

Creating a brighter future

**Press Conference @FTTH Conference
London, 20 February 2013**

Chi Onwurah, MP & Shadow Cabinet Office Minister
Karin Ahl, President, FTTH Council Europe
Roland Montagne, Director Telecoms BU, IDATE
Alexander Bard, Philosopher and Internet sociologist

FTTH Council Europe



A sustainable future
for Europe
enabled by
Fibre to the Home

FTTH Council Europe

- Industry organisation created in 2004, today powerful organisation with over 150 member companies from across Europe, deployers, vendors, academics.
- Our vision: a sustainable future for Europe with enhanced quality of life, enabled by FTTH
- Our mission: accelerate the availability of fibre-based, ultra-high-speed access networks
- Our job is to provide information about FTTH to a wide range of broadband stakeholders (policy makers, journalists, operators, investors, etc)
- Go to our web site, Resources tab, for all our collection of reports/ studies, case studies, opinion articles, monthly newsletter, but also clips and photos

Our job is to help YOU

FTTH Conference 2014

Join us Next Year in Stockholm!

18-20 February 2014



Fibre to the Home
Council Europe

www.ftthcouncil.eu

FTTH Conference

- One of our activities to promote FTTH is our annual event, the FTTH Conference.
- Largest FTTH event in the world, with more than 3,000 participants from 85 countries at our last event in London 2013.
- Stockholm 2014 is the next edition of the conference, save the date in your diaries

We hope you can make it!



We are promoting FTTH because it is the
leading access solution today
and widely recognised as the
ONLY future-proof technology.

Myths about FTTH



There's no demand,
we don't need it

We can achieve the same
results with other
technologies / FTTH is only
a bit faster than
other technologies

It is too expensive,
we can't afford it, there
is no business case, the
ROI is too risky

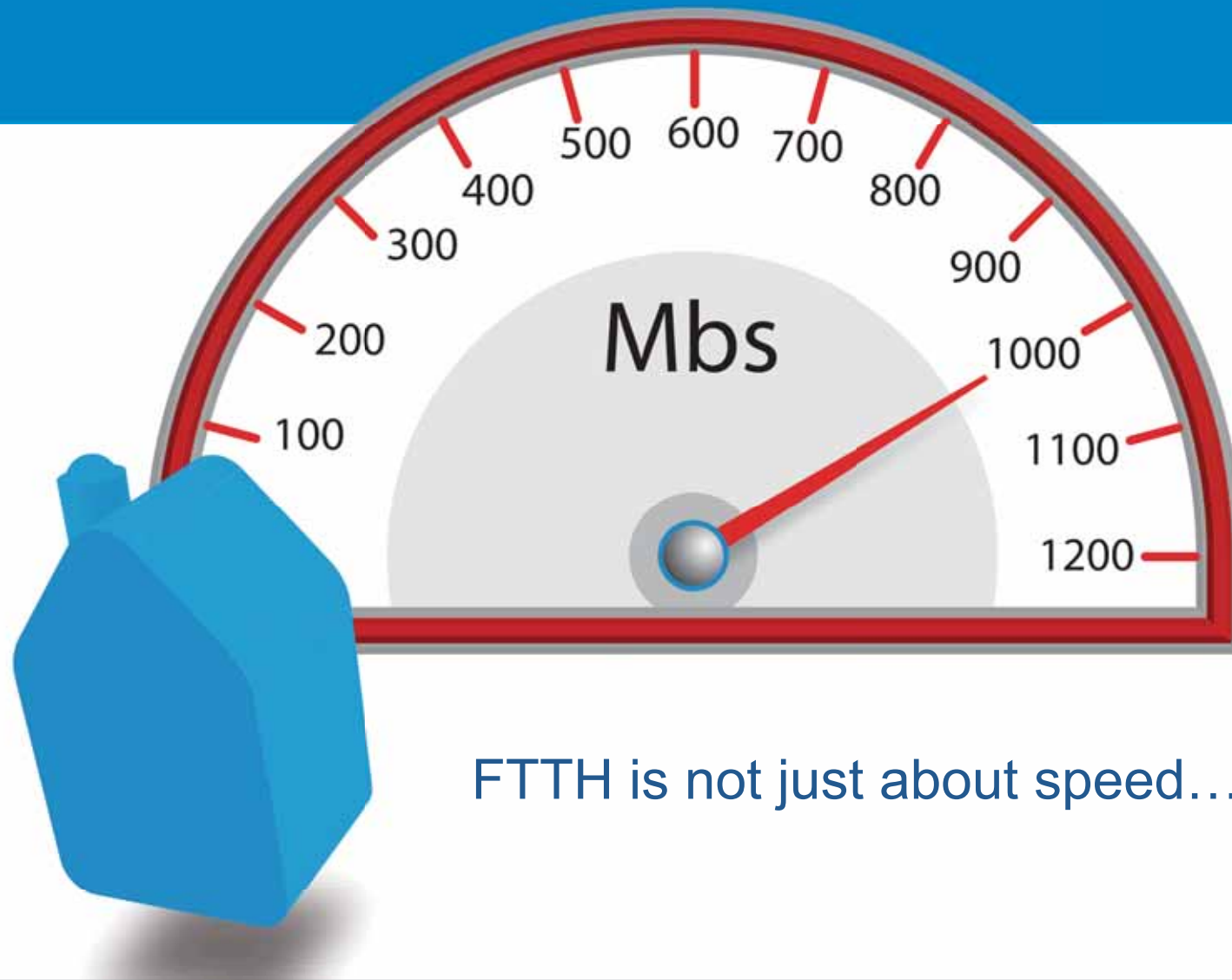
Governments have
more urgent issues to
solve that require
public money

FTTH is not
relevant now /
we don't want
it now

Myths about FTTH

- Considering all we know today, how come we still hear these myths about FTTH?
- Sounds familiar?

Let's have a closer look...



FTTH is not just about speed...

FTTH is not just about speed

- FTTH is not just about speed, it is an enabler, because it offers:
 - The fastest possible speeds with virtually unlimited bandwidth
 - Symmetrical/ almost symmetrical speeds, enabling video intensive interactive services
 - Reduced latency, i.e. no buffer, no delay, no interruptions, this is necessary for real-time services
 - Resilience: failures are rare and if they do occur they don't have much effect on Quality of Service
 - Limited contention: better chance to get what you pay for at any time than DSL (FCC 2012)
 - No sharing frequencies with other users, no interferences, same speed regardless of the number of users (versus mobile) or distance from the cabinet (versus copper)

**We are not talking about adding a few Mbps downstream,
we are talking about a revolution in the way people live and work**

Don't just take our word for it!

***“There is no other choice.
There is no other technology
that can do what
fibre can do”***



*Peter Cochrane, futurist, entrepreneur,
international business and engineering and
Keynote Speaker FTTH Conference 2012*



Fibre to the Home
Council **Europe**

www.ftthcouncil.eu

There is Demand for FTTH

- Fact = there is demand when there are services (Diffraction Analysis 2012).
- By 2025 80% of German homes will need 60+Mbps **upstream**, 43.5% will need 170+Mbps **upstream** (Breko 2012)
- FTTH subscribers are more satisfied (53% Verizon FTTH customers, vs. 37% on AT&T FTTN)
- They use the bandwidth (Ovum 2009: FTTH users use 3-4 times more bandwidth than with other broadband technologies)
- They would never go back to previous technologies
- They are willing to pay for value added services (Diffraction Analysis 2012)
- They rank **speed + reliability** higher than price in operator choice (Internet Society 2012)
- Some dig up their own trenches to get FTTH (Altibox/Norway, rural projects/UK...)
- As with railways or smartphones, awareness + availability = demand

European consumers will soon be demanding services available in other parts of the world and operators won't be able to deliver!

Don't just take our word for it!

“When people get access to fibre, they don't just use more bandwidth, they find new ways of using it, too”



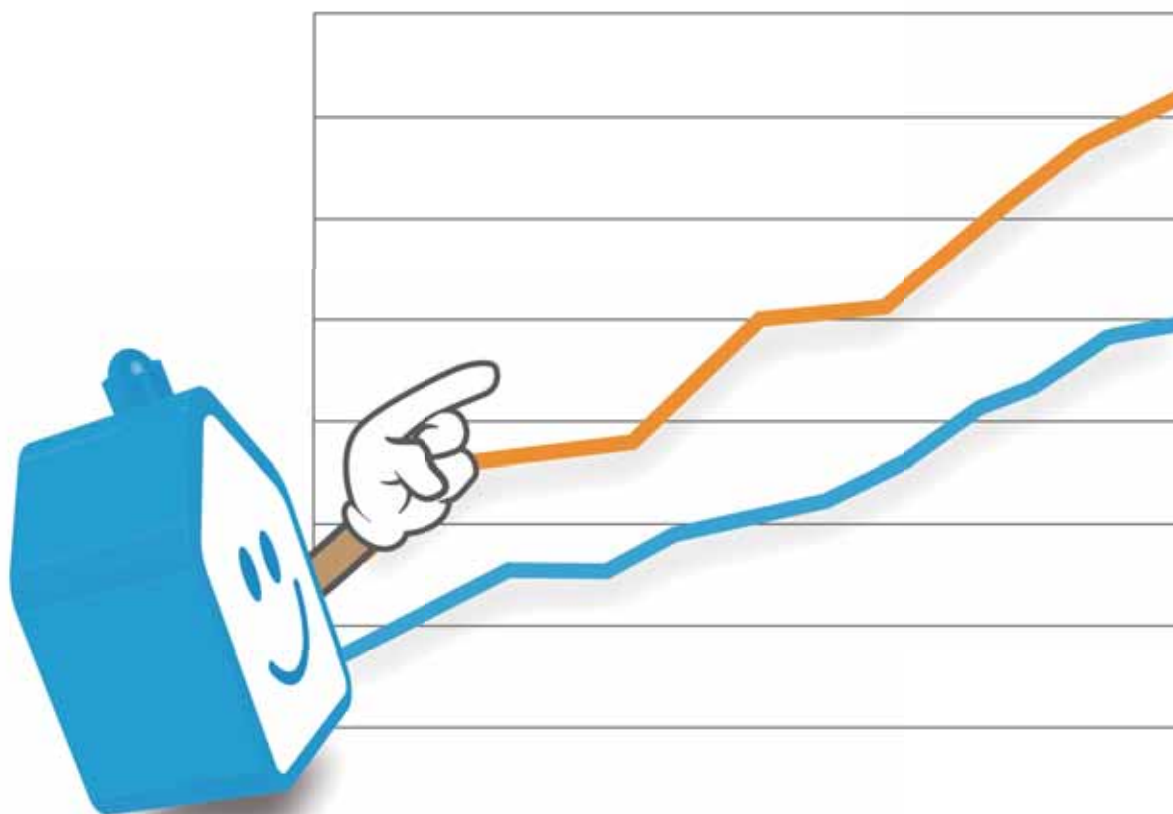
Jacob Bolin, Project Manager,
Swedish Broadband Forum

Costing and funding Fibre roll-out

Food for thought:

EU operators invested
€24.8 billion on fixed
infrastructure in 2011.
Over 9 years to 2020
= **€216 billion**

