On August 14, 2007, an article appeared on the authoritative website ThinkBroadband.com⁶⁹

Openreach with Fibre to the Premises in 2008

Tuesday 14 August 2007 12:04:53 by Andrew Ferguson

The UK is behind countries such as France in the roll-out of fibre optic cable to the premises (FTTP). In a consultation process with communications providers Openreach is laying out its proposals for a GPON based fibre deployment to

⁶⁹ <http://www.thinkbroadband.com/news/3163-openreach-with-fibre-to-the-premises-in-2008.html>

Greenfield sites, followed perhaps by Brownfield sites. Indications are that a trial product may be launched in 2008.

Ebbsfleet is the new build estate at the forefront of this, with it being treated as a testbed for any future roll-out. Initially the fibres installed will provide Internet and broadcast TV content with a basic 10Mbps downstream and 2Mbps upstream Internet service. While no pricing indications have been announced by Openreach, the companies taking part in the consultation are calling for pricing roughly in-line with existing xDSL product pricing. Similar pricing is important due to Greenfield sites having no existing copper infrastructure to offer existing ADSL/ADSL2+ services. Higher speeds will be possible with calls by interested parties for 40Mbps downstream and 20Mbps upstream for residential, and for business use, support for speeds up to 1Gbps.

For those who currently live or have a business a long way from their telephone exchange the news that the GPON system should be able to manage a distance of 16km in the initial product roll-out, with extensions to 60km and 100km at later dates is welcome. One would expect in cases of areas that need fibre runs much longer than average that a higher install fee may be charged, but for businesses this one off cost may prove a worthwhile investment.

- **Russia**

Until now statistical information on FttX roll outs in Russia was scarce, rumor has it that in quite a few cities networks are rolled out.

ADSL to run out in St. Petersburg in four years⁷⁰
December 2007

In 2011 OJSC North-West Telecom intends to transfer ADSL subscribers to optics, while since next year the company intends to acquire small home networks both in St. Petersburg and regions, Vladimir Akoulich, the company's Director General, states. Analysts are sure home networks acquisition is meanwhile not efficient to North-West Telecom controlling about 30% of the broadband internet access. However, home networks are eager to negotiate with the St. Petersburg internet-market leader.

By 2011 North-West Telecom intends to connect about 1 mln. subscribers to its ADSL-service 'Avangard', which comes to 60% of broadband internet market, by Vladimir Akoulich estimations. North-West Telecom subscriber base in the North-West Federal District amounts currently to 200 thousand subscribers, 150 thousand located in St. Petersburg. The subscriber base is planned to come to 250 thousand up to 2007 end. 'Half a year ago demands for Avangard installation exceeded the company's possibilities 2.5-fold. The equipment producers were not able to catch up with demands, so there were violations of delivery plans and installation schedule. But the company managed to lay a store to be able to connect subscribers up to the end of the year', - Mr. Akoulich tells. North-West Telecom management forecasts there will not be recess in demand for the broadband internet in three years, but its quality is sure to change. 'According to our managers, the quality of demands is to change in 2010, as a person will not be interested in the broadband access only but in speeds. ADSL will be replaced by other technologies, i.e. optics, Ethernet', - Mr. Akoulich states. He also says his company has already started preparations to move to the mentioned technologies. However, there are some difficulties to be solved, in particular, the problem of personnel. 'If earlier a wireman could fulfill all the necessary operation, an engineer is required to work with ADSL now, while Ethernet requires specialists of higher qualification. So we have already started training our specialists', - Vladimir Akoulich tells.

Using FTTH the transmission speed comes to 2.5 GB/sec, but analysts are not sure in the efficiency of such technology wide implementation: it costs \$ 300 to

⁷⁰ <http://eng.cnews.ru/news/top/indexEn.shtml?2007/11/01/272956>

connect to FTTH. 'I believe it is better to lay down optic cables to a building and to connect flats through usual TP, - the analysts **Denis Kouskov** says. – Optics might be used only if a subscriber wishes. Most of subscribers are content with the speeds provided through a usual cable, so they are unlikely to pay \$ 300 to connect their flats though FTTH'.

Unlike the remote plans to move to optics North-West Telecom has made up the schedule of other operators' acquisition for 2008. According to Vladimir Akoulitch, both broadband and ADSL operators are included into the scheme not only in St. Petersburg, but even in the regions. 'If it is easier to buy a company than to invest to change the market and increase our market share, then we will buy the company. But the given process is rather complicated, as the seller wishes to receive as much as possible, while the buyer to pay as less as possible, so sometimes it is rather difficult to agree', - North-West Telecom Director General says.



Vladimir Akoulitch: the demand is to change in quality in 2010, so ADSL will fall into oblivion

The analysts Denis Kuskov believes it is not efficient for North-West Telecom to acquire home networks. 'Home-networks are operating illegally in most cases. North-West Telecom will have to pay the employees the legal salary, deal with equipment, which is often not on balance, carry out technical examinations of equipment and change it if necessary. Such an acquisition might be loss-making initially', - the analysts concludes.

Meanwhile, Web Plus (St. Petersburg second largest operators), North-West Telecom main competitor, is already constructing home networks. According to **Viktoria Koulibanova**, Web Plus PR-Manager, most of home network subscribers are connected though ADSL 2+, the others – through Ethernet. The company intends to construct fiber optic lines in St. Petersburg center in the near future to expand its home network.

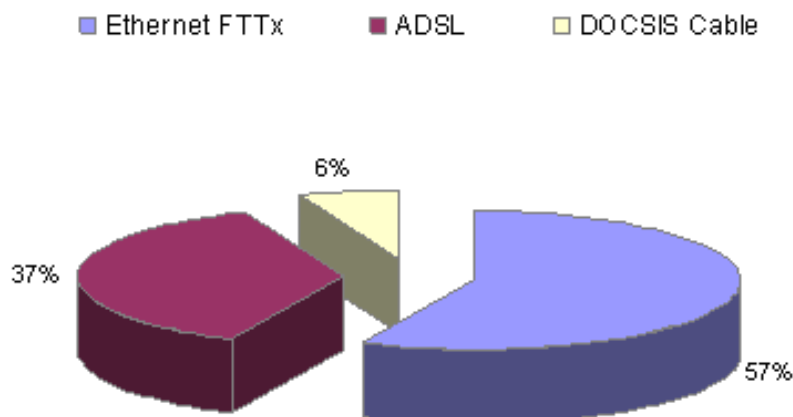
It should be noted, St. Petersburg market of home networks is ready to consolidate. Some home networks owners confess in private talks they are ready to start negotiating their business sales if the price is appropriate. North-West Telecom might become such an integrator.

However, on July 5th, 2007, Point-Topic published⁷¹ an analysis of the broadband market in Moscow – 57% or 570,000 connections happen to be FttX

In the Moscow market the dominant broadband access technologies are ADSL (37%), used by market leader Comstar-UTS and other ISPs, and Ethernet FTTx (57%), offered by some large operators like Central Telegraph and by

⁷¹ <http://point-topic.com/content/dslanalysis/BBAruss070702.htm> (obligatory free subscription)

dozens of smaller ISPs using optical fibre Ethernet technologies to connect buildings, apartment blocks and new developments to Internet services.



Source: ComNews, 2006

Moscow broadband market shares by technology, Dec 2006

In Dec 2006, Moscow had about 1 million broadband subscribers with a household penetration rate of 28%. The lion share of subscribers belonged to Comstar-UTS which snapped up about one third of the market, followed by Central Telegraph and cable operators Comcor-TV and Corbina Telecom.

- o **Portugal**

Municipality of Oeiras near Lisbon, 60,000 homes

Hat tip to José Loro de Dios, who writes in:

"I have been reading a recent overview written by you on the fiber to the home and backbone projects. First of all, and as a professional, I'd like to thank you for the quality of the work and remark how useful are this kind of independent studies are to the people like myself who are every day involved in the battle of approaching solutions to our customers.

I'd like to participate with you with one of our last press releases⁷² where our company (UTStarcom), jointly with a Cable provider from Portugal (TvTel), has announced the deployment of a Fiber To The Home project. The project will cover more than 60,000 homes, expecting a penetration of around 23%.

The area is the municipality of Oeiras, near Lisbon. TvTel will offer Tv services, tv on demand services, voice and high speed internet access in the form of 30 and 50mps to their customers. UTStarcom is providing GEAPON technology both in customer premises as within the distribution and aggregation network. The deployment started in February and we expect more news in short.

