

# From FTTH pilot to pre-rollout in France

Paul-François Fournier  
senior VP, advanced products and services  
marketing NExT

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# agenda

**1** what we have learned from our customer pilot

**2** orientations for 2007-2008

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**2** orientations for 2007-2008

# more bandwidth for more services



## HDTV

with interactive programs, on multiple TV sets or PCs



## VOD movies and programs

streaming or download



## video games

on-line or download



## video blogs / online photos

for digital cameras and camcorders



## online storage and back-up

data security for consumers and SoHo's



## simultaneous and symmetrical usage

powered by the livebox



**Orange role is to meet customer demand beyond what ADSL-type solutions can provide, for mass market take-off in 2009**

# FTTH is enabling new usage patterns right now

## fiber access

## ADSL access

download and  
upload at  
100mbps

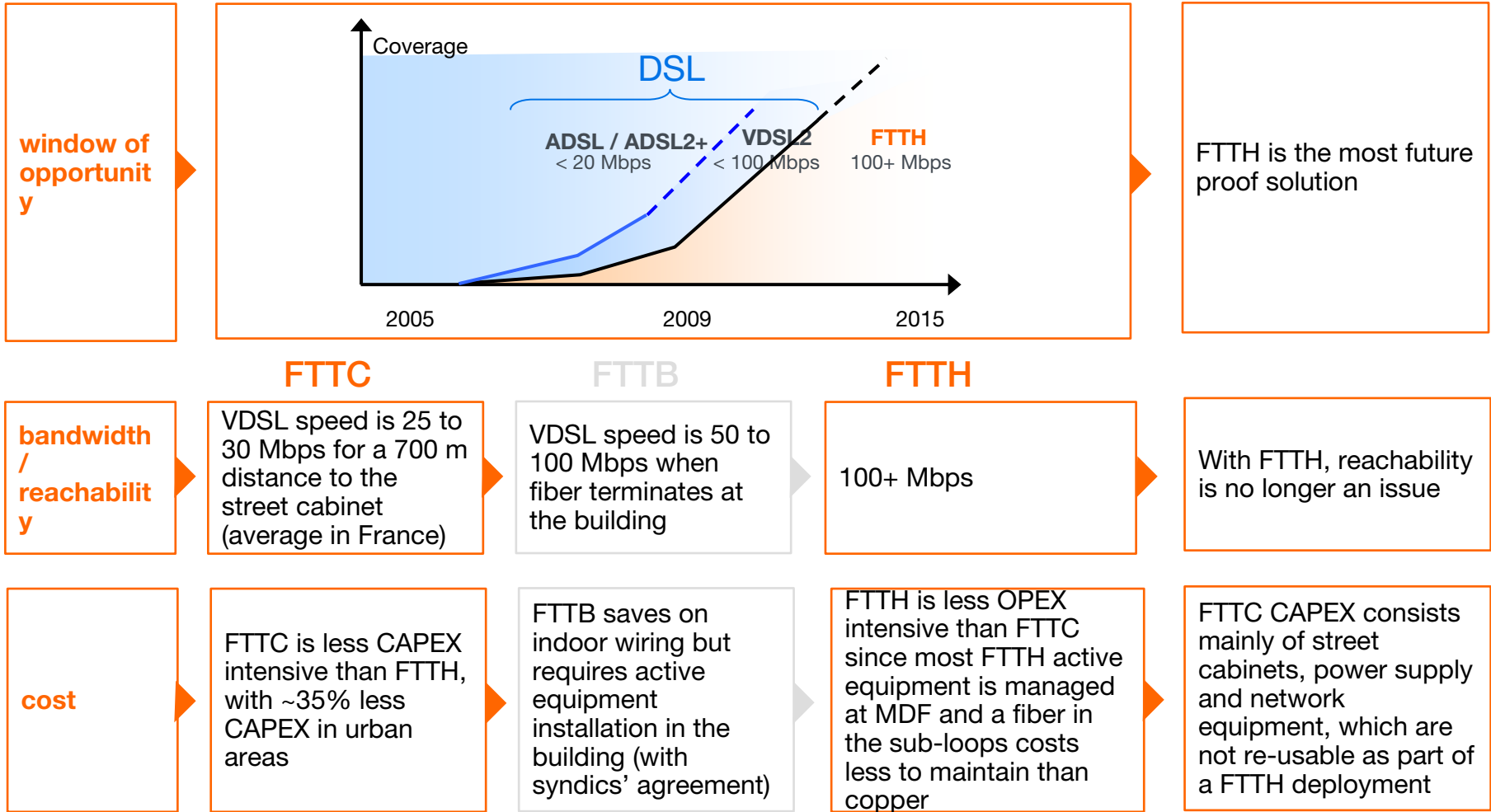
download at  
8mbps

upload at  
1mbps

*copper lines eligibility :*  
8mbps / 1mbps → around 65%  
15mbps / 1mbps → around 25%

		fiber access	ADSL access
		download and upload at 100mbps	download at 8mbps      upload at 1mbps
full HD quality movie	30 Gb	40min	>8h      >66h
DVD quality movie	4.8 Gb	6min 30s	1h 20min      >10h
amateur quality video	800 Mb	1min	13 min      1h 40min
20 photos with uncompressed 8M pixels	480 Mb	40s	8 min      > 1h
10 MP3 music tracks	40Mb	3s	40 sec      5 min

