Information society

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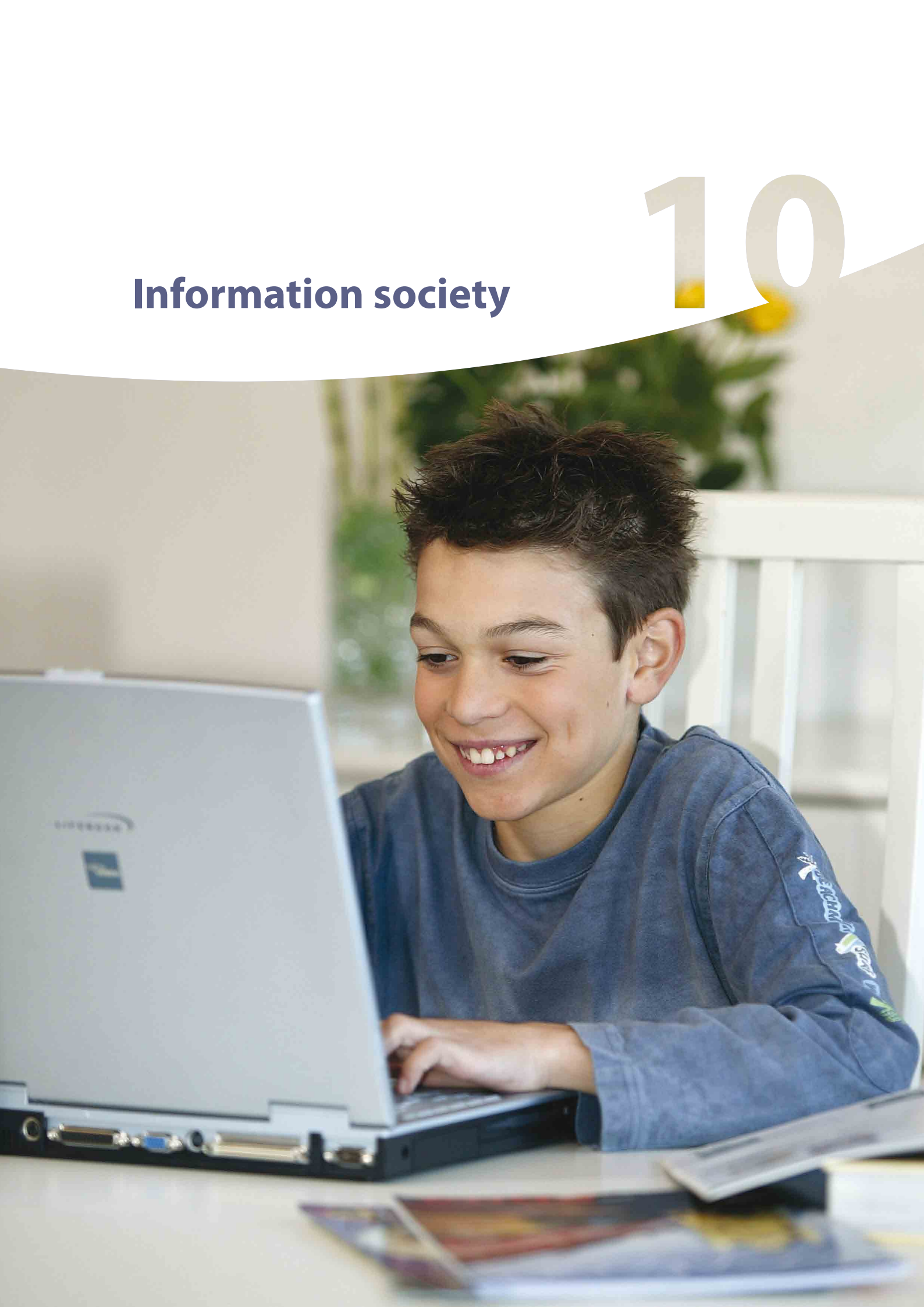


Introduction

The introduction of the Internet and the Word Wide Web has led the development of what we call 'the information society'. The related developments have created new dimensions of economic, social or political participation for individuals or groups of individuals. Online activities have become ubiquitous, meaning that the actual geographic location where they are performed does not matter any more, 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 new services offered on the World Wide Web and those who are excluded from these services. This chapter emphasises the geographic aspects of the digital divide.