The beauty of the project relies in how easy it is for a cable company to deploy FTTH as it does not represent a major change in knowledge, culture and even planning. This is mainly due to the nature of the networks the cable providers already have deployed in the recent past (mostly hybrid networks). This was a bold movement at the right time that is paying off very well for them. The incumbent and copper based companies has a tough task to battle this offer."

⁷² <http://investorrelations.utstar.com/ReleaseDetail.cfm?ReleaseID=249950>

- **Norway**

- In may 2007 a press release came along...

Norwegian power company taps PacketFront for FTTH

MAY 25, 2007 PacketFront (search for PacketFront), provider of open-access fiber-to-the-home (search for FTTH) broadband networking, has signed a contract with Norway's largest power utility company, Hafslund, to build an open access FTTH network in Ostlandet, the area in and around Oslo.⁷³

When I first read it I didn't realize its significance nor that this is a massive Open Muni FttH roll out. However, since then I've found

- 1) demographic info on the area, as well as
- 2) an answer to the question who owns this Hafslund energy corp.

Resulting in this:

- 1) In population terms the region of Ostlandet contains about 50% of all of 4.6 million inhabitants of Norway. And apparently those > 2 million people all will get open FttH
- 2) Hafslund is an energy corp listed on the Oslo stock exchange and 53.72% of the shares is owned by one big, big shareholder: none other than the Municipality of Oslo.⁷⁴

So here a muni FttH project is rolling out to half of a country's population...

- In the rest of Norway small projects are kicking off, at a stiff consumer price though. At least one Norwegian would love muni fiber⁷⁵.
- Then there is Stavanger (pop. 110,000) where the local energy corp, Lyse, rolls out FttH. Or the customer himself, as PointTopic explained in april 2007:
"When households in the city of Stavanger in Southwest Norway want to get broadband from Lyse Tele, they have two options: either to wait until the engineers dig a trench for them or do it themselves. An amazing 80% chose to get out their shovels and dig their own. Lyse Tele's broadband services, like many of its kind in Scandinavia and the Netherlands, are special. They are fast, symmetrical and cheap. Monthly prices for stand-alone service range from as little as US\$26.50 to US\$31.00 for a symmetric 10 Mbit/s FTTH broadband service. They are delivered over optical fibre, and no longer use copper wires."⁷⁶

- **Spain**

Thanks to *Norman Albi* of Aggaros (very well chosen name!⁷⁷) for providing me with local up to date info.

- **Asturias**: a 30.000 homes FTTH Open network. The network will be finished in February 2007 and fully operational in March. The investment is fully public and reaches 18 million euros⁷⁸.
- **Catalonia**: the project today is a fiber transport open network that will reach a large number of cities in the telecommunications market⁷⁹. Comment: this part of LocalRet seems to have some resemblance to departmental fiber projects in France, where fiber is roll out to local central offices, from where xDSL is provided by telco's.
- **Barcelona**: at the FttH Council Conference in February 2007 LocalRet CEO Lopez presented worked out plans to deploy FttH in a central part of the city.

⁷³ <http://tinyurl.com/3dcjv4>

⁷⁴ http://www.hafslund.no/files/File/engelsk/aksjonerer/aksjonerer_eng_may_07.pdf

⁷⁵ <http://anglero.blogspot.com/2006/02/ftth-in-norway-is-joke-so-far.html>

⁷⁶ <http://point-topic.com/content/dslanalysis/BBAftth070219.htm>

⁷⁷ <http://www.aggaros.com/angles/idioma.html>

⁷⁸ http://www.alcatel.com/vpr/?body=http://www.home.alcatel.com/vpr/vpr.nsf/DateKey/05092005_2uk

⁷⁹ http://www.lightreading.com/document.asp?doc_id=76145&WT.svl=news1_6

Scale would be some 10 thousands of connected addresses.

- **Denmark:** 140 of the 180 odd energy companies are embarking on a deployment of some 967,000 homes. That's 33% of all homes in which 50% of all Danes. The local Market authority applauds this move⁸⁰.
This is not muni fiber – however many of these energy corporations are owned by their subscribers, as Denmark is a country of collective efforts.
Foreign owned incumbent TDC in reaction is working on a country wide fiber/vdsl scenario.
- **Sweden:**
In Sweden about half a million homes have a FttH connection. In June 2007 the telecom regulator PTS moved to a structural separation of incumbent Telia, this to ensure that the network is real open to competitors. Verbal information from Sweden indicates that PTS would want the same openness for local fiber networks:

Telia 'should be broken up'⁸¹

Published: 14th June 2007

Swedish-Finnish telecom operator Telia Sonera could be forced to separate, putting its Swedish fixed-line network in a separate unit, if a new proposal is incorporated into law. The proposal was put forward in a document from regulator PTS drawn up on a commission from the government.

Under the proposal Telia Sonera would be forced to split up the production and sale of certain wholesale services from its other activities. The two parts of the company would have to be separated by 'watertight barriers', PTS said.

The model put forward for Telia Sonera is very similar to the British model, in which former monopoly phone provider BT has a semi-detached unit to handle wholesale activities.

Marianne Treschow, head of PTS, criticized the current system whereby Telia Sonera negotiates with other operators to give them access to the network. She said that the system had led to repeated conflict between the companies, with a long line of court cases resulting.

"And still the relationship between Telia Sonera and the other operators is not working," she said. "And when the buyer-seller relationship is now working, it damages Sweden as an IT nation, and leads to us falling behind our neighbours."

The proposal will now be handed to the government, and will be put out for consultation during the summer. PTS expects the measures to be passed by January 1st 2008, but for them to take some time to be fully implemented.

Specific projects:

- of the in total Swedish 289 communities 200 own a fiber network. Partly backbone, but in a growing number of them FttH is offered. Where available about 50% of the population subscribes, the actual number of FttH connections is some 500,000.
- StokAB, the 100% municipal owned fiber corp. of **Stockholm**, is adapting. They used to offer only dark fiber, but in 2005 Stockholm's City Council decided to have the city's 100,000 odd social housing apartments connected in a FttH roll out. It is expected that this example will be followed all through Sweden⁸². In 2006 the ruling coalition lost its majority in city and country. This may lead to policy changes.
- **Slovenia:** in May 2007 incumbent Telekom Slovenije (for 65% state owned) published its report on 2006. On page 20 is stated:
"Telekom Slovenije, d.d. launched this year's most important project »F2«, which will mark the coming decade. The company decided to undertake massive

⁸⁰ <http://www.citynet.nl/upload/Danish%20Comp%20Auth%20on%20FTTH%20by%20electricity%20companies%20summary.doc>

⁸¹ <http://www.thelocal.se/7601/20070614/>

⁸² www.ssnf.org and http://82.182.148.110/pps_www/se_eng.asp

construction of FTTH (Fibre to the Home) fibre optic local access networks. This constitutes a significant developmental and technological shift from copper to fibre optic networks, offering greater reliability, quality and faster transfer rates as well as the possibility of additional services."

Followed on page 23 by:

"In 2007 Telekom Slovenije, d. d. began implementing a project that is to mark the coming decade. The company decided to go ahead with massive construction of FTTH (Fibre to the Home) fibre optic local access networks. Telekom Slovenije, d.d. plans to install up to 50,000 fibre optic lines in 2007. High performance fibre optic networks will be built for the future, when emphasis will be placed on completely different multimedia services and content."⁸³

In June 2007 the European Investment Bank, a 100% institute of the European Union that provides 'soft loans' for infrastructure projects, On June 26th, 2007, the EIB issued a press release⁸⁴ stating:

"The European Investment Bank (EIB) is lending EUR 40 million to Telekom Slovenije, a state-owned telecommunications operator in Slovenia. This is the first tranche of a EUR 100 million loan (*on the most favourable terms - ed.*) approved by the Bank to finance nationwide upgrading of the fixed line telecommunications network in Slovenia in order to modernise the existing physical copper and fibre network, the backbone transmission systems and operational support systems.

The loan covering the remaining EUR 60 million will be signed in August. It will be the first operation in Slovenia on a corporate risk basis without a bank guarantee. This reflects the new policy orientation of the EIB to accept a higher lending risk and provide better access to long-term finance on favourable terms in order to implement priority projects in the areas of research, development and innovation dissemination."

On August 7, 2007, the authoritative web publication Light Reading published an article⁸⁵ titled "Slovenia Snacks on Fiber Diet" on Telekom Slovenije, stating that the company had decided to roll out FttH to 70% of all households in the country:

"European incumbent operator Telekom Slovenije plans to spend up to €450 million (US\$620 million) between now and 2015 on a fiber-to-the-home (FTTH) rollout in an effort to deliver high-speed access capabilities to 70 percent of households in the small Eastern European country of Slovenia. (...)