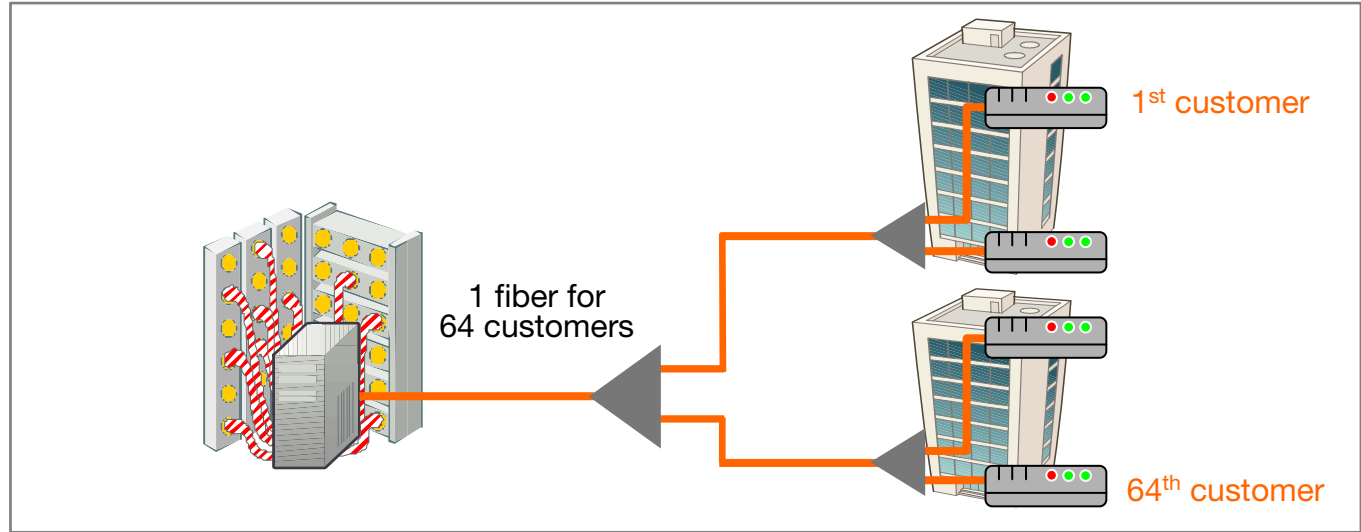
# FTTH vs. FTTC (and FTTB)



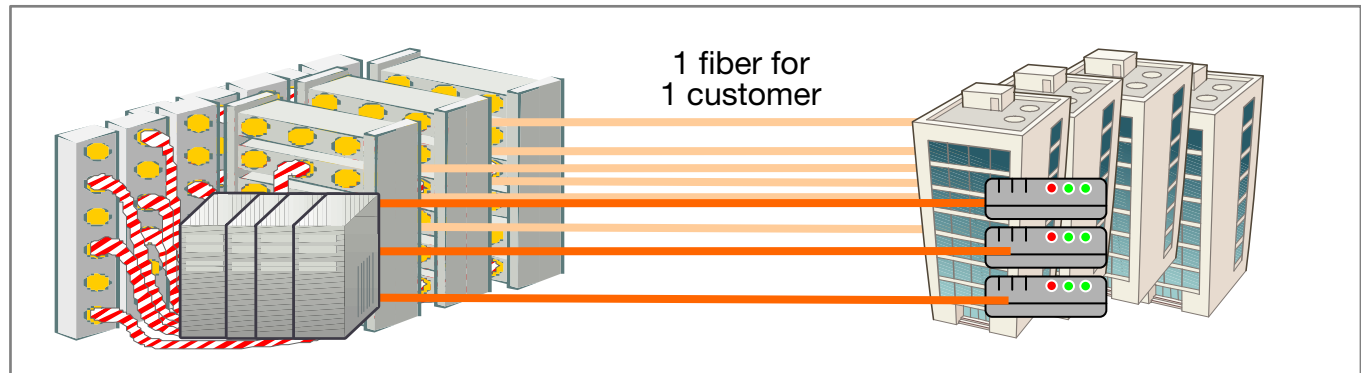
**FTTC is less CAPEX intensive than FTTH, but reachability is not sufficient. As very few of FTTC CAPEX can be re-used for FTTH, FTTC is not a 'first step' to FTTH**

# which architecture should we use ?

point  
to  
multipoint



point  
to  
point



point to multipoint (on GPON) is the most CAPEX efficient (lower duct occupancy with less fiber) and saves OPEX at the central office, with no foreseeable limit in available bandwidth

