

# Broadband Coverage in Europe in 2012:

## Coverage for Switzerland

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## Contents

<b>1. Introduction</b>	<b>3</b>
<b>2. European overview</b>	<b>4</b>
2.1 Country comparisons of standard broadband coverage	4
2.2 Country comparisons of standard fixed broadband coverage	5
2.3 Country comparisons of NGA broadband coverage	6
2.4 NUTS 3 coverage of standard fixed broadband	7
2.5 NUTS 3 coverage of NGA broadband	9
<b>3. Switzerland</b>	<b>10</b>
3.1 National coverage by broadband technology	10
3.2 Regional coverage by technology combinations	12
3.3 Data tables for Switzerland	13
3.4 Notes on data and coverage estimates:	13
<b>4. Methodology</b>	<b>14</b>
4.1 Structure	14
4.2 Project Survey	14
4.3 Confidentiality	15
4.4 Parallel research	15
4.5 Data integration and modelling	16
4.6 Estimating coverage for technology combinations	16
4.7 Finalisation	17

## 1. Introduction

In June 2013, the European Commission published the results of the Broadband Coverage in Europe in 2012 (BCE 2012) project in its Digital Scorecard.

The project was commissioned by the Directorate General for Information Society and Media, DG INFSO (now DG Connect). Neelie Kroes, the Vice President of the European Commission responsible for the Digital Agenda for Europe, has pointed out that “accurate data is critical for delivering policy and regulation that enables broadband internet for all Europeans.”

The purpose of the BCE 2012 project is to support the objectives of the European Union’s Digital Agenda. Two of the Agenda’s key objectives are to provide all European Union citizens with basic broadband coverage by 2013 and broadband speeds of at least 30 megabits per second by 2020. BCE 2012 is designed to measure progress towards that objective and identify where action will be needed to achieve it.

The study addresses three key measures of broadband infrastructure:

- **Standard broadband coverage** – whether homes can access broadband services providing at least 144kps downstream speeds. This combines the coverage of DSL (including VDSL), FTTP, WiMAX, standard cable (including Docsis 3 cable), HSPA and LTE, but it does not include satellite broadband.
- **Standard fixed broadband coverage** – whether homes can access fixed broadband service providing at least 144kps downstream speeds. This combines the coverage of DSL (including VDSL), FTTP, WiMAX and standard cable (including Docsis 3 cable).
- **NGA broadband coverage** – whether homes can access next generation access broadband services capable of delivering 30Mbps downstream speeds. This combines the coverage VDSL, FTTP and Docsis 3 cable.

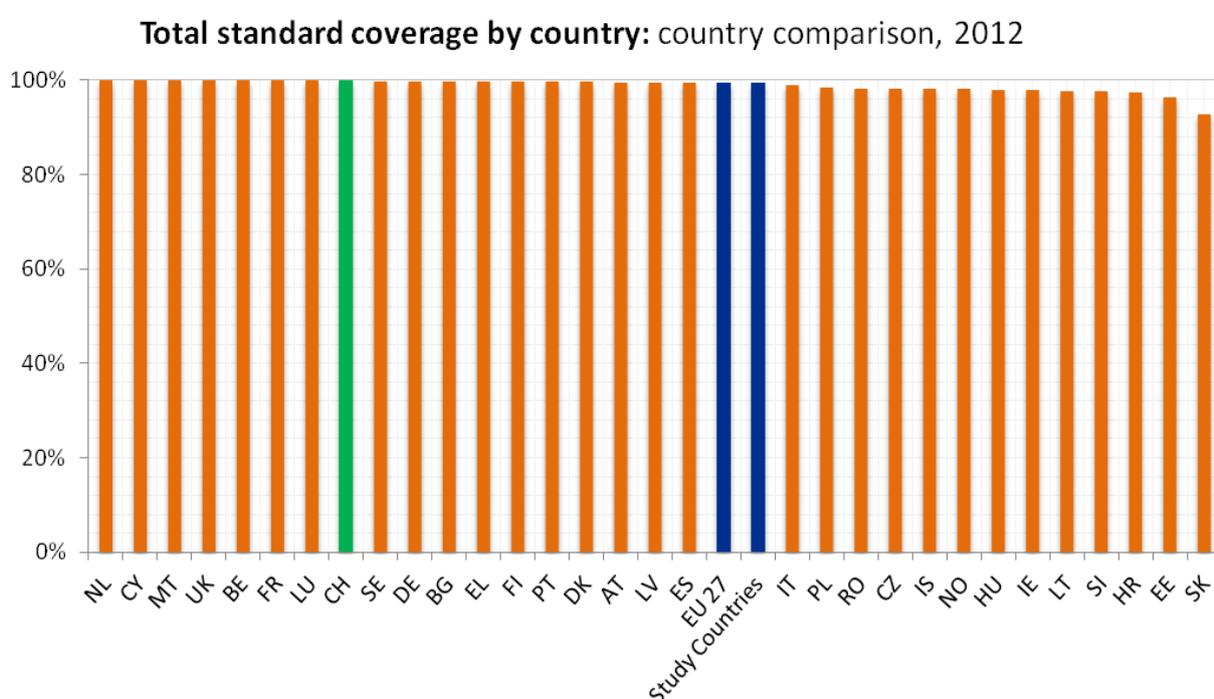
“Glasfasernetz Schweiz” has provided separate funding to produce comparable data for Switzerland at year-end 2011 and 2012. This report compares overall broadband coverage in Switzerland with the rest of the BCE 2012 study countries, and provides a detailed assessment of coverage within Switzerland. The report has been produced with the permission of the European Commission but with funding provided by “Glasfasernetz Schweiz”.