Telekom Slovenije, which calls its FTTH project F2, plans to spend €50 million (\$69 million) this year taking fiber to 50,000 homes in Slovenia's main cities, running new cables through its extant ducts for the initial phase of the rollout. The carrier's total planned capital expenditure budget for the year is €220 million (\$303 million), so it is dedicating more than 20 percent of its 2007 capital outlay to F2.

The operator then aims to have 100,000 homes connected with point-to-point active Ethernet by the end of 2008 and 300,000 by the end of 2010. By 2015, it plans to have fiber running to about 434,000 homes, or 70 percent of Slovenia's households. This, believes the carrier, will help boost the uptake of bandwidth-hungry services such as IPTV, video on demand (VOD), and interactive gaming. The carrier plans to invest €300 million (\$414 million) in F2 by 2010, and €400 million to €450 million (\$551 million to \$620 million) by 2015.

Some of that money is coming from the European Investment Bank, which has granted a €100 million (\$138 million) loan to the carrier for its broadband plans. That loan also includes funding for the rollout of xDSL and WiMax technology in Slovenia. (...)

⁸³ <http://www.telekom.si/uploads/pdf/Podjetje/Summary%20of%20Annual%20Report%202006.pdf>

⁸⁴ <http://www.eib.org/projects/press/2007/2007-058-slovenia-eib-loan-for-telecommunications-infrastructure-development.htm>

⁸⁵ http://www.lightreading.com/document.asp?doc_id=130970

The new network and services rollout comes as the incumbent faces increasing competition from alternative operators, such as T-2 and In.Life, and pan-European cable operator UPC Broadband."

- **Lithuania:** in may 2007 incumbent TEO announced to start rolling out FttH:
TEO LT, AB (hereinafter – TEO), an integrated telecommunication, IT and TV services provider, commences the installation of the first in Lithuania new-generation fiber-optic network, the fibers of which will be installed up to the user's computer.
"The Fiber-to-the-Home (FTTH) Project is one of the most important network modernisation projects of TEO. Over three years, we will invest more than LTL 100 million in the new optical access network. This strategic solution will enable us to meet the fast-growing customer needs for fast Internet access not only today, but also for many years to come", - says Arūnas Šikšta, General Manager of TEO LT, AB.
(...)
TEO plans that the residents of the 5 biggest cities of Lithuania will be the first to use the advantages provided by the fiber-optic network, and in Vilnius the provision of fiber-optic Internet services will be launched already in June.⁸⁶
- **Ireland**
I received the text below from Rory Ardagh:
 - "The Government has a funding initiative in place to roll-out open access fiber/duct backbone networks in all towns in Ireland (except Dublin) over 5,000 in population. A map of those towns is attached. This project is being rolled out by a company called www.magnumopus.ie. The projects do not address the access links, and are primarily targeted at the business areas of those towns. Pricing of access to the infrastructure is considered high and already some of the town are considered little more than 'digital graveyards' as they lack either client connectivity or interconnectivity onto national backbones. A neutral operator called *E / Net* manages access⁸⁷.
 - Magnet Networks⁸⁸ is rolling out a triple play FTTH network and is targeting over 45,000 homes in the next few years."

My comments:

According to the OECD Ireland is at rank 24 for broadband penetration.⁸⁹ This is not too high, considering that it was, in mid 90-ties, one of the first countries to sell off its incumbent telco. As you will remember the privatization guru's of the time (and the EU) at the time argued that this was the way to ensure investments. However, it seems the acquiring US investor did not do so and preferred all kinds of financial transactions⁹⁰. This apparently resulted in lacking infrastructure development and subsequently low broadband take up. In 2005/6 a plan the Irish government came up with the above mentioned state and EU funded backbone plan. That raises the question whether this means a collectively paid for repair of a privatization turned sour...

Next there are some differing views on the scheme:

⁸⁶ http://www.teo.lt/en/press_releases-1308-1409.html

⁸⁷ <http://www.enet.ie/Shared/Operators/ProductPricing.aspx>

⁸⁸ <http://www.magnet.ie/services/fibre-to-the-home.shtml>

⁸⁹ http://www.oecd.org/document/9/0,3343,en_2825_495656_37529673_1_1_1_1,00.html

⁹⁰ <http://en.wikipedia.org/wiki/Eircom>

EU supports €170m MAN effort⁹¹

10.03.2006

The EU's decision to authorise the next phase of the Government's €170m Metropolitan Area Network (MAN) programme to deploy fibre optic rings around 90 more Irish towns has received mixed reactions and questions over the tangible benefits MANs will deliver.

At least two parties have claimed that MANs are not the real solution to Ireland's broadband woes and say the €170m could be put to better use.

Yesterday the European Commission authorised under EC Treaty state aid rules a programme to boost broadband availability in Ireland, which it admitted is lagging behind most EU15 member states in broadband penetration.

A recent Commission report showed that broadband penetration in Ireland stands at just 5.34pc, in comparison with best figures of 23.79pc in the Netherlands, 22.51pc in Denmark and 20.33pc in Finland.

The Irish Government will create open-access Metropolitan Area Networks in more than 120 Irish towns at a cost of €170m, with support from EU structural funds. The Commission concluded that the aid was not likely to distort competition within the EU significantly.

(...)

Ironically, at least two different entities — national telecoms operator Eircom and lobby group IrelandOffline — have found themselves for once arguing from the same wing questioning the tangibility of investment in MANs, albeit with two completely different viewpoints.

Eircom commercial director David McRedmond told siliconrepublic.com:

“We're baffled as to why €170m of state aid is required in places where we already provide broadband. We provide it to 118 of the 120 towns listed for MANs. More than 85pc of lines in Ireland, bang on the European average, are connected to Eircom exchanges. The real deficit is the last 10 to 15pc of lines. It is not commercially viable for us to cover the last 10pc but the Government should do so because these areas can't get broadband otherwise. “We share the Government's aims around broadband but we've done our job to get 85pc of lines connected — now they should change their plan and deal with where there is a deficit and where investment would be appropriate rather than duplicating existing assets,” McRedmond said.

The question over the tangibility of MANs was brought up earlier this week when the Oireachtas Joint Committee on Communications, Marine and Natural Resources presented its sixth report and criticised the Government for failing to implement any recommendations it fielded two years ago. At least five questions out of 35 put to the Government over the broadband debacle centred on the use and value of MANs.

Ireland Offline spokesman Damien Mulley commented: “MANs are quite pointless when local loop unbundling (LLU) is still broken and when the MANs aren't automatically connected to any kind of backbone. MANs can only work and be value for money when we have an LLU system that works and a proper backbone infrastructure.

“It is quite disappointing that the Government claims spending this outrageous amount of money has done a lot of good when it can be seen by the OECD, EU and Oireachtas reports that the MANs so far have failed to deliver anything for the consumer,” Mulley said.

In a startling development on August 3, 2007 a proposal by private telco Eircom became public. Apparently the company wants to swap its copper local loops for the state and EU financed fiber loops. That's interesting. As these copper loops soon will be a liability, considering the cost to remove after homes are connected

⁹¹ http://www.e-net.ie/Shared/Events/Events_00008.aspx

to fiber. One might think of this operation, were it closed, as a form of indirect state support to a private telco.

Eircom and Government in broadband swap?⁹²

Friday, 3 August 2007 08:55

Eircom is considering a proposal to offer the Government a stake in its copper wire infrastructure in exchange for the state owned Metropolitan Area Networks.

The Networks, known as MANs, are fibre networks which have so far have been built by the Government in around 20 towns around the country as an alternative source of broadband supply.

RTE understands no approach has yet been made to the Government.

It is also understood that Eircom is considering an alternative proposal to offer the state cash offer for the MANs. Eircom's business strategy is to sell its retail arm while retaining the infrastructure.

If the Government were to accept a deal involving a stake in the combined Eircom/MANs infrastructure, then it would be the first time the state would have some level of control over the copper wire infrastructure it sold off along with the rest of Eircom in 1998.

In the period since there has been considerable criticism of Eircom's investment in its infrastructure to facilitate demand for broadband.