Estimated cost of
deploying FTTH
= **€202 billion**



The cost of deploying Fibre

- The cost of building future-proof FTTH cannot be compared to short term fixes (e.g. upgrades of obsolete copper networks).
- On a national level, FTTH allows cost savings e.g. in health care.
- A costing model was generated (by Comsof and Atesio) to calculate the total expected cost of achieving the DAE broadband target (100% of homes passed and 50% of homes with subscribers) for EU27 countries:
Initial result = cost of €202 billion
- ETNO announced that in 2011, operator investment in fixed = €24.8 billion!!
- Investors are willing to invest in FTTH – e.g. EIB

Investing in a future-proof infrastructure for Europe is not unaffordable
There is money available to finance FTTH projects

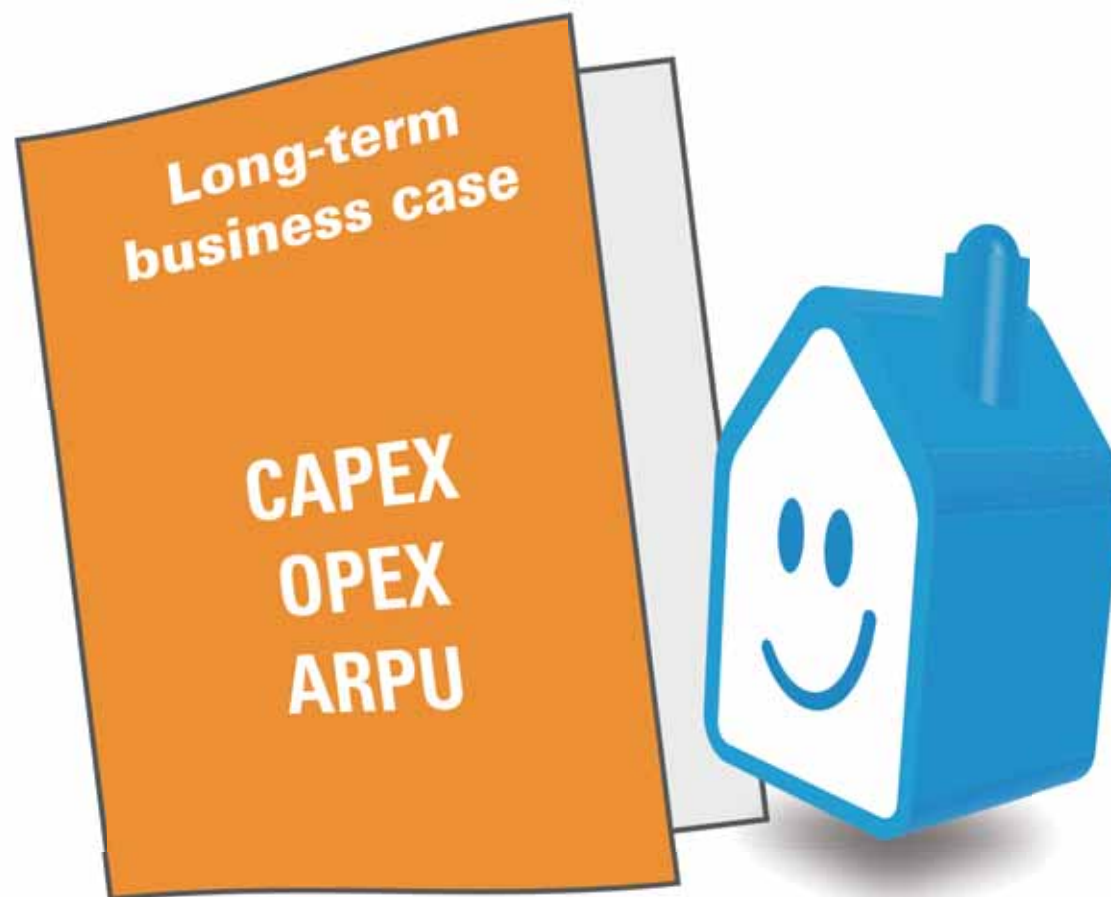
Don't just take our word for it!



“Even with the current Eurozone crisis, there is potentially plenty of capital for FTTH over the next 8 years.”

Jacek Krauze, Financial Advisor and Corporate Financier,
Portland Advisors

What about the business case?



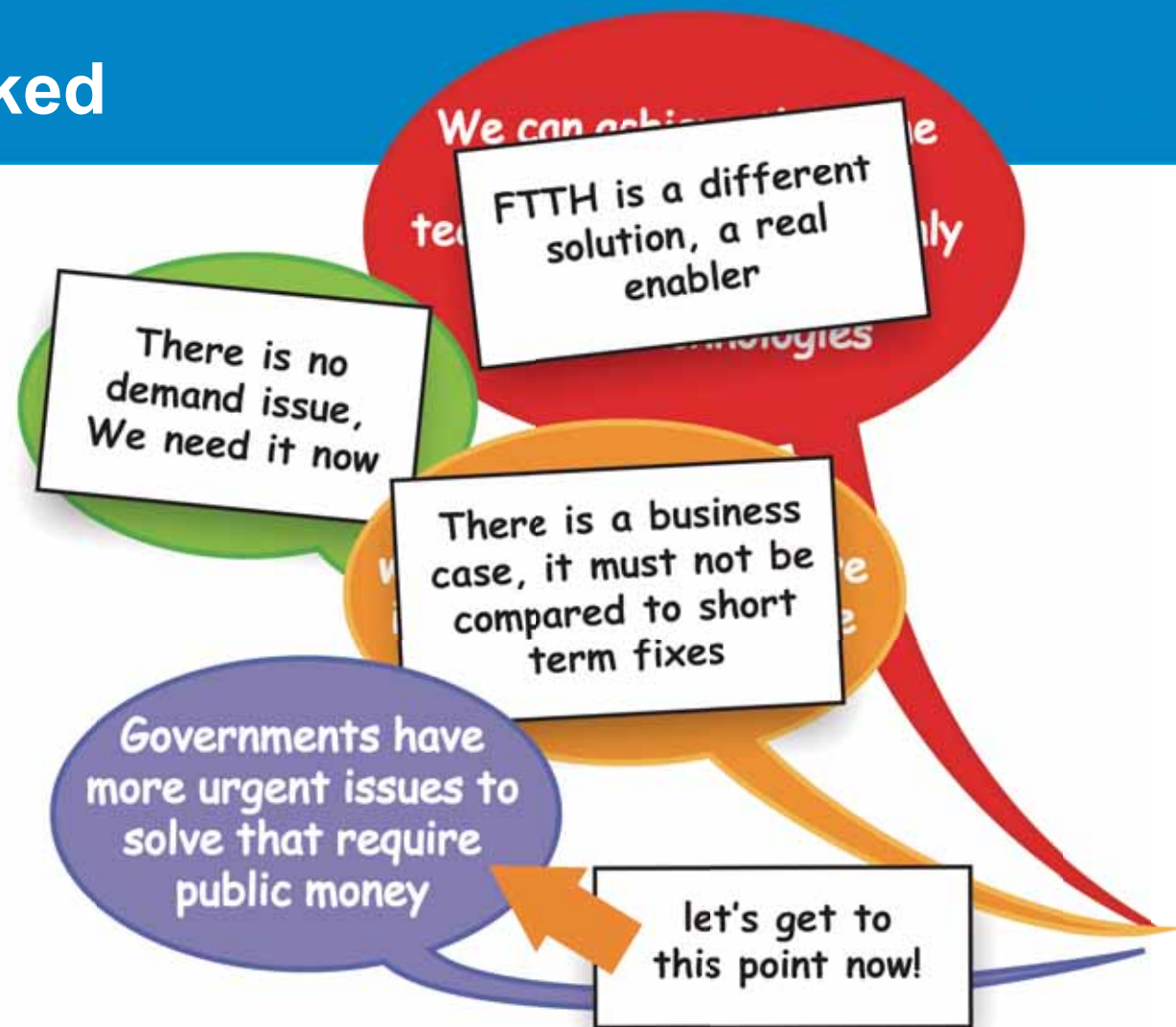
What about the business case?

- FTTH = future-proof infrastructure = long-term business case.
- Business Guide proposes 'layer by layer' approach + new financing models to make fibre attractive.
- Opex savings are generated from easier maintenance and network stability – e.g. 60% experienced by Verizon vs. operating a copper network
- On average operators can generate 46% more ARPU with FTTH - up to 280% more. Uptake levels up to 93% have been recorded (Diffraction Analysis 2012).
- Churn is lower with FTTH – because of satisfaction & competitive advantage
- Marketing can further improve take-up (Altibox 70%) and ARPU
- Public money and Public-Private partnerships are available to support FTTH roll-out, particularly in rural areas

If you do it right, there is a business case for FTTH

We have many success stories to prove this

Myths debunked



Myths debunked

To sum up:

- ~~We can achieve the same results with other technologies / FTTH is only a bit faster than other technologies~~ FTTH is a different solution, a real enabler
- ~~There's no demand, we don't need it~~ There is no demand issue, we need it now
- ~~It is too expensive, we can't afford it, there is no business case, the ROI is too risky~~ There is a business case, but it must not be compared to short term fixes

The myths about FTTH do not hold!!

- One last thing we often hear: in times of economic downturn, governments have more urgent issues to solve

Really? Let's see

Public authorities have a role to play



Public authorities have a role to play

- We are not the only ones to believe that policy-makers have a role to play, particularly in areas where it is less attractive for private players
- OECD has mentioned the positive impact of FTTH
- The European Commission has put Digital Agenda targets in place`
- Many national governments have broadband plans and associated funding

**The question is: don't governments
have more pressing priorities than FTTH?**

What issues are we facing in Europe?

