

# Information society

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The widespread use of the Internet and the World Wide Web has led the development of what is often referred to as the information society. These related developments have created new dimensions of economic, social and political participation for individuals and groups. Online activities have become ubiquitous, meaning that the actual geographic location where they are performed usually does not matter, as long as there is a connection to the Internet.

The term digital divide has been coined to distinguish between those who have access to the Internet and are able to make use of the services offered on the World Wide Web and those who are excluded from these developments. This chapter emphasises the geographic aspects of the digital divide within the [European Union \(EU\)](#).

## Main statistical findings

The maps in this chapter show the level of Internet access and usage, including use for online purchasing, in 2010. Regional data are available for all EU Member States, as well as Iceland, Norway, Montenegro, Croatia and the former Yugoslav Republic of Macedonia, while national data are included for Turkey.

### Access to information and communication technologies

Access to information and communication technologies (ICT) is at the heart of the digital divide, and geographic location is just one aspect of this divide. Statistics on Internet connections and broadband access are closely related, as broadband is a type of Internet connection; efforts have been made across the EU to foster broadband Internet access. In 2011, more than seven out of 10 (73 %) households had access to the Internet at home and more than two thirds (68 % of households) accessed the Internet via broadband. These shares have grown rapidly in recent years, with average annual growth between 2006 and 2011 of 8.3 % for Internet access and 17.8 % for broadband access.

Maps 8.1 and 8.2 show the take-up of Internet and broadband connections by households: these regional data are available for the 2010 reference year, when 70 % of households had access to the Internet at home and 61 % had a broadband connection. The regional differences in Internet access within the EU were quite large, from 26 % of households in Severoiztochen and Severozapaden (both Bulgaria) to 95 % or more in Flevoland and Overijssel (both in the Netherlands); in other words, a factor of 3.7 to 1. Overall there were 35 regions where more than 85 % of households had Internet access, while 43 regions recorded access rates of 55 % or lower — of these there were 16 regions where 45 % or less of households had access. Among regions in Iceland and Norway, Internet access rates were generally very high, the lowest penetration rate being

86 % in Trøndelag (Norway), while rates in candidate countries were generally below the EU-27 average, ranging from 42 % of households in Turkey (no regional data available) to 61 % in Središnja i Istočna (Panonska) Hrvatska (Croatia).