## 2. European overview

### 2.1 Country comparisons of standard broadband coverage

The “Standard Coverage” combination is meant to give an indication of the extent to which homes in each country or region can access broadband services providing at least 144kbps downstream speed.

The technologies which are taken into account to calculate the combination are DSL (which includes



Source: Broadband Coverage in Europe in 2012, a study by point-topic.com for the European Commission (VDSL), Standard Cable (which includes Docsis 3 cable), FTTP, WiMAX, HSPA and LTE.

Total standard coverage within Switzerland is 99.9%. This places it higher than the European average of 99.4% and ranked eighth overall within the study countries.

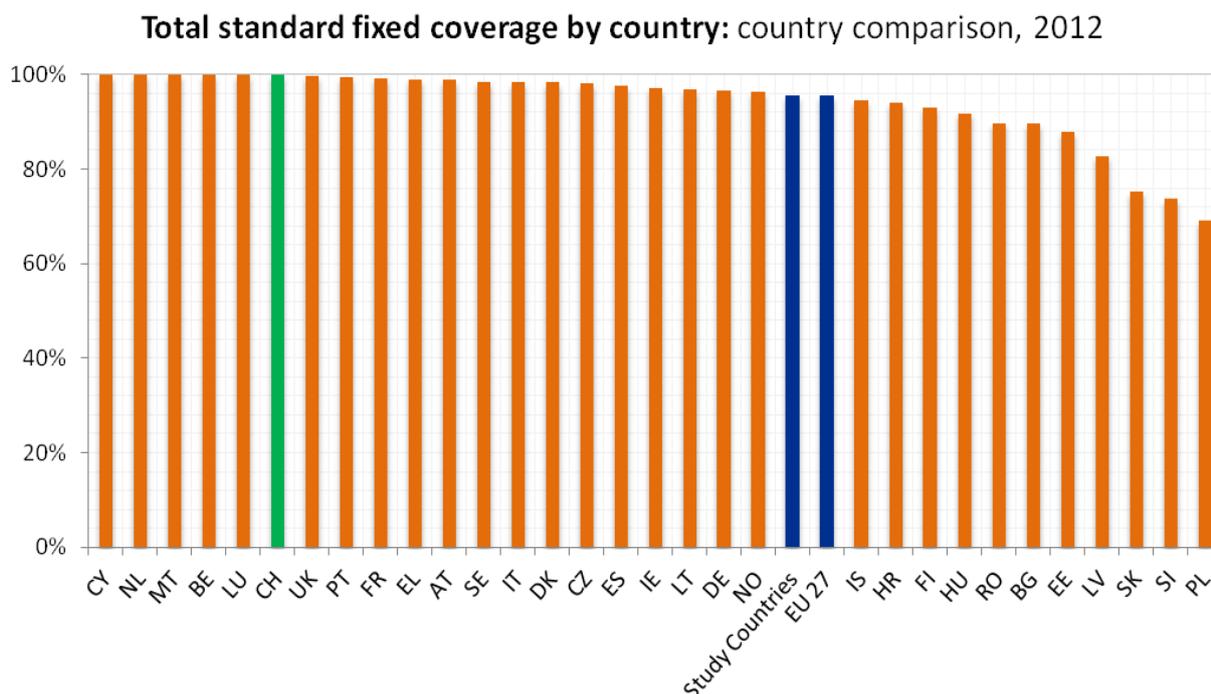
Five of the study countries are reporting standard broadband coverage greater than 99.95%. All countries have coverage greater than 90% and only one country has less than 95% of households covered by standard broadband.

Under the Universal Service Obligation, all homes in Switzerland can be guaranteed by law to be connected to services greater than 1Mbps. Homes that cannot be served by DSL are connected via mobile or satellite technology. Within the European Commission definition, which considers only standard broadband delivered through a fixed connection, we estimate that a small proportion of homes cannot receive standard services through fixed or mobile connections.

## 2.2 Country comparisons of standard fixed broadband coverage

The “Standard Fixed Coverage” combination is meant to give an indication of the extent to which homes in each country or region can access fixed broadband services providing at least 144kbps downstream speed.

The technologies which are taken into account to calculate the combination are DSL (which includes VDSL), Standard Cable (which includes Docsis 3 cable), FTTP and WiMAX.