Main statistical findings

Access to information and communication technologies

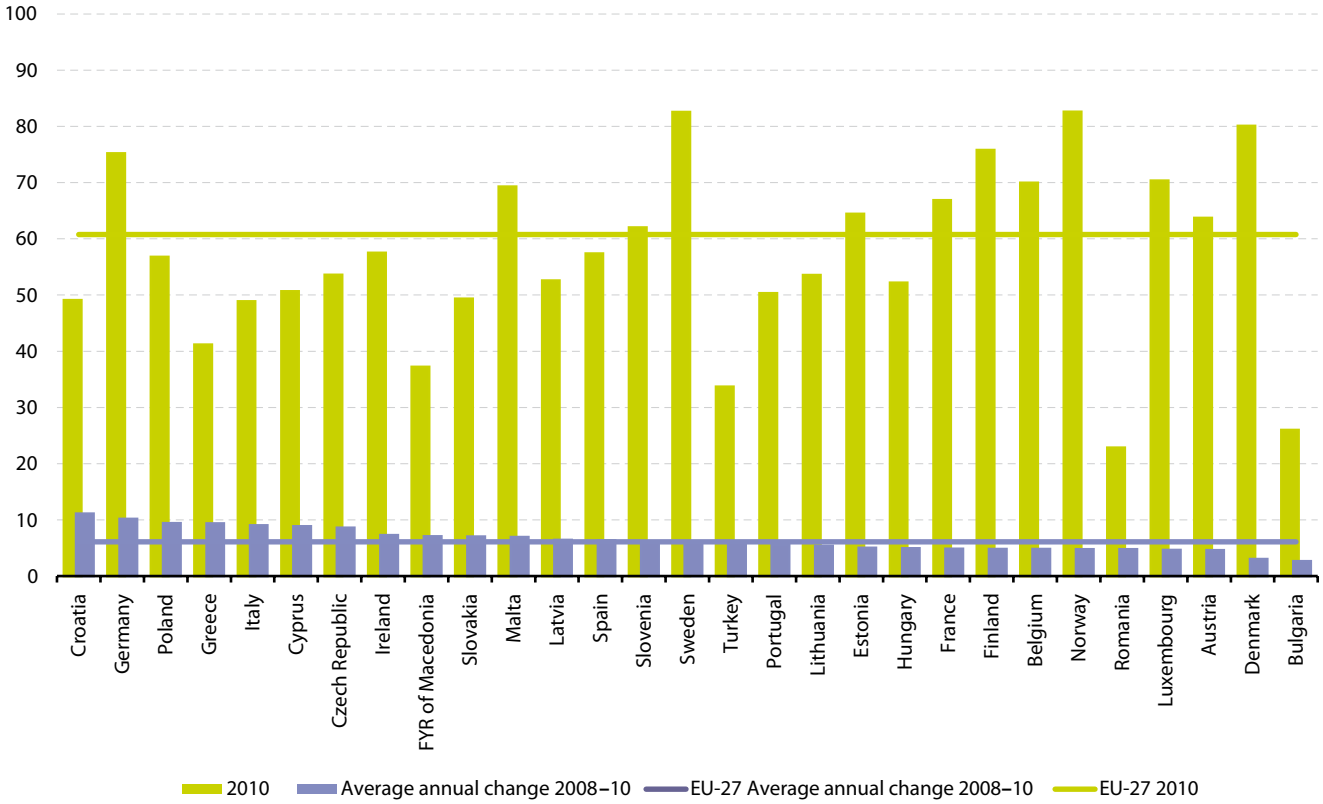
Access to information and communication technologies (ICT) is at the heart of the digital divide, and geographic location is just one aspect of that divide. Regional statistical data on access to the Internet within households and the availability of broadband for going online exist at European level. Fast Internet access is one specific action area of the Digital Agenda for Europe. New and innovative developments of electronic services rely on fast wired and wireless Internet access. It is therefore essential to foster and monitor the development of fast Internet access as part of the benchmarking framework. By 2013, all citizens within the EU should have access to broadband. By 2020, the minimum bandwidth of the broadband Internet connections should be 30 Mbps, with 50 % of the households having a speed of at least 100 Mbps. In contrast to supply-side statistics, Eurostat figures show the actual uptake of ICT by the population. In 2010, seven out of 10 (70 %) households on average in Europe with members aged between 16 and 74 years had access to the Internet at home and six out of 10 (61 % of households) accessed the Internet via broadband. These numbers have grown rapidly in recent years, with an average annual growth of 5 percentage points for Internet access and 6 percentage points for broadband access between 2008 and 2010. While access to the Internet makes it possible to participate in the information society, broadband connections enable Internet users to fully exploit the potential of the Internet. Many of the advanced Internet services, such as social networking sites, uploading and downloading of media content (video and audio files) or the use of online maps and satellite images, automatically require a broadband connection. Websites are becoming richer in content, and this constantly increases the demand for traffic volumes, even for less advanced services such as e-mail communication.