# GPON vs. point-to-point in detail

	point-to-point	GPON	on balance
<b>duct occupancy</b> for 20,000 customers	28 cables of 25 mm diameter, with 720 optical fibers each	3 cables of 13.5 mm diameter, with 144 optical fibers each	duct occupancy divided by 32 with GPON
<b>central office requirements</b> for 16,000 customers	32,000 fibers, 24 fiber racks and 24 HW racks, covering 180 m2 and requiring 67K Watts	508 fibers, 1 fiber rack and 2 HW racks, covering 11.25 m2 and requiring 4.8K Watts	64 less fibers to manage, floor space divided by 16 and power usage divided by 14 with GPON
<b>bandwidth per subscriber</b>	no foreseeable limit	no foreseeable limit	same
<b>potential for wholesale</b>	both active and passive offers are possible	both active and passive offers are possible	same

source : Alcatel

## customer pilot (june 2006 – february 2007)



- **5 cities in the Hauts-de-Seine**  
Asnières-sur-Seine  
Boulogne-Billancourt  
Issy-les-Moulineaux  
Rueil-Malmaison  
Villeneuve-La-Garenne



- **6 districts in Paris**  
3rd, 4th, 6th, 7th, 13th, 16th

### all-included offer

- 100mbps symmetrical Internet access
- simultaneously 2 HDTV streams on TV and 1 stream on PC
- unlimited VoIP
- dedicated Web 2.0 portal
- on-site home installation and services activation
- dedicated hotline

70 / month

**14 000 homes passed**  
**900 agreements with managing agents for collective buildings (“syndics”)**  
**1 000 customers (7% penetration)**  
**less than € 5 m CAPEX**

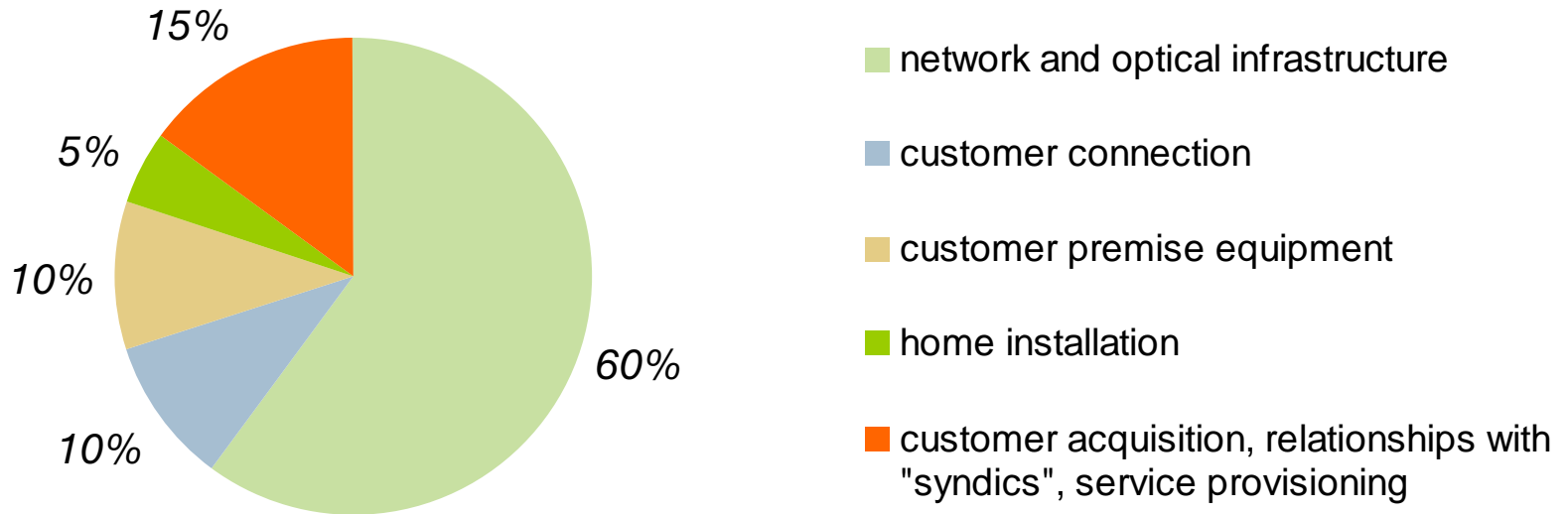
# lessons learned from our customer pilot

<b>customers</b>	<p>high level of interest for FTTH symmetrical bandwidth and reliability, with technical support required for mass market adoption</p> <p>main applications are : HDTV, multi-access, photos, video, home working, sharing of user generated content</p>	<p>70% of customers own 2 or more TV sets</p> <p>30% of customers own a HDTV set</p>
<b>roll-out</b>	<p>key parameters are :</p> <ul style="list-style-type: none"><li>lead time to get agreements from “syndics”</li><li>lead time to connect and install customers on-site</li></ul> <p>pilot helped define end-to-end roll-out processes in various habitations (old or recent apartment buildings, detached houses)</p>	<p>several months to get agreement with “syndics”</p> <p>between 4 and 12 hours for on-site home connection and service activation</p>
<b>technology</b>	<p>our technology choices (GPON, FTTH livebox) proved effective</p> <p>we learned how to best leverage our working relationships with industrial partners</p>	<p>first consumer box to have been upgraded for 100 Mbps symmetrical throughput</p> <p>France Telecom is 1st major incumbent to deploy GPON</p>