However, on October 29, 2007 news came that Eircom too will pilot with FttH in *Sandyford*:

Eircom takes fight to UPC, Magnet with on-demand TV trial⁹³

According to Ireland's Sunday Business Post, former monopoly fixed line operator eircom plans to trial a new on-demand TV service – part of a EUR60 million (USD86.3 million) upgrade being undertaken by the firm – in a bid to take on the likes of UPC Ireland and Magnet Networks in the pay-TV market. eircom's new product will offer on-demand programmes and films in a trial to be launched in Dublin's Temple Bar with a test audience of up to 100 people. According to the telco's chief technology officer, Geoff Shakespeare, the company is in the process of obtaining a temporary permit from TV stations to offer such services as it moves forward with its plans to become a triple-play service provider. The telco says it is looking to upgrade its network in a phased manner to increase maximum downstream broadband connections to 24Mbps, up from 6Mbps currently. 'Fundamental to our pursuing this is the belief that there is a unicast world coming where you get to choose what you want to watch when you want to,' Shakespeare said, adding that eircom also plans to deploy a fibre-to-the-home (FTTH) trial in 100 apartments in Sandyford.

- **Finland** has some small projects⁹⁴.
 - **Kouvola** region a project to bring Fiber to the Village and from there ADSL (presentation⁹⁵)
 - Network Co-operative **Kuuskaista** consists of 6 municipalities: Kuortane, Alavus, Töysä, Ähtäri, Lehtimäki, Soini about 10,000 homes and 2,000 businesses⁹⁶
- **Italy / Milan, now country wide**
The famous competitive telco FastWeb only 10 years ago started as a muni fiber project. Recent case studies by the European Foundation for the Improvement of Living and

⁹² <http://www.rte.ie/business/2007/0803/eircom.html>

⁹³ http://www.telegeography.com/cu/article.php?article_id=20270

⁹⁴ www.corning.com/docs/opticalfiber/cm6325.pdf

⁹⁵ http://www.europeftthcouncil.com/extra/Restricted_area/Regulatory_Com_restricted/Kouvola_Region_Hannu_Kuverola_.pdf

⁹⁶ <http://www.corning.com/docs/opticalfiber/cm6325.pdf>

Working Conditions⁹⁷ and the ITU⁹⁸ describe how municipal entrepreneurship lead to the roll out of a FttH/FttB network in the city of Milan as well as to the start of the successful national competitive telco Fastweb.

In July 1999 FastWeb SpA was launched in conjunction with its sister Metroweb SpA, as a result of a joint venture between the then 100% municipally owned local utility AEM SpA together with the private e.Biscom company. MetroWeb was for 66% AEM owned, Fastweb for 55% e.Biscom and 37% AEM (37%). MetroWeb rolled out a fibre network in Milan, FastWeb was given exclusive access⁹⁹ to the network in order to deliver services. Several years after shares were swapped.

Today 100% of Metroweb's shares (and so ownership of the rolled out Milan FttH/B network) is held by AEM SpA, of which the Milan Municipality now holds a controlling ca. 44% of shares, another 49% has been floated.

AEM's shares of Fastweb were acquired by e.Biscom, which changed its brand name to Fastweb. Having learned from the, to a large extent municipal financed, network roll out in Milan the company started to roll out comparable networks in other Italian cities.

With quite some success, as described by aforementioned European Foundation:

“The Italian company FastWeb, founded in 1999, stands as, possibly, one of the most significant players in the telecommunications sector today. It forms part of the latest generation of operators, born out of the opportunity provided by liberalization processes in Europe.

FastWeb provides ‘triple play’ services – TV, telephony and Internet access – to the Italian residential and business markets by means of its own fibre cable TV network that includes the backbone and the majority of local connections to users and businesses. FastWeb has complemented its fibre optic network with ADSL access.

The company is continuing to expand its network: by the end of 2010, FastWeb hopes to cover half of all Italian homes and connect all cities in the country of more than 45,000 inhabitants.

Growth in revenues and in number of users has been constant since the company began operations. From this year, the company projects that it will generate a positive cash flow and pay dividends to its shareholders.

Innovation is also a constant in FastWeb activities. The company has maintained a regular flow of new products and services by making use of its well-established technological competencies, and by creating imaginatively packaged offerings to its markets. It has also created and developed specific ICT based management systems and applications, as new services require new ways of controlling use of the network and new billing methods. Proof of its success in innovation can be seen in its ‘TV on demand’ service – the first of its kind in the world – and other breakthroughs such as virtual video recorders or access to voice mail systems from any triple play device.”¹⁰⁰

In March 2007 Swisscom stated its interest to buy Fastweb, apparently because of its know how on IP TV. According to Lightreading¹⁰¹:

In the field of new technologies, which are key to the further development of Swisscom's infrastructure, Fastweb has a lead of three to five years.

Fastweb also has a competitive edge in terms of expertise in the strategically important field of multimedia applications based on broadband, and has been delivering IPTV to its customers since 2001.

In May 2007 the European Commission agreed to the deal.¹⁰²

On October 31, 2007, I received mail from **Riccardo Rosi**, Sales Director of Metroweb, fiber network provider in the esteemed city of Milan. He offered to add the information

⁹⁷ <http://www.emcc.eurofound.eu.int/publications/2005/ef0567enC5.pdf#search=%22fastweb%20milano%22>

⁹⁸ www.itu.int/osg/spu/ni/broadband/workshop/italyfinal.doc

⁹⁹ *ibid*, http://newsroom.cisco.com/dlls/prod_040902c.html

¹⁰⁰ <http://www.emcc.eurofound.eu.int/publications/2005/ef0567enC5.pdf#search=%22fastweb%20milano%22>

¹⁰¹ http://www.lightreading.com/document.asp?doc_id=119165

¹⁰² <http://www.ihf.com/articles/ap/2007/05/10/business/EU-FIN-Switzerland-Swisscom-Fastweb.php>

below to this overview, for a hat tip is the least to offer. As far as I am concerned the gest is that Metroweb is as well an expression of the responsibility the City of Milan takes, through AEM, for the economic and social development of the city:

Metroweb was the sister company of the more famous Fastweb (both companies owned by e.Biscom and AEM). In 2003 AEM acquired 100% of Metroweb even if Fastweb continued to be the main customer of Metroweb using Metroweb fibers for its FTTH project in Milan. In October 2006 company shareholders changed again: now about 76% is owned by the private equity fund Stirling Square Capital Partners and about 24% is still owned by AEM. As a consequence, the top management of the company has changed and the strategy of the company have been more aimed at becoming an open provider of dark fiber for all carriers/SPs (including Fastweb itself) that want to realise FTTx projects.

o **Netherlands:**

In the Netherlands the fiber debate seems to have lost some steam, as the new (and privately financed) Reggefiber company has published its intentions to roll out some 1.5 millions FttH connections in the country. Some more information on that from Hendrik Rood through Gordon Cook's blog & research¹⁰³.

New and existing projects:

- o Regge Fiber in 2007 announced that all of the city of **Deventer** (pop. 110,000) will be rolled out¹⁰⁴.
- o Incumbent KPN in may 2007 announced that they will roll out FttH to all addresses in **Enschede** (pop. 140,000)¹⁰⁵.
- o **Rotterdam** has already some 4,000 live connections, the City decided (early 2006) to have a city wide backbone rolled out, aiming at FttH-ing all of the city. The Hague has allready FttH-ized all 400 schools, as did Deventer with its 52 schools. Not to be outdone the province of Zeeland (geographically a collection of peninsulas) has partly financed fiber rings to all its secondary eduction institutes.
- o **Almere** (pop 250,000) has a pilot project, that aims at all of the city. There is some movement to might lead to a citywide roll out.
- o **Nuenen** (pop. 30,000) 90% of all homes are paying subs (at least one sub either/or TV, internet, telephone) to the local FttH-net (10 or 100 Mb symmetric.), Eindhoven has some 8,000. The council there recently decided to have all of the city connected.
- o In the nearby **Geldrop-Mierlo** competitive telco Regge Fiber announced the intention roll out of FttH. That alone was enough for about 65% of the population to sign a contract. Roll out starts in 2007.
- o In **Hillegom** (pop 30,000) CLEC Lybrandt is deploying FttH with their KaDaKa ("kastje dat alles kan", box that can do all) project¹⁰⁶. Lijbrandt has communicated their ambition to deploy in the town of **Lisse** as well as the city of **Haarlem** (provincial capital, pop. 145,000).

Below from James Enck's blog¹⁰⁷ on august 9, 2006:

Over in the Netherlands Vincent Dekker at Trouw has been continuing to dig into the FTTH story. As usual, he has come up with some very interesting information.