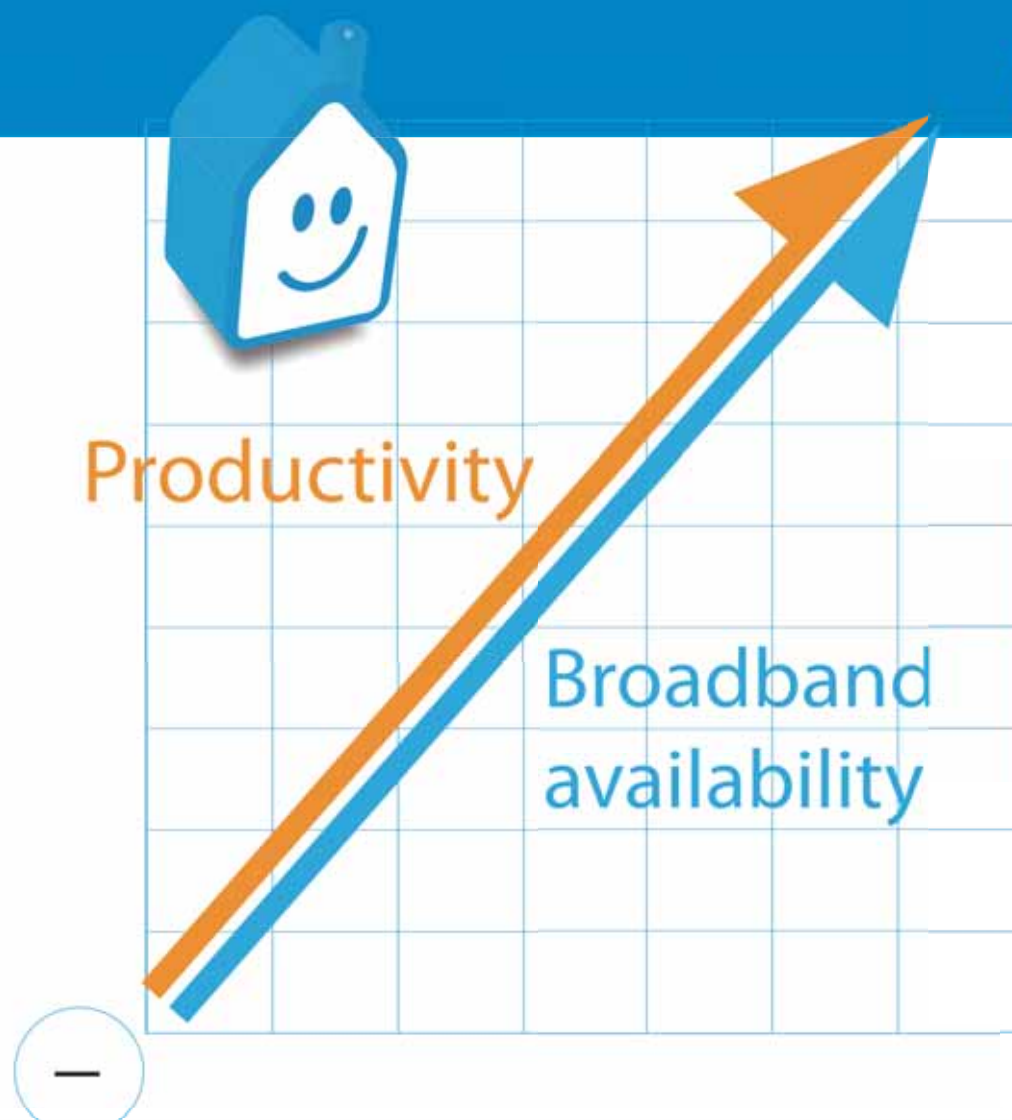


What issues are we facing in Europe?

- Economic downturn and global competition
- Lack of education/qualifications and unemployment
- Sustainability and environment
- Digital divide (urban vs. rural, haves vs. have nots)
- Ageing populations

**We believe that with FTTH
some challenges can be turned into opportunities.**

FTTH contributes to economic growth



“Europe’s economic future requires smart, sustainable and fully interconnected transport, energy and digital networks.”



Anna Krzyzanowska,
DG Information Society &
Media, European Commission

FTTH contributes to economic growth

Issue = economic downturn

- We should invest in our future and deploy FTTH
- Why? Because FTTH contributes to Europe's economic recovery

There are plenty of economists' reports about this, pick your choice:

- 10% increase in broadband penetration = 1% GDP increase (Arthur D Little 2011)
 - 10% increase in broadband penetration = 1.5% labour productivity growth over next 5 years (Booz & Company 2012, used by World Bank).
 - Broadband speeds X2 = 0.3% GDP increase (Ericsson/Arthur D. Little/Chalmers Uni. 2011)
 - Cloud computing in 52 countries = \$800 billion net new business revenues from 2009-2013 (IDC 2012)
 - 10% more internet = 24% higher revenues + 7% reduced costs for businesses
- The positive ROI on e-solutions for improving productivity is 8.9% higher for fibre users than for cable users and 14.2% higher than for DSL users (Strategic Networks Group, USA, 2012)

FTTH contributes to macroeconomic growth, business productivity.

Europe needs FTTH to remain competitive in the Global market.

Don't just take our word for it!

“Cost savings of 0.5% to 1.5% in electricity, transport, energy & health over 10 years resulting directly from the new broadband network platform could justify the cost of building a national point-to-point, FTTH network.”

Taylor Reynolds
OECD

Rolling out FTTH creates jobs



Rolling out FTTH creates jobs

Issue = unemployment

- 1,000 new broadband customers = 80 new jobs (Arthur D Little 2011)
- In France, building FTTH network = 360.000 new jobs per year (European Commission 2012).
- Australia expects the national FTTH network = 25,000 new jobs/year during 8-year build, peaking at 37,000

**It is a fact that rolling-out FTTH creates jobs,
and the skills gained in the process
are a competitive advantage for early adopters**

Reduced travel, Energy control



Reduced travel & transport



Reduced travel, Energy control

Issue = 50% of the world's population lives in cities, consume 50% of all energy and emit 50% of the world's greenhouse gas.

How to improve this?

- **Reduced travel & transport**
 - If 10% of the working population works from home 3 days a week, the impact of using FTTH-enabled applications can save a CO2 equivalent of up to 4600 km of car travel a year for each household (PWC/Ecobilan 2009 on environmental impact of FTTH).
 - Services that were physically distributed, are now virtualised (films/ music delivery)
- **Energy control with smart grids**
 - Smart grids need reliable, real-time enabled fibre networks

FTTH is future-proof and sustainable

FTTH enables services that reduce energy consumption and pollution

Bridging the digital divide



Bridging the digital divide

Issue = urban/rural digital divide

Equal opportunities

- In rural areas consumer demand/take-up are higher because 1/poor broadband and 2/ inhabitants live far from services (entertainment, education, health...)
- The socio-economic impact is higher in rural areas (Ovum 2009)
- In many cases FTTH is the only way to deploy broadband access anyway

Regional attractiveness

- Authorities in rural areas are struggling to keep communities alive
- FTTH allows them to:
 - Increase Attractiveness: retain citizens and businesses, attract new businesses (all our case studies on rural areas confirm this fact)
 - Reduce Digital Divide, for instance: eHealth, eEducation, eGovernment will reduce the gap between the haves and have nots
 - People will have more direct communication in areas where they are usually isolated

FTTH contributes to bridging the digital divide

Taking care of Ageing populations



Last but not least...

Taking care of Ageing populations

Issues:

Spending on long-term care = 1.5% of GDP in OECD. By 2050 will at least double.

50% of recipients are 80+ year old, and 80+ year olds = 4% of population in 2010 but 10% in 2050 (OECD 2012).

Some practical solutions:

- 2 hospitals in rural Sweden reduced medical scan costs by 35% by sending images to Spain for diagnosis = €800,000/year savings + patients saved 50% waiting time. (Access Economics Pty 2010)
- Swedish Giraff video monitoring device = permanent contact with family & doctors
- Portuguese PT Inovação developed system for cooperative diagnosis using video conferencing, data sharing etc

All these video-intensive services are available NOW, running on FTTH
FTTH allows healthcare savings and enables elderly people to stay at home

Conclusion for Europe



Conclusion for Europe

The question is not whether to chose to invest in FTTH instead of investing in so called “more urgent issues”

**When you invest in fibre,
you’re investing in all of these priorities as well**

and

**the return on the public money invested is greater than it would
if you spent public money on each separately.**

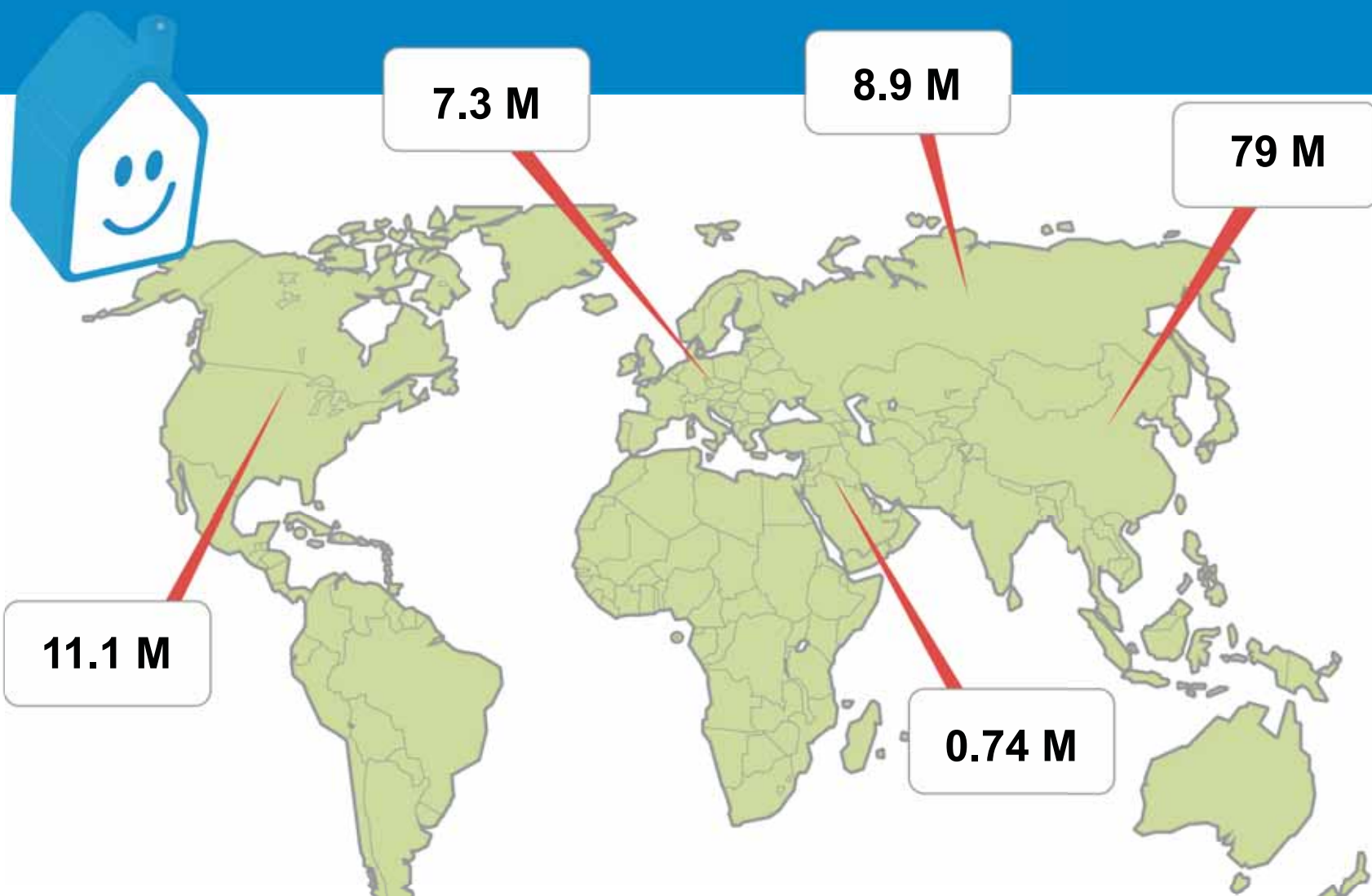
Don't just take our word for it!



What economists don't get is that the rewards aren't linear - they're exponential.