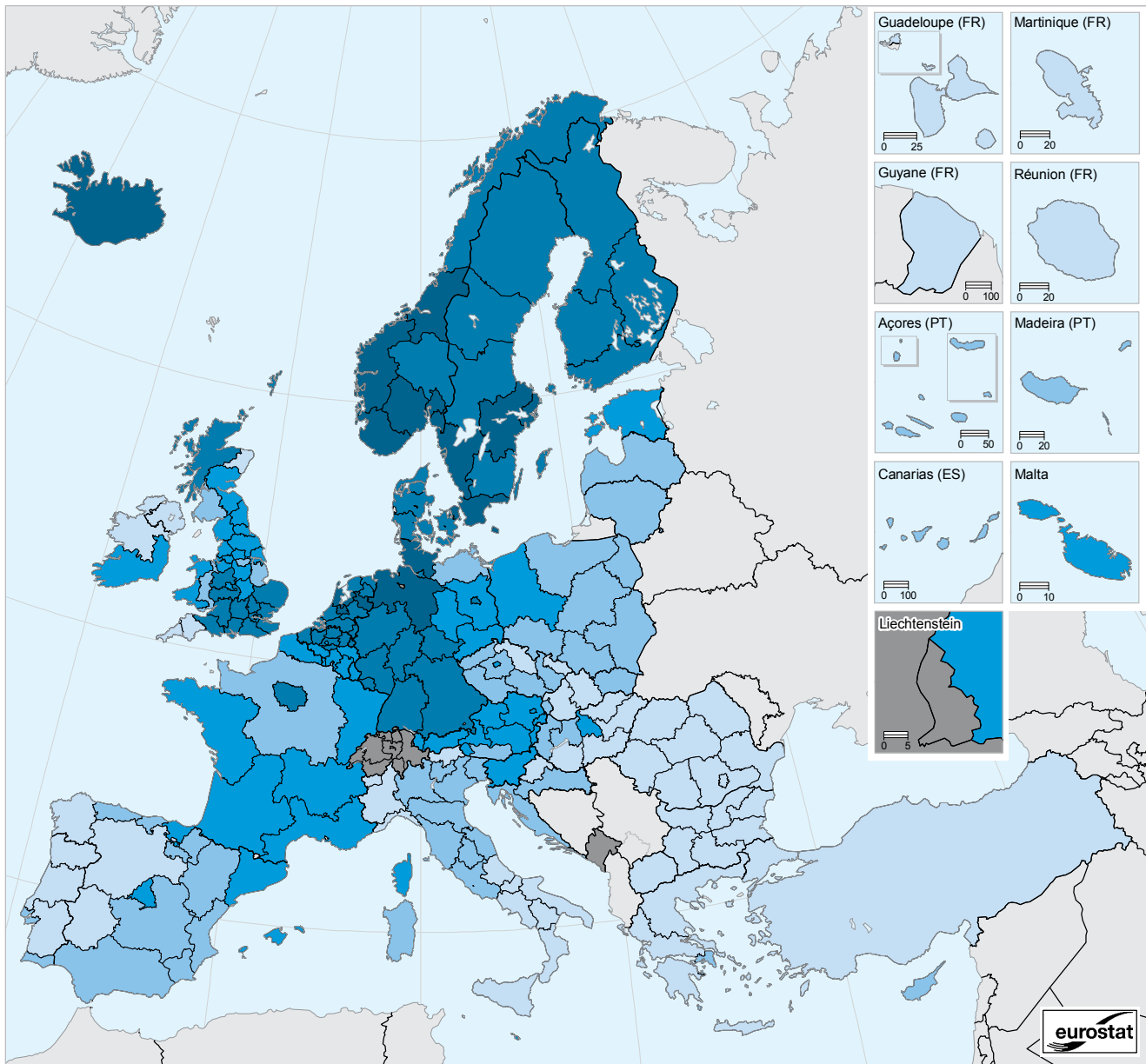
Growth between 2008 and 2010 in the proportion of households with Internet access was generally high in most regions of Greece, Bulgaria, Romania and the Czech Republic. Overall, 12 regions within the EU averaged increases of more than 20 % per annum, as did the former Yugoslav Republic of Macedonia. Internet access rates appear to have stabilised in many regions, with 14 regions recording annual average rates of change below 2 %; while six regions in the Netherlands, Austria and the United Kingdom saw their respective shares of households with Internet access stagnate between 2008 and 2010. When interpreting growth rates it should be borne in mind that it is easier to achieve high growth rates when starting from a lower level, whereas those regions approaching saturation are more likely to display a slowing down of growth rates, stagnation or even a slight reversal (a reduced proportion of households with Internet access).

The situation for broadband access was to some extent comparable with that for Internet access, although the regional differences tended to be somewhat larger in relative terms. In Stockholm (Sweden) around 87 % of households had broadband connections in 2010, whereas in Sud-Vest Oltenia (Romania) the share was 15 %, a factor of 5.8 to 1 between the highest and the lowest shares. There were 12 regions in the EU where more than 80 % of households had broadband connections: four each in Sweden and the Netherlands, two in Germany (NUTS level 1 regions) and one each in Denmark and the United Kingdom. A total of 48 regions in the EU recorded broadband connection rates of 50 % or lower — of these, there were 20 regions where 40 % or less of households had connections, and 12 of these had broadband connection rates of 30 % or lower. For EFTA countries data are available for Norway and Iceland: broadband connection rates were above the EU-27 average, ranging from 75 % in Hedmark og Oppland (Norway) to 87 % in Iceland. Broadband connection rates in candidate countries were below the EU-27 average, ranging from 34 % in Turkey (no regional data available) to 55 % in Središnja i Istočna (Panonska) Hrvatska (Croatia).

Within the EU, 21 of the Member States have multiple (more than one) regions at NUTS level 2. An analysis of the different levels of broadband connections between regions in the same Member State can be carried out using measures of dispersion. This shows that Denmark, Finland, Austria, Sweden and Poland had a relatively even level of connectivity across all of their regions; whereas Bulgaria, Romania and Greece reported a much wider range in connectivity rates between regions, mainly due to the capital city region having a much higher rate than other regions.

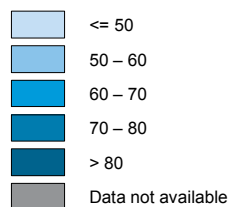
The regions with the highest increase in broadband connection rates between 2008 and 2010 were located in Greece (Kentriki

**Map 8.1: Broadband connections in households, by NUTS 2 regions, 2010 <sup>(1)</sup>**  
 (% of households with a broadband connection)



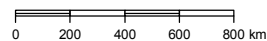
(% of households with a broadband connection)