Firstly, a commercial (as opposed to muni) FTTH project in the small town of Hillegom, halfway between Amsterdam and The Hague, has reported some pretty astonishing progress in its rollout. Of the 7,431 homes in the town, 5,400 are passed by the network, and of that number, 4,600 homes are connected and taking at least one service - a penetration rate of 85%. Of this base, 90% take

¹⁰³ <http://gordoncook.net/wp/?p=83>

¹⁰⁴ <http://tinyurl.com/2pk4da>

¹⁰⁵ http://www.enschede.tctubantia.nl/139660/hoge_verwachtingen_glasvezel

¹⁰⁶ <http://www.kadaka.nl/info/planning.html>

¹⁰⁷ <http://eurotelcoblog.blogspot.com/2006/08/haarlem-shuffle.html>

telephony and/or TV. In other words, within its footprint, the Hillegom fiber network has a 73% share of the markets which have traditionally belonged to cable (Casema) and KPN, leaving these two companies to fight for the remaining 27%. What's more, the total cost of construction and lighting the network has worked out to EUR1200 per home, which should give one pause for thought when we consider that the enterprise value (EV) per sub in the recent Casema transaction was north of EUR1700.

So encouraged is the company behind the project, Lijbrandt Telecom, that it now plans to expand to the nearby town of Lisse (10,000 homes) in October, and to 120,000 homes within the Dutch Bollenstreek heartland within three years. Perhaps most interesting is the revelation that the company behind the Hillegom network, Lijbrandt, is owned by entrepreneur Dik Wessels, who also owns construction conglomerate VolkerWessels, which is already involved in a number of muni fiber projects, and whose Reggeborgh company recently acquired a very high quality national backbone. It looks to me as though Mr. Wessels is gradually amassing assets which could pose a real challenge to both KPN and cable.

Next, Trouw trains its sites on Haarlem (yes, American readers, this is the original), a city of 145,000 bordering the Bollenstreek region, where it transpires that apparently KPN wants to do FTTH and share the cost of digging with Lijbrandt, the very same company behind the Hillegom project. Lijbrandt reportedly isn't hot on the idea, principally because the city charges EUR22 per meter for restoring the streets to their original state. The article goes on to report that KPN is in negotiations with Lijbrandt about offering services on the Hillegom network, which presumably means IP TV.

All this points to a new way of working for the incumbent: partnering with those who have the expertise in infrastructure projects to share costs in new build (even if doing so enables another strong competitor in the process, it's better than missing the boat completely), and being a wholesale customer on networks where it has already been trumped (as in Hillegom). It also points to a future market with much wider regional/local variations in terms of level of dominance and market share, and presumably, once again, a new set of challenges for regulators. Does 13% market share (my estimate) in a town like Hillegom really equate to significant market power? Should the incumbent which finds itself in such a situation be held to the same price controls in this particular town, or should regulation be restructured to suit a more varied regional or local situation?

- Housing corporation Portaal has started to connect it's 50,000 odd homes to FttH¹⁰⁸ in **Soest, Utrecht, Arnhem** and **Nijmegen**.
- **Amsterdam** now are at the European Commission to have its private public FttH network (40,000 subs) confirmed on conformity to state aid rules. Amsterdam in 2004 voluntarily entered discussions on their project with the European Commission, ending in the just as voluntary presentation of the whole project to Brussels in May 2006. The Commission has been asked to formally investigate that the project does not involve state aid, as the Amsterdam as a minority share holder invests in only the passive layer.

The other owners of the fiber company Glasvezelnet Amsterdam (GNA) are ING Real Estate, Reggefiber and five housing corporations. The latter own some 70% of the Amsterdam's rental housing – and 80% of all homes in Amsterdam are rented ones. The Amsterdam approach is based on the European concept of an authority operating under the Market Economy Investor Principle (MEIP). The responsible Directorate General extensively described this principle and its application in broadband projects in April 2005 (see page of the link, on page 10

¹⁰⁸ http://www.lightreading.com/document.asp?doc_id=87410

an imaginary Amsterdam like case is described, see foot note.¹⁰⁹ The final opinion of Brussels is expected this fall.

In June 2006 cable company UPC sued the city, demanding a standstill of the project until the European Commission has issued its opinion. However, testing the project on the European rules, the Amsterdam judge ruled that the project in no way involved state aid, so all of UPC's demands were denied.

On October 12, 2006, GNA started the roll out of the network.¹¹⁰

In December 2006 Brussels issued an interim decision, in which the Commission accepted the basic principles of GNA and the fact that the company itself and its share construction do not constitute state aid. The Commission however wants more information on proceedings before the incorporation of GNA, which causes them to do some more research. There is no indication yet on the time scale of this inquiry nor of a date for a final decision.

- **Amsterdam:** in February the schools in the city together tendered broadband connections. The tender was won by KPN (passive) and Imtech (active). The result is that some 600 locations now can be connected with each 1,000 Mb/s.
- **Switzerland: Zürich**

After a positive vote in the Zurich City Council, Swiss law obliged a popular referendum on an investment of 200 million Swiss francs by the municipal energy corp EWZ. On March 12, 2007, the city's population could decide. There were actions groups in favor as well as against. Rumor has it that the latter partly were supported by vested interests – see the famous FUD page of Lafayette ProFiber¹¹¹. However, the population clearly wanted FttH, as 65% of all voters entered 'Yes'¹¹². The citywide roll out now has started.

On May 29, 2007, Orange (France Telecom) announced a small scale pilot in which it will use the new network in Zürich as a service provider.

Below a comment of James Enck on Zürich, back in those golden times when Eurotelcolog was still up:

“This astute observation from the immortal Alan Partridge has stood the test of time, and also allows me to work an oblique and pathetic Swiss Cheese reference into this post. A Platinum Club charter member and long-time mega-uber value reader alerts me to something which I missed a couple of weeks back, and haven't seen coverage of anywhere else. The Zurich municipal electrical utility company (EWZ) has a diversification strategy into telecom, and the city council has applied to

¹⁰⁹ COMPETITION POLICY NEWSLETTER 2005 NUMBER 1 SPRING: “**Investment on market terms**

When public authorities intervene on the market on the same terms as private investors, there is no granting of State aid. This case, however, is quite rare, since public authorities generally take action precisely because the market fails to deliver the desired supply.

Nevertheless, it might still be the case that a public investment project in a broadband project is capable of securing revenues that are sufficient to repay its costs within a reasonable time-horizon and provide a rate of return in line with the market remuneration for projects of similar risk.

For pure infrastructure projects the appropriate repayment period might be longer, and the return on investment might be lower than those required by the market on integrated telecom projects. The Commission accepts the principle that the business model of a 'utility' company involved in pure infrastructure provision would be different from that of a telecom operator investing in a network and providing electronic communications services to end-users (1). However, conformity with the Market Economy Investor Principle (MEIP) would have to be supported by a sound business plan, foresee a pricing policy that is justified on commercial rather than on policy grounds and possibly envisage a relevant participation of private partners to the venture on equal terms with public investors. “

http://ec.europa.eu/comm/competition/publications/cpn/cpn2005_1.pdf

¹¹⁰ www.citynet.nl , www.glasvezelamsterdam.nl

¹¹¹ <http://lafayetteprofiber.com/OnBackground/FUD.html>

¹¹² <http://tinyurl.com/392wfd>

the district council for a CHF200m loan to build an open access FTTH network. Unsurprisingly, Swisscom and Cablecom have made statements about how this throws up questions regarding the role of the state and of state aid. The three year pilot phase expires on 8th July, after which the next phase of buildout will be put to a council vote and public referendum. Thus another front opens in the emerging conflict between muni nets and vested interests.”¹¹³

November '07
Dirk van der Woude

¹¹³ <http://euotelcoblog.blogspot.com/2006/06/every-net-is-full-of-holes-this-astute.html>

Public Private telecom projects in France

As of June 2007

Table 1: Broadband projects of Cities, Communities & Agglomerations ("Collectivités")

Source: <http://www.journaldunet.com/dossiers/hdregions/annuairehdagglomerations.shtml>

