

An Overview of Fiber to the Home Deployment - Status & Trends

FiberWeek 2010, Croatia

Dr. Igor Brusic

SBR Juconomy Consulting AG

Split, 29.04.2010

1 Why Fiber to the Home?

2 FTTH Deployment Worldwide / Europe

3 Economic Challenges

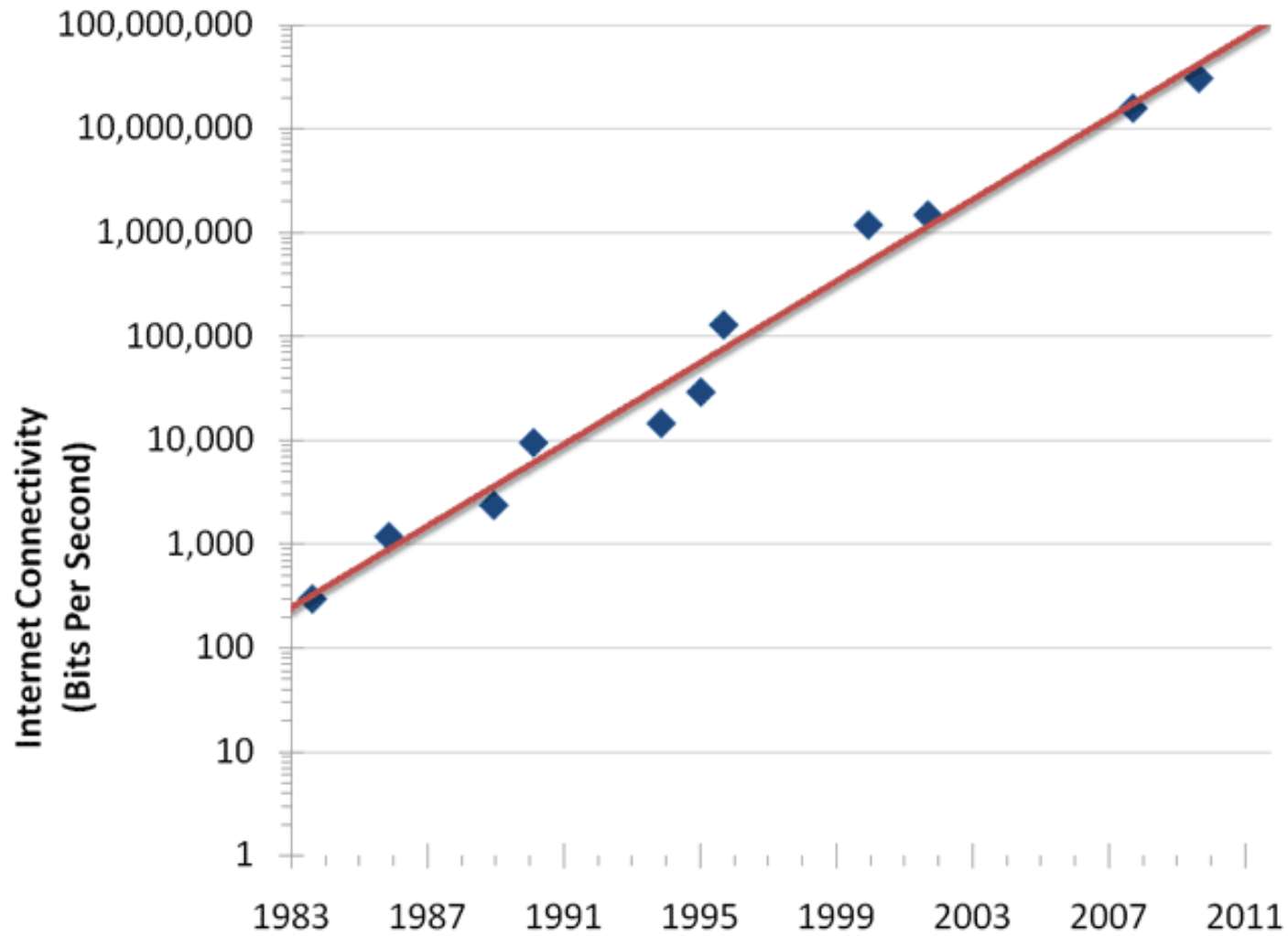
4 Regulatory Challenges

5 New Business Models

6 Summary and Outlook

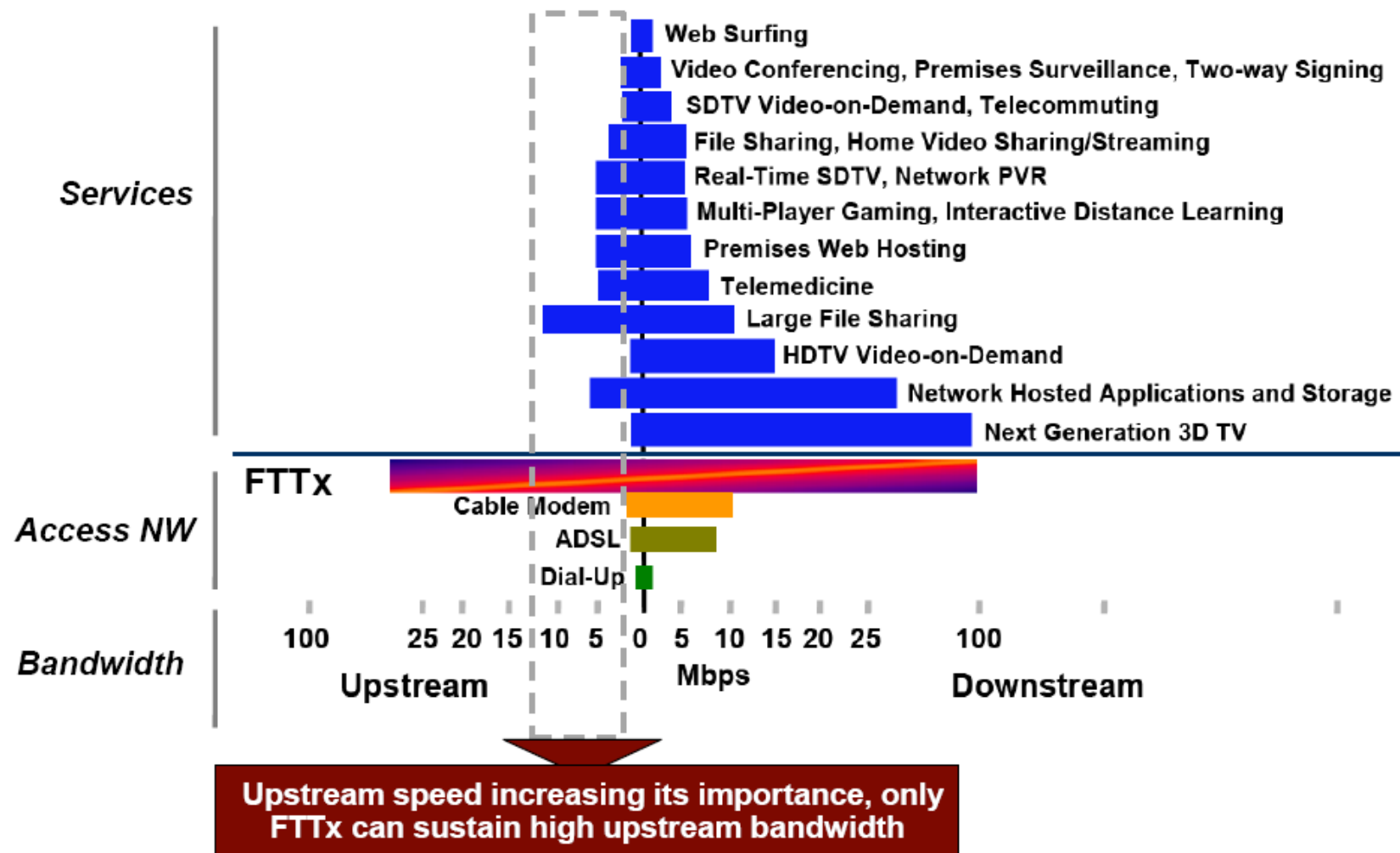
- SBR Juconomy Consulting AG offers sound **business, technical, regulatory** and **legal** advice on regulated markets in the telecoms sector and other network industries (post, electricity, gas, railways), as well as the media and information technology (ICT) segments
- Established on 1 March 2004
- Track record of **>100** projects in the telecommunication sector
- Consulting of utility service providers regarding the cooperation potential for fibre-based network roll-outs and regulatory questions concerning the use of different access technologies
- Ongoing support to municipalities and utility providers with regard to building their own broadband network infrastructure and the migration from unbundling local-loop to an FTTX strategy

Why Fibre to the Home (FTTH)?