*Peter Cochrane, futurist, entrepreneur,
international business and engineering*

FTTH/B Global Panorama end 2012 – total subscribers

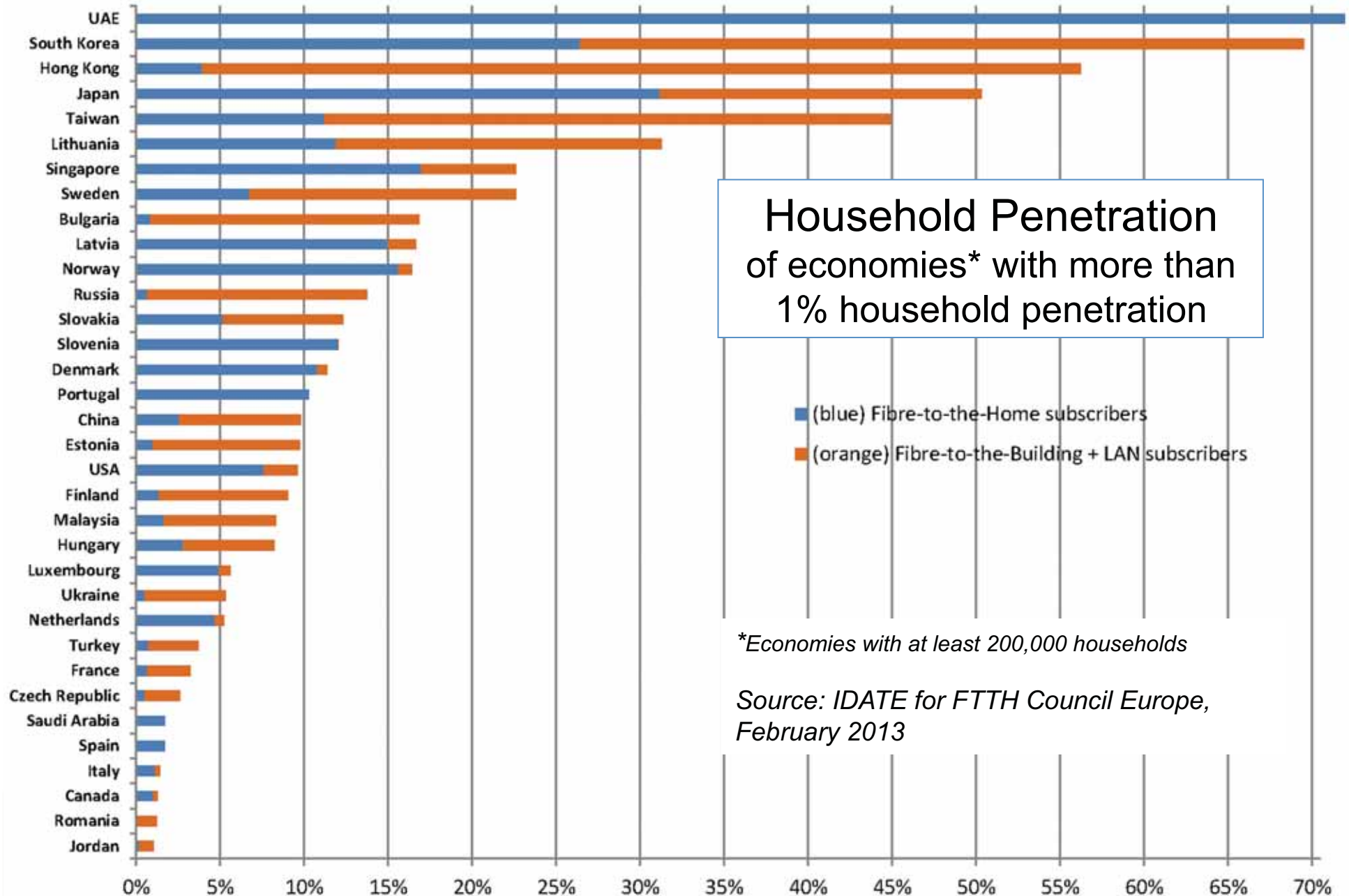


FTTH/B Global Panorama end 2012 – total subscribers

- The total number of subscribers remains far higher in Asia Pacific than in any other part of the world, with nearly 80 million subscribers!
- America represents 11 millions subscribers, whilst Europe (EU35) comes third with 7.3 million.
- However, together with the CIS countries (mostly Russia and the Ukraine), “larger” Europe counts more than 16 million subscribers
- In the Middle East, the market is only starting to develop, not yet reaching 1 million subscribers

In absolute terms, it is clear that Asia Pacific is leading the way to FTTH adoption in the world, let's have a look at household penetration.

FTTH/B Global Ranking – end 2012

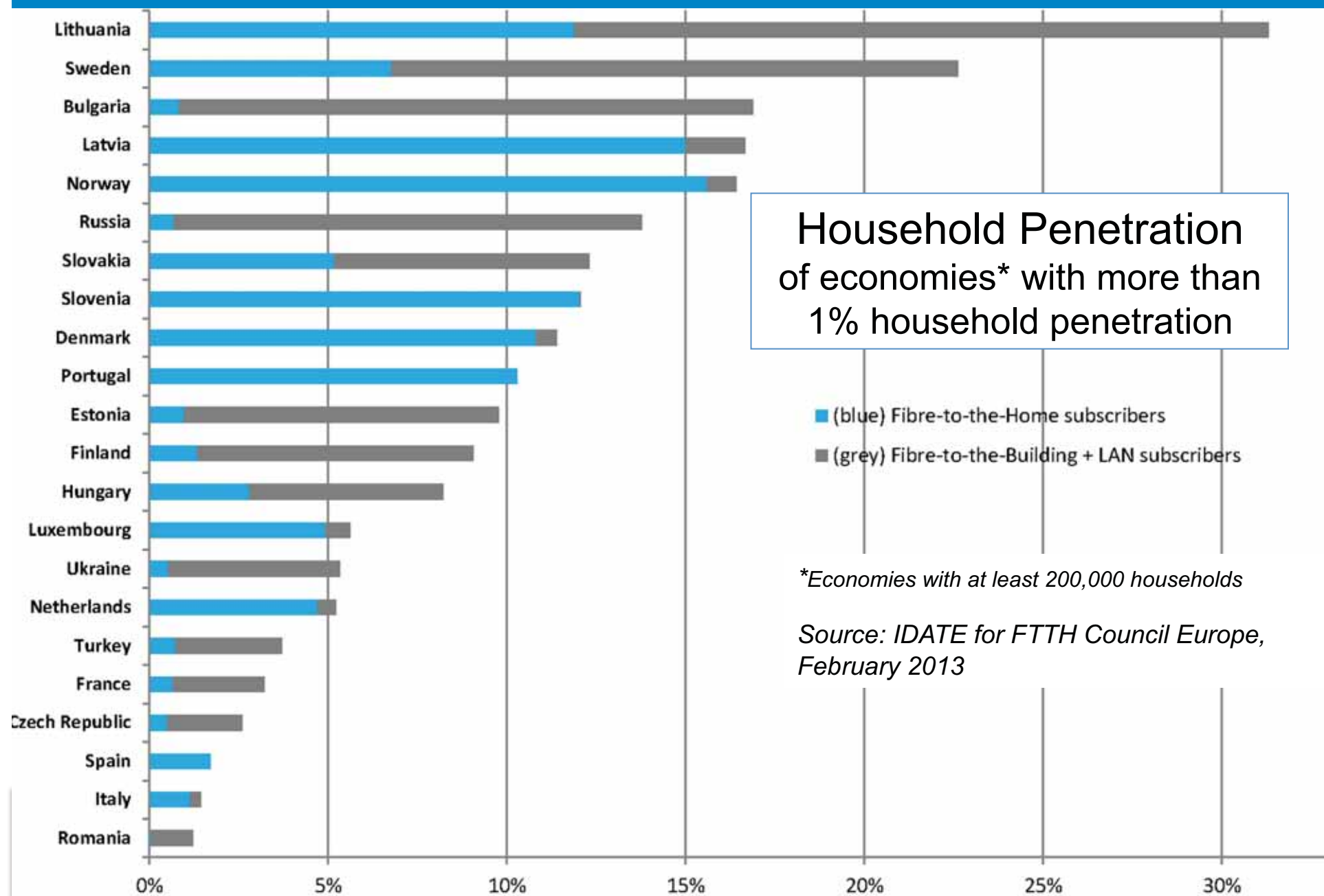


FTTH/B Global Ranking – end 2012

- Let's have a look at the market in terms of penetration = % of the population
- You see on this chart all 34 countries in the world with more than 200K households of which more than 1% are FTTH/B subscribers
- This covers only FTTH & FTTB, **NOT** FTTC where fibre is outside of the building (FTTH/B definitions available on our web site)
- UAE 72% number 1, rest of top 5 are in Asia Pacific, penetration rates 45%-70%!!
- Middle East getting onto the picture, new entrants 2012 Saudi Arabia & Jordan
- The first European country is Lithuania with 31% penetration

**There is also a huge gap between Asia Pacific
and the rest of the world in penetration rates.
Let's have a closer look at Europe.**

FTTH/B European Ranking – end 2012



FTTH/B European Ranking – end 2012

- Total of 22 European countries with more than 1% penetration
- 2 new entrants in June 2012 = Spain and Luxembourg (no entrant in Dec 2012)
- The European market was historically driven by Scandinavia, and the Nordic countries hold quite high positions in the ranking (Sweden #2, Norway #5)
- Large “Western European” economies are either at the bottom of the ranking (France, Italy and Spain) or missing from this graph (Germany 0.51%, UK 0.06%)
- More than half of the countries in EU ranking are from Eastern Europe
- Lithuania Number 1 for the last few years, maintaining its position
- Turkey progressing fast
- Russia (#6) and the Ukraine (#15) are in high positions in the ranking considering their large population

Europe is not a homogeneous market, there will be winners and losers.

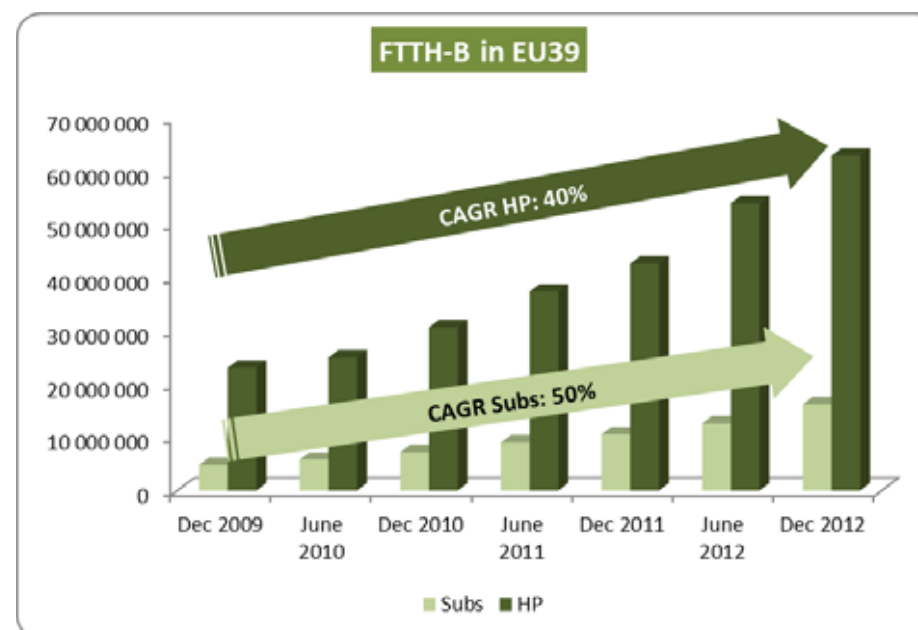
FTTH adoption is driven by the Eastern European economies.