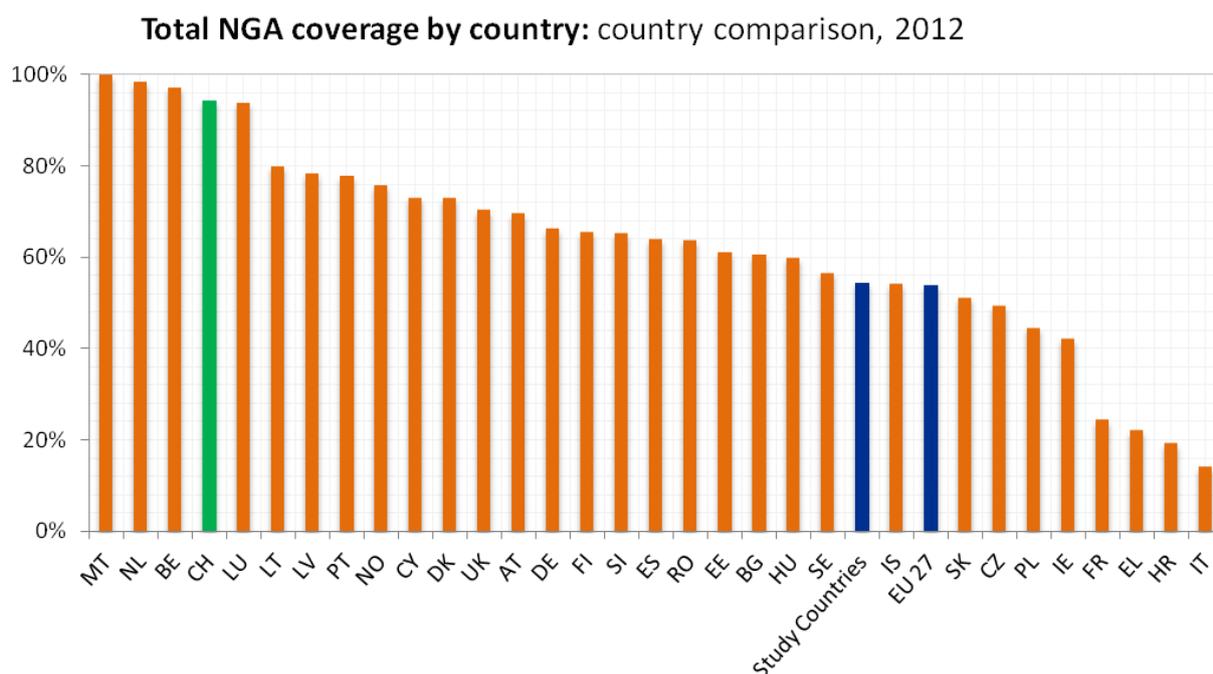
Source: Broadband Coverage in Europe in 2012, a study by point-topic.com for the European Commission

Total standard fixed coverage within Switzerland is 99.8%. This places it higher than the European average of 95.5% and ranked sixth overall within the study countries.

It is almost exclusively countries within Eastern Europe who have lower than average coverage of standard fixed broadband. Whilst these countries tend to benefit from very developed FTTP networks, their overall DSL and cable coverage – which usually dominates standard fixed coverage – tends to be less extensive.

### 2.3 Country comparisons of NGA broadband coverage

The NGA Coverage combination is intended to show how far advanced Europe is towards achieving the Digital Agenda objective of access to 30Mbps broadband for all by 2020. It combines the coverage of the three main fixed-line Next Generation Access technologies; VDSL, Docsis 3 Cable and FTTP. All three are capable of delivering the target of 30Mbps downstream, although VDSL will fall short of that capability where a premises is too far from the serving VDSL node.



Source: Broadband Coverage in Europe in 2012, a study by point-topic.com for the European Commission

Europe as a whole is over half-way towards the 30Mbps goal today. The BCE 2012 project found 53.8% net coverage by fixed-line NGA services in the EU 27, after taking account of the overlaps between different services. Again, it is the most urbanised countries which have the highest NGA coverage but otherwise the pattern of high or low coverage is quite mixed. Countries with above average NGA coverage are found in all quarters of Europe, reflecting the effects of different development policies, infrastructure needs and technology choices.