The maps in this chapter all show the average annual development in percentage points between 2008 and 2010 for the following indicators: Internet connections, broadband access, regular Internet use and online shopping. When interpreting these figures one has to bear in mind that it is easier to achieve high growth rates at a lower overall level. When approaching saturation, growth rates normally decrease or a greater effort has to be made to maintain the previous growth rates. In order to consider this state of affairs, the figures in this chapter show the average annual development in percentage points and at the same time the levels attained in 2010 for the four selected indicators.

The national differences in Internet connections and broadband access of households in 2010 are considerable. They range from 33 % in Bulgaria to 91 % in the Netherlands for Internet connections and from 23 % in Romania to 83 % in Norway and Sweden for broadband access. The European Union averages are 70 % for Internet connections and 61 % for broadband access, which means that some countries are lagging well behind the EU average. The figures show the situation in 2010 by country. In addition, Figures 10.1 and 10.2 — together with the corresponding maps — illustrate the average annual change in Internet and broadband connections. The EU average for the development of Internet connections between 2008 and 2010 is 4.9 percentage points and 6.1 percentage points for broadband access. The best performing countries as regards new Internet connections are the former Yugoslav Republic of Macedonia, Turkey, Poland, Greece and the Czech Republic, with an average annual increase of more than 7.3 percentage points, while the least performing countries are Sweden, Austria, Denmark and Norway, with an average annual increase of less than 3 percentage points.

A similar picture can be drawn for broadband access of households. Here, the best performers are Croatia, Germany, Poland, Greece and Italy, with an average annual increase of 9 percentage points or more. In Bulgaria and Denmark the average annual increase was 3 percentage points or less. When interpreting these results one has to bear in mind that it is easier to achieve high growth rates at a lower level, whereas growth rates tend to decrease when reaching higher levels. In order to maintain high growth, efforts and investments have to be intensified. This rule is borne out when one observes the take-up and development of Internet and broadband connections. Linear regressions between take-up and annual average growth are significant and yield a decrease in the growth of Internet connections at higher levels of connected households. It could be expected that countries like the Netherlands, Denmark, Austria or Sweden would exhibit low growth, as they have already reached high levels of Internet access.

Figure 10.1: Broadband connections in households, 2008–10 ([1])
(share of households with broadband connection in 2010 and average annual change, in percentage points)