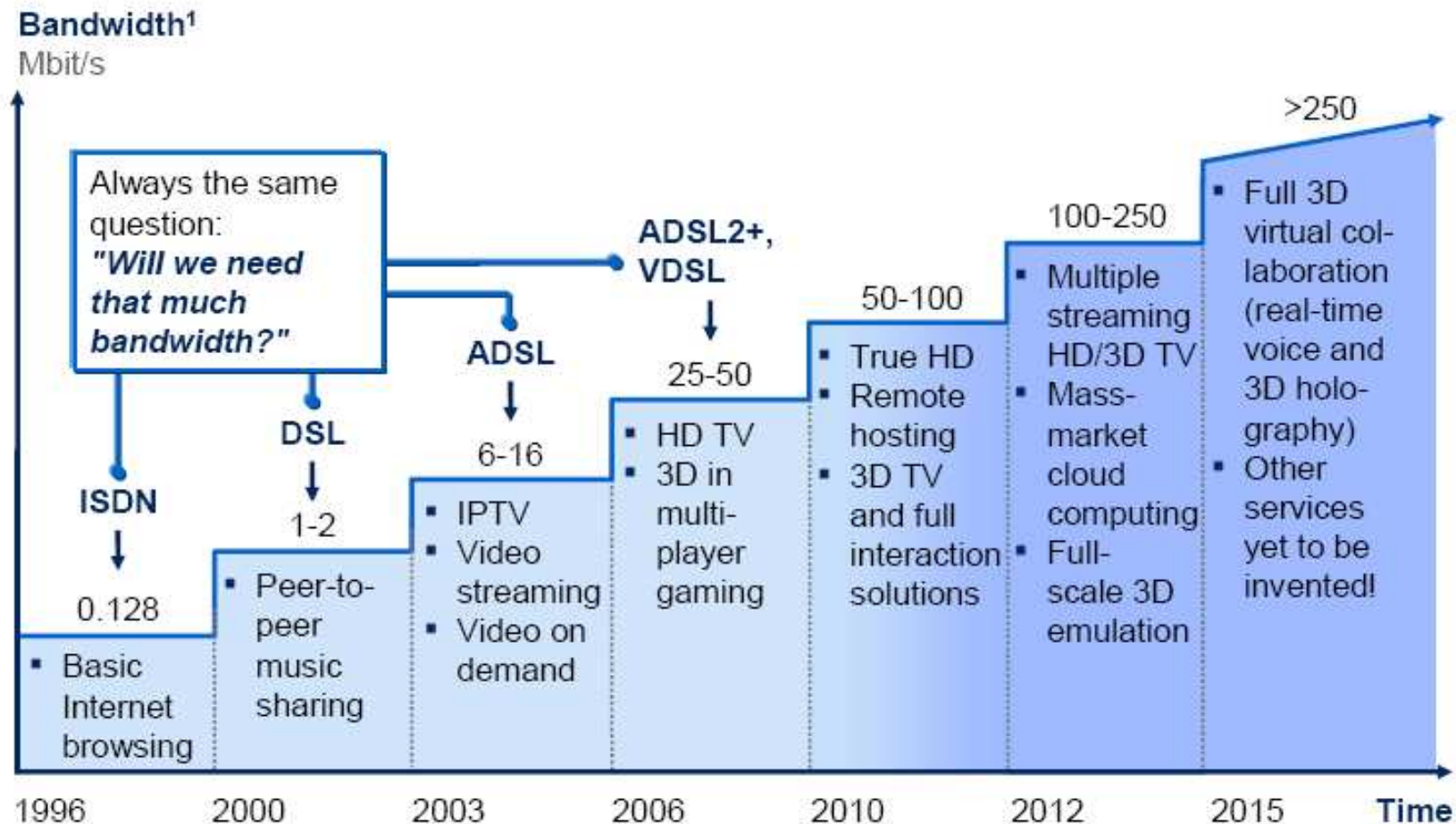
Source: <http://www.useit.com/alertbox/980405.html>

Why Fibre to the Home (FTTH)?



Source: A.T. Kearney/Hellenic Ministry of Transport&Communications/Broadband Strategy/May 2008

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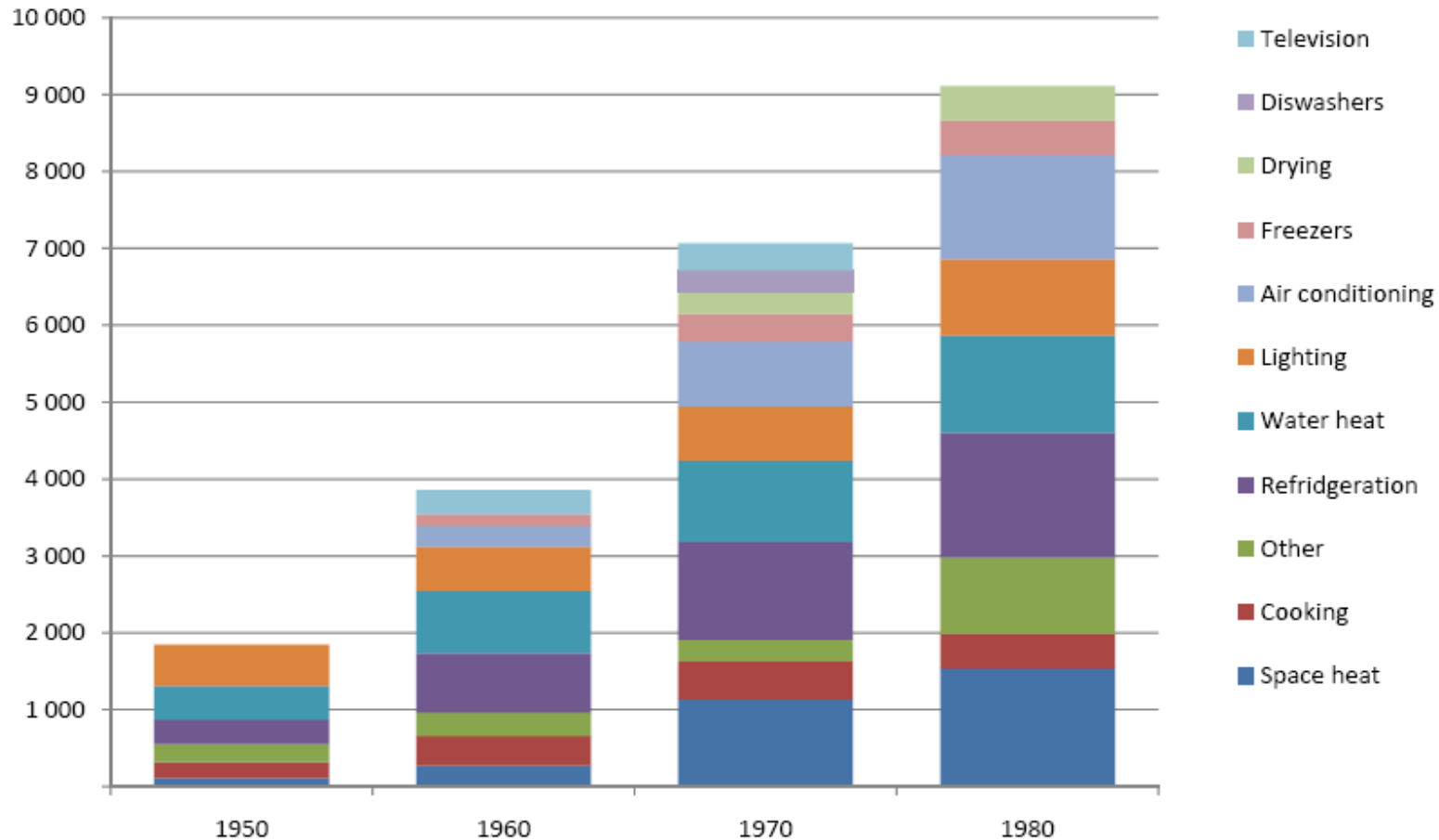