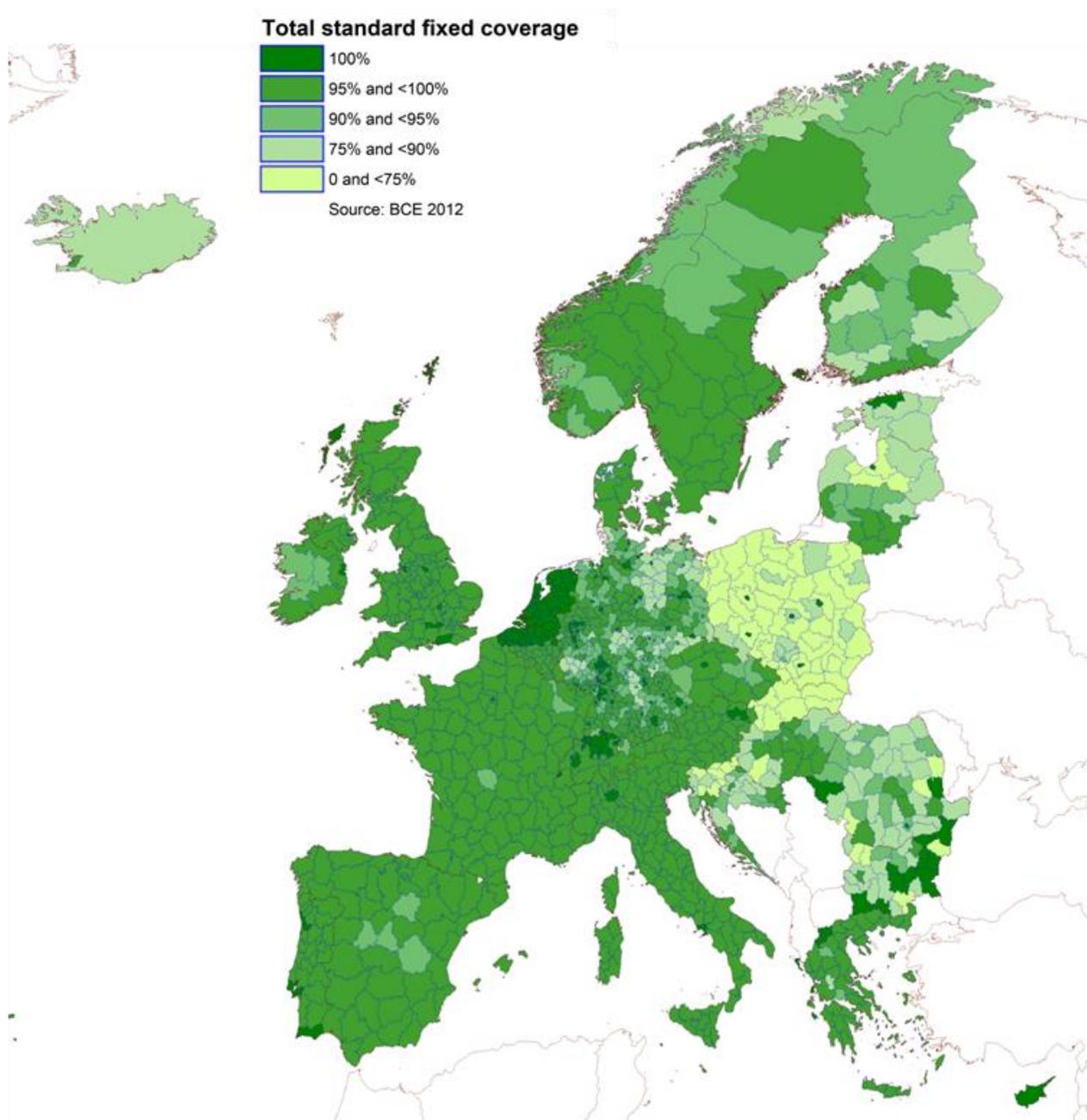
NGA coverage in Switzerland is 94.2%, placing it well ahead of the BCE 2012 average and ranking fourth overall within the study countries.

## 2.4 NUTS 3 coverage of standard fixed broadband

The maps in this section show how the two technology combinations, standard and NGA broadband coverage, are distributed across Europe.<sup>1</sup>

As far as standard coverage is concerned, the map shows a continent divided, with western Europe and northern Europe generally enjoying a better quality of coverage than eastern Europe.

**Map 2.01.01. Standard fixed broadband coverage in the study countries**



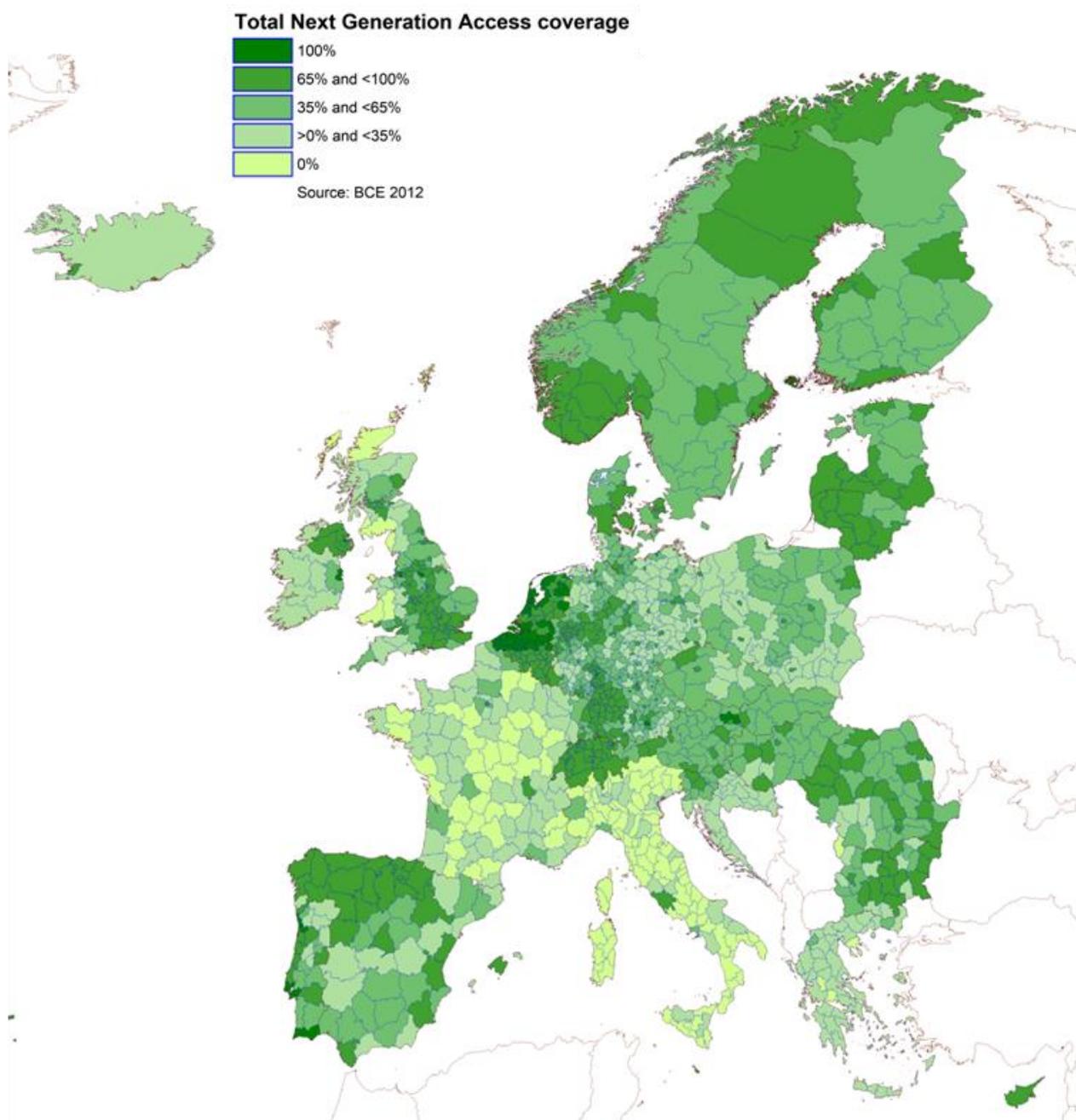
<sup>1</sup> The maps in this section do not show the NUTS 3 areas which are outside mainland Europe.