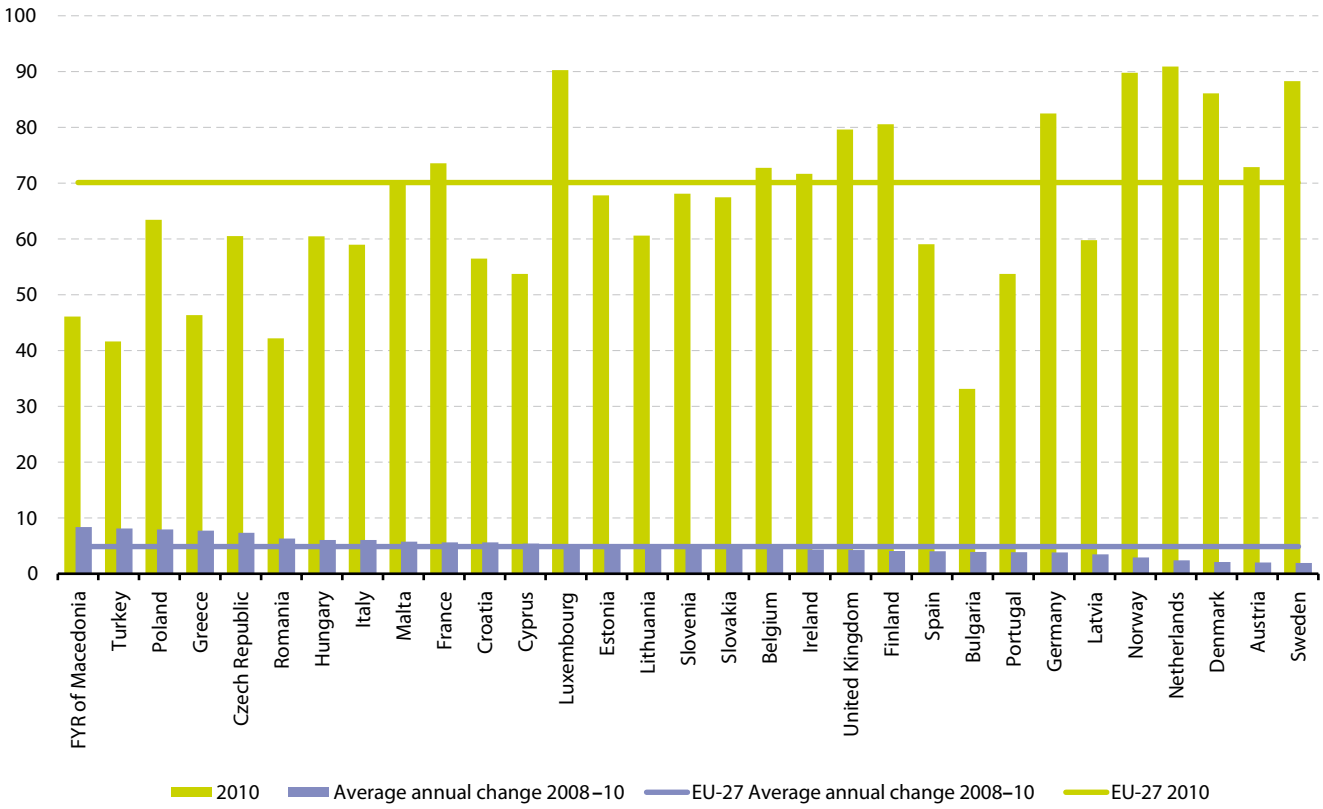
([1]) Netherlands, United Kingdom and Iceland, data not available.

Source: Eurostat (online data code: isoc_si_broad).

Taking these observations into account, countries could be classified according to levels of Internet and broadband access in below and above EU average levels which have already been reached. A similar grouping could be applied to the average annual development of Internet and broadband connections. France and Luxembourg perform above the EU average as regards the levels and the development of Internet connections, whereas Estonia, Lithuania, Slovenia, Slovakia, Bulgaria and Latvia are below average when it comes to the level and growth of Internet connections. The situation concerning broadband access is more mixed, i.e. the differences between the countries are more pronounced. Germany, Malta and Slovenia show an annual growth and take-up above the EU average between 2008 and 2010, while Turkey, Portugal, Lithuania, Hungary, Romania and Bulgaria are below the EU average.

