

European Space Agency

Point Topic explores the role for satellite broadband in the context of the EU's Digital Agenda targets

Using Point Topic's maps of current and future broadband availability in Europe, the European Space Agency (ESA) was able to identify areas where satellite could provide a competitive option for broadband services.

Key findings:

One of the key targets of the Digital Agenda is to deliver superfast broadband to all citizens in the coming decade.

Point Topic developed an approach for constraint mapping that allowed ESA to:

- Identify the areas that would not be served by superfast broadband in 2020 on a commercial basis;
- Calculate the level of subsidy needed for different broadband technologies to meet the superfast targets of the Digital Agenda by 2020

Point Topic generated maps of broadband coverage across the EU 27, and forecasts of demand and take-up up to 2020.

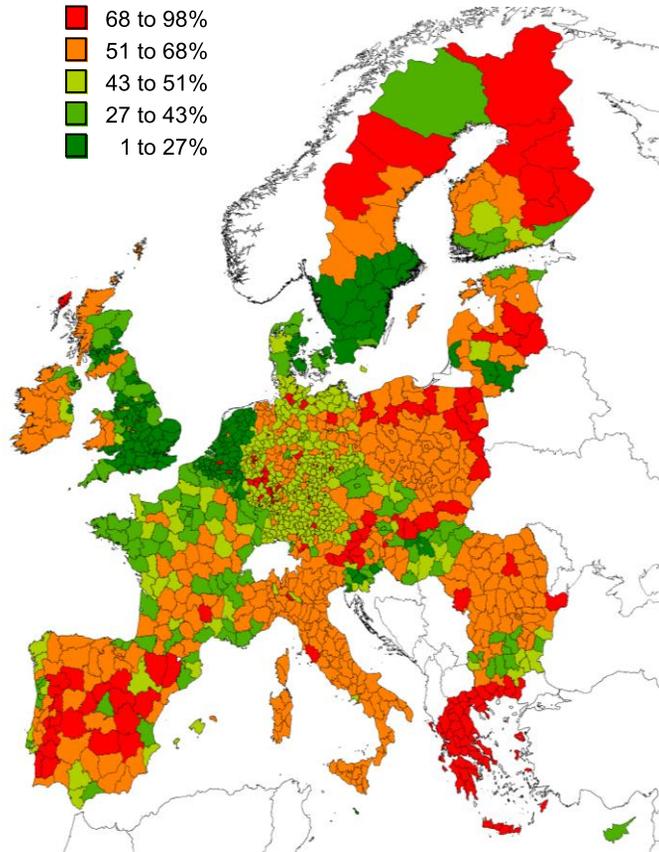
Based on the results of the study, Point Topic estimates that the costs to drive deployment and take-up of superfast broadband to 100% of the EU27 by 2020 would be:

- **€96.8 billion for fixed (Fibre to the Home – FTTH)**
- **€10.6 billion for LTE**
- **€7.8 billion for satellite**

Point Topic believes that the development of a hybrid approach on a market by market basis will offer the best return in the timescales set by the Digital Agenda.

EU27 - households without superfast
2020 - percentage of HH without a superfast line

- 68 to 98%
- 51 to 68%
- 43 to 51%
- 27 to 43%
- 1 to 27%



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Background

The Digital Agenda for Europe sets a number of targets for the bandwidth that should be available to EU citizens in the coming decade.

It is already clear that market forces will eventually deliver at least 30Mbps broadband to most of the more densely populated urban and suburban areas of the European Union. Commercial organisations will mostly choose not to deploy where they don't expect to generate enough return in a suitable time period. Take-up of services then depends on whether they are affordable to households in the area covered.

Regulation and central intervention are needed to provide superfast broadband to EU citizens not covered by this commercial footprint.

The ESA study required us to:

- a) Identify the areas that would not be served by superfast broadband in 2020 on a commercial basis;
- b) Calculate the level of subsidy needed for different broadband technologies to meet the superfast targets of the Digital Agenda by 2020.

How Point Topic helped

Point Topic developed an approach for constraint mapping that allowed us to address the requirements of the ESA study. There were three four stages to the approach:

- 1. Population mapping**
- 2. Operator coverage by broadband technology**
- 3. Forecasting demand and take-up**
- 4. Central subsidy scenarios**

Point Topic focused on the NUTS 3 level of geography across the study countries. Within each NUTS 3 area, we mapped the population, population density, urban coverage and town and city locations. This was used to estimate a first approximation of current fixed line deployment, based on modelling supplier behaviour.

A range of factors then affect whether households will take-up broadband services. We mapped Gross National Income, historic levels of demand, broadband tariffs, available technologies and population demographics as key factors that could affect the take-up of broadband. We used these inputs to forecast likely broadband growth over time within each NUTS 3 area.

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Results

This approach allowed us to estimate likely standard superfast and mobile (LTE) broadband coverage and take-up in 2020. We then looked at the amount of subsidy that would be needed to deliver 100% coverage and take-up with different broadband technologies. These scenarios take into account likely take-up at different tariffs, and provide the total subsidy needed to provide affordable services to end users.