## 2.5 NUTS 3 coverage of NGA broadband

Looking at NGA coverage the picture is almost reversed in some ways. Here countries in the eastern half of the EU and in the northern areas are ahead of many of those on the western side.

Map 2.01.02.NGA coverage areas in the study countries



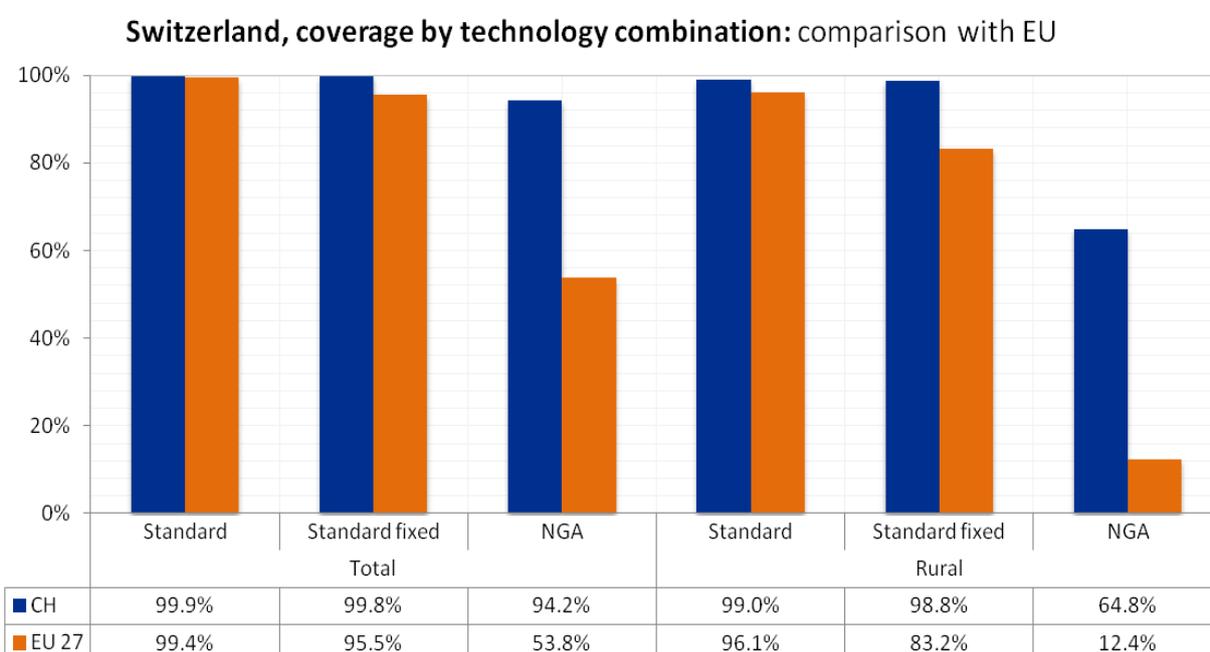
These Eastern countries have seized the opportunity to overcome the deficiencies of their legacy networks by rolling out fibre to serve large apartment blocks where the economics can be very attractive.

### 3. Switzerland

#### 3.1 National coverage by broadband technology

NGA coverage in Switzerland is much more advanced than in the rest of the European Union – both in total and amongst rural households.

Its coverage of rural areas with standard fixed broadband is also significantly ahead of the European Union average.



Source: Broadband Coverage in Europe in 2012, a study by point-topic.com for the European Commission