The statistics on Internet connections and broadband access are closely related, as broadband is a type of Internet connection and efforts are being made at both European and national levels to foster broadband access to the Internet. However, not all countries and regions are equally successful in deploying fast Internet connections that enable users to make full use of the potential of the Internet. Maps 10.1 and 10.2 show the increase in the take-up of Internet and broadband connections by households in the European regions between 2008 and 2010. Again, the abovementioned restrictions on the levels already reached and the effects on growth rates have to be taken into account when interpreting these figures. The regional differences in Internet access (see Figure 10.2) are quite large, with an average annual growth of 4.9 percentage points at EU level. The regions where the highest increases are recorded are Est (France), Nisia Aigaiou, Kriti (Greece), Střední Morava, Severozápad and Jihovýchod (Czech Republic) and Region Centralny (Poland), with an average of more than 9 percentage points. Regions with an increase of below 1 % point are Groningen, Friesland and Gelderland (Netherlands), Wien (Austria), Scotland (UK), Severoiztochen (Bulgaria), Trøndelag (Norway), Molise (Italy) and Mecklenburg-Vorpommern (Germany). Most of these regions are well above the EU average, except for Severoiztochen, Molise and Mecklenburg-Vorpommern. The latter region fell below the EU average in 2010 due to the stagnation in growth from 2008 to 2010. All regions in Greece, Hungary, Poland and Croatia are above the EU average for annual growth between 2008 and 2010.

Figure 10.2: Internet access in households, 2008–10 (1)
(share of households with Internet access in 2010 and average annual change, in percentage points)



(1) Iceland, data not available.

Source: Eurostat (online data code: isoc_ci_in_h).

The situation for broadband access is to some extent comparable to the development of Internet connections. The regions with the highest increase in broadband access are located in the United Kingdom (North East, North West), the Netherlands (Drenthe), the Czech Republic (Severozápad), Italy (Sardegna), Croatia Središnja i Istočna (Panonska) Hrvatska) and Germany (Brandenburg, Hessen, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thüringen) with an average annual growth of at least 12 percentage points.

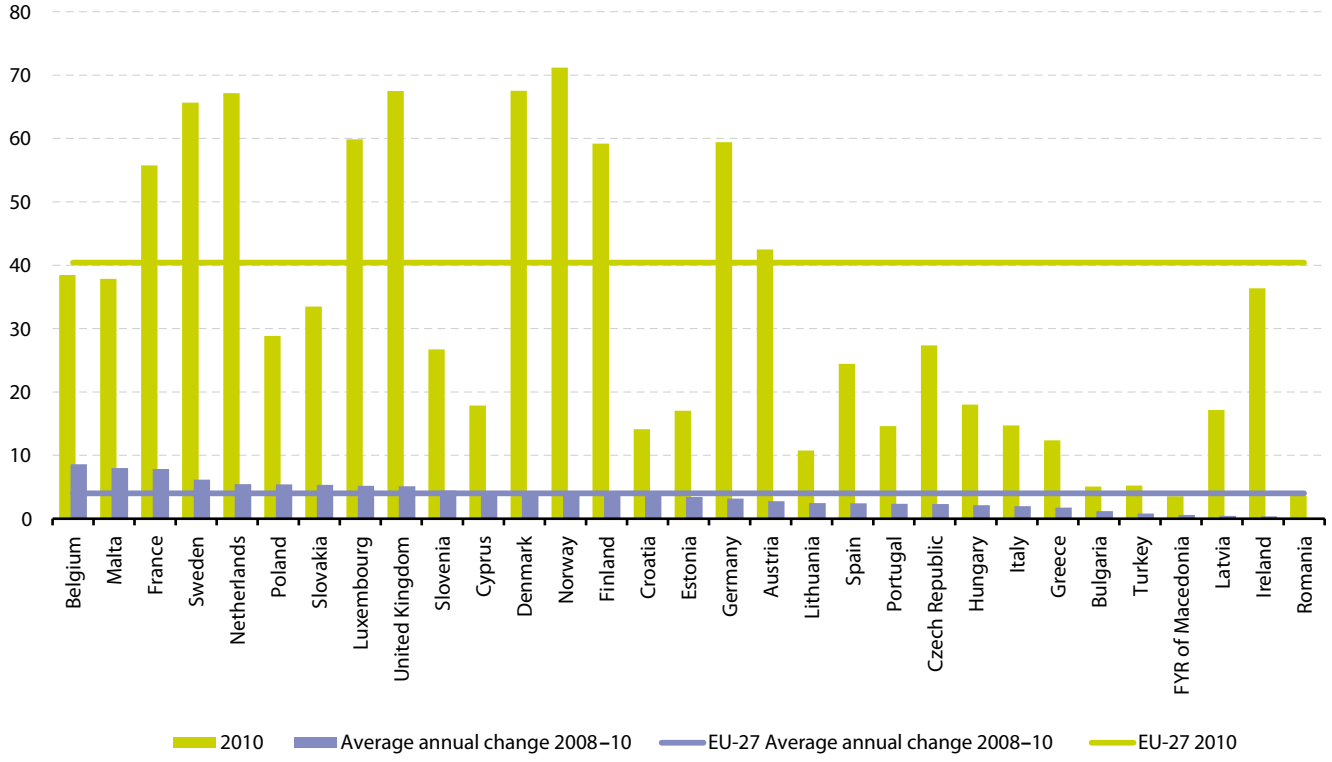
As with the development of the Internet connection, the regions with the lowest growth (below 1 % point) are located in the Netherlands, Bulgaria, Norway and the United Kingdom. With the exception of Severoiztochen (Bulgaria), the regions are well above the EU average in broadband take-up. All regions in Germany, Greece, Croatia, Ireland, Italy and Poland are above the EU average as regards the average annual growth of broadband access in percentage points.