FTTH/B figures at end 2012

EU39: 16.2 M subscribers and 63 M Homes Passed

CIS countries = 8.9 M subscribers

Number of FTTH/B subscribers and Homes Passed
(Dec 2009 to Dec 2012)

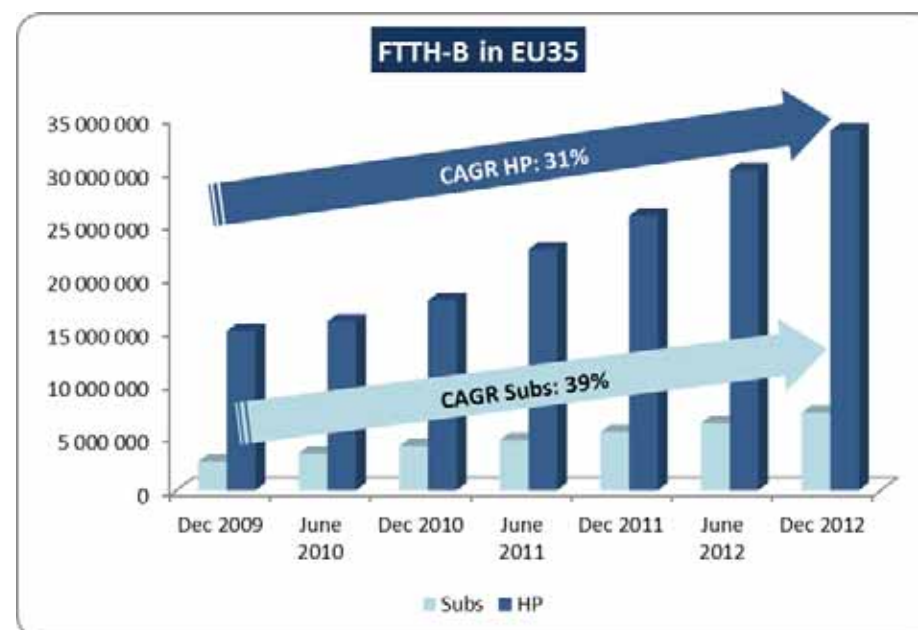


Average take up rate in EU39 at end 2012: 25.7%

FTTH/B figures at end 2012

EU35: 7.3 M subscribers and 33.8 M Homes Passed

Number of FTTH/B subscribers and Homes Passed
(Dec 2009 to Dec 2012)

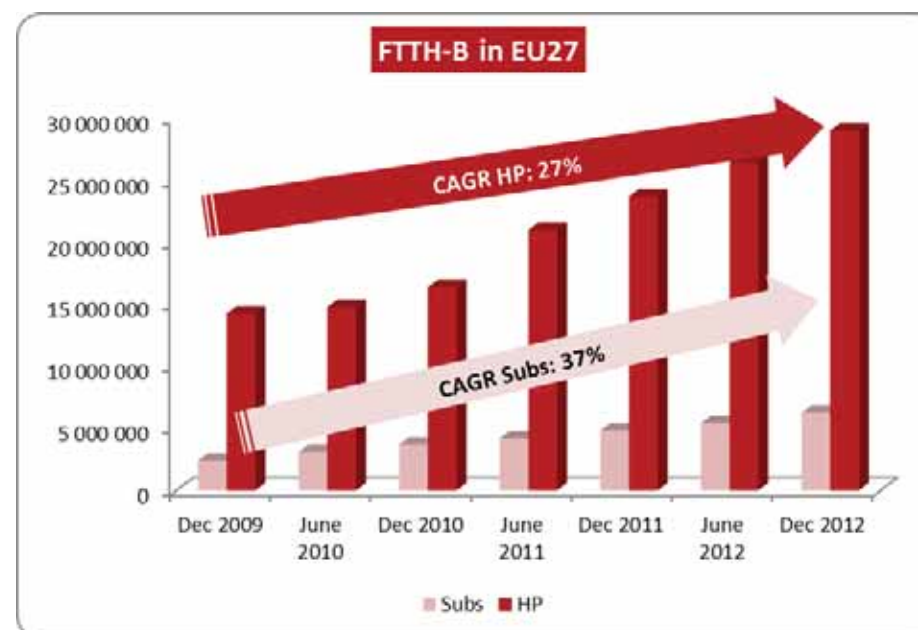


Average take up rate in EU35 at end 2012: 21.6%

FTTH/B figures at end 2012

EU27: 6.2 M subscribers and 28.9 M Homes Passed

Number of FTTH/B subscribers and Homes Passed
(Dec 2009 to Dec 2012)

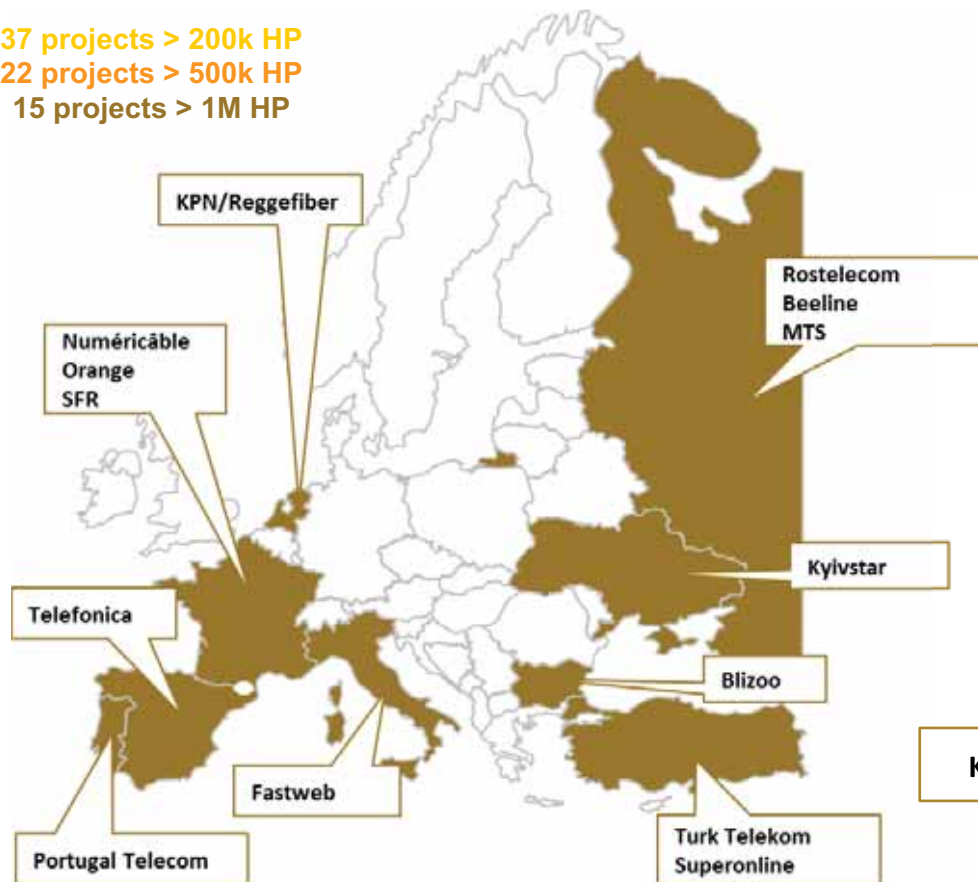


Average take up rate in EU27 at end-2012: 21.5%
A strong progression compared to end-2011: 17.5%

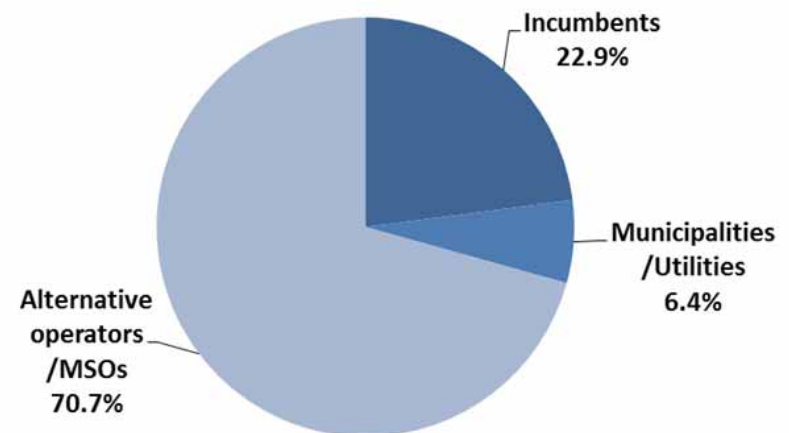
Major projects / categories of players

Around 290 FTTH/B projects in EU39 at end 2012

37 projects > 200k HP
22 projects > 500k HP
15 projects > 1M HP



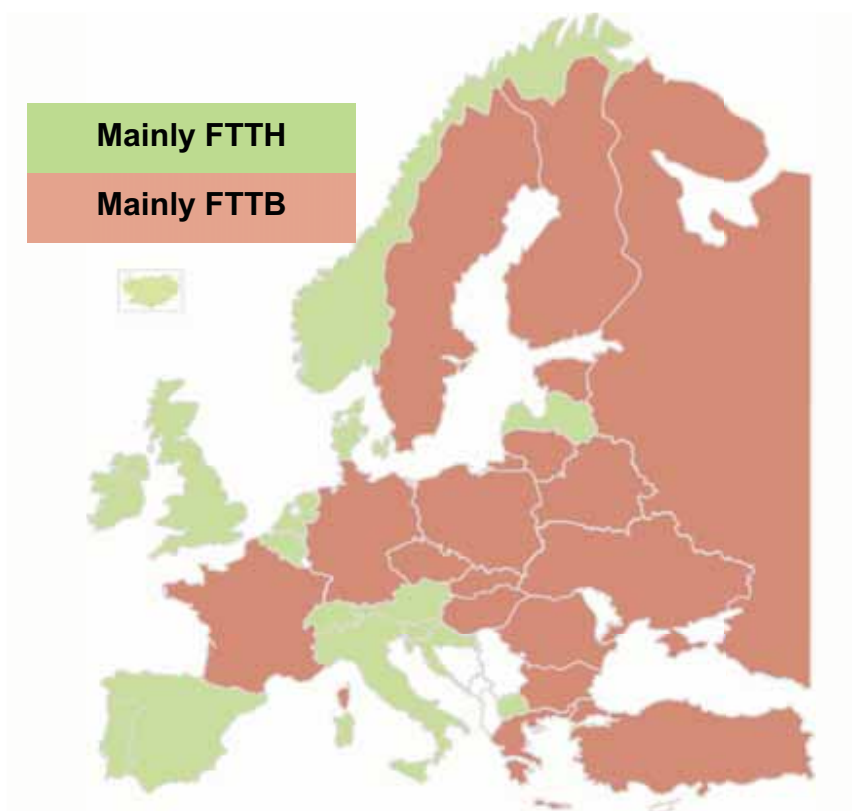
% of HP per category of player



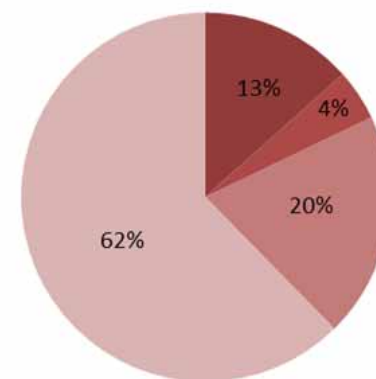
Technologies and architectures

EU39: 70% FTTB vs 30% FTTH - 27% PON vs 73% P2P

EU27: 51% FTTB vs 49% FTTH - 41% PON vs 59% P2P (Homes Passed segmentation)