Les projets haut débit des villes et des communautés d'agglomération				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Ales</u> (Communauté d'agglomération)	Projet haut débit	Mise en place d'une couverture haut débit du grand Ales	Libertysat, Avant garde Ingénierie (agi)	<input type="checkbox"/>
<u>Amiens</u> (Communauté d'agglomérations)	Phileas Net	Projet pour la réalisation d'une boucle de télécommunications à haut débit	France CitéVision	<input type="checkbox"/>
<u>Angers</u> (Angers agglomération)	Boucle Optique Angevine	Réalisation d'une infrastructure de fibres optiques réservé à 5 Groupements fermés d'utilisateurs	nc	<input type="checkbox"/>
<u>Angoulême</u> (Communauté d'agglomération)	Réseau haut débit	WiMAX et fibre optique	Sogetrel, Covage	<input type="checkbox"/>
<u>Anzeme</u> (Municipalité)	Expérimentation CPL	Expérimentation CPL en milieu rural	nc	<input type="checkbox"/>
<u>Ardennes</u> (Communauté d'agglomérations)	Projet "Vallée Numérique"	Mise en place d'un réseau haut débit dans 4 communes	nc	<input type="checkbox"/>
<u>Arras</u> (Communauté Urbaine)	Arras Numérique	Réalisation d'une boucle locale numérique	Sogea-Marais-Vinci	<input type="checkbox"/>
<u>Bayonne Anglet Biarritz</u> (Communauté d'agglomération)	Projet haut débit	Mise en service du réseau et des services DSL	LD Com, Node/Overlap	<input type="checkbox"/>
<u>Besançon</u> (Ville de Besançon)	Réseau Lumière	Réseau privé (GFU) à haut débit desservant les sites publics de la ville de Besançon	nc	<input type="checkbox"/>
<u>Bordeaux</u> (Communauté d'agglomération)	Projet haut débit	Réalisation d'un réseau haut débit pour les zones d'activité (dans un premier temps)	LD Collectivités	<input type="checkbox"/>









Les projets haut débit des villes et des communautés d'agglomération

Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Camps-sur-l'Agly</u> (Municipalité)	Projet haut débit	Réalisation d'un réseau haut débit combinant satellite et Wi-Fi	Nostre Pais	<input type="checkbox"/>
<u>Castres-Mazamet</u> (Communauté d'agglomération)	Plate-forme numérique Castres-Mazamet 2000	Réseau de télécommunication à haut-débit en fibres optiques	IntermediaSud	<input type="checkbox"/>
<u>Cergy-Pontoise</u> (Collectivités locales)	Projet haut débit	Développement d'infrastructures de télécommunication	Etat et les collectivités territoriales	<input type="checkbox"/>
<u>Châlon</u> (Communauté d'agglomération)	Projet haut débit	Mise en place d'un réseau très haut débit en fibre optique	Marais Vinci	<input type="checkbox"/>
<u>La Chaumière Haut Débit</u> (Association loi 1901)	La Chaumière Haut Débit	Expérimentation de raccordement de lieux isolés au haut débit, dans le Périgord Noir	Région Aquitaine, Conseil général de Dordogne	<input type="checkbox"/>
<u>Cholet</u> (Communauté d'agglomération)	Projet haut débit	Réseau privé de fibre optique	nc	<input type="checkbox"/>
<u>Cilaos (La Réunion)</u> (SEM)	Réseau WiFi	Réseau WiFi haut débit dans une région enclavée	Nextiraone, France Télécom	<input type="checkbox"/>
<u>Clermont-Ferrand</u> (Communauté d'agglomération)	Réseau très haut débit	Réseau métropolitain en fibre optique	Vinci Networks, Marais Contracting Services, Axia	<input type="checkbox"/>
<u>Cosnes sur Loire</u> (Communauté de communes)	Projet haut débit	Mise en œuvre d'un réseau de télécommunications à haut débit	nc	<input type="checkbox"/>
<u>Courbevoie</u> (SIPPEREC)	Expérimentation CPL	Expérimentation du CPL en outdoor auprès d'une cible grand public	EDEV CPL Technologie, Tiscali, Tele 2, Mainnet, Schneider)	<input type="checkbox"/>
<u>Creusot-Montceau</u> (Communauté urbaine)	Boucle locale en fibre optique	Réalisation et exploitation d'une infrastructure passive de télécoms pour supporter des réseaux opérateurs	Groupement Vinci-Networks Marais Consulting	<input type="checkbox"/>

Les projets haut débit des villes et des communautés d'agglomération

Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Felletin</u> (Ville de Felletin)	Expérimentation Wi-Fi satellite	Expérimentation en vue d'un déploiement	Tiscali	
<u>Fougères</u> (Ville de Fougères)	Projet de boucle locale haut débit	Création d'une boucle locale haut débit à Fougères	nc	
<u>Gonfreville</u> (Commune)	Expérimentation fibre optique	Activer un réseau à très haut débit en fibre optique jusqu'à l'abonné	Axione, Sogetrel	
<u>Grand Rodez</u> (Communauté d'agglomération)	Projet haut débit	Réalisation d'une dorsale locale en fibre optique, complétée par des technologies alternatives	nc	
<u>Haute Provence</u> (Communauté de communes)	Expérimentation satellite + Wi-Fi	Expérimentation de technologies alternatives, dans le cadre de l'appel à projets de la DATAR	nc	
<u>Haute Vallée d'Aspe</u> (Conseil régional)	Projet haut débit	Mise en place du haut débit multi-technologies dans deux villages isolés	Isofac, EDEV Technologie, Eutelsat, Aska	
<u>Lion d'Angers</u> (Communauté de communes)	Expérimentation haut débit	Infrastructure hertzienne reliant des points desservis par FT à des utilisateurs finals situés à moins de 10 km	nc	
<u>Lomagne Gersoise</u> (Communauté de communes)	Projet "Haut Débit"	Mise en réseau de la Communauté de communes et utilisation d'une solution satellite + Wi-Fi	B.E. Partenaires	
<u>Massy-Saclay</u> (Syndicat Intercommunal)	Etude de faisabilité d'un réseau haut débit	Etude sur la définition d'une stratégie en vue de la mise en œuvre d'une politique de développement du haut débit	nc	

Les projets haut débit des villes et des communautés d'agglomération

Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Le Montet</u> (Conseil général)	Expérimentation Wi-Fi	Expérimenter la technologie Wi-Fi dans une commune de l'Allier, en testant le couplage satellite et Wi-Fi.	Ineo-Infracom, Equal	
<u>Montpellier</u> (Commune)	Pégase	Réseau métropolitain en fibre optique	Sacer, Sogetrel, InéoInfracom, Nextiraone	
<u>Nancy</u> (CUGN Grand Nancy)	Réseau métropolitain de télécommunications du Grand Nancy	Réalisation d'une infrastructure à haut débit pour le Grand Nancy	SEM Câbles de l'Est	
<u>Nantes</u> (Communauté urbaine)	O-Méga	Déploiement d'un réseau métropolitain	nc	
<u>Nîmes</u>	Projet haut débit	Déploiement d'un réseau métropolitain	EMSYS, région Languedoc Roussillon	
<u>Paris périphérie</u> (SIPPEREC)	Irisé	Création d'une infrastructure haut débit en fibre optique noire	LDcable	
<u>Paris périphérie</u> (SIPPEREC)	Boucle locale urbaine	Création d'une boucle locale CPL dans 86 communes de la première couronne	Mecelec	
<u>Paris périphérie</u> (SIPPEREC)	Réseau résidentiel FTTH	Déploiement d'un réseau FTTH dans 13 communes	LD Collectivités	
<u>Pau Pyrénées</u> (Communauté d'agglomération)	Pau Broadband Country	Plate-forme de diffusion de contenus IP à très haut débit	Axione, IPVset	
<u>Pays d'Aix</u> (Communauté de communes)	Projet très haut débit	Réalisation d'un réseau communautaire à très haut débit pour le Pays d'Aix	nc	
<u>Pays du Bassée Montois</u> (Conseil général)	Projet haut débit	Etude pour l'aménagement numérique du territoire	Tactis	
<u>Pays du Centre Ouest Bretagne</u>	Expérimentation haut débit	Expérimenter des solutions de	Ibreizh	

Les projets haut débit des villes et des communautés d'agglomération

Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
(GIP)		desserte haut débit sur 3 communes du Pays (satellite, Wi-Fi, CPL)		
<u>Pays Chartrain</u> (Syndicat mixte)	Expérimentation multi-technologies	Projet d'expérimentation de technologie alternative	nc	☐
<u>Pays des Combrailles</u> (Syndicat mixte)	Expérimentation satellite + Wi-Fi	Expérimentation de technologies alternatives, dans le cadre de l'appel à projets de la DATAR	nc	☐
<u>Pays du Gaillacois, Bastides et Val Dadou</u>	Expérimentation WIMAX	Expérimentation WIMAX de 6 mois sur 6 sites dans le Tarn	e-Téra	☐
<u>Pays Loudunais</u> (communauté de communes)	Expérimentation Wi-Fi	Expérimentation de déploiement d'une boucle locale haut débit alternative en Wi-Fi	Optline, Cisco Systems	☐
<u>Pays Loudunais</u> (Sorégies)	Expérimentation CPL	Expérimentation d'un réseau CPL dans 3 communes rurales autour de Loudun	SIEEDV	☐
<u>Pays de Montbéliard</u> (Communauté de communes)	Boucle haut débit	Boucle locale à haut débit pour relier les principaux centres d'activité du Pays de Montbéliard	nc	☐
<u>Pays de Morlaix</u> (Communauté d'agglomération)	Projet haut débit	Déploiement d'une solution d'accès internet haut débit par satellite en complément des réseaux terrestres existants	nc	☐
<u>Pays de l'Ourcq</u> (communauté de communes)	Expérimentation haut débit	Desserte expérimentale en haut débit et en téléphonie sur IP (WiMax, Wi-Fi)	nc	☐
<u>Pays de Saint-</u>	Schéma numérique	Sensibilisation NTIC	nc	☐