¹ Downlink bandwidth supported by respective technologies, respective uplink speeds are considered accordingly

Source: McKinsey&Company, Creating a Fiber Future, White Paper, 2010

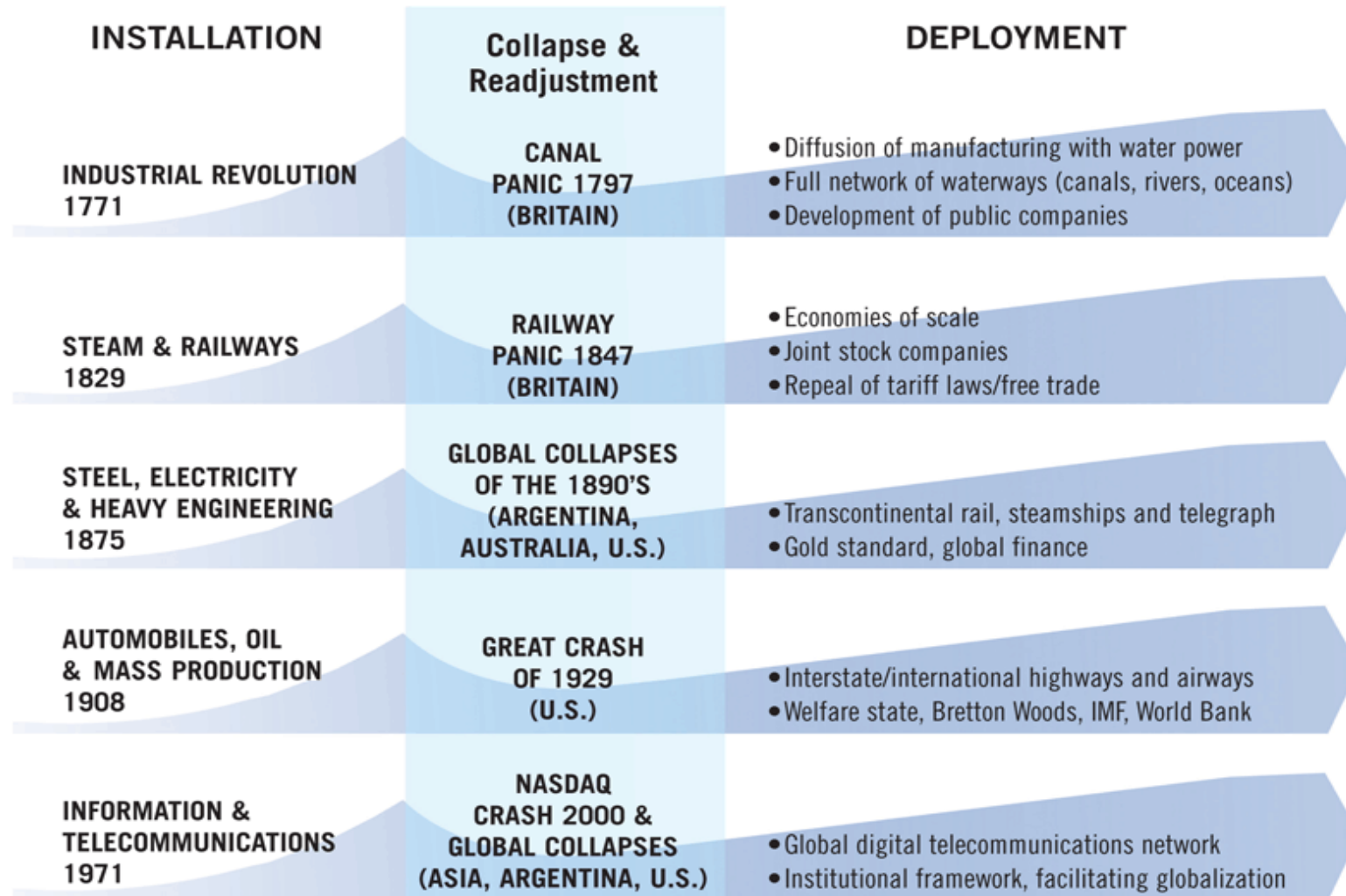
Why Fibre to the Home (FTTH)?

Average US Residential Electricity Consumption by Category, kWh/customer



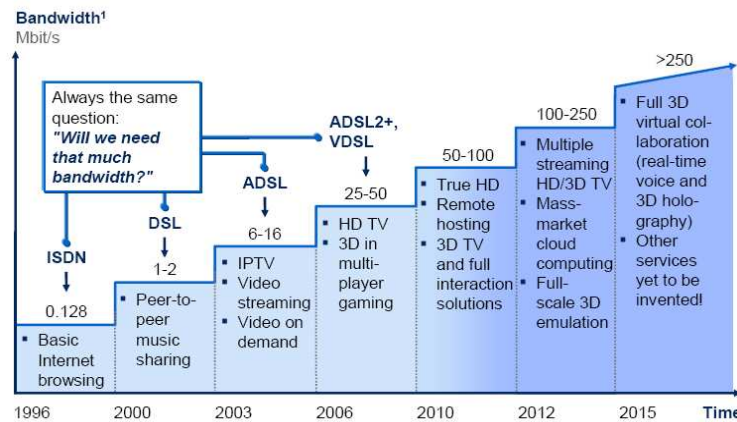
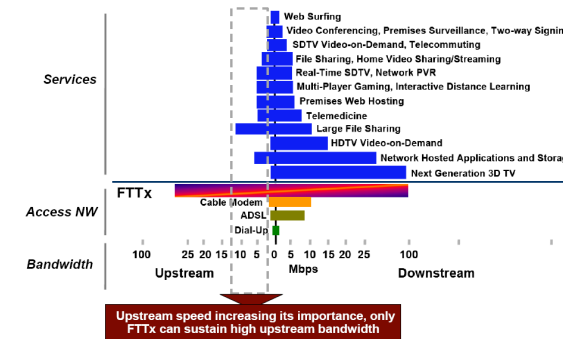
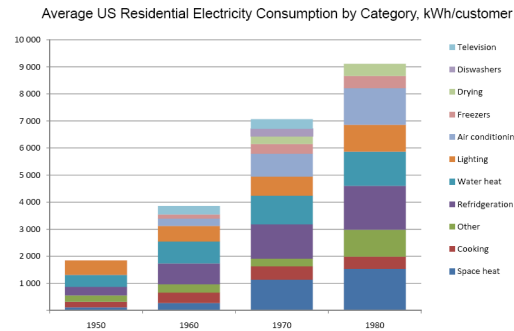
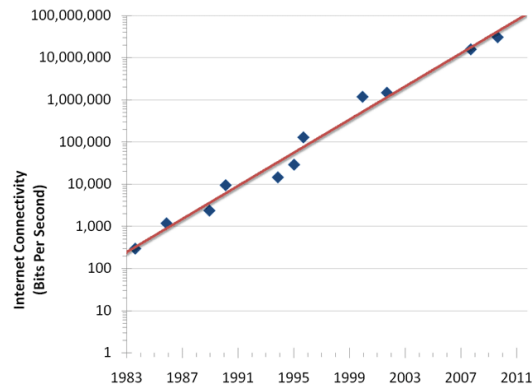
Source: OECD adapted from "Electricity and Economic Growth", Committee on Electricity in Economic Growth, Energy Engineering Board, National Research Council (1986).

Why Fibre to the Home (FTTH)?



Source: Based on Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages, Carlota Perez; IBM 2004 Annual Report

Why Fibre to the Home (FTTH)?



INSTALLATION	Collapse & Readjustment	DEPLOYMENT
INDUSTRIAL REVOLUTION 1771	CANAL PANIC 1797 (BRITAIN)	<ul style="list-style-type: none"> Diffusion of manufacturing with water power Full network of waterways (canals, rivers, oceans) Development of public companies
STEAM & RAILWAYS 1829	RAILWAY PANIC 1847 (BRITAIN)	<ul style="list-style-type: none"> Economies of scale Joint stock companies Repeal of tariff laws/free trade
STEEL, ELECTRICITY & HEAVY ENGINEERING 1875	GLOBAL COLLAPSES OF THE 1890'S (ARGENTINA, AUSTRALIA, U.S.)	<ul style="list-style-type: none"> Transcontinental rail, steamships and telegraph Gold standard, global finance
AUTOMOBILES, OIL & MASS PRODUCTION 1908	GREAT CRASH OF 1929 (U.S.)	<ul style="list-style-type: none"> Interstate/international highways and airways Welfare state, Bretton Woods, IMF, World Bank
INFORMATION & TELECOMMUNICATIONS 1971	NASDAQ CRASH 2000 & GLOBAL COLLAPSES (ASIA, ARGENTINA, U.S.)	<ul style="list-style-type: none"> Global digital telecommunications network Institutional framework, facilitating globalization

The choice is yours ...