EU-27 = 61



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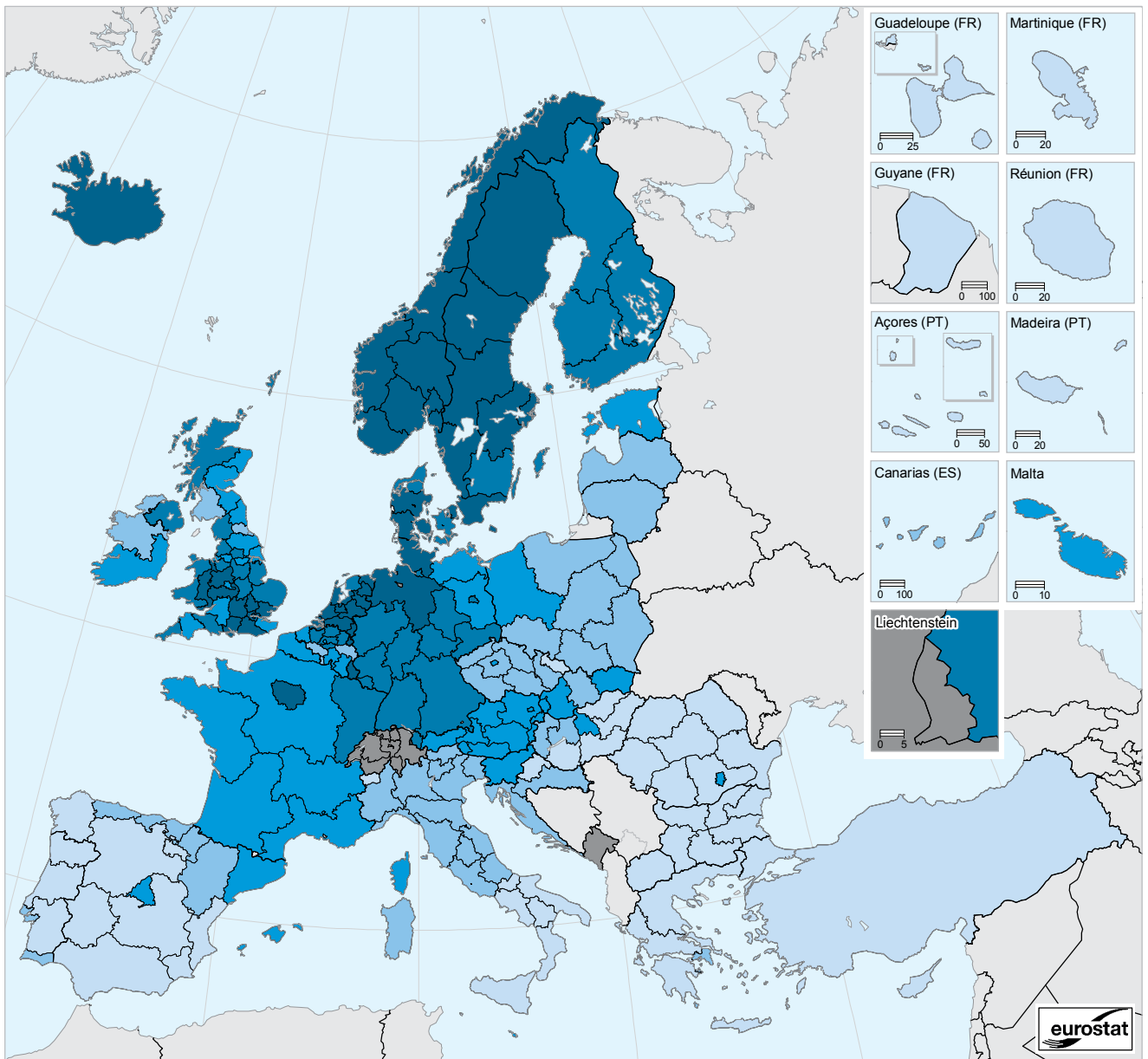


<sup>(1)</sup> The United Kingdom, 2009 except for: North Yorkshire (UKE2), Herefordshire, Worcestershire and Warwickshire (UKG1), Highlands and Islands (UKM6) and Northern Ireland (UKN0), 2008; East Wales (UKL2), 2007; Cumbria (UKD1), Lincolnshire (UKF3), Cornwall and Isles of Scilly (UKK3), Devon (UKK4) and North Eastern Scotland (UKM5), 2006; Germany, Greece, France and Poland, by NUTS 1 regions; Slovenia and Turkey, national level; Länsi-Suomi (F119) and Åland (F120) are combined.

