



FTTH network rollouts: Is there a winning model in Europe?

Joëlle Toledano
ARCEP

Idate – 2011
November 16th

- ▶ Three “Winning”/ interesting models:
 - FTTH in Singapore
 - FTTx in Korea
 - Broadband in France

- ▶ A few mandatory ingredients to building a winning model

Singapore: A single passive network with a scheduled rollout, competition in wholesale and retail services

▶ **Public support: a project planned by the public authorities (regulator IDA):**

- Definition of the initial roadmap
- Choice of the candidate to construct the the passive network
- Implementation of subsidy mechanisms
- Price regulation

A three-tier market

▶ **A network operator – OpenNet – in charge of universal service for the single passive network:**

- Network rollout to connect all subscribers, households and businesses by 1 January 2013
- Provide dark fibre and interconnection offers, at regulated prices, for operators buying bitstream
- Up to 750 S\$ million in subsidies , depending on network rollout targets and commercial success

▶ **An operator in charge of providing universal service offers, based on bitstream, for ultra-fast broadband wholesale solutions: Nucleus Connect (wholly-owned StarHub subsidiary, Singapore's second largest carrier)**

- Regulated prices and up to 250 S\$ million in subsidies

▶ **Network and service operators buying wholesale offers:**

- Including StarHub, as well as M1, Singapore's number three operator, and other retail market operators
- Singtel, incumbent carrier and broadband market leader, rolls out its own activated network using OpenNet solutions

Singapore: *Several keys to success*

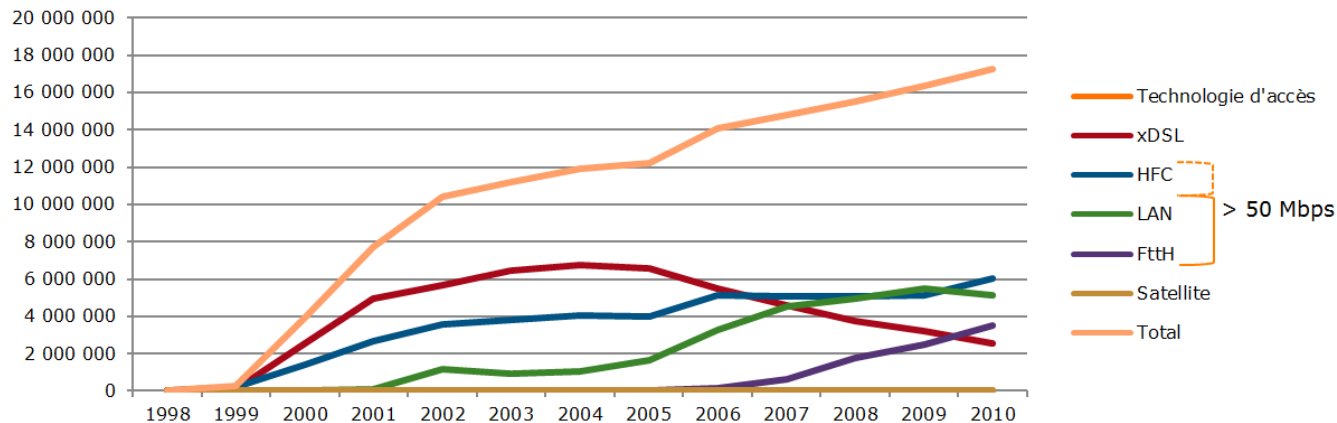
- ▶ **Geography and demographics allow for fast rollouts (5 years)**
 - Small size and high population density (7,000/km² - France: 116/km²)
 - 80% of the inhabitants live in public collective housing

- ▶ **Singaporean public authorities found the right incentives for the two market leaders: Singtel (incumbent carrier) and StarHub (number 2)**
 - A major public funding effort: up to 1 billion S\$ in subsidies, depending on targets achieved
 - Singtel present in every market tier, in various ways: a major OpenNet shareholder (30%); an OpenNet provider for the deployment and upkeep of the new fibre network, using its own copper network
 - StarHub has strengthened its position in the broadband market
 - StarHub and Singtel expected to eventually share the ultra-fast broadband market, especially since easing access to video content was indirectly part of the overall agreement
 - N.B. Temasek (Singaporean sovereign fund) is not only the major Singtel shareholder but also has holds a significant stake in StarHub

- ▶ **Coordination problems between the three tiers**

South Korea: Ultra-fast broadband becoming the norm; longstanding and sustainable backing from public authorities

▶ Success of ultra-fast broadband in South Korea



Market share for the different access technologies supplied by Korean operators. Source: KCC