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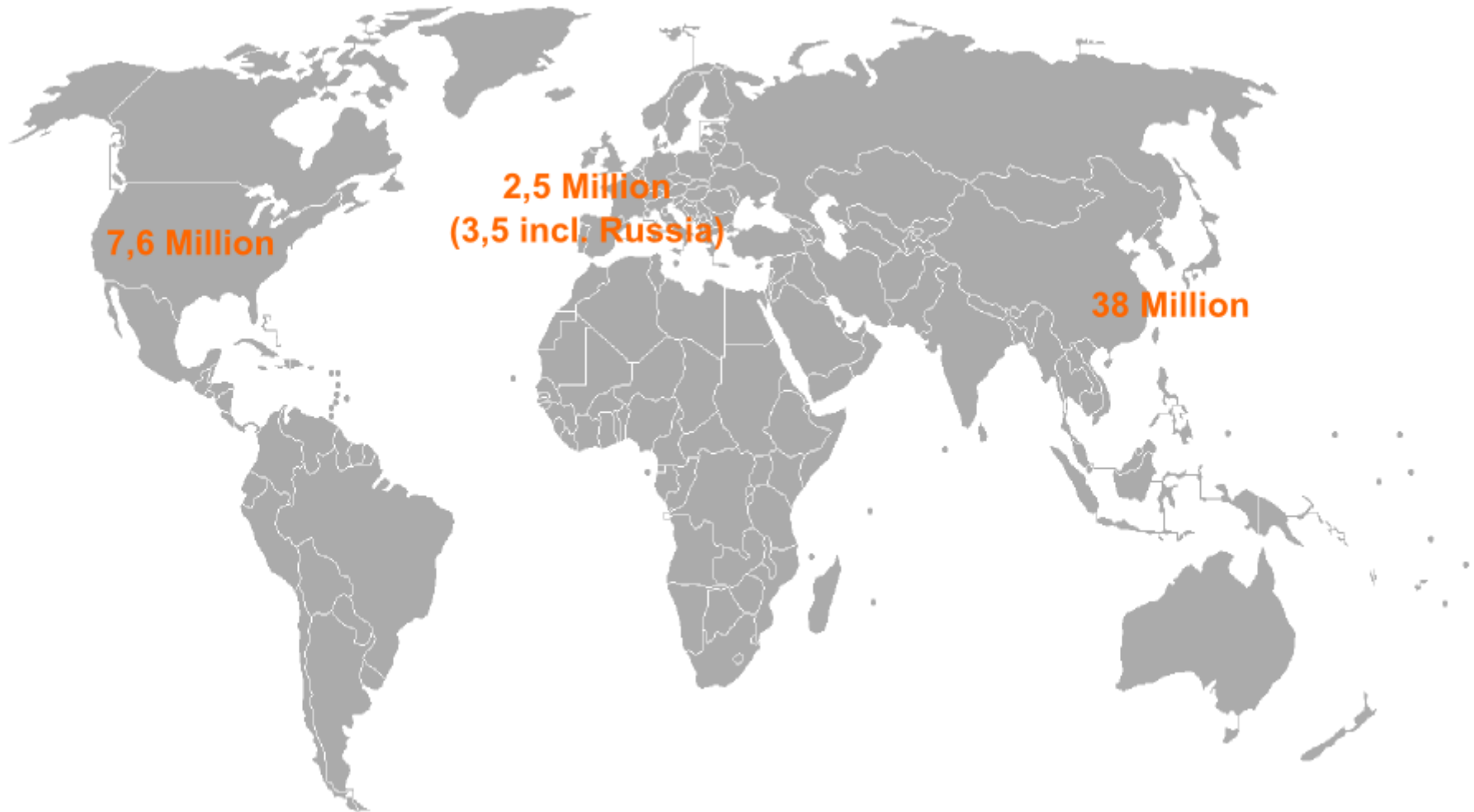
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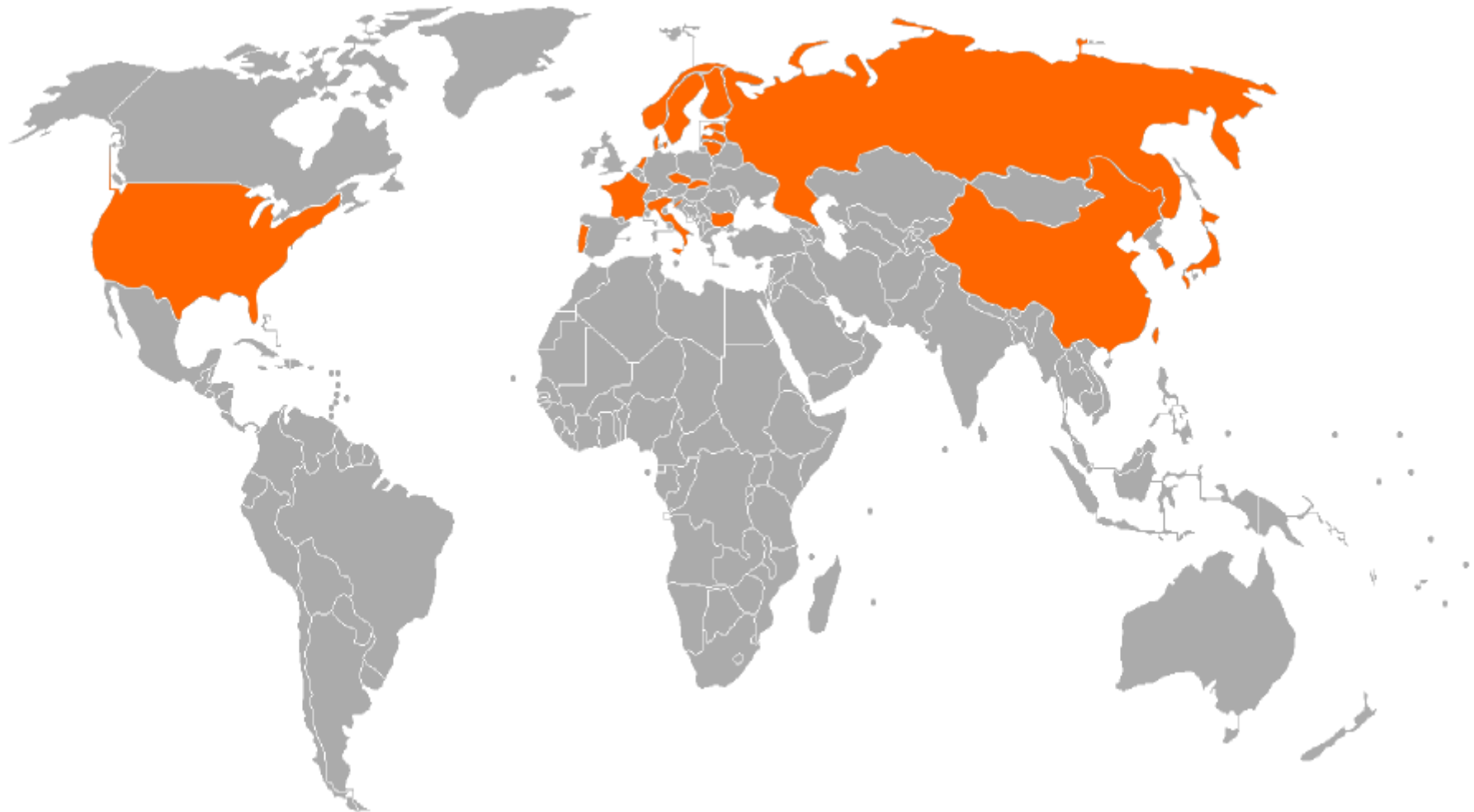
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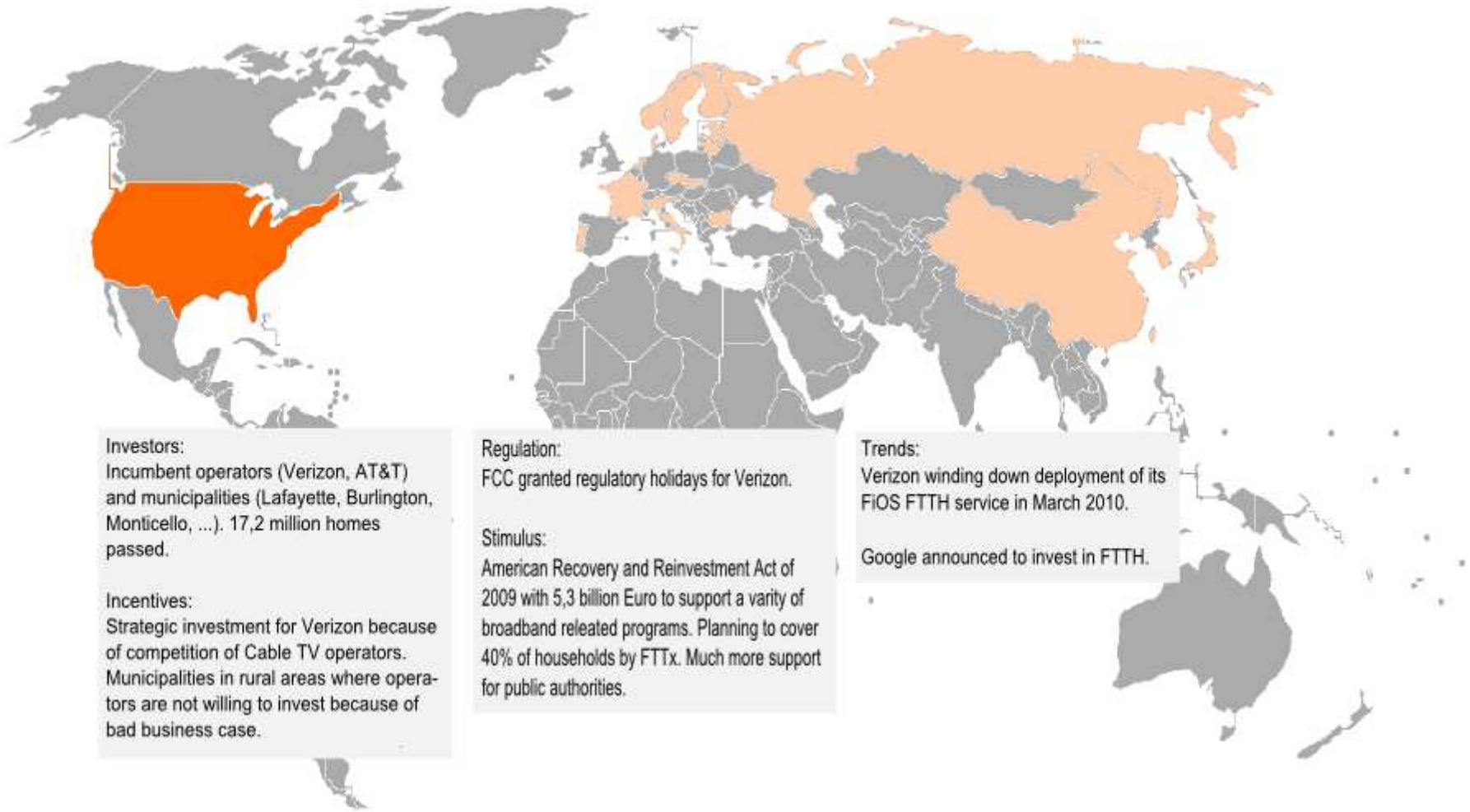
FTTH Global 2009