Les projets haut débit des villes et des communautés d'agglomération

Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Brieuc</u> (intercommunalité)	au Pays de Saint-Brieuc	+ déploiement haut débit		
<u>Pays de Sillé</u> (Communauté de communes)	Projet Wi-Fi	Mise en place d'un réseau Wi-Fi	Altitude Télécom	☐
<u>Pays des Vals de Saintonge</u> (intercommunalité)	Expérimentation Wimax	Expérimentation en vue d'un déploiement sur tout le territoire	Intel, TDF, e-Qual, Alvarion	☐
<u>Pays Vendômois</u> (Communauté de communes)	Projet haut débit	Expérimentation Wi-Fi + satellite, et fibre optique	Cervoni Conseil, Hexanet, Linux Services	☐
<u>Périgueux</u> (Communauté d'agglomération Périgourdine)	C@p Connexion	Réseau haut débit (fibre optique, hertzien) couvrant les 13 communes et les 8 ZAE	LDCollectivités-Vinci	☐
<u>Plaine de France</u> (intercommunalité)	Etude de faisabilité d'un réseau haut débit	Etude de faisabilité technique, financière et juridique	Stratégic Scout	☐
<u>Quercy, Rouergue, Gorges de l'Aveyron</u> (Communauté de communes)	Projet haut débit	Expérimentation de technologies multimodales alternatives	nc	☐
<u>Quimper</u> (Communauté d'agglomération)	Réseau très haut débit	Création d'un réseau à très haut débit en fibre optique	Axione	☐
<u>Reims</u> (Ville de Reims)	Projet de boucle optique	Mise en place d'une infrastructure haut débit au service d'un groupe d'utilisateurs fermé.	Technoman Ingénierie, Sogea	☐
<u>Rouen</u> (Ville de Rouen)	Réseau haut débit	Réseau haut débit métropolitain	nc	☐
<u>St-Jean d'Alcapiès</u> (Commune)	Réseau haut débit	La mairie devient opératrice et met en place une infrastructure satellite-WiFi	Nostre Pais	☐

Les projets haut débit des villes et des communautés d'agglomération				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Saint-Mamet</u> (Communauté de communes)	Projet haut débit	Expérimentation Satellite-Wifi	France Télécom, Sagem	<input type="checkbox"/>
<u>Scolca</u> (Communauté de communes)	Projet haut débit	Réseau haut débit Wi-Fi + satellite	Corse Télécom, Divona	<input type="checkbox"/>
<u>Soissons</u> (Communauté d'agglomération)	Projet haut débit	Mise en place d'un réseau très haut débit fibre optique sur la Technopole de l'Aisne	nc	<input type="checkbox"/>
<u>Sougy-sur-Loire</u> (Commune)	Projet haut débit	Raccordement au réseau LDCOM via le Wi-Fi	nc	<input type="checkbox"/>
<u>Toulouse</u> (Communauté d'agglomération)	IMT	Création d'une infrastructure de fibre optique mise à disposition des opérateurs	Garonne Networks (Vinci)	<input type="checkbox"/>
NOUVEAU <u>Tours</u> (Communauté d'agglomération)	Réseau métropolitain	Création d'un réseau haut et très haut débit (fibre optique et WiMax)	Axione	<input type="checkbox"/>
<u>Truchtersheim</u> (Ville)	Expérimentation haut débit	Expérimentation d'un réseau de desserte WiMax	@rteria, Altitude Telecom, Electricité de Strasbourg	<input type="checkbox"/>
<u>Val de Cher Saint Aignan</u> (Communauté de communes)	Expérimentation haut débit	Développement d'un réseau très haut débit (satellite + Wi-Fi)	nc	<input type="checkbox"/>
<u>Valenciennes Métropole</u> (Communauté d'agglomération)	Pôle numérique du Valenciennois	Développement d'une infrastructure haut débit en fibre optique	nc	<input type="checkbox"/>
<u>Vercors</u> (Communauté de communes, Parc Régional)	Vercors Haut Débit	Développement d'une infrastructure haut débit multi-technologies	Eutelsat, Infosat	<input type="checkbox"/>

Table 2: Broadband projects of Departments

Source: <http://www.journaldunet.com/dossiers/hdregions/annuairehddepartements.shtml>

Les projets haut débit dans les départements				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Allier</u> (Conseil général)	Projet haut débit	Aménagement numérique multi-technologique et multimodal utilisant la BLR, le Wi-Fi, le satellite et l'ADSL	nc	☐
<u>Ardèche</u> (Conseil général)	Sivu des Inforoutes de l'Ardèche	Création d'un réseau haut débit + Expérimentations Internet à haut débit hors ADSL (système radio, satellite)	Communes, Sagem, Eutelsat, SitePilot	☐
<u>Ariège</u> (SIVU)	W DSL en Ardèche	Création d'un réseau haut débit	LD, Altitude	☐
<u>Aveyron</u> (Conseil général)	Projet haut débit	Création d'un réseau départemental haut débit	nc	☐
<u>Cantal</u> (Conseil général)	Projet haut débit	Expérimentation Satellite-Wifi sur une commune et réalisation de la couverture des collèges en haut débit par satellite bi-directionnel.	France Telecom, SAGEM	☐
<u>Calvados</u> (Conseil général)	Projet haut débit	Mise en place de boucles locales à hauts débits	Sat2way, SatLynx	☐
<u>Corrèze</u> (Syndicat mixte)	Dorsal	Réseau haut-débit multi-technologies	Axione - Sogetrel	☐
<u>Côtes d'Armor</u> (Conseil général)	Schéma départemental haut débit	Plan de couverture du département en 3 phases, faisant appel à l'ADSL et aux technologies alternatives	nc	☐
<u>Côte d'Or</u> (Conseil général)	Plan Côte d'Or Numérique	Expérimentation pour l'accès haut débit par satellite pour les zones rurales Développement d'une solution d'accès à l'internet rapide	CNERTA (Centre national d'enseignement et de recherche en technologies avancées)	☐
<u>Creuse</u> (Syndicat mixte)	Dorsal	Réseau haut-débit multi-technologies	Axione - Sogetrel	☐

Les projets haut débit dans les départements				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
NOUVEAU <u>Drôme</u> (Conseil général)	Projet haut débit	Haut débit pour tous grâce au WiFi et création d'un réseau de fibre optique	nc	<input type="checkbox"/>
<u>Eure</u> (Conseil général)	Projet haut débit	Projet de boucle optique pour équiper l'ensemble du département	Altitude Télécom	<input type="checkbox"/>
<u>Gers</u> (ADNTIC)	Etude d'infrastructures haut débit	Etude d'infrastructures pour développer le haut débit dans le Gers	Conseil régional de Midi-Pyrénées	<input type="checkbox"/>
NOUVEAU <u>Haut-Rhin</u> (Conseil général)	Réseau haut débit	Couverture du département en WiMax et FTTH	LD Collectivités, Est Vidéo Communication	<input type="checkbox"/>
<u>Haute-Garonne</u> (Conseil général)	Programme de couverture des zones blanches	Réaliser une infrastructure qui accueillera des technologies alternatives à l'ADSL afin de compléter le réseau de France Télécom	nc	<input type="checkbox"/>
<u>Haute-Marne</u> (Conseil général)	Déploiement du haut débit	Equipement de tous les répartiteurs	HDDR	<input type="checkbox"/>
<u>Haute-Savoie</u> (Conseil général)	Expérimentation haut débit	Fournir un accès haut débit tous secteurs d'activités confondus.	nc	<input type="checkbox"/>
<u>Haute-Vienne</u> (Syndicat mixte)	Dorsal	Réseau haut-débit multi-technologies	Axione - Sogetrel	<input type="checkbox"/>
<u>Hauts-de-Seine</u> (Conseil général)	Réseau très haut débit	Déploiement d'une infrastructure fibre optique	nc	<input type="checkbox"/>
<u>Indre</u> (Conseil général)	Projet de "boucles rurales"	Desservir les zones non couvertes par l'ADSL par le satellite	nc	<input type="checkbox"/>
<u>Isère</u> (Conseil général)	Etude sur l'aménagement haut débit du territoire	Etude sur l'aménagement haut débit de l'Isère et subventions d'études locales	nc	<input type="checkbox"/>
NOUVEAU <u>Jura</u> (Conseil général)	Réseau départemental haut-débit	Réseau départemental de desserte en haut-débit : Wimax, fibre optique...	APRR-Altitude	<input type="checkbox"/>