Source: Eurostat (online data code: [isoc\\_r\\_broad\\_h](#))

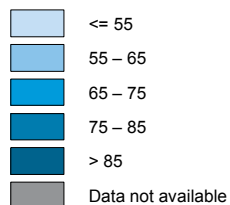


**Map 8.2:** Internet access in households, by NUTS 2 regions, 2010 <sup>(1)</sup>  
(% of households with Internet access)



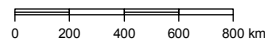
(% of households with Internet access)

EU-27 = 70



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<sup>(1)</sup> Devon (UKK4) and Highlands and Islands (UKM6), 2008; Lincolnshire (UKF3), 2007; North Eastern Scotland (UKM5), 2006; Germany, Greece, France and Poland, by NUTS 1 regions; Slovenia and Turkey, national level; Länsi-Suomi (FI19) and Åland (FI20) are combined.

Source: Eurostat (online data code: [isoc\\_r\\_iacc\\_h](#))

Ellada, Voreia Ellada, Nisia Aigaiou and Kriti), Italy (Calabria, and Sardegna), Romania (Vest and Nord-Vest), the United Kingdom (Shropshire and Staffordshire), the Czech Republic (Severozápad) and Bulgaria (Severozapaden); all of these regions had an average annual growth of at least 40%. Only two regions in the EU recorded a fall in their respective level of broadband connections between 2008 and 2010, they were Groningen (Netherlands) and Severoiztochen (Bulgaria).

## Regular use of the Internet

Over 70% of individuals in the EU-27 used the Internet in 2011 and more than two thirds (68%) were regular Internet users, in other words, they used the Internet at least once a week; the latter share rose from around 45% in 2006. There is a relation between regular use of the Internet and broadband connectivity: regions with a higher share of broadband connections can be expected to have a higher share of regular Internet users — see Map 8.3 which presents regional data for 2010 when an average of 65% of individuals used the Internet on a regular basis.

One of the aims of the 'Digital agenda for Europe' is to increase the regular use of the Internet to 75% of the total population by 2015. This indicator ranged among the EU regions from 94% of individuals in Flevoland (Netherlands) to 28% in Sud-Vest Oltenia (Romania); in other words, a factor of 3.4 to 1, which was relatively close to the range observed for Internet access.

Overall there were 70 regions in the EU where more than 75% of individuals were regular users of the Internet, among which were 24 regions where more than 85% of individuals were regular users. In contrast, there were 62 regions where 55% or fewer individuals were regular users of the Internet, among which were 27 regions (in Bulgaria, Greece, Italy, Portugal and Romania) where 45% or fewer individuals were regular Internet users. Among regions within the EFTA countries, regular Internet use was widespread: the region with the lowest share was Sør-Østlandet (Norway), where an 86% share was 21 percentage points above the EU-27 average. The incidence of regular Internet use in candidate country regions was consistently below the EU-27 average, ranging from 33% of individuals in Turkey (no regional data available) to 57% in Središnja i Istočna (Panonska) Hrvatska (Croatia).

Measures of regional dispersion (at NUTS level 2) indicate that the incidence of regular Internet use in Finland, Slovakia and Sweden was relatively evenly spread across regions; whereas in Romania, Greece (NUTS level 1 data) and Bulgaria there was a less regular regional pattern, again due to large differences between capital city regions and other regions.

## E-commerce by individuals

In 2011, 43% of individuals in the EU-27 reported that they had made online purchases (within the 12 months prior to the survey date); this figure had grown from 40% in 2010 and

from 26% in 2006. In 2010 the proportion of individuals making online purchases ranged across EU regions from 81% in Cumbria (United Kingdom) to 2% in the Nord-Vest and Sud - Muntenia regions of Romania and Yuzhen tsen-tralen in Bulgaria.

There were 87 regions where more than 50% of individuals made online purchases, among which there were 31 regions where more than 65% of individuals made online purchases, the majority (20 regions) of which were in the United Kingdom, with several in the Netherlands, Denmark and Sweden, as well as one (NUTS level 1 region) in France. In contrast, there were 35 regions where 15% or fewer of individuals made online purchases — these were mainly in Italy (nine regions), Romania (eight regions), Bulgaria (six regions) and Portugal (five regions), Greece (three NUTS level 1 regions), Hungary (three regions) and Lithuania (which is just one region).

Online purchases were relatively widespread in Norway, as the lowest regional share of online purchasing was 63% in Hedmark og Oppland, but this activity was notably less common (45%) in Iceland. People in candidate countries were less likely to have made online purchases, with only 4% having done so in the former Yugoslav Republic of Macedonia and 5% in Turkey (no regional data available); the highest share of online purchases among the candidate country regions for which data are available was 17% in Jadranska Hrvatska (Croatia).