Source: FTTH Council Europe

Countries (> 1% of FTTH)





Investors:
Incumbent operators (Verizon, AT&T) and municipalities (Lafayette, Burlington, Monticello, ...). 17,2 million homes passed.

Incentives:
Strategic investment for Verizon because of competition of Cable TV operators. Municipalities in rural areas where operators are not willing to invest because of bad business case.

Regulation:
FCC granted regulatory holidays for Verizon.

Stimulus:
American Recovery and Reinvestment Act of 2009 with 5,3 billion Euro to support a variety of broadband related programs. Planning to cover 40% of households by FTTx. Much more support for public authorities.

Trends:
Verizon winding down deployment of its FIOS FTTH service in March 2010.
Google announced to invest in FTTH.



Investors:
Incumbent operators (Chungwa Telecom, HKBN, Korean Telecom, NTT, SK Telecom, Shanghai Telecom, China Telecom). NTT expects to become profitable by early 2012 - nearly 12 years after first rollout in 2000.

Coverage:
Hong Kong with 75% of FTTH/B. South Korea and Singapore with over 50%. Japan with 90% by 2010.

Regulation:
Regulatory holidays for fibre deployed since 2004 in Korea.

Stimulus:
Governmental support. Japan and Korea, as leading countries in developing and exporting telecommunication technologies, are implementing (since 2003) a leading broadband market. Tax reduction and credits on a reduced rate of interest for operators and to local authorities.

Program e-Japan with an 11,3 billion budget.

Very high household density.

Driven by national holded telcos.

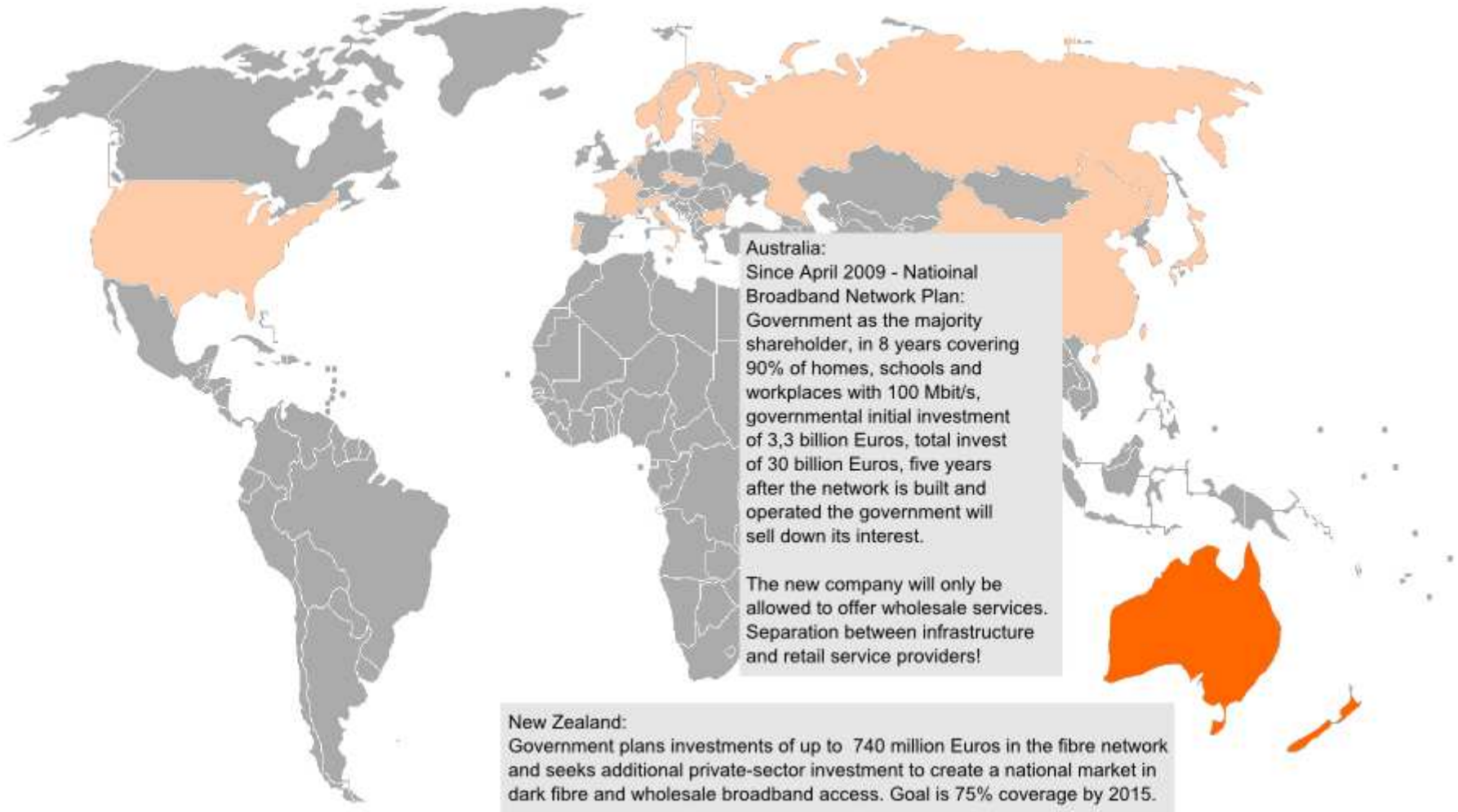
Trends:
HKBN (Hong Kong Broadband Network) is offering 100 Mbit/s for 10 Euros. On 16th of April 2010, HKBN lowered the price for a 1 Gbit/s connection to 20 Euros.