**deploying a FTTH infrastructure takes time, resources, and the skills of a fixed local loop operator**

# pilot helped us to accurately assess our cost structure

cost structure derived from pilot phase



for a 10% penetration rate (subscribers / home passed)

**we have launched action plans to reduce these costs for most efficient deployment**

## during roll out phase, cost structure will evolve according to identified drivers

network and optical infrastructure	to decrease as penetration rate increases, manufacturing costs for active equipment go down along with cumulated worldwide GPON units shipped, and network studies costs go down through cumulated experience
customer connection	to decrease, as lead time to connect a customer goes down through cumulated experience
customer premise equipment	to decrease as manufacturing costs for various customer equipment go down along with cumulated worldwide GPON units shipped, and equipments become more integrated
home installation	to decrease, as lead time to install a home network goes down through cumulated experience, more “do it yourself” behaviour by educated customers, and better integration of customer equipment
customer acquisition, relationship with “syndics”, service provisioning	to decrease, as customer facing processes improve so that costs converge towards corresponding costs for ADSL customers, and negotiation with “syndics” become easier through snowball effect

**fill-up of optical infrastructure, drop in equipment prices and human learning are the major drivers of cost reduction per subscriber**

# what we have learned from advanced countries

USA

fixed operators respond with fiber to cable predominance, and to customer demand for HDTV  
FTTH PON is the architecture chosen by Verizon ( $\approx$  500 K customers by 3Q06) and by AT&T

JAPAN

main lever is bandwidth : Internet remains the “killer application”  
end-2006,  $\approx$  5 M FTTH / PON-based customers installed

**very high speed access is gradually taking off throughout the world, mainly by means of FTTH PON**

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2 orientations for 2007-2008

## conditions are now met for phase 2

ducts

“ we are working to create a propitious environment for very high-speed network development by encouraging infrastructure sharing and particularly the reuse, whenever possible, of existing ducts in the local loop.”  
(Paul Champsaur, November 16th, 2006)