Measures of dispersion indicate that the incidence of online purchasing in Sweden, Finland, Austria and Denmark was relatively evenly spread across the regions (at NUTS level 2), whereas in Romania and Bulgaria, and to a lesser extent Italy and Greece (NUTS level 1 regions), there was a less regular regional pattern.

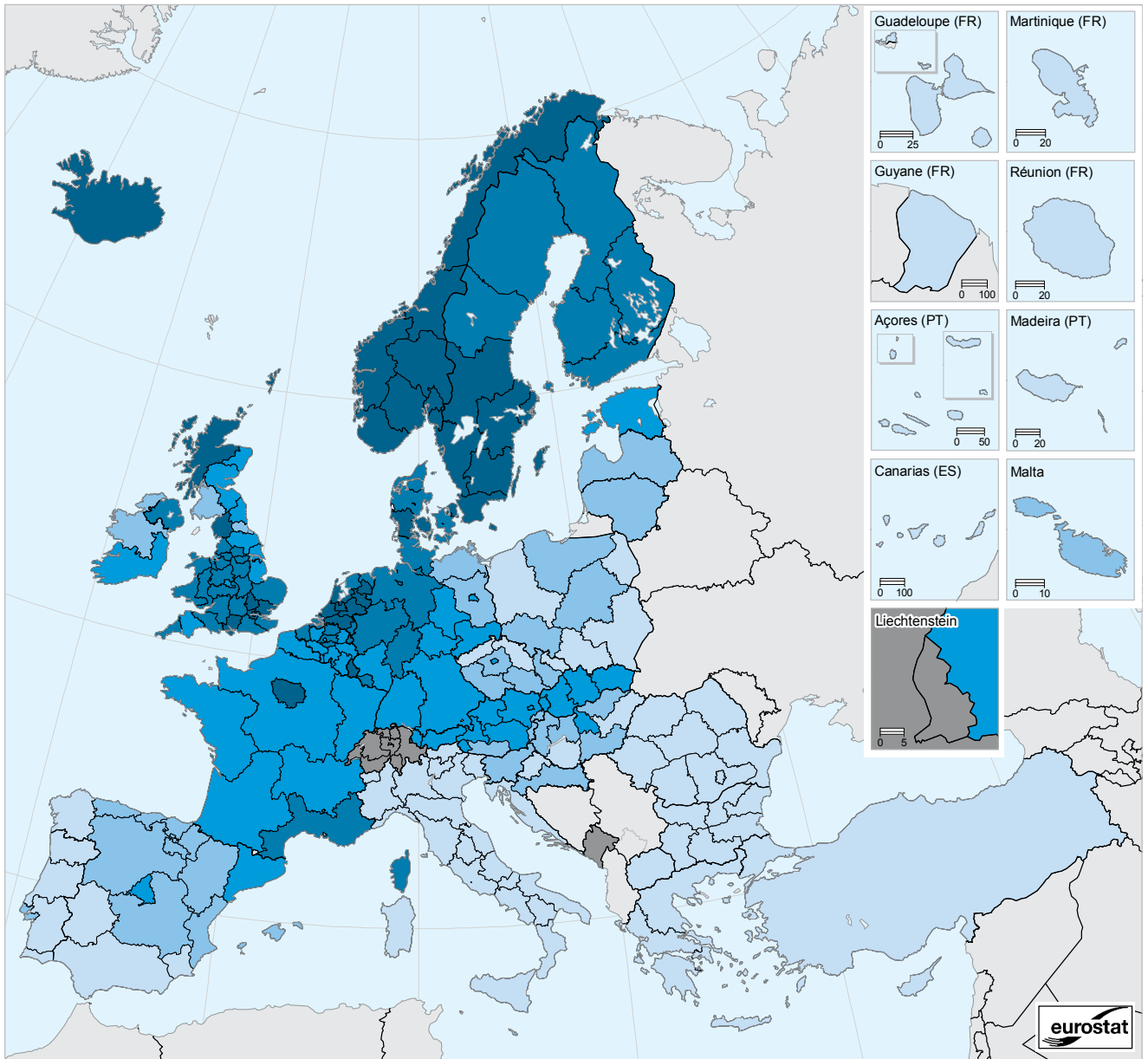
## Data sources and availability

EU statistics on the use of ICT are based on a regulation concerning Community statistics on the information society. The regulation concerns statistics on the use of ICT in enterprises and statistics on ICT use in households and by individuals — only the latter are presented in this chapter.