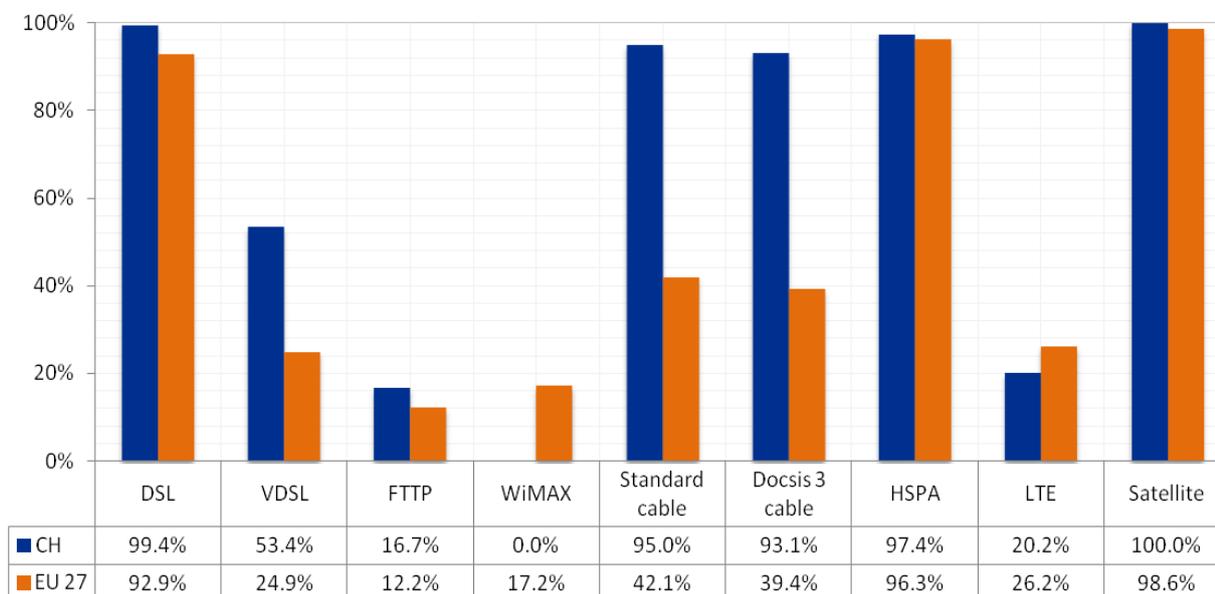
Looking at the technology profiles for Switzerland, we can see that Switzerland gains its NGA advantage by having more than double average VDSL and Docsis 3 coverage. FTTP deployment is currently comparable to the European average, although the Swiss incumbent has ambitious plans for the roll-out of this technology in the future. Most cable services within Switzerland have been upgraded to Docsis 3.

In terms of HSPA coverage, Switzerland is comparable to the European averages for both overall coverage and coverage of rural households. At the end of 2012, commercial LTE services had been rolled out to 20% of Swiss households. No evidence could be found for coverage of WiMAX services within Switzerland.

During 2012, VDSL coverage increased by 9.8% as a result of a big push by the incumbent to roll-out this technology. Overall cable coverage increased by 3.3%, with Docsis 3 coverage increasing by 4.5%. This increase is in part due to a better data quality but also heavy infrastructure based

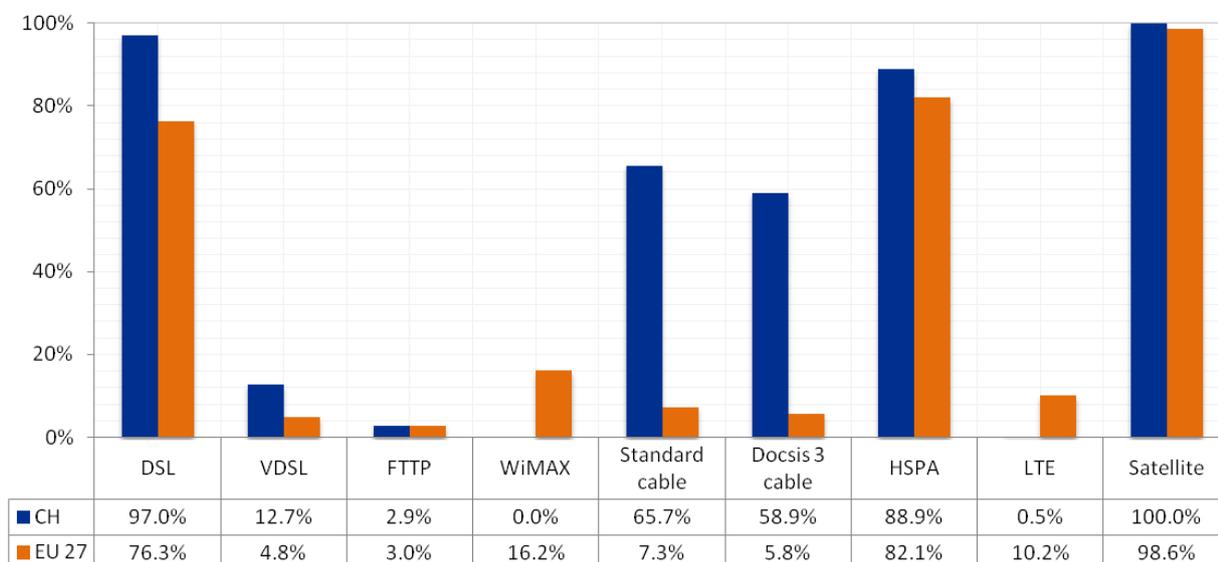
competition, with new buildings being connected to cable wherever possible. The roll-out of cable services has had a significant impact on the rural coverage of NGA services in Switzerland.