% of HP per technology in EU27



Countries where coverage is:

■ 100% PON ■ 100% P2P ■ >= 50% PON ■ > 50% P2P

General ranking: FTTH/B Homes Passed

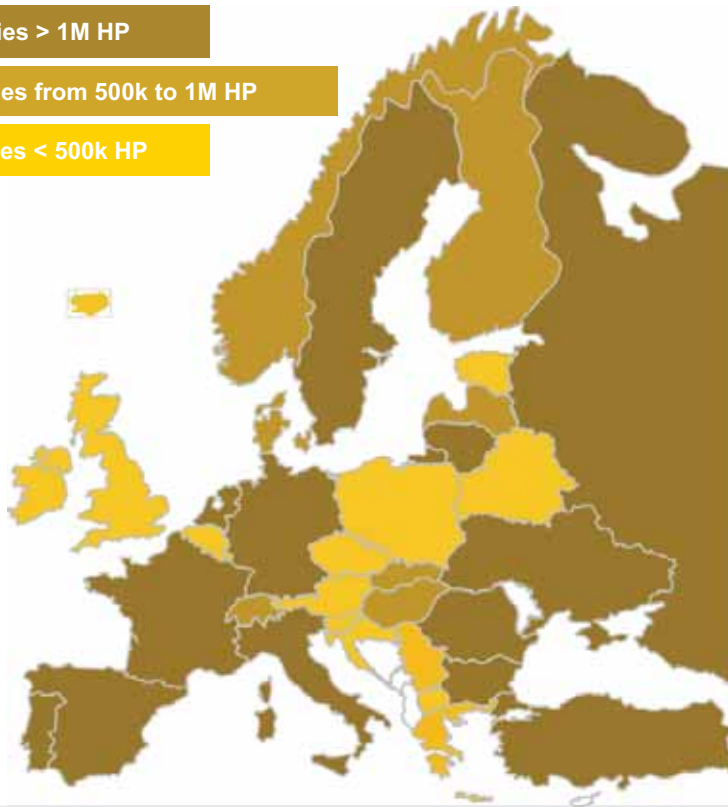
15 countries with 1 M HP or more in EU39

10 countries in EU27

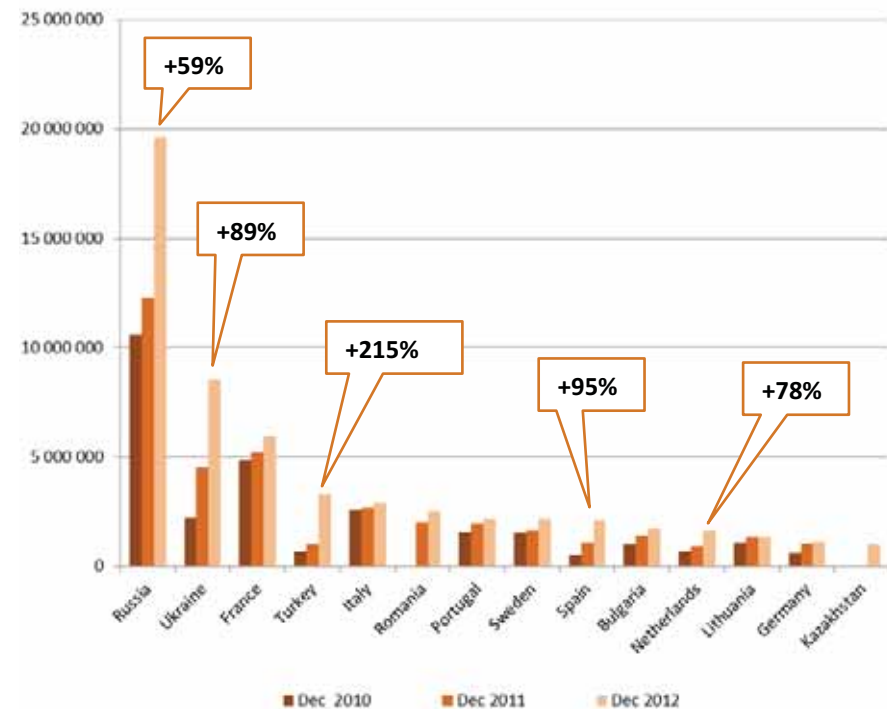
Countries > 1M HP

Countries from 500k to 1M HP

Countries < 500k HP



Countries with 1M HP or more at end 2012
[Top 5 Growth rates 2012]



General ranking: FTTH/B coverage (HP)