- Ultra-fast broadband and broadband networks cover virtually all households (17.4M households in 2010)
- Almost 65% of the lines had upload speeds over 50Mb/s in early 2010
- Almost 55% of subscriptions are to an FTTx service (FTTH + FTTB + FTTC)
- xDSL subscriptions account for only 15% of connections (56% of subscriptions in 2004)

▶ Longstanding and sustainable public backing

- Strategy during the crisis in 1997: top priority given to new technologies
- Implementation of various strategic plans to foster private investment and research, setting up a dedicated fund (around 1 billion US\$ from 1996 to 2006)
- KCC, sector regulator and architect of industrial policy for both infrastructures and services since 2008

South Korea: Infrastructure-based competition and pragmatic technological choices

- ▶ **4 parallel networks** (3 telecom carriers and a group of cable companies), with very affordable prices and limited difference between broadband and ultra-fast broadband prices
- ▶ **Infrastructure-based competition...thanks to "low" rollout costs**
 - Several simultaneous rollouts enabled by country's geo-economics: 500 people/km², 76% of the population live in the 10 largest cities, 50% in the greater Seoul region ...
 - Significant aerial deployment in urban areas
 - Infrastructures made available early on: KEPCO's overhead electrical infrastructures available since 1998
 - High rate of housing renewal: housing projects with built-in shared access networks (superfast broadband is a key element in a building's rating)
- ▶ **Pragmatic techniques**
 - Operators combine several technical solutions to provide ultra-fast broadband: FTTH in small buildings or pre-equipped homes for the rare detached houses, FTTC or FTTB + LAN to connect consumers living in buildings equipped with home networks via Ethernet
- ▶ Public authorities, including the regulator, foster "fair" competition for the benefit of consumers



Success of broadband in France: Regulation driving increased coverage with competition led by private and public investment

Local Loop Unbundling launch

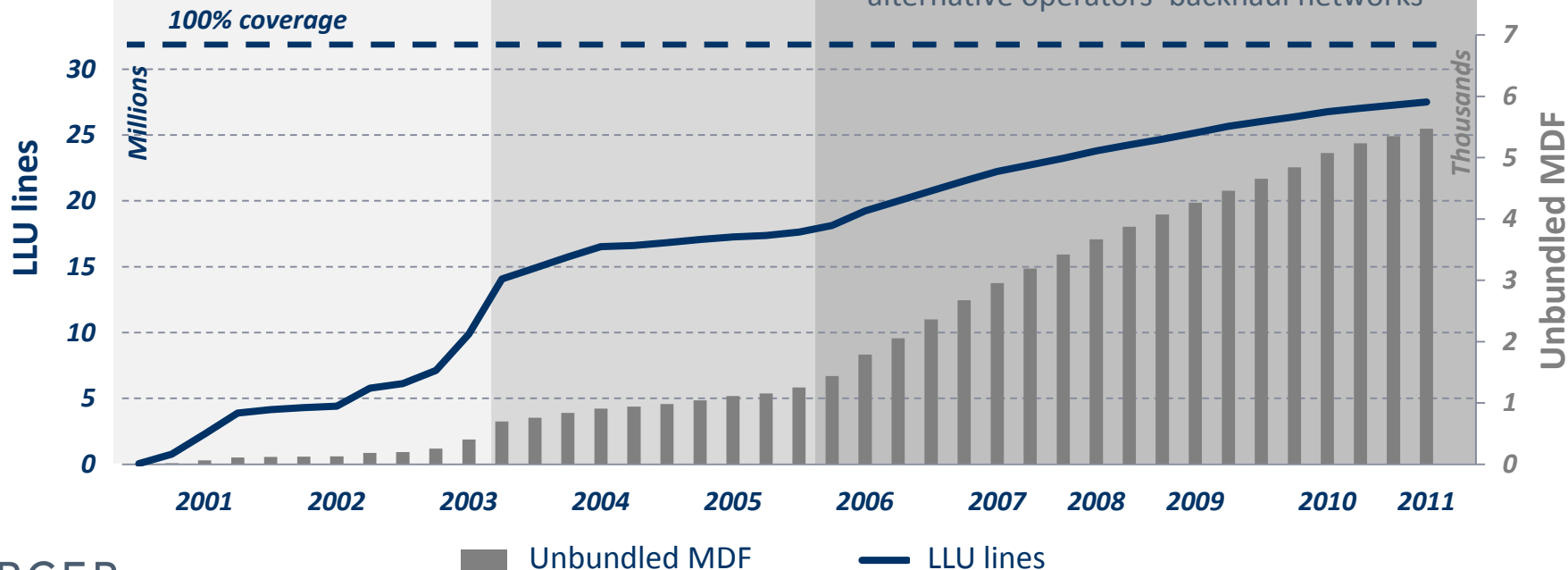
Broadband expansion based on unbundling and alternative operators' own network rollouts

Public network rollouts

Public authority involvement to complement private operators' network rollouts

Launch of "LFO" backhaul offer

France Telecom's extra fibres used for alternative operators' backhaul networks





A few mandatory ingredients to building a winning model...