**Switzerland, total coverage by technology in 2012: comparison with EU**



Source: Broadband Coverage in Europe in 2012, a study by point-topic.com for the European Commission

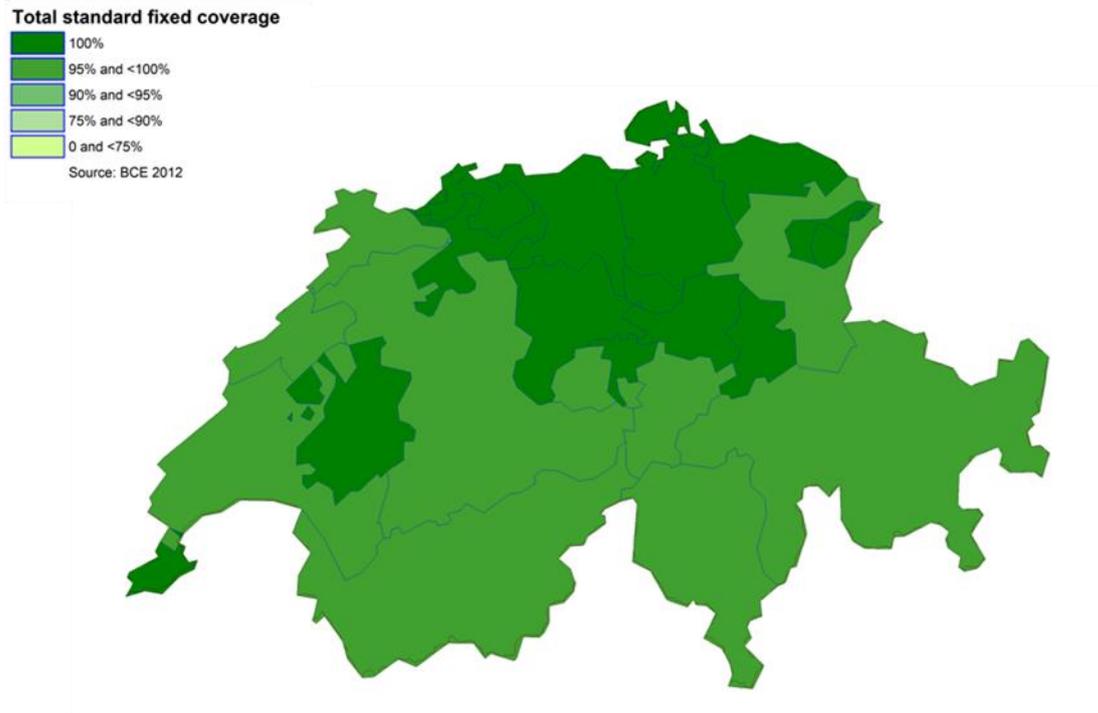
**Switzerland, rural coverage by technology in 2012: comparison with EU**



Source: Broadband Coverage in Europe in 2012, a study by point-topic.com for the European Commission

### 3.2 Regional coverage by technology combinations

Map 3.2.1 Switzerland total standard fixed broadband coverage



Map 3.2.2 Switzerland total NGA broadband coverage



Coverage of both standard and NGA broadband is fairly consistent across the cantons of Switzerland.

In terms of standard broadband coverage, every canton in Switzerland has over 98% standard broadband coverage. Only one canton – Basel-Stadt – has 100% coverage of both standard and cable services. Every canton in Switzerland has NGA coverage greater than 75%.

### 3.3 Data tables for Switzerland

Population	8,040,281
Persons per household	2.2
Rural population	14.6%

Technology	CH - 2012		CH - 2011		EU27 – 2012	
	Total	Rural	Total	Rural	Total	Rural
DSL	99.4%	97.0%	99.4%	96.6%	92.9%	76.3%
VDSL	53.4%	12.7%	43.6%	7.2%	24.9%	4.8%
FTTP	16.7%	2.9%	12.2%	0.0%	12.2%	3.0%
WiMAX	0.0%	0.0%	0.0%	0.0%	17.2%	16.2%
Standard cable	95.0%	65.7%	91.7%	64.4%	42.1%	7.3%
Docsis 3 cable	93.1%	58.9%	88.6%	55.6%	39.4%	5.8%
HSPA	97.4%	88.9%	97.4%	88.9%	96.3%	82.1%
LTE	20.2%	0.5%	0.0%	0.0%	26.2%	10.2%
Satellite	100.0%	100.0%	100.0%	100.0%	98.6%	98.6%
Standard	99.9%	99.0%	99.0%	98.5%	99.4%	96.1%
Standard fixed	99.8%	99.7%	98.8%	98.3%	95.5%	83.2%
NGA	94.2%	92.7%	98.3%	41.2%	53.8%	12.4%

### 3.4 Notes on data and coverage estimates:

Since the publication of the data for 2011, Swiss Statistics updated their population estimates – this updated data has been used to restate the coverage for the end of 2011.

## 4. Methodology

This study for broadband coverage in Switzerland adopted the same methodology that was used for the European Commission's study BCE 2012, to ensure that the results were comparable.

### 4.1 Structure

The structure of the BCE 2012 project was simple. DG INFSO's specification for the project required that data collection should be based on a survey of broadband network operators and national regulatory authorities (NRAs) in the study countries. The Inception phase of the project developed the Survey Questionnaire and the supporting definitions and categories required for the project. The Survey was launched once all these had been approved.

Point Topic also chose to complement the Survey with a parallel research programme to help in checking the validity of the survey results and fill any gaps left by them. The final phase of the project involved integrating, checking and testing the results to produce the required unified picture of broadband coverage in Europe.

### 4.2 Project Survey

The Survey Questionnaire needed to gather data on one basic question – how many homes have access to broadband? - applied across three dimensions:

Technology – for each of the broadband technologies surveyed

Geography – for each country as a whole and for each region within each country

Rurality – for the rural areas of each country and each region compared with the corresponding country or region as a whole.