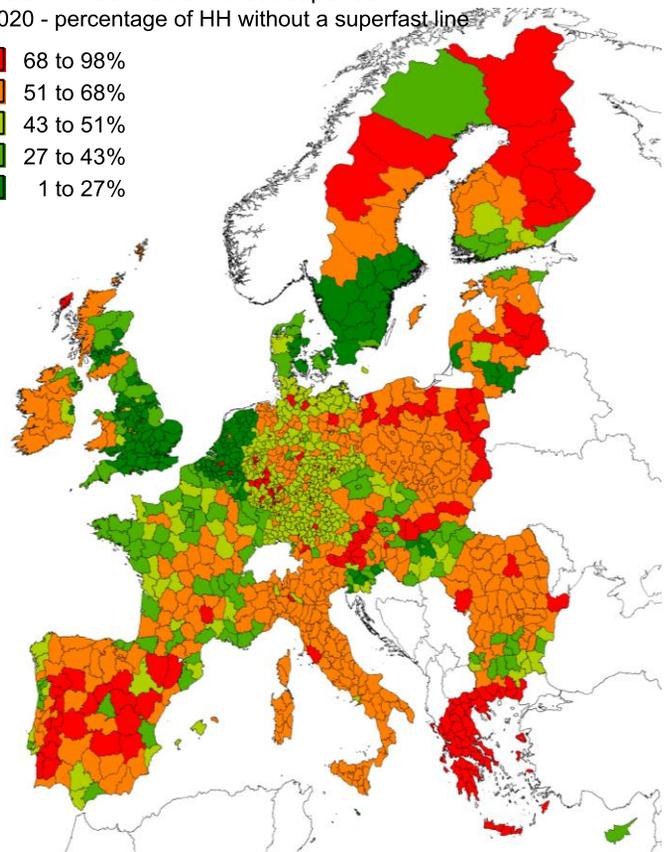
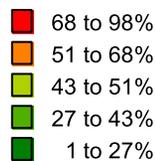
According to the results generated from the commercial only scenario a significant proportion of many markets will not see fixed deployment or take-up in this decade.

Over 20% of residential premises in the current EU27 will either not be covered by or will not take-up a superfast broadband connection (>30Mbps) by 2020. Estimates range from less than 60% in Slovakia and Romania to well over 100% in Luxembourg and Malta.

Most coverage in Europe is provided by wholly or partly privatised organisations and the market alone lacks sufficient revenue potential to drive fixed deployments to large areas.

Without sufficient demand, and the ability and desire of the population to spend the required amount to have access to superfast broadband at home, the study found it unlikely that the Digital Agenda objectives would be met without further central support.

EU27 - households without superfast
2020 - percentage of HH without a superfast line



We have calculated the cost of stimulating supply and demand and we estimate that to drive deployment and take-up of superfast broadband to 100%, above the projected commercial coverage level, of the EU27 in 2020 would be:

- **€96.8 billion for fixed (Fibre to The Home - FTTH)**
- **€10.6 billion for LTE.**
- **€7.8 billion for satellite**

This level of expenditure would theoretically provide 100% coverage and take-up of the relevant technology.

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Conclusions

Commercial deployment of broadband should take the EU a significant way towards meeting the objectives of the Digital Agenda. However there will be a number of areas that won't have superfast coverage and take-up without further intervention. The subsidy levels we quote above give a good indication of the relative investment required but it is not the whole story.

FTTx will be the preferred solution for the majority of urban (dense population) areas in the EU27. Commercial deployment will cover the majority of this area and we calculate that an additional €22 billion would mean that the whole of the 'urban' proportion of the EU would be deployed to and enough subsidy provided so that all EU citizens in that footprint could afford a subscription.

LTE and satellite will co-exist in less densely populated locations. However in the timescales of the Digital Agenda the LTE solution, particularly given the delay in spectrum auctions in many markets, will not provide enough high speed coverage in the required timescale.

The development of a hybrid approach on a market by market and even region by region basis will offer the best return in the timescales while addressing the Digital Agenda objectives. The more that demand can be seeded and increased, in particular in areas that show low probability of commercial coverage, the lower the central subsidies that will be needed to boost coverage and take-up.

Additionally the more quickly penetration can be raised the higher tax revenues and attendant other benefits will accrue earlier in the scenario cycle. An intelligently implemented locally specific deployment of a set of technology solutions will offer the best coverage and the best return in the coming decade.

Given the timescales laid out in the Digital Agenda and the benefits (social and economic that broadband brings it is to the advantage of all markets to drive significant bandwidth as far out into the population as possible as quickly as is fiscally feasible. Satellite, with its existing and planned coverage and available bandwidth is perfectly placed to offer a solution not just for particularly remote "white" areas but also into grey and black areas where it can provide backhaul and in-fill for particularly locations that are covered in theory but in practice do not deliver anything close to a superfast service.

With low marginal costs per location, instant availability and improving performance, satellite broadband could have an addressable market as high as 50 million locations (residential, business and municipal) today and whilst part of this audience will see fixed and LTE deployment in the coming years, the opportunity for satellite will remain a strong proposition for further investment and development through the coming decade.

Find out more

For further details on the work that Point Topic did for the European Space Agency, please contact oliver.johnson@point-topic.com. Find out more about Point Topic's detailed [broadband coverage maps](#) for the 27 countries within the European Union.