Regional ICT data for a limited list of indicators have been available at the NUTS level 1 since 2006 as a voluntary contribution by the EU Member States and since 2008 on a mandatory basis. Some Member States provide regional data at NUTS level 2 on a voluntary basis. For the household/individual survey, questions on access to ICT are addressed to households, while questions on the use of ICT are answered by individuals within the household. As well as a core part, the model questionnaire includes a special focus which is changed each year. The scope of the household/individual survey comprises individuals aged between 16 and 74 years and households

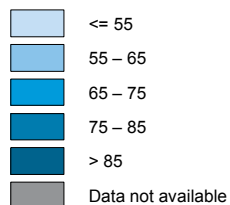


**Map 8.3:** Regular use of the Internet, by NUTS 2 regions, 2010 <sup>(1)</sup>  
 (% of persons who accessed the Internet on average at least once a week)



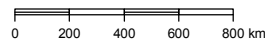
(% of persons who accessed the Internet on average at least once a week)

EU-27 = 65



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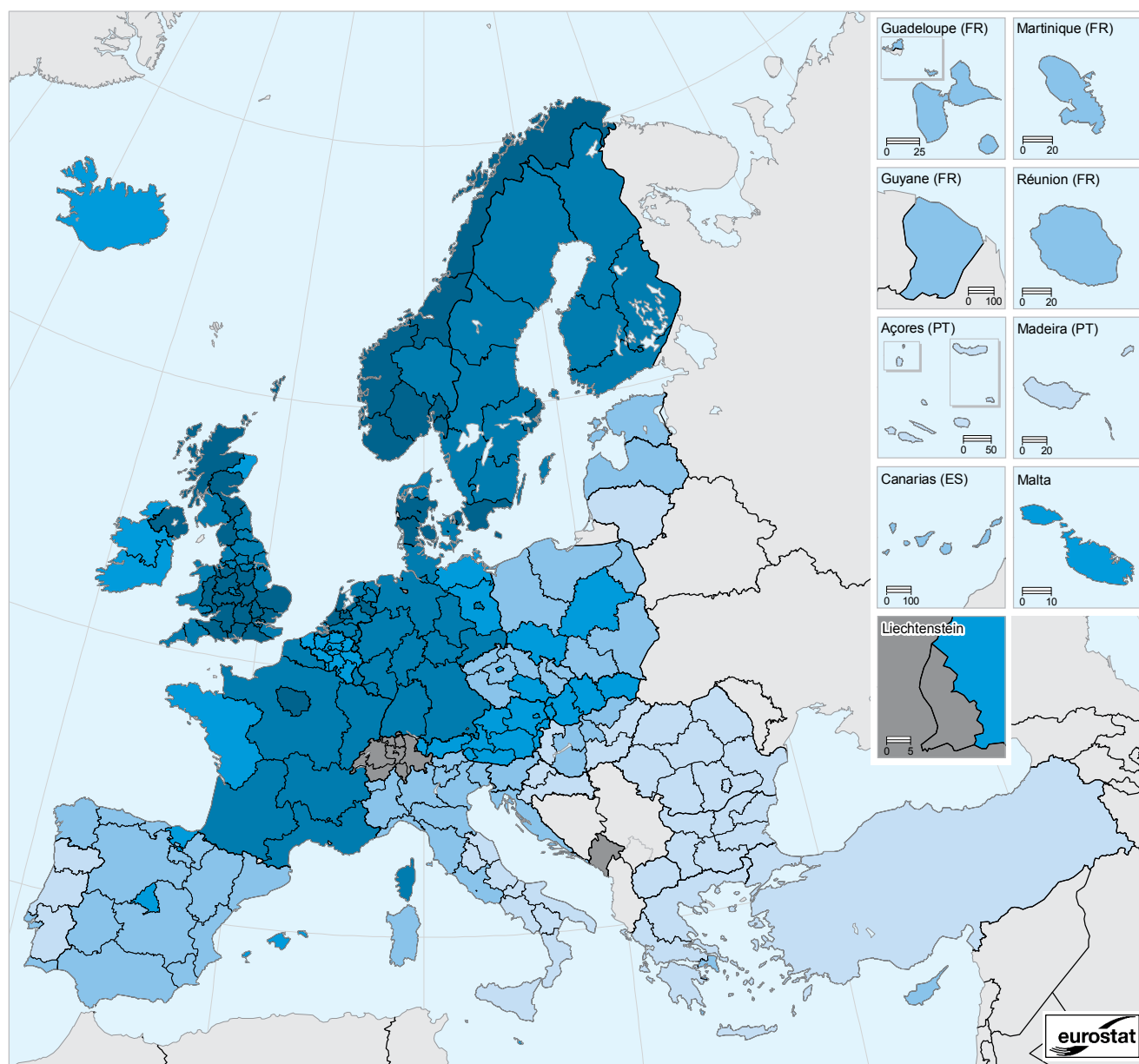
Cartography: Eurostat — GISCO, 04/2012



<sup>(1)</sup> Devon (UKK4) and Highlands and Islands (UKM6), 2008; Lincolnshire (UKF3), 2007; North Eastern Scotland (UKM5), 2006; Germany, Greece, France and Poland, by NUTS 1 regions; Slovenia and Turkey, national level; Länsi-Suomi (FI19) and Åland (FI20) are combined.