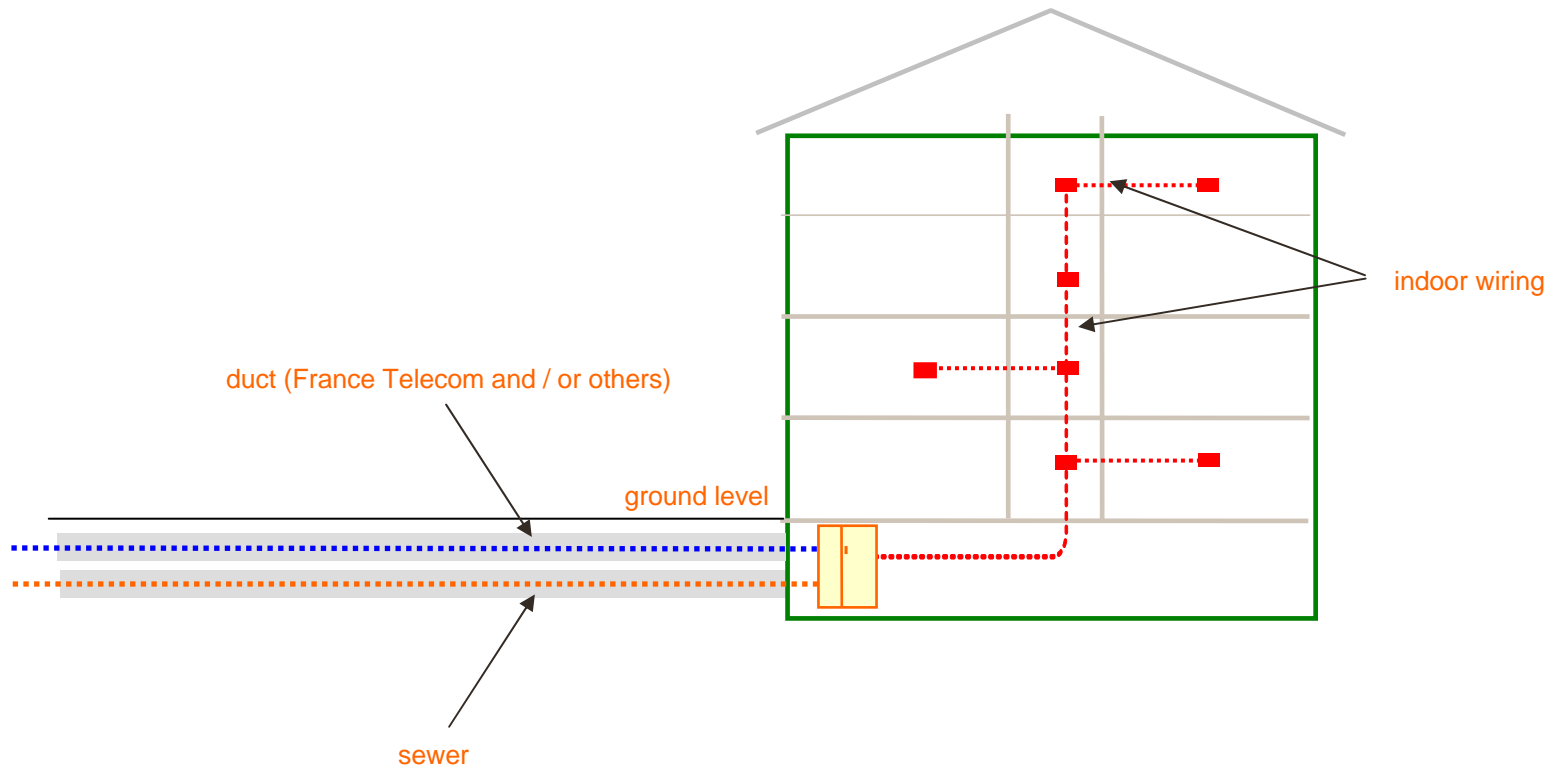
indoor wiring

“ we feel that sharing indoor wiring is crucial”  
(Paul Champsaur, November 16th, 2006)

access  
to content

“ first, the stakes and risks involved in very high-speed network investments (...) would seem to demand, from an economic standpoint, that a share of the revenues earned by service providers go to access providers. (...) I also think that the best guarantor of consumers’ freedom of choice is lively competition, as is currently the case, not only in the downstream broadband and very high-speed access market, but also lively competition in the upstream content and services market, particularly for audiovisual services ”.  
(Paul Champsaur, November 16th, 2006)

duct reuse and shared indoor wiring are two issues that should constructively be resolved by 2007 under ARCEP stewardship



we are offering shared access to indoor wiring to other operators who are willing to reciprocate

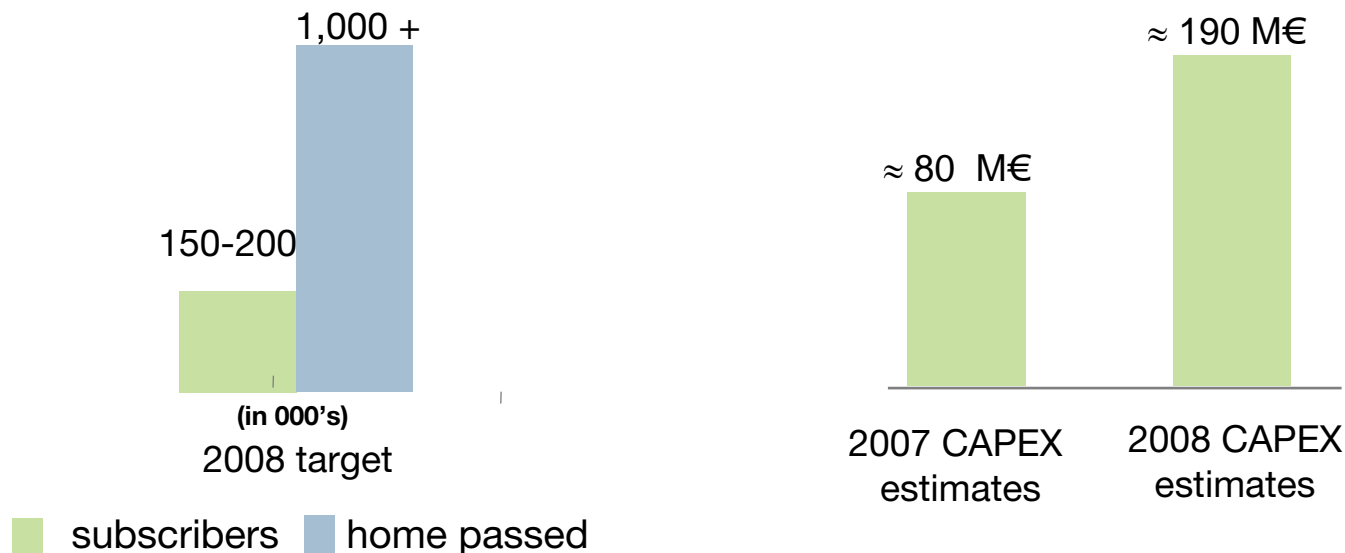
# FTTH now entering phase 2: pre deployment in 2007 and 2008

offer FTTH in 10 additional major and medium cities

starting with Lille, Lyon, Marseille, Poitiers, Toulouse on top of the Ile de France area  
with 150 000 – 200 000 active customers by 2008

total Capex: around 270 million euros cumulated 2007-2008

with pragmatic, focused tactical roll out



**CAPEX for FTTH is consistent with our 2007-2008 Group guidance  
of 10-11% IT&N CAPEX to sales ratio**

# How we defined the marketing mix for FTTH

insight from marketing research

main customer motivations are **innovation** through 100mbps Internet access, **simplicity** of a triple play offer, a **high level of customer support** and quality of service