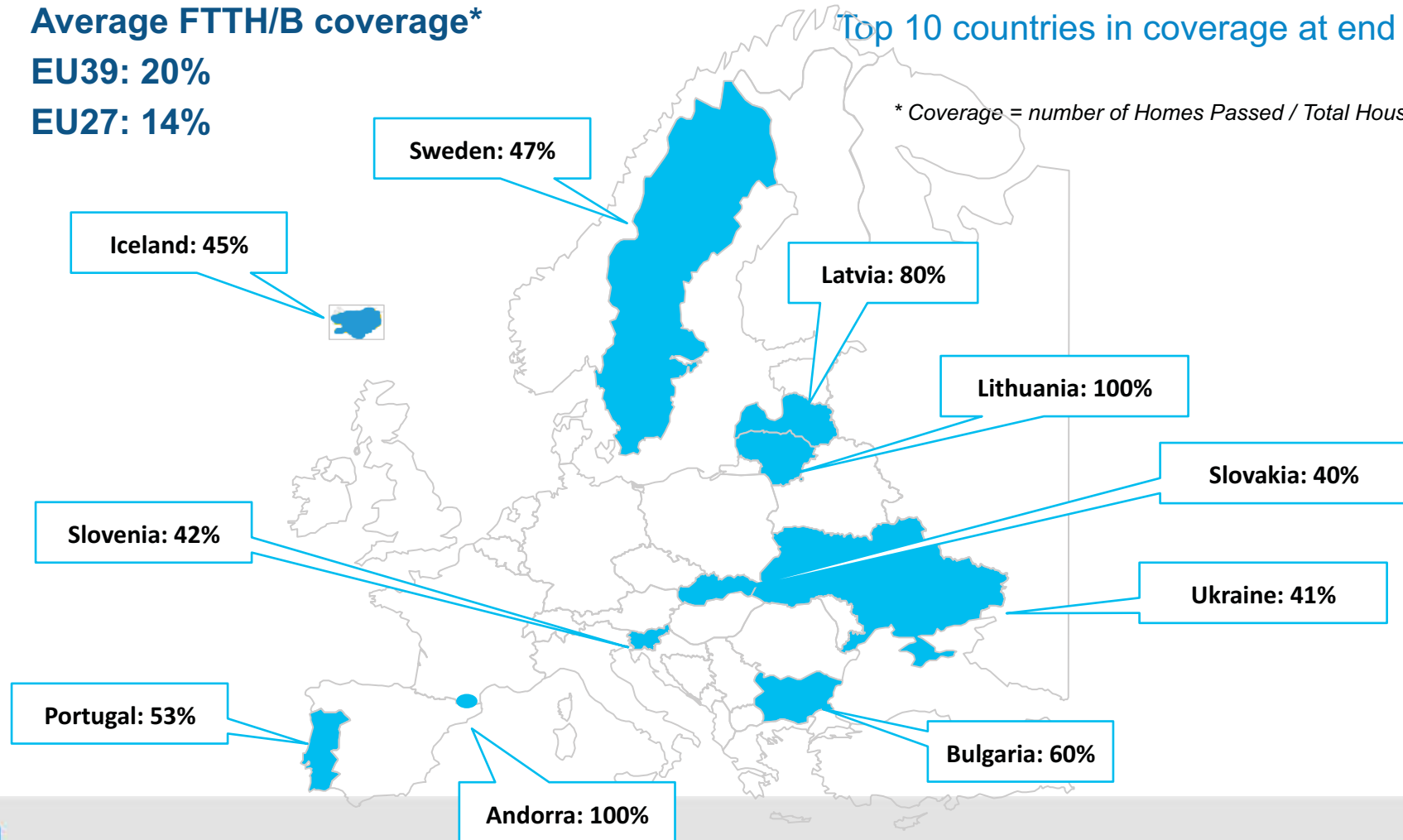
Average FTTH/B coverage*

EU39: 20%

EU27: 14%

Top 10 countries in coverage at end 2012

* Coverage = number of Homes Passed / Total Households

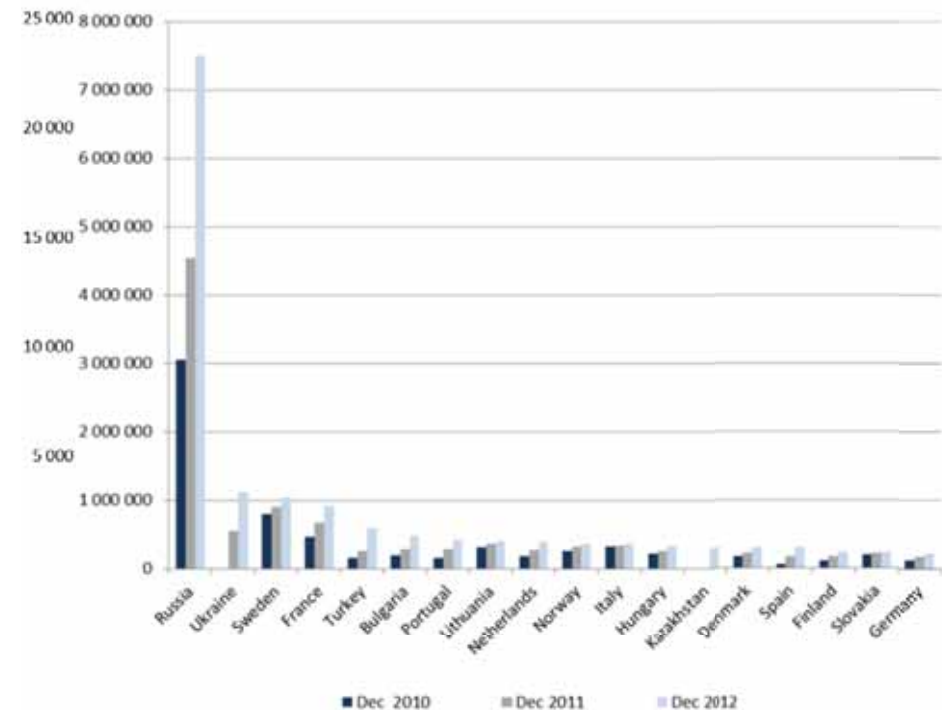
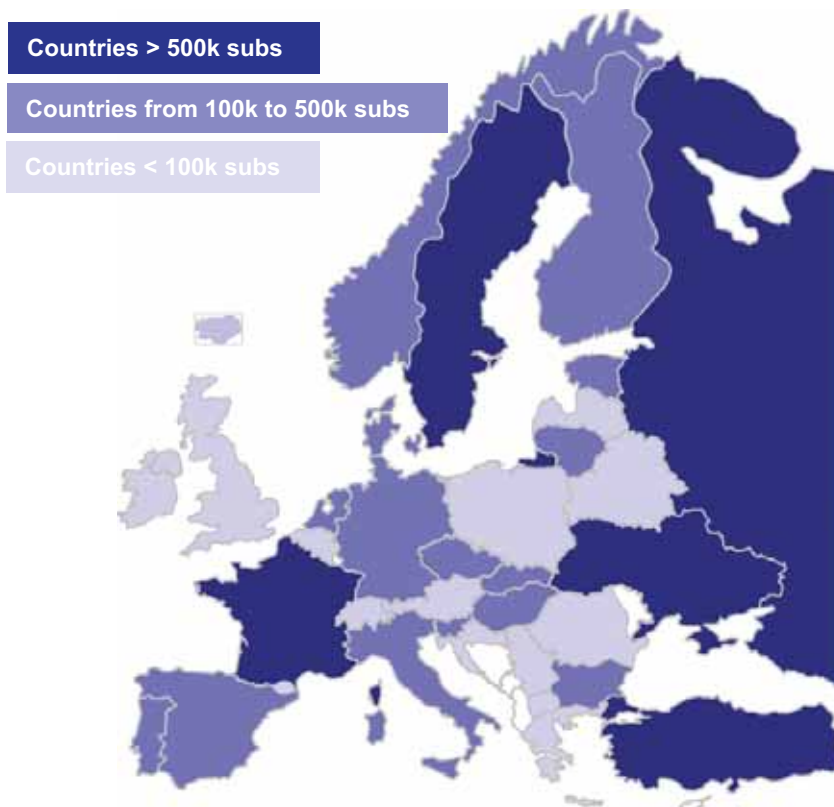


General ranking: FTTH/B Subscribers

3 countries with 1 M subs or more in EU39

Only Sweden in EU27 ... France very close

Countries with 200k subs or more at end 2012
[Top 5 Growth rates 2012]



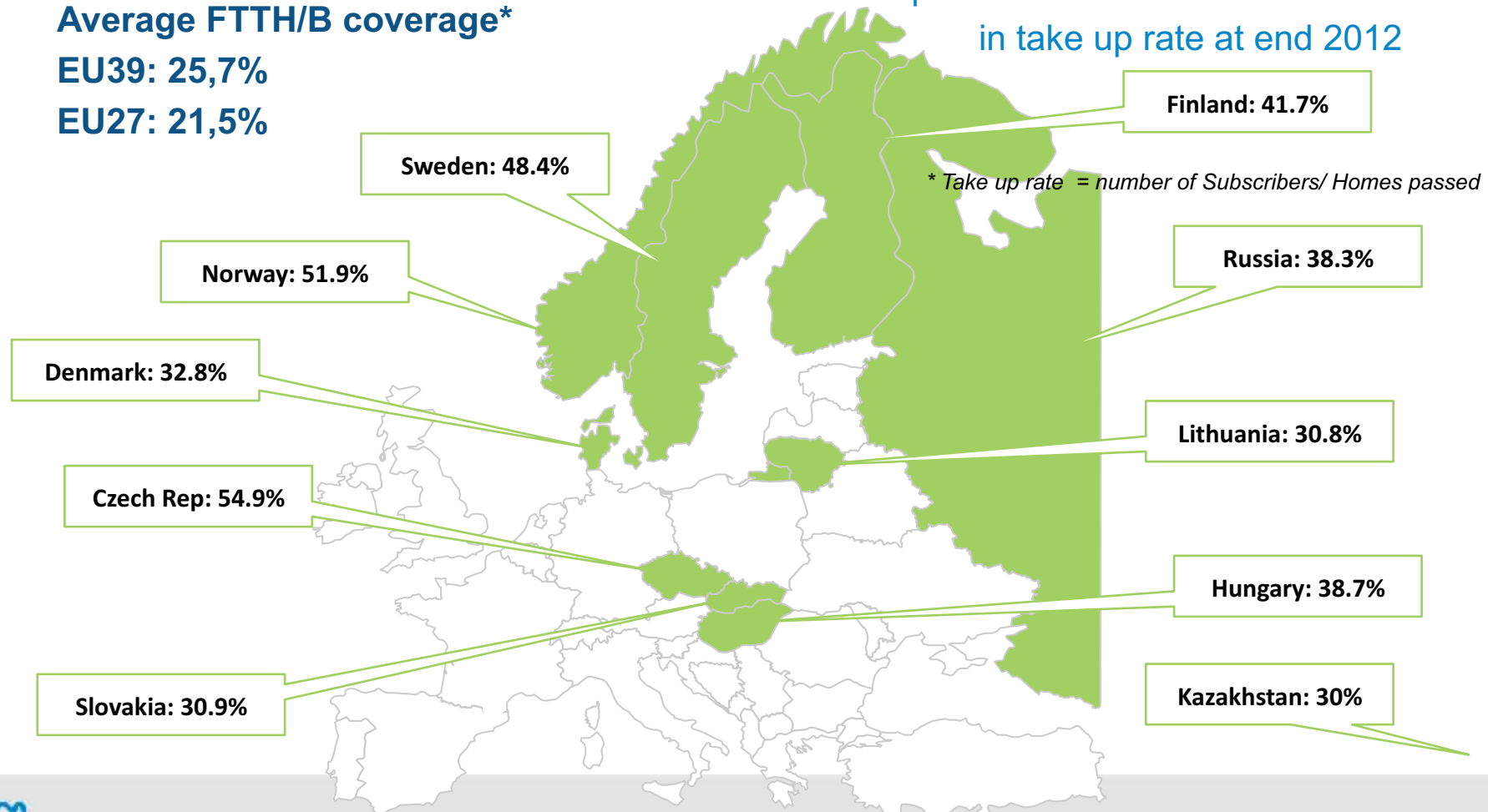
General ranking: FTTH/B Take up rates

Average FTTH/B coverage*

EU39: 25,7%

EU27: 21,5%

Top 10 countries of more than 200k subs
in take up rate at end 2012



Highest growths: New 2012 FTTH/B subscribers

35% of FTTH/B subscribers in EU39 are 2012 “new subscribers”

This rate reaches 23% in EU27

Top 4 countries for 2012 new subs in EU39

Russia	—————>	+ 2,963k
Ukraine	—————>	+ 569k
Turkey	—————>	+ 330k
Kazakhstan	—————>	+ 300k



% of EU27 2012 new FTTH/B subscribers

France + Spain + Portugal => 36%

Scandinavian countries + Netherlands => 28%

Eastern countries => 29%

Rest of EU27 => 7%

Success stories and newcomers

- Sweden, Denmark, Finland: the maturity is not reached yet, still place for growth
FTTH/B is a driver for new services such as VoD in Sweden
FTTH/B is considered as a utility in Finland and access and services are included in apartment monthly rentals
- Western countries are reinforcing their positioning
High new subs basis in **France**
Focus on new TV services in **Portugal**
Spain, latest entrant in the ranking, is a dynamic market, even in this difficult economic period
- Pioneer Italy has lost its leadership
Several announcements but no effective large rollout
Telecom Italia's strategy is more similar to BT's one
- Turkey: recent involvement from incumbent has largely accelerated the country coverage
1.9M FTTH/B Homes Passed by Turk Telekom at end 2012
- An interesting newcomer: Kazakhstan
Kazakhtelecom JSC has rolled out FTTH/B at an impressive rhythm, claiming 300k subscribers at end 2012

Conclusions

- The market is still steadily increasing
 - Coverage is expanding in the whole region thanks to the involvement of players in large countries in East of Europe
 - The interest from end users in FTTH/B access solutions is reflected in a growing take up rate => but efforts to demonstrate the benefits of FTTH/B are still too weak
- Russia and Ukraine are clearly leading the EU39 market
 - No possible comparison between EU27 countries because of different demographic pictures, Broadband history, category and number of players...
- In EU27, even “mature” Sweden still has a card to play
 - Only country with more than 1M FTTH/B subscribers at end 2012
 - End users are really confident in the infrastructures and now ready to pay for new services
- New or recent comers such as Kazakhstan and Turkey should boost the market

Conclusions

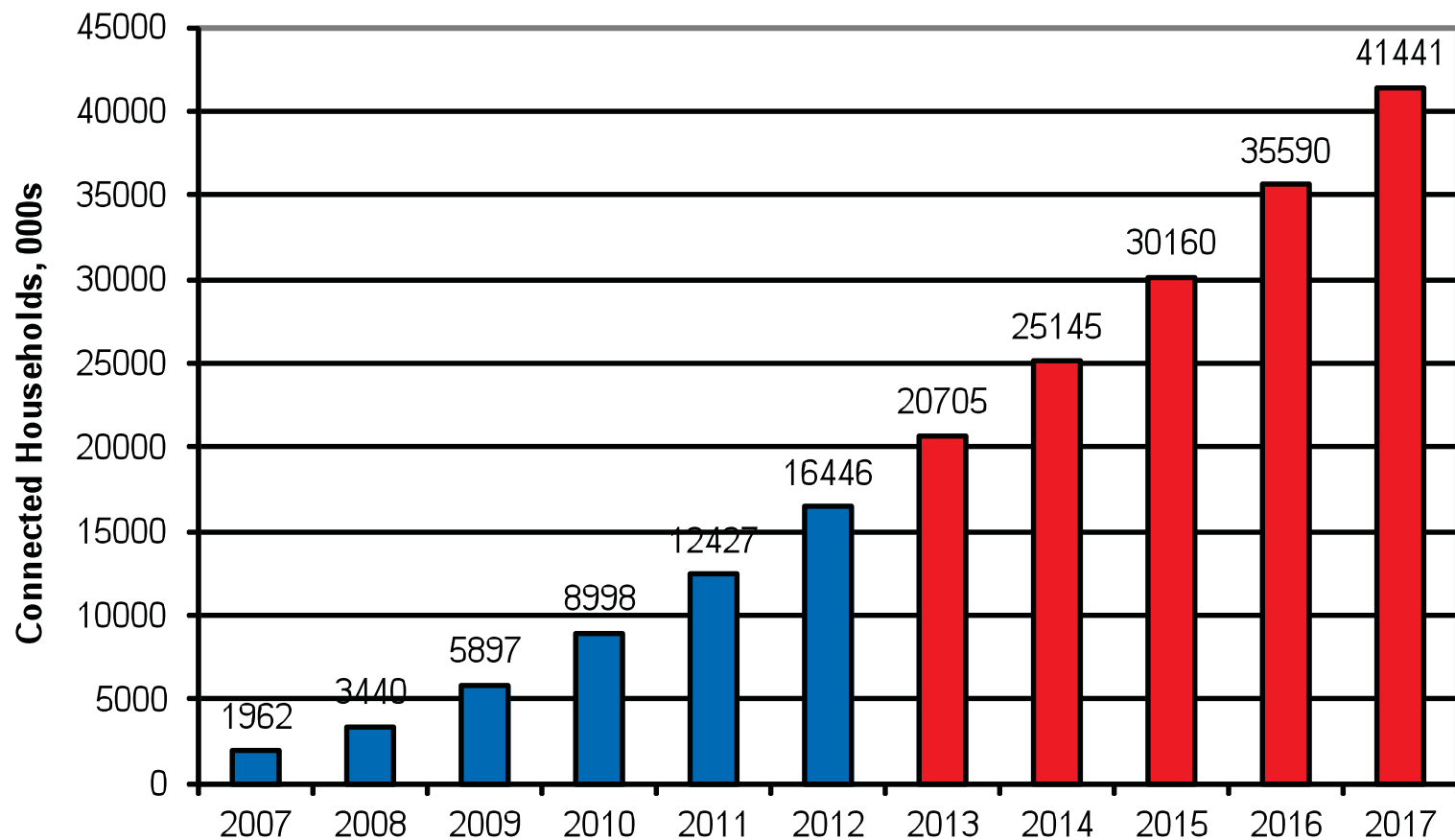
- Projects supported by communities (UK, France, Scandinavia) should enhanced less dense areas coverage
- Co-investment is more and more taken into account
 - Between leading players for rollout projects such as in France, Portugal or Spain
 - Between local utilities for both rollout and service offering such as in Denmark through Waoo
- Even in countries where FTTH/B is not a priority yet, it is still considered as the future technology to be deployed (Belgacom, Telecom Italia)
- Countries are getting more and more focused on speed rates and guaranteed bandwidth rather than on architecture to reach the DAE