Source: Eurostat (online data code: [isoc\\_r\\_iuse\\_i](#))

**Map 8.4:** Online purchases, by NUTS 2 regions, 2010 <sup>(1)</sup>  
 (% of persons who ordered goods or services over the Internet for private use)



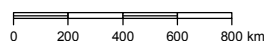
(% of persons who ordered goods or services over the Internet for private use)

EU-27 = 40



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat

Cartography: Eurostat — GISCO, 04/2012



<sup>(1)</sup> East Yorkshire and Northern Lincolnshire (UKE1), 2009; Devon (UKK4) and Highlands and Islands (UKM6), 2008; Tees Valley and Durham (UKC1) and Lincolnshire (UKF3), 2007; North Eastern Scotland (UKM5), 2006; Germany, Greece, France and Poland, by NUTS 1 regions; Slovenia and Turkey, national level; Länsi-Suomi (FI19) and Åland (FI20) are combined.

Source: Eurostat (online data code: [isoc\\_r\\_blt12\\_i](#))

**Table 8.1:** Top 10 EU-27 regions in terms of increasing use of the Internet, 2008–10 <sup>(1)</sup>

Top 10 regions	2008	2009	2010	Average rate of change, 2008–10 (% per annum)	Value for 2010 compared with national average (national average = 100)
<b>Broadband connections in households</b> (% of households with a broadband connection)					
Kentriki Ellada (GR2)	13	20	34	62	56
Calabria (ITF6)	19	26	42	49	69
Vest (RO42)	10	:	22	48	36
Nord-Vest (RO11)	13	:	28	47	46
Shropshire and Staffordshire (UKG2)	51	78	:	43	128
Severozápad (CZ04)	26	:	53	43	87
Severozapaden (BG31)	63	72	73	41	39
Voreia Ellada (GR1)	16	27	32	41	52
Nisia Aigaiou, Kriti (GR4)	18	29	36	41	59
Sardegna (ITG2)	27	36	54	41	89
<b>Internet connections in households</b> (% of households with Internet access)					
Kentriki Ellada (GR2)	19	25	38	41	54
Nisia Aigaiou, Kriti (GR4)	22	31	43	40	61
Voreia Ellada (GR1)	23	32	37	27	53
Yugoiztochen (BG34)	21	27	33	25	47
Nord-Est (RO21)	23	:	36	25	51
Centru (RO12)	26	:	40	24	57
Severozapaden (BG31)	17	25	26	24	37
Střední Morava (CZ07)	40	:	61	23	87
Vest (RO42)	31	:	47	23	67
Severozápad (CZ04)	39	:	59	23	84
<b>Regular use of the Internet</b> (% of persons who accessed the Internet on average at least once a week)					
Latvia (LV00)	40	40	62	24	95
Centru (RO12)	22	25	34	24	52
Severozapaden (BG31)	24	34	36	22	55
Kentriki Ellada (GR2)	22	28	33	22	51
Nord-Est (RO21)	22	30	33	22	51
Puglia (ITF4)	27	31	39	20	60
Nisia Aigaiou, Kriti (GR4)	25	31	36	20	55
Sicilia (ITG1)	28	35	40	20	62
Shropshire and Staffordshire (UKG2)	57	75	80	18	123
Campania (ITF3)	28	35	39	18	60
<b>Online purchases</b> (% of persons who ordered goods or services over the Internet for private use)					
Yugoiztochen (BG34)	1	3	4	100	10
Severozapaden (BG31)	1	3	3	73	8
Severen tsentralen (BG32)	1	2	3	73	8
Severoiztochen (BG33)	2	6	6	73	15
Centru (RO12)	2	1	5	58	13
Prov. Namur (BE35)	19	32	43	50	108
Prov. West-Vlaanderen (BE25)	15	32	33	48	83
Região Autónoma da Madeira (PT30)	6	9	13	48	33
Prov. Antwerpen (BE21)	20	40	41	47	103
Prov. Hainaut (BE32)	17	32	34	46	85

(<sup>1</sup>) For broadband connections: the United Kingdom, 2007–09; for online purchases: France, not available; Germany, Greece, France and Poland, by NUTS 1 regions; Slovenia and Turkey, national level; Länsi-Suomi (FI19) and Åland (FI20) are combined.