Les projets haut débit dans les départements				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
Loire (Conseil général)	Cyberloire	Réseau de points d'accès haut débit + création de cybercentres	Axione, TDF	☐
Loiret (Conseil général)	Haut débit pour tous dans le Loiret	Construction d'un réseau multitechnologies destiné à couvrir 100 % du territoire	LD Collectivités	☐
Lot et Garonne (Conseil général)	Boucle locale haut débit à Agen	Etude de mise en oeuvre d'infrastructures de télécommunication et déploiement d'une boucle locale haut débit	nc	☐
Maine-et-Loire (Conseil général)	Melis@	Etude sur la mise en place d'une infrastructure de télécommunications haut débit	Sagem, Vinci Networks, Sogea Construction, Cofiroute, Marais Contracting	☐
Manche (Conseil général)	Programme BUS	Mise en place d'un réseau en fibre optique, et de boucles locales WiFi, Wimax et CPL	Sogea (infrastructure), LD Collectivités, Vinci et Axia (extension et exploitation du réseau)	☐
Moselle (Conseil général)	Réseau départemental	Mise en place d'une boucle locale haut débit	Sogea (Vinci), LDC, Axia, TDF, Altice	☐
Nièvre (Conseil général)	Boucle départementale haut débit	Mise en place d'un réseau multi-technologies	ETDE, Axione	☐
Oise (Conseil général)	TéLOise	Déploiement d'infrastructures haut débit pour le département de l'Oise	Teloise (LD Câble, Sogetrel)	☐
Orne (Conseil général)	Aménagement haut débit	Aménagement d'un accès haut débit pour tous les foyers ornaïens, via le WiMAX et la BLR	Altitude Télécom	☐
Pyrénées Atlantiques (Conseil général)	Iris 64	Construction et déploiement d'un réseau haut débit sur l'ensemble du	Groupement Iris 64 (Sogetrel / LD Collectivités)	☐








Les projets haut débit dans les départements				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
		département		
Pyrénées Orientales (Conseil général)	Schéma départemental haut débit	Mise en place d'un réseau haut débit multimodal	France Télécom	
Rhône (Conseil général)	Les Autouroutes Rhodaniennes de l'Information	Réseau, de technologie hybride fibre-coaxial qui dessert toutes les communes du département	Opérateur UPC France (United Pan-Europe Communications)	
Sarthe (Syndicat mixte sarthois d'aménagement numérique)	Réseau haut débit sarthois	Mise en place d'un réseau haut débit public neutre et pérenne combinant plusieurs technologies (fibre optique, xDSL, WiMax, hertzien)	Sartel, Sagem-Cegelec	
Seine-et-Marne (Conseil général)	Sém@for	Construction d'un réseau départemental très haut débit	Axia France, Vinci Network	
Seine Maritime (Conseil général)	Projet haut débit	Mise en place du haut débit dans le département, en recourant à des technologies complémentaires de l'ADSL	nc	
Somme	Phileas Net	Déploiement d'une infrastructure optique à haut débit.	France CitéVision, SOGETREL	
Tarn	Réseau haut débit	Mise en œuvre d'une infrastructure haut débit en mode de gestion directe	e-tera	
Tarn-et-Garonne (Conseil général)	Plan d'équipement haut débit	Signature de la charte "Département innovant" de France Télécom, création d'un réseau de fibre optique	France Télécom	
Vendée (Conseil général)	Plan 100 % haut débit	Projet multi-technologies destiné à couvrir 100% du territoire	Altitude Télécom, France Télécom, Neuf télécom	

Les projets haut débit dans les départements				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
Yvelines (Conseil général)	Haut Débit 78	Construction d'un réseau de 160 km de fibres optiques	Eiffage	<input type="checkbox"/>

Table 3: Broadbandprojects of Departments

Source: <http://www.journaldunet.com/dossiers/hdregions/annuairehdregions.shtml>

Les projets haut débit dans les régions				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
Alsace (Conseil régional)	Boucle haut débit régionale	Mise en place d'une boucle régionale en fibre optique reliant trente villes d'Alsace	Sogetrel, LD Collectivités, Est Vidéo	<input type="checkbox"/>
Aquitaine (Conseil régional)	Schéma régional haut débit	Schéma directeur de desserte en haut débit sur le territoire régional	Conseils généraux des départements, Communautés d'agglomération (Périgueux, Agen, Pau...), Communauté urbaine de Bordeaux	<input type="checkbox"/>
Basse-Normandie (Conseil régional)	Vikman	Réseau régional d'accès à internet basé sur des technologies hertziennes (BLR) et filaires, mis en place pour relier entre eux des sites publics	Altitude Télécom, France Télécom, Télécom Développement, Optline Service, Communication et Systèmes	<input type="checkbox"/>
Bretagne et Pays de la Loire (Conseils régionaux)	Megalis	Offre de services télécom à haut débit à disposition de communautés spécifiques, dites d'intérêt général.	France Telecom, Neuf Telecom	<input type="checkbox"/>
Bretagne (Syndicat Mixte Megalis)	Megalis II	Réseau très haut débit nc succédant à Megalis		<input type="checkbox"/>
Centre (Conseil Régional)	Projet haut débit	Mise en place d'une boucle optique	France Télécom	<input type="checkbox"/>
Champagne (Conseil régional)	Telemus	Offrir aux particuliers et aux entreprises un accès Internet haut	9 Télécom(Groupe LDCOM)	<input type="checkbox"/>

Les projets haut débit dans les régions				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
		débit.		
Corse (Conseil régional)	RHDCOR	Edification d'un réseau de fibre optique desservant les zones denses, et intervention sur les zones non denses et rurales	Corsica Haut Débit (France Télécom)	
Franche-Comté (Conseil régional)	Belin 3	Mise en oeuvre d'un réseau Internet à haut débit	9 Telecom (Groupe LDCOM)	
NOUVEAU Guyane (Conseil régional)	Réseau haut débit	Réseau haut débit associant fibre optique, hertzien, satellite, DSL, Wi-Fi	SOGETREL-MEDIASERV	
Languedoc-Roussillon (Préfecture régionale)	AccèsLR	Développement de l'internet haut débit par satellite bidirectionnel pour les territoires enclavés de la Région Languedoc-Roussillon	Conseils généraux, Sat-Links, Cabinet EMSYS	
Limousin (Conseil régional)	Dorsal	Réseau haut-débit multi-technologies	Axione - Sogetrel	
Midi-Pyrénées (Conseil régional)	"Midi-Pyrénées à haut débit"	Etude de la mise en place d'un réseau haut débit	nc	
Nord Pas-de-Calais (Conseil régional)	Suivi d'études projets	Veiller à une homogénéité territoriale de l'ensemble des projets d'infrastructures haut débit	nc	
Picardie (Conseil régional)	Dispositifs haut débit	Mise en oeuvre du dispositif Service Universel Haut Débit et élaboration du Schéma Régional de Développement des Infrastructures de Télécommunications	CDC	
Poitou-Charentes (Conseil régional)	Territoires numériques en Poitou-Charentes	Projet haut débit en faveur des territoires ruraux	nc	

Les projets haut débit dans les régions				
Collectivités	Nom du projet	Nature du projet	Principaux partenaires	En savoir plus
<u>Provence Alpes Côte d'Azur</u> (Conseil régional)	Réseau Régional à très haut débit	Construction d'une dorsale télécom régionale	Complétel, Colt, Kaptech et France Télécom	☐
<u>Réunion</u> (Conseil régional)	Projet Gazelle	Réseau régional mutualisé, à très haut débit desservant toutes les communes de l'île	EDF, Outremer Télécom	☐
<u>Rhône-Alpes</u> (Conseil régional)	Etude de faisabilité	Etude de faisabilité d'une desserte très haut débit en Rhône-Alpes Sud	nc	☐