E-commerce by individuals

Online shops and markets are creating additional opportunities to increase sales and reduce costs for businesses and they provide many advantages for consumers, such as 24-hour availability or easy price and product comparison. The Digital Agenda for Europe puts emphasis on online shopping, with a focus on achieving a digital single European market. Policy measures aim to lower national barriers for the online markets by opening access to content, such as buying and downloading of digital media content, simplifying cross-border transactions and payments and building trust in cross-border e-commerce. By 2015, 50 % of the population will be likely to buy online and 20 % will be likely to buy from vendors in other EU countries. So far, it is only the smaller countries or those sharing a common language with a larger neighbouring country, such as Luxembourg, Austria, Malta or Cyprus, that achieve high percentages of cross-border e-commerce.

In 2010, 40 % of the total population of the European Union purchased online within the 12 months before the survey. The annual average increase between 2008 and 2010 was 4 percentage points, which means that the 50 % goal of the Digital Agenda is likely to be reached by 2013, assuming that the current development continues in the future. It will be more difficult to achieve the second goal of 20 % cross-border online purchases, as the average at EU level was 9 % in 2010 with an average annual increase of only 1.5 percentage points.

Figure 10.3: Online purchases by private persons, 2008–10 (1)
(share of persons who ordered goods or services over the Internet for private use in 2010 and average annual change, in percentage points)



(1) Iceland, data not available.

Source: Eurostat (online data code: isoc_ec_ibuy).