The key definitions for technologies and their coverage are provided within the survey distributed to operators.

In addition, the Survey included supplementary questions to establish the context of the data supplied in circumstances where the respondents were working with a wide range of definitions, reference dates and confidentiality issues.

To provide background and explanation of the Survey objectives Point Topic prepared a series of spreadsheets featuring the main points of the Survey for each country.

### **4.3 Confidentiality**

Confidentiality was an important issue for many respondents to the Survey. In many cases, the data provided, particularly at NUTS 3 level, was regarded as commercially sensitive.

To meet respondents' need for confidentiality the publication of the project's results is limited to country-level figures for single technologies and technology combinations plus HSPA for NUTS 3 areas. The technology combinations (Standard Coverage and NGA Coverage) combine the coverage of multiple technologies so the coverage of any one technology is usually obscured. In a similar way, HSPA Coverage, although referring to a single technology, combines the data for the multiple mobile operators which are offering service in all the study countries.

Data for the coverage by NUTS 3 area for each technology combination was provided to Swisscom but this data did not identify individual operators or technologies.

Point Topic asked all survey respondents to state the level of confidentiality which they wanted to apply to the data they provided. These ranged from allowing the data to be freely available to not permitting any distribution and requiring it to be deleted by Point Topic as soon as the project was completed.

Point Topic was pleased to be able to meet respondents' confidentiality concerns and is grateful for the confidence placed in the company.

### **4.4 Parallel research**

The Parallel Research programme was organised mainly on a country by country basis, but with overview tasks to bring together and support the country-level work where needed.

The programme relied on conventional techniques and published sources, including publications by NRAs and operators included in the Survey. The members of the research team for BCE 2012 also produce Point Topic's Operator Source and Global Broadband Statistics services and are familiar with the type of data used for this project and the sources from which it is derived.

Besides NRA and operator data the research drew on existing published research for the Digital Agenda programme and Point Topic's own research services and projects, for example for the European Space Agency.

IDATE also generously provided the project with access to key results from its research on FTTx coverage on behalf of the FTTH Council for Europe, specifically its February 2012 table of country level FTTx coverage and subscription numbers. Although they were sometimes superseded by later data, for example Survey responses from the NRAs, the IDATE figures were an essential input to the project's coverage estimates. Point Topic thanks IDATE and the FTTH Council for their contribution to the project.

## 4.5 Data integration and modelling

The final major task of the study was to bring together the data from both the Operator Survey and the Parallel Research to produce the actual coverage estimate outputs from the project.

This work was done for each technology individually, in each country. In the best cases data from one of the respondents provided figures for total and rural coverage in each NUTS 3 area. At the other extreme the only data available was for total coverage by the technology in the country as a whole. (The Parallel Research programme was tasked to provide a best efforts estimate of total coverage as a minimum.) Even in these cases the coverage totals were often supported by “presence” data, showing in which NUTS 3 areas the technology was available.

Where necessary the total and rural coverage for each NUTS 3 area was estimated from national coverage and presence data using simple models. The models relied on simple assumptions, for example, that investment in technologies like VDSL, cable and FTTP would strongly favour urban over rural areas.

Most cases were in between these two extremes. For example, data on NUTS 3 rural coverage was often missing even though total coverage data was provided. Here modelling assumptions were used to estimate rural coverage. Another difficulty was around the lack of good statistics about urban-rural splits and the varying definitions of rurality used by different respondents.

Taking account of all the above, the project succeeded in providing a complete set of estimates for total and rural coverage of all nine technologies considered and for all 1324 NUTS 3 areas in the 29 study countries.

## 4.6 Estimating coverage for technology combinations

The individual technology estimates were in turn used to produce estimates of the total coverage provided in combination by technologies with similar performance characteristics. The particular examples chosen were fixed-line standard broadband coverage, combining DSL, FTTP, WiMAX and Standard Cable, and Next Generation Access Coverage, combining VDSL, FTTP and Docsis 3 Cable.

The project used a standardised approach to make these combination estimates. This was required to produce the technology combinations and also where we had data from multiple operators providing the same technology in the same area.

The default formula to estimate combination coverage was to take the average of:

The minimum possible coverage; equal to the coverage of the most widespread technology or operator in the area

The maximum possible coverage; equal to the sum of the coverage of all the technologies or operators being considered, or to 100%, whichever was the greater.

The default formula was applied in the great majority of cases but was varied in a few countries where some technologies were judged to be more complementary than overlapping in coverage. In

these cases the minimum coverage was taken as equal to the sum of the complementary technologies, if this was greater than the most widely-available single technology.

Note that the estimates for combination coverage at the national level were made by summing the estimates for the NUTS 3 areas in the country and not by applying this formula only at the country level. This provides a more accurate answer, at a higher confidence level, than simply taking the country-level average.

## **4.7 Finalisation**

Once the NUTS 3 and country level datasets had been completed as outlined above the results were compiled into this report and the accompanying datasets.

Point Topic would like to share the results with the European Commission and survey respondents from Switzerland.

The finished datasets were used to generate graphic maps by using GIS software. The following maps were produced for each country and for the study countries as a whole.

Total standard broadband coverage by NUTS 3 area

Total NGA broadband coverage by NUTS 3 area.