there is **segmented** demand for new services, such as HDTV

there is a psychological **price barrier** at 50/month

Orange **brand recognition** and high level of **service** allow for a sustainable **price premium**

competitors' triple play offers with Internet speed > 50mbps

- coming offer starting at 29.90
- cable starting at 49.90

launch of « la fibre » on march 1<sup>st</sup>, 2007



positioning to competitively meet early stage demand

# new offer starting march 1<sup>st</sup> 2007

## la fibre

une expérience du très haut débit



€44.90/month\*

\* 12 month subscription

**Internet 100Mb**  
up to 100mbps download  
& up to 10mbps upload

Web 2.0 portal,  
TV on PC

**Orange TV**

free access to 45  
French and  
international channels

**unlimited voice**

to fixed numbers in  
mainland France

**fiber optics  
livebox**

€3/month



### options

**multi screen TV** in order to watch  
different channels on 2 TV sets

€7/month

**HD time control** in order to control  
live TV, record one's preferred  
programs, watch them anytime and  
enjoy high definition programming

€7/month

**symmetrical 100mbps**, a throughput  
of up to 100 mbps for upload and  
download, in order to send one's  
photos, or videos even more faster

€20/month

### services

**optical connection fees offered** until june 2007,  
including installation of the optical plug and optical  
line termination

**Included** TV decoder and optical line termination

**free** technical and commercial **hotline** (0800 10 75  
75)

**domestic network installation** on sale for €1 until  
june 2007 (Internet, TV, Phone)

combining entry level pricing, premium options and strong  
customer support

# new offer was warmly received by the press

www.informaticien.fr  
**L'INFORMATICIEN**

## Orange Fibre Optique : débuts à Paris le 1er mars

Le très haut débit résidentiel c'est vraiment parti ! Après Erenis à Paris et Mediafibre à Pau, les grands FAI se mettent à la fibre. Et finalement Orange devance Free. [...]

Published on february 16<sup>th</sup>, 2007

**L'ATELIER**

Une société de BNP PARIBAS

## La Fibre: Orange annonce son offre de fibre optique pour 47.90 euros par mois

La fibre optique devient une réalité chez Orange. La filiale de France Télécom vient d'annoncer le lancement de son offre d'accès à Internet à très haut débit pour le mois de mars. Celle-ci, baptisée La Fibre, sera proposée au prix de 47.90 euros par mois dans six arrondissements parisiens et six villes des Hauts-de-Seine. Free doit-il trembler?

Published on february 15<sup>th</sup> 2007

vos voisins ont déjà la fibre et vous ?

la fibre : internet, TV et téléphone en fibre optique  
www.avoirlafibre.com ou 0800 10 75 75 (appel gratuit depuis une ligne fixe France Télécom)

orange

Qu'attendez vous pour avoir la fibre ?

hebdo  
**Micrô**

## Orange, fort en fibre

C'est fait, Orange a lancé son premier forfait à très haut débit. Il pourrait aller jusqu'à 100 Mbit/s en réception, et 10 Mbit/s en émission. L'internaute bénéficierait ainsi d'un débit dix fois plus élevé que celui de l'ADSL.

Published on march 1<sup>st</sup>, 2007

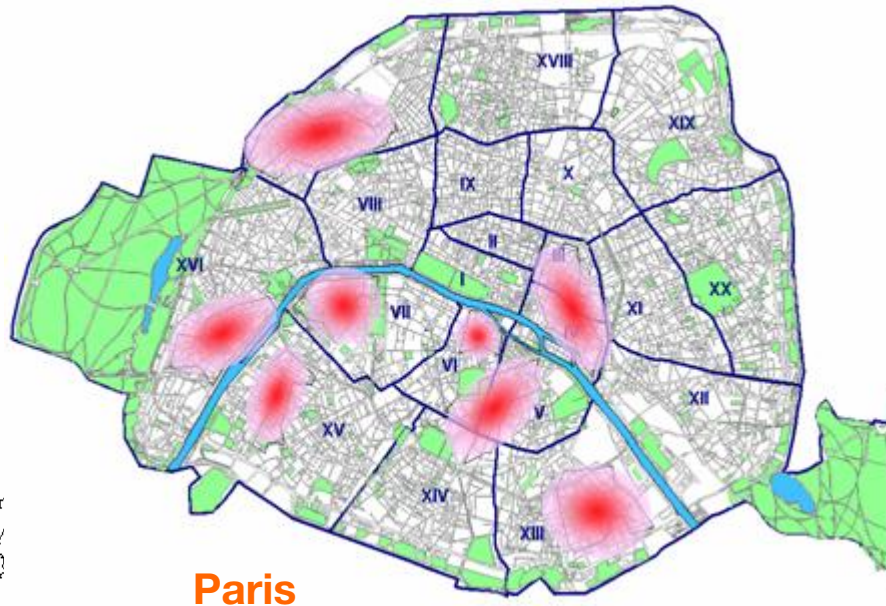
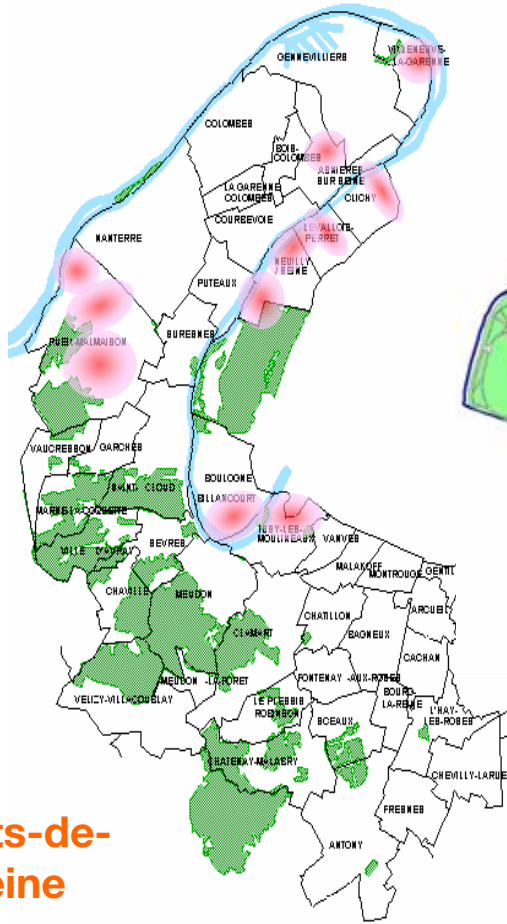
**L'Expansion.com**