... especially in France

There is no "one size fits all" FTTH rollout model!

The degree and state of competition play a key role (1)

- ▶ Ideally competition would be the core driving force. But it is not always so.
- ▶ Competition as driving force:
 - For the incumbent, when infrastructure-based competition exists and speed becomes a competitive issue (ADSL versus cable or any other planned FTTx network). The scale of the rollout depends on the footprint of the alternative infrastructure.
 - For alternative operators when they can climb to the next rung of the ladder of investment. Here, the existing customer base is a key parameter
 - In both cases the additional investment has to be profitable enough.....
 - and investment profitability is not calculated in the same way (with the same revenue) depending of the competitive situation: if ADSL revenue is at risk, incentives to invest are much higher than when the purpose of the investment is "only" to generate additional income. Same holds for new fibre networks and the incumbent's profit levels if there is no competition from higher-speed networks (cable, metropolitan networks...)
 - Fear of competition from new entrants on fibre (private or public) creates a powerful incentive for the incumbent to invest
 - In France, private operators are committed to covering around 60% of the population, sharing a significant portion of investments in the passive network. They will be competing with their own active offers. It will enable lasting competition with ongoing technical innovation

There is no "one size fits all" FTTH rollout model!

The degree and state of competition play a key role (2)

Could regulation on wholesale access prices drive the French market forward?

- ▶ Some analysts suggest lowering unbundling prices to reduce legacy copper network's profitability – in the belief that this would create an incentive to deploy fibre, in search of a more profitable business
- ▶ Shrinking ADSL profit levels by lowering wholesale prices WILL NOT create the same incentives as competition does
- ▶ The issue is not to make fibre more profitable than ADSL
- ▶ The reason lies on the demand side: for customers, until now, fibre has had similar value to that of a good ADSL (triple play) solution!
- ▶ So substantially lowering wholesale access prices for any reason other than lower amortized actual spending will give a second wind to competition with copper. It will even become more attractive to use the copper network and deploy VDSL2!

We need to properly differentiate fibre-based NGA from copper-based ones (i.e. VDSL) as their rollout does not respond to the same incentives and the same competitive situation.

Fostering competition and investment by lowering the breakeven point for all competitors

- ▶ Private operators' eagerness to deploy FTTH networks
 - Not only in *high-density areas* (where *infrastructure-based competition is possible*) but also sharing a passive network in *lower density areas*
 - Such eagerness results from strong ADSL market competition

- ▶ Need to support and oversee FTTH rollouts
 - Creating a level playing field (asymmetric regulation) ensuring that each operator benefits from the same rollout conditions
 - France Telecom required to provide access at "affordable" prices to its ducts
 - Sustaining competitive momentum by sharing passive local loop (symmetric regulation)
 - Maximizing competition through optimal last-metre infrastructure sharing
 - Providing access to large network concentration points
 - Co-financing or renting access
 - Sharing information
 - Consistency required in last-metre rollouts

Using public investment and public authority involvement as a way to expand coverage

- ▶ Public funds are scarce. Maximizing private investment is a core objective
- ▶ Public authority involvement as a complement/incentive to private action
 - Rollouts in areas where private investment is lacking
 - Reduce disparities in local networks
 - Backhaul networks to ensure alternative operators' access to local loop
- ▶ *Programme National Très Haut Débit* (national ultra-fast broadband programme)
 - “Private operators” component (1bn€)
 - Long-term maturity loans for private operators
 - “Local authorities” component (900m€)
 - Subsidies for local authorities' projects in areas not subject to private investment
 - “Satellite” component (100m€)
 - Subsidies for R&D
- ▶ Services: 2.5bn€ in subsidies to promote content (demand-side policy)

Public-Private Coordination is needed



- ▶ Need to coordinate private and public actions
 - Complementary nature of rollouts