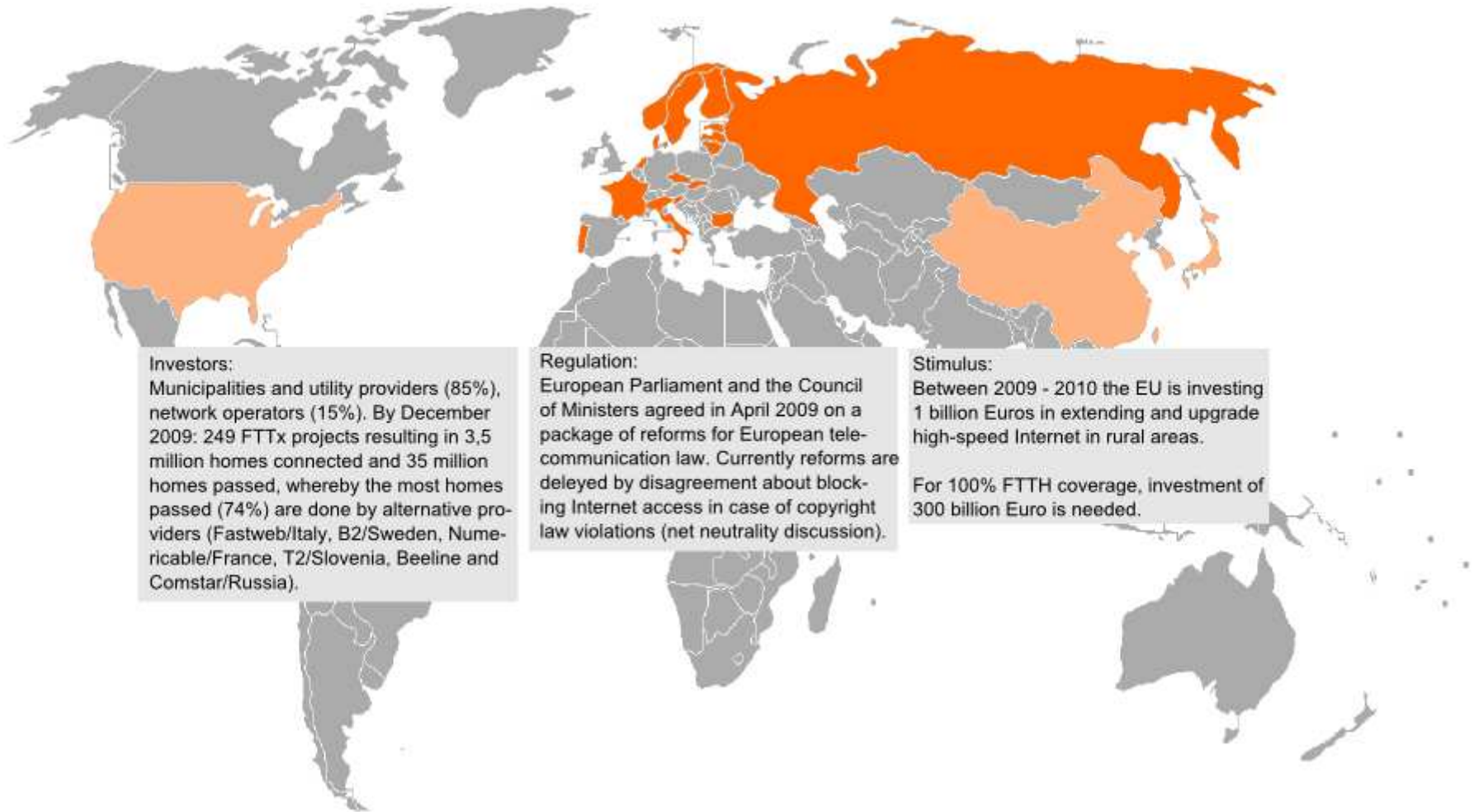
Huawei and ZTE Corp. having a very aggressive price policy, plunging the cost of active FTTH equipment.

In Singapore government is investing 410 million Euros in building and 150 million in operating the state owned open access FTTH network with 100% coverage by 2015.

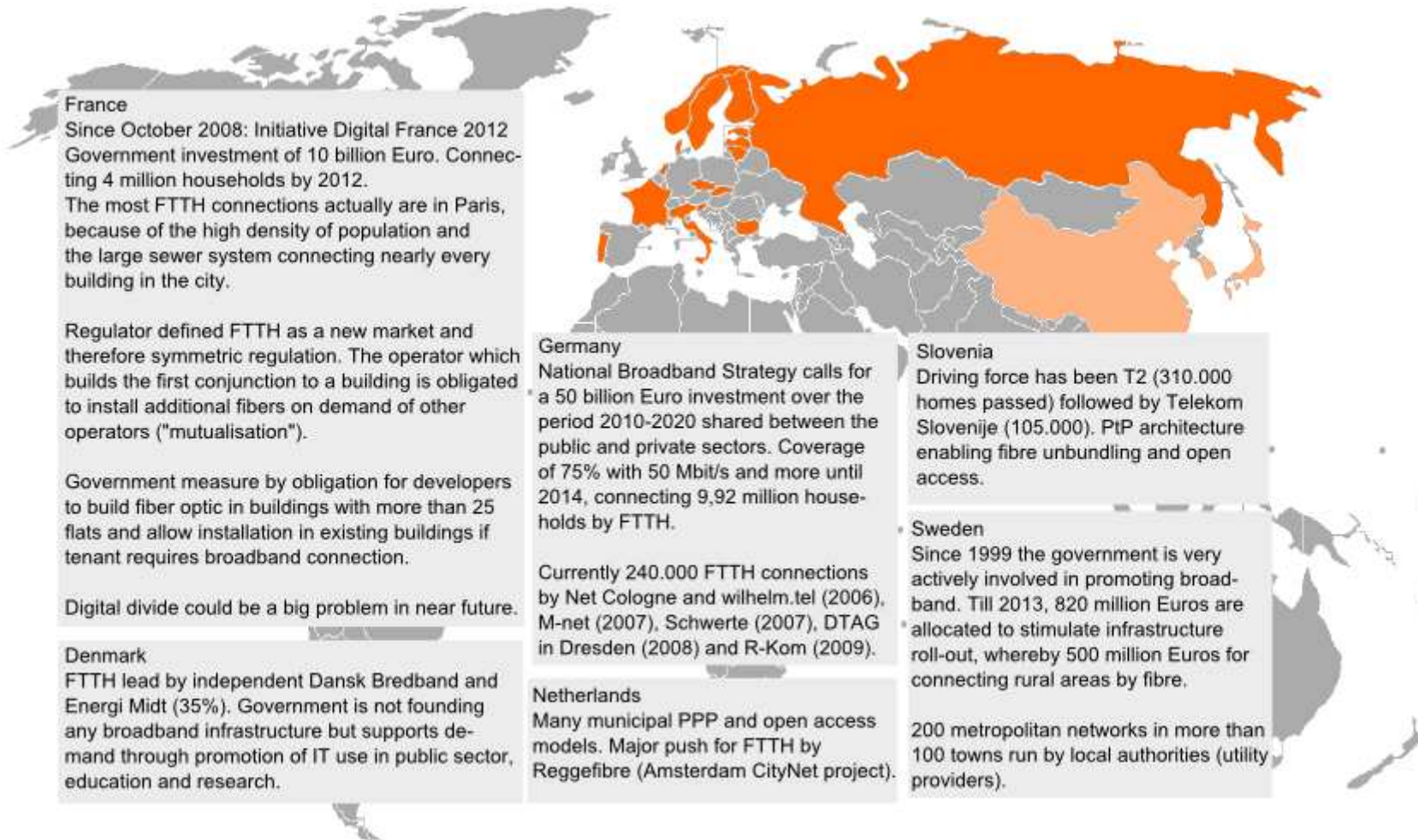
Since end of 2008 Japan has more new FTTH than xDSL connections.