## La fibre optique chez Orange dès le 1er mars

France Telecom lance la fibre optique le 1<sup>er</sup> mars. Au menu: des téléchargements ultra-rapide à 100 mégabits par second pour un forfait « triple-play » de 44.90 euros par mois. Dans la course au très haut débit, Orange vire en tête.

Published on february 15<sup>th</sup>, 2007

# pre-rollout in first semester 2007



Areas where fiber is passing residential buildings

Plus

progressive coverage  
in boroughs of **Lille, Lyon,  
Marseille, Poitiers,  
Toulouse**

# entering in close cooperation with the real estate ecosystem

building a close relationship with property managers and owners

- first “Rendez-vous du syndic” organized february 15<sup>th</sup>, 2007, with more than 50 organisations represented
- a dedicated task force to deal with real estate players is in place



developing a quality charter

- a quality charter is being built in close cooperation with the main players in real estate management
- objective is to commit on a high level of quality and to meet the concerns of real estate players of disturbance caused by the roll out of a new infrastructure

open infrastructure

- we are offering shared access to in-building wiring to other operators who are willing to reciprocate

**good relationships with real estate players and proved network deployment experience will ensure fiber roll out efficiency**

# new services to enhance customer experience

## 2006 services

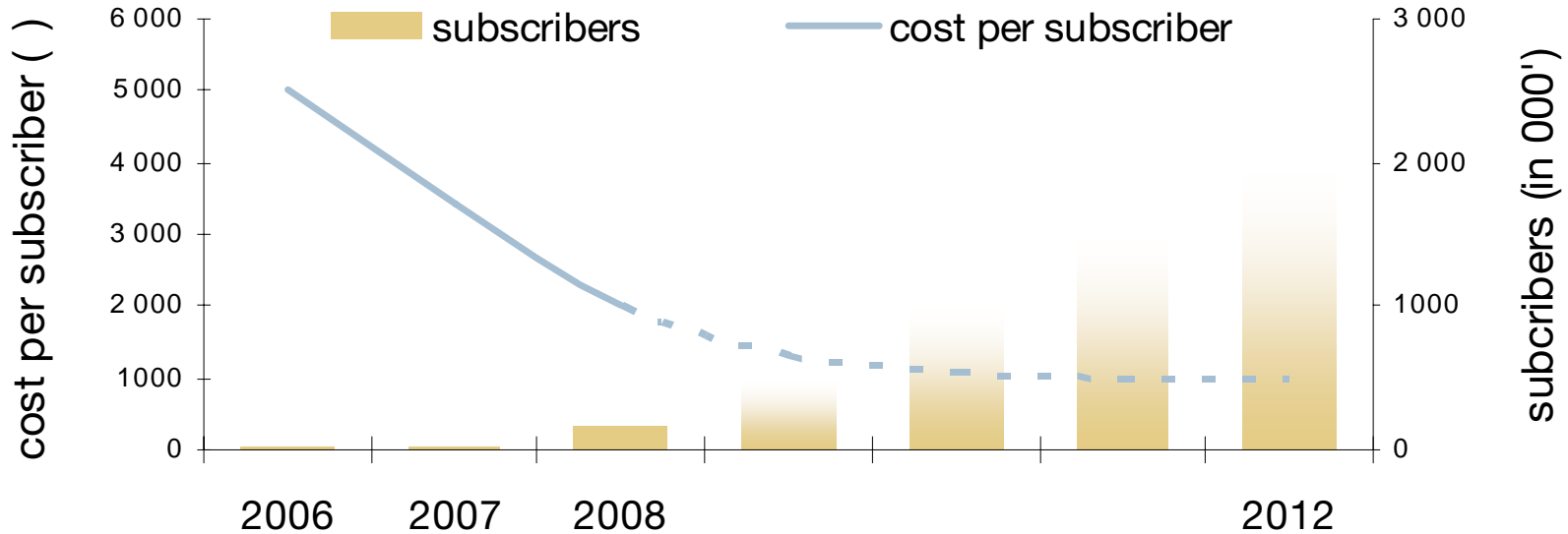
up to 100 Mbps symmetric Internet  
Web 2.0 portal — including TV over PC  
multi-stream TV  
High Definition TV and PVR