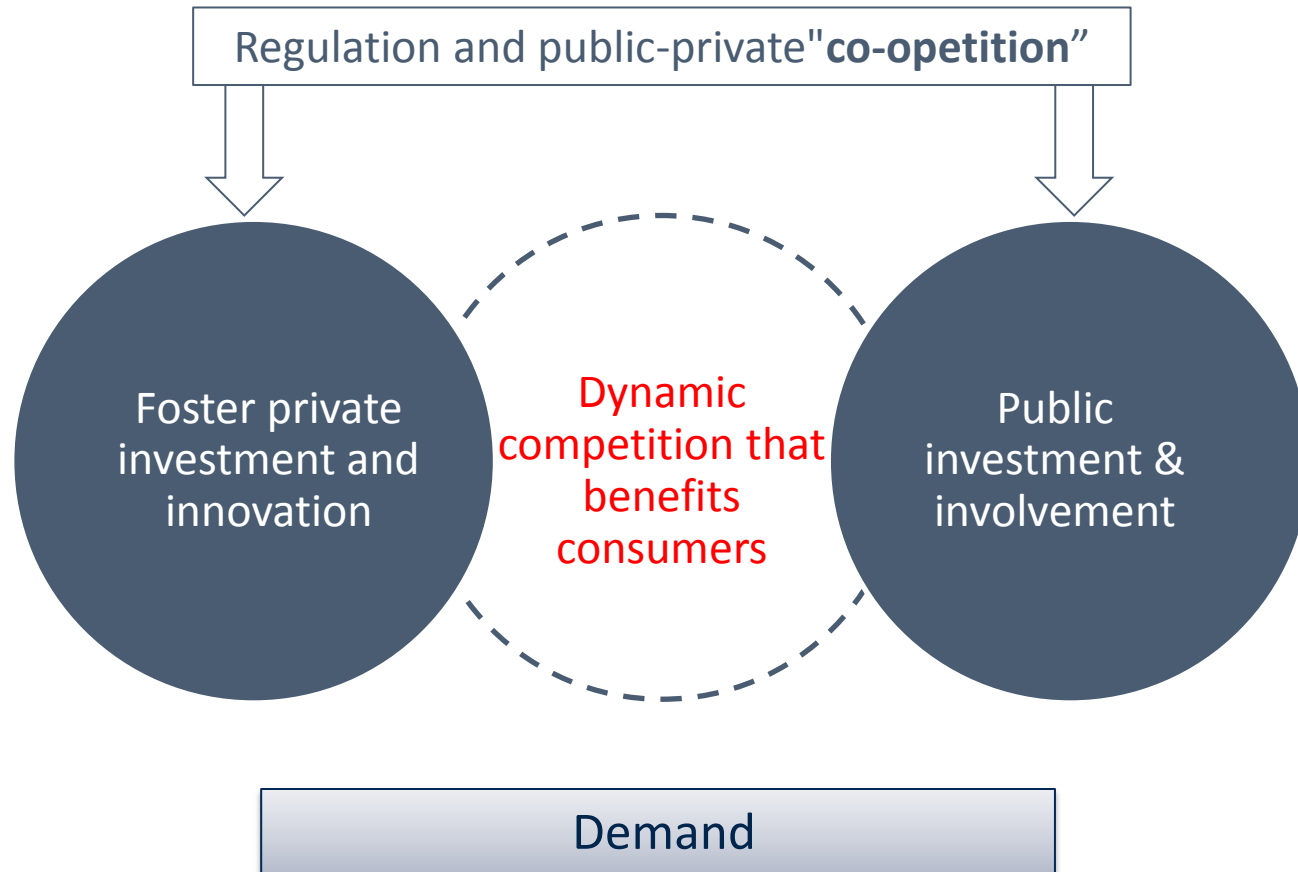
- ▶ Ensuring competitiveness of public networks
 - Co-financing ensures private operator involvement
 - Public networks taking operators' business models into account
 - Network architecture, standardized processes (information exchange, upkeep)

- ▶ Public involvement required by private operators
 - Leverage (incentivising)
 - Private rollouts eased by local authorities

What do we know about demand and willingness to pay?

- ▶ Everywhere – even in Korea and Sweden – everyone is looking for the killer app! A lot of ideas are being discussed: e-learning, e-health, cloud computing, new forms of access to video content, public services... But, up until now, online gaming at home and multi-user households have emerged as the only specific cases where FTTx is highly recommended.
- ▶ In areas with high-speed ADSL (triple-play offers), two conditions are required to ensure the success of FTTH:
 - Small gap between the retail price of FTTH and xDSL
 - Attractive content and services: HDTV, premium content, ..
- ▶ In areas with low access speeds or without ADSL, demand for FTTH seems to be higher but...
- ▶ local offers are less attractive and...
- ▶ Supply on a national scale is required to stimulate demand (network effect)
 - National marketing (retail prices, ad campaigns... quadruple-play)
 - Attractive content
- ▶ And, as we know for certain that consumption of data will continue to surge, demand for increased speed will necessarily follow...

Dynamic competition and public involvement to cope with demand





Thank you!