Australia





Europe / Countries



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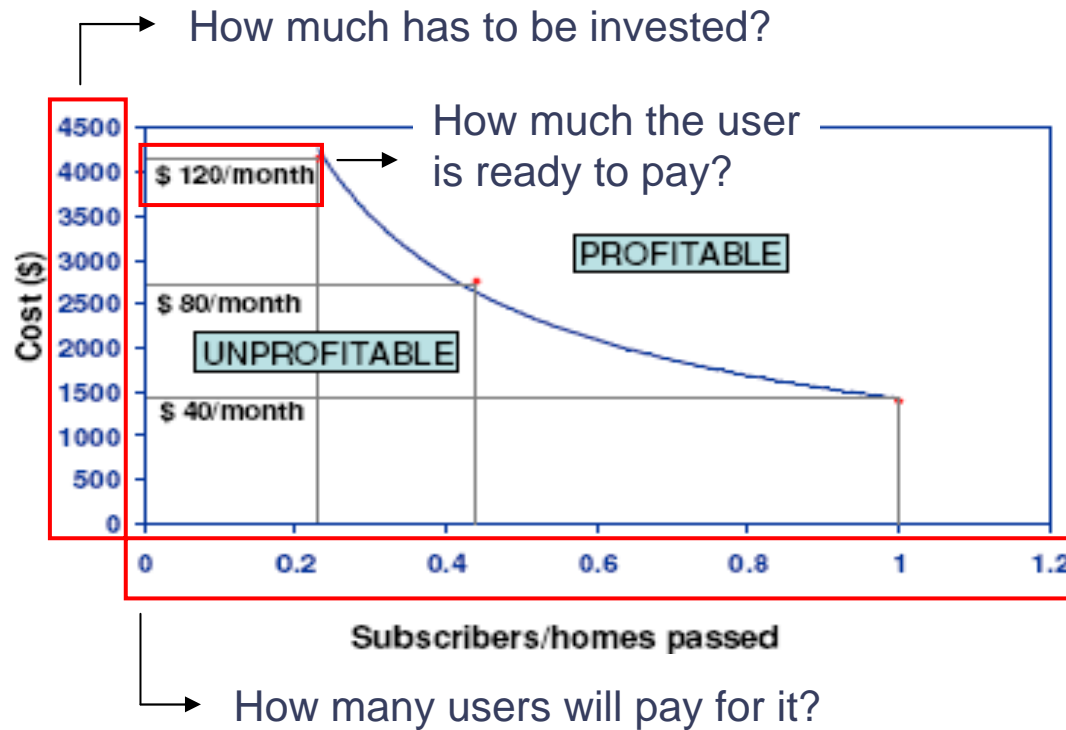
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Economical challenges



- Very strong dependency on revenue and number of users
- Fixed costs and variable costs
- Highest investments costs in access network infrastructure because of civil work (50-80%)
- Operators are investing if:
 - Business model is positive, or
 - Strategic decision

Source: Dr. Raul Katz: Ultrabroadband telco investment models; Ultra Broadband Seminar, Paris, April 2008

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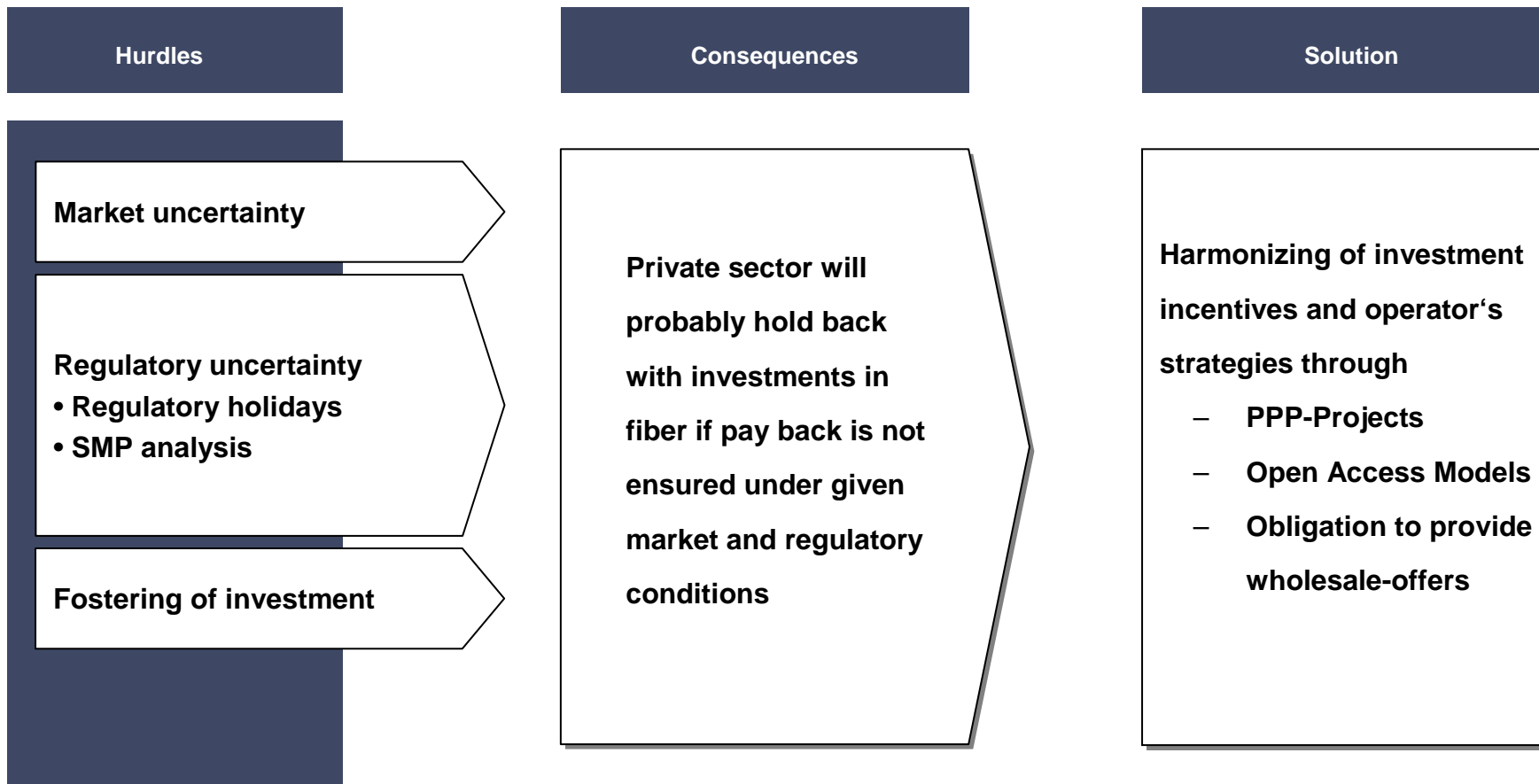
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- If the fiber network is built by the incumbent, without regulatory holidays, probably it has to be open for use by alternative operators
- Symmetrical or asymmetrical regulation?
- Ex-ante or ex-post obligations/remedies?
- Focus on infrastructure or service competition?
- Higher return on capital invest because of higher risk?
- Defining network elements, for which SMP is relevant and to which access is to be granted (ducts, dark fiber, collocation)