## 2007 evolutions

High Definition communication (voice and video)  
sharing of user generated content  
personal broadcast  
gaming  
security : online storage and back-up  
convergent services

# phase 3 to begin in 2009 : mass market roll out



**after 2006 pilot successful completion, pre-rollout will start in 2007-2008, to be followed by mass market coverage**

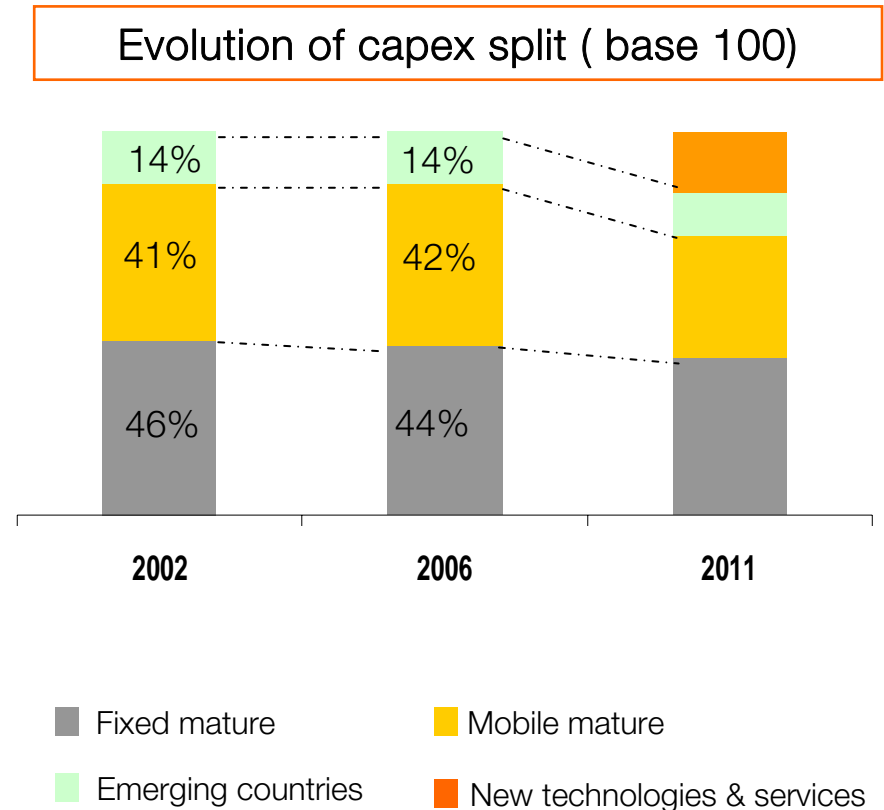
## investment range for phase 3

- at country level, French government issued a very high broadband target of 10 M home passed and 4 M subscribers by 2012
- this target looks plausible to FT, given past ADSL experience and recent FTTH take-off
- assuming FT captures 50% of 4 M subscribers, at an average cost of 1k to 1.5k per subscriber, the total cost ranges from 2 to 3 billion over 2009-2012

**a plausible investment range for FTTH is €500 M to €750 M each year on average over 2009 to 2012 (phase 3)**

# FT group capex decrease in mature fixed & mobile markets allows to fuel new growth areas

- capex intensity in emerging countries will reduce as markets mature
- lower requirements for 3G coverage plus network sharing will reduce capex in mature mobile markets
- capex to sales ratio should remain in average around 13% of revenue over 2007-2012



→ as soon as 2009, around EUR1.0 billion each year will be reallocated from current activities to new growth areas (e.g. FTTH)

## summary

- demand for very high speed access is emerging, and will achieve mass market status in 2009
- we have started to industrialize our roll-out processes
  - 1,800 agreements with managing agents end of Mai 2007 (+900 vs. pilot phase)
  - ~1.6k customers end of May 2007 (~+0.6k vs. end of pilot phase)
  - significant ramp-up of homes passed before end of summer 2007
- our selected technology is mature (GPON, FTTH livebox)
- our pricing approach in 2007 is designed to facilitate migration from ADSL while protecting long-term ARPU potential
- new services will further improve customer experience with FTTH

**2006 pilot has been successfully completed and paves the way for phase 2 beginning now**