National Broadband plans in EU27

Country	National broadband plan			
	100 Mbps	30 Mbps	year	remark
Austria	100%		2020	
Czech Republic		30%	2015	
Denmark	100%		2020	
Estonia	100%		2015	
Finland	100%		2015	
France	70%		2020	100% by 2025
Germany	75%		20	50 Mbps
Luxembourg	100%		2015	1000Mbps 2020
Spain		98%	2020	
Sweden	90%		2020	
UK				25 Mbps; 90% by 2015

Bulgaria, Cyprus, Hungary, Italy, Lithuania, Portugal and Romania plan to reach the objectives of the DAE

European Region FTTH/B Forecast



Source: Heavy Reading for FTTH Council Europe, February 2013
Note: Households connected directly to fibre (FTTH) and apartments connected via basement fibre termination (FTTB)

European Region FTTH Forecast

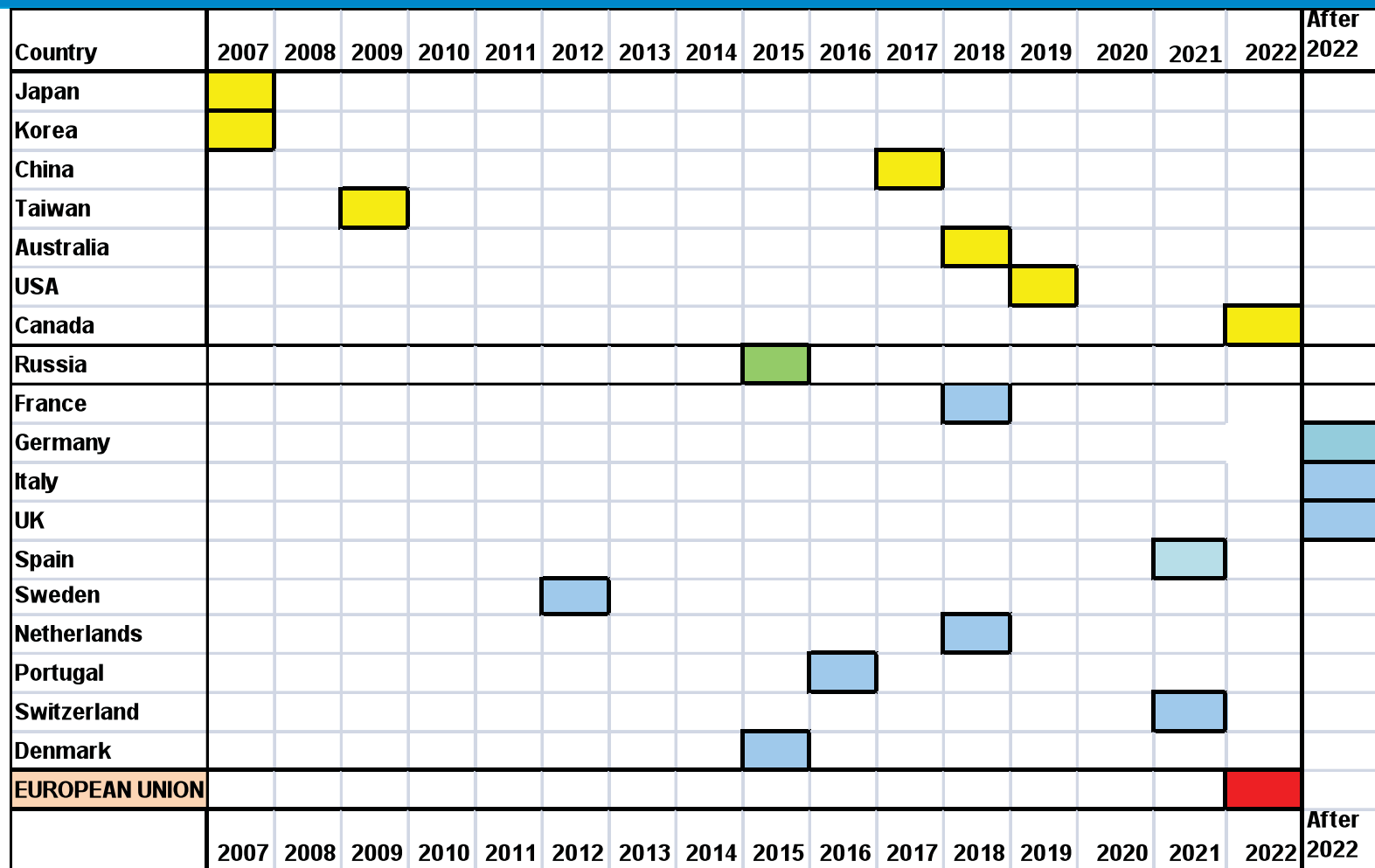
- **On current trends, 41.5m households are expected to be FTTH/B subscribers at end-2017 = 13.3% of all homes in the region**
- In the EU only, the total is forecast to be just over 19m = 9.7% of all homes
- Massive drive in Eastern Europe driven by competition, demand and low costs
- Average broadband speed continues to grow fast, priming the market for FTTH
- Stronger business case for FTTH, falling costs, lower Opex and energy costs
- Devices per home increasing; user-generated video/photo drive upload demand

But some challenges ahead:

- No really compelling application yet
- Many Western European incumbents are still sceptical about FTTH, and technologies like VDSL vectoring are leading to further delays
- EU severely cut CEF, which was expected to kick-start broadband

In spite of the economic crisis, the FTTH market is growing in Europe, and we expect the growth to continue in the coming years

Europe in context: the race to fibre maturity



Source: Heavy Reading for FTTH Council Europe, February 2013

Europe in context: the race to fibre maturity

Why is this important?

- Because according to Heavy Reading a country reaches fibre maturity when 20% of the homes are FTTH/B subscribers
- This graph shows which year some countries will reach fibre maturity – these are projections based on current trends (as of December 2012)
- 12 of the 21 nations individually analyzed should achieve “fibre maturity” by 2017: Lithuania, Sweden, Norway, Bulgaria, Latvia, Estonia, Russia, Denmark, Slovenia, Portugal, Slovak Republic and Finland
- 5 of the 21 nations should still be under 10% penetration at end-2016: UK, Italy, Germany, Switzerland, and Austria

**Though FTTH roll-out improved markedly in 2012,
the gap between countries in Europe,
and between EU and non-EU area, is still widening**

**On current trends, the EU as a whole is expected to reach Fibre maturity
only in 2022 (2 years later than last year’s forecast)**

THE FUTURE IS

NOW

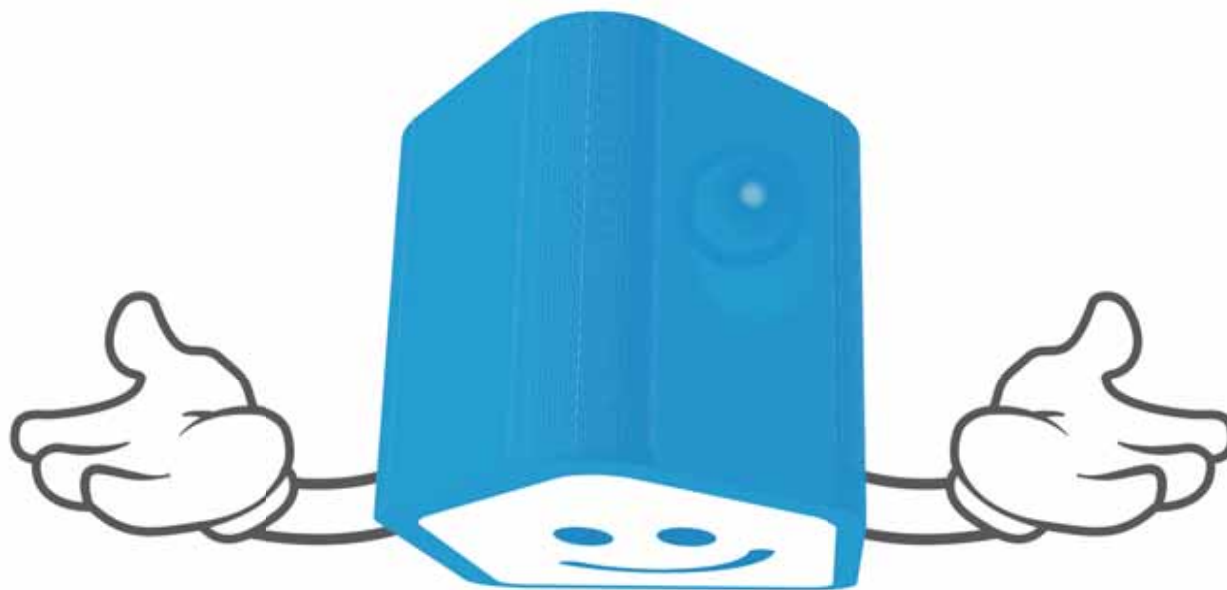


Final conclusions

- Who really demanded roads and railways?
- Who really needed the internet and mobile devices?
- Not so long ago, we were happy with three channels on TV to choose from and had to go to the library to find the answers to most questions. Remember?
- We can't predict what will happen in 10 or 20 years, we only know that we are in the midst of the Internet revolution and have seen nothing yet!
- All we can do is get ready by putting in place the right tools & platforms not only for ourselves when we grow old, but mostly for our children, to ensure a sustainable future for Europe.

So the question isn't: 'Do we need fibre?'.

The real question is: "How long can we afford to wait?"



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