Source: Eurostat (online data codes: [isoc\\_r\\_broad\\_h](#), [isoc\\_r\\_iacc\\_h](#), [isoc\\_r\\_iuse\\_i](#) and [isoc\\_r\\_blt12\\_i](#))



with at least one member within this age range. The reference period is the first 3 months of the calendar year.

The term broadband connection refers to the speed of data transfer for uploading and downloading data. Broadband requires a data transfer speed of at least 144 kbit/s. The technologies most widely used for broadband access to the Internet include digital subscriber lines (DSL) and cable modems.

Internet users are persons who have used the Internet within the 3 months prior to the survey being conducted. Regular Internet users have used the Internet at least once a week within the 3-month reference period.

E-commerce via the Internet is defined as placing orders for goods or services via the Internet. Purchases of financial investments, for example shares, confirmed reservations for accommodation and travel, participation in lotteries and betting and obtaining payable information services from the Internet or purchases via online auctions are included in the definition. Orders placed by manually typed e-mails are not counted. Delivery or payment by electronic means is not a requirement for an e-commerce transaction.

## Further information

For further information about information society statistics please consult Eurostat's website at [http://epp.eurostat.ec.europa.eu/portal/page/portal/information\\_society/introduction](http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/introduction).

## Context

During the course of recent decades, ICTs have penetrated all areas of economic and social life; they are credited with transforming societies in a profound and unprecedented way. With access to the Internet, it is very easy to obtain information about almost any topic, as search engines provide rapid and easy access to websites and information sources. Many other activities, such as communicating, consuming media and buying or selling goods and services, can be performed online. For example, it is possible to maintain contact with family members or friends via social networking sites, share holiday pictures on the web or have a video call with a friend via the Internet, while a growing share of retail sales are accounted for by online transactions. ICTs also facilitate working from home or other remote locations, delivering greater flexibility in work organisation. These developments have created new dimensions of economic, social or political participation for individuals and groups and the ubiquitous presence of ICTs has the potential to create completely new ways of participating in the economy and society.

As a basic condition, the participation of citizens and businesses in the information society depends on access to ICTs, for example the presence of electronic devices, such

as computers, and fast connections to the Internet. The term digital divide has been coined to distinguish between those who have access to the Internet and are able to make use of services offered on the World Wide Web and those who are excluded. The term explicitly includes access to ICTs as well as the related skills needed to participate in the information society. The digital divide can be classified according to criteria that describe the difference in participation according to sex, age, education, income, social group or geographic location. For example, regular use of the Internet and, in particular, online purchases are often found to be less common in rural/remote regions.

Policies within the EU, both nationally and for the EU as a whole, have acknowledged the importance of bridging the digital divide to give all citizens equal access to ICTs and to enable them to participate in the information society. In 2010 the European Commission adopted its communication 'A Digital Agenda for Europe' (COM(2010) 245 final/2), a strategy for a flourishing digital economy by 2020. The 'Digital Agenda for Europe' is one of the seven flagship initiatives under the Europe 2020 strategy for smart, sustainable and inclusive growth. It outlines policies and actions aimed at maximising the benefit of the digital era to all sections of society and the economy. The agenda focuses on seven priority areas for action: creating a digital single market, greater interoperability, boosting Internet trust and security, providing much faster Internet access, encouraging investment in research and development, enhancing digital literacy skills and inclusion, and applying ICT to address challenges facing society like climate change and the ageing population. Examples of expected benefits include easier electronic payments and invoicing, rapid deployment of telemedicine and energy-efficient lighting.

The digital agenda emphasises the quality of services in its targets: all households should have broadband subscriptions at a minimum speed of 30 Mbps by 2020 and 50% of households should have subscriptions at a speed of at least 100 Mbps. A set of key benchmarking indicators are defined in the European Commission's framework for benchmarking digital Europe 2011–15<sup>(1)</sup>, which is used to monitor the development of the European information society and achievements with respect to policy objectives set out in the digital agenda.

The digital agenda also puts emphasis on online shopping, with a focus on achieving a digital single European market. Policy measures aim to lower national barriers for online markets by opening access to content, such as buying and downloading digital media content, simplifying cross-border transactions and payments, and building trust in cross-border e-commerce.

(1) [http://ec.europa.eu/information\\_society/eeurope/i2010/docs/benchmarking/benchmarking\\_digital\\_europe\\_2011-2015.pdf](http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/benchmarking_digital_europe_2011-2015.pdf).