Possible solution



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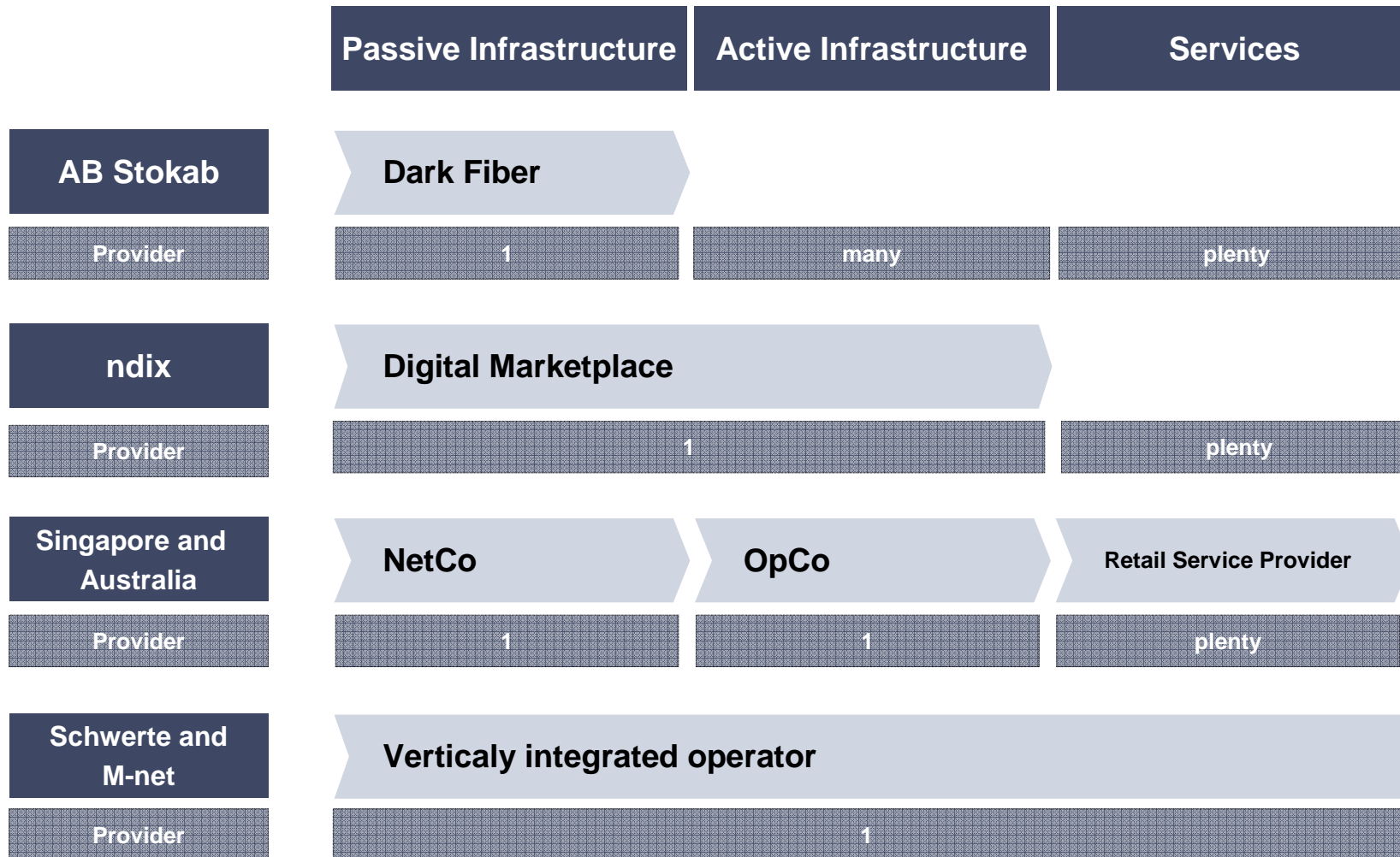
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New business models



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Summary

- Fiber as the new infrastructure
 - Difficult business model for operators
 - Private sector can't capture social benefits and economical impact (externalities like rising employment, higher tax income, reduced outflow of people, business settlement, CO2 reduction, etc.)
- Governmental support can be essential (Sweden)
- Rural areas are in a unfavorable position (World)
- Regulation matters but regulatory holiday can't save rural areas (USA)
- Fiber is squeezing out xDSL (Japan)
- Municipality networks and open access as a possible solution (Europe)
- There is no „one-fits-all“ approach in deploying fibre

- Fibre is the ultimate solution of the broadband challenge
- Mobile networks (LTE, WiMAX) are not competing but promoting the acceptance of FTTH
- Infrastructure competition is not a way to count on fostering national fibre roll-out
- Governments have to play a bigger role by
 - Promoting e-government, telemedicine, telework and online learning
 - Favorable tax policies
 - Investing/funding fiber roll-outs in rural areas
- But this is not (yet) part of the Croatian government economy recovery program (<http://www.slideshare.net/manjgura/program-gospodarskog-oporavka>)

SBR Juconomy Consulting AG

Nordstrasse 116
40477 Düsseldorf
Deutschland

Tel: + 49 211 68 78 88 0
Fax: + 49 211 68 78 88 33
URL: www.sbr-net.com

Parkring 10/1/10
1010 Wien
Österreich

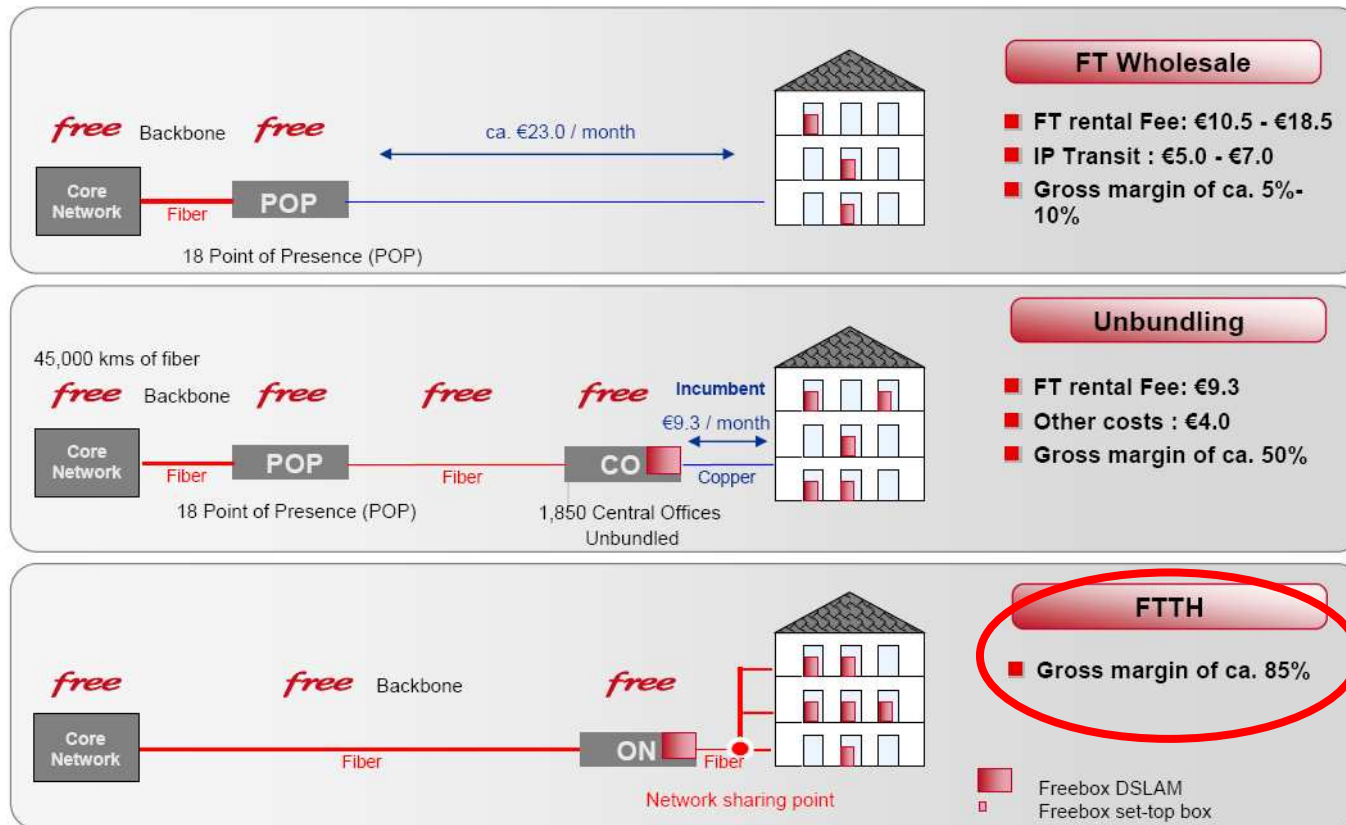
Tel: + 43 1 513 514 0 15
Fax: + 43 1 513 514 0 95
URL: www.sbr-net.com

E-mail: brusic@sbr-net.com

Main incentive for FTTH for Iliad

Yesterday Wholesale, Today Unbundling and Tomorrow FTTH

iliad



Source: Iliad, FY 2008 Results and Strategy Presentation, March 19th 2009