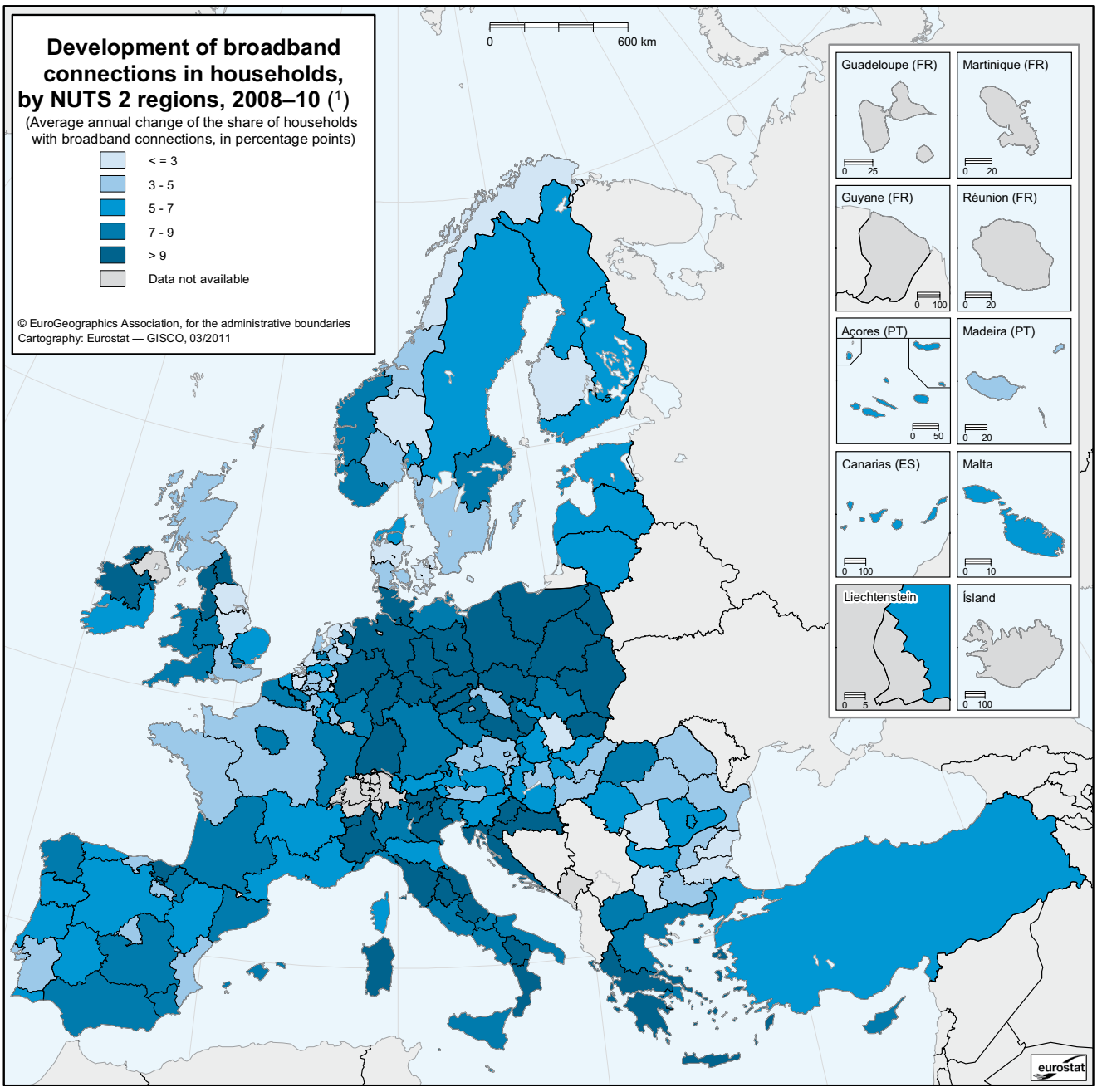
The countries with the highest growth in the percentage of the population shopping online between 2008 and 2010 are Belgium, Malta and France, with an increase of more than 7.5 percentage points annually. The countries with the lowest increases are Romania, Ireland, Latvia, the former Yugoslav Republic of Macedonia and Turkey, with less than 1 percentage point annually. France, Sweden, the Netherlands, Luxembourg, the United Kingdom and Denmark are the countries which are above the EU average in the share of population buying online: at the same time they are growing faster than the EU average. Looking at the ranking of countries according to the share of population buying online, Luxembourg, Malta, Belgium, Poland, Slovenia, Hungary, Estonia, Cyprus, Croatia, Turkey and Bulgaria all improved their position between 2008 and 2010.

The regions with the highest growth in the share of online buyers are all located in France (all regions except for Méditerranée), the Netherlands (Flevoland), Belgium (Prov. Antwerpen, Prov. Namur), the United Kingdom (Northern Ireland) and Sweden (Sydsverige). These regions are all above the EU average as regards the share of population buying online in 2010. By far the majority of regions in France, Belgium, the Netherlands, Poland and Slovakia are above the EU average with regard to annual growth. The regions with an increase of less than 1 % are located in Sweden, Romania, the Netherlands, Ireland, the Czech Republic, Italy, Spain, Germany, Hungary, Latvia and Greece. In Romania, online shopping plays a marginal role in both the share of online shoppers and the annual increase in all except one of the regions.

Regular use of the Internet

Regular Internet use by individuals is defined as using the Internet at least once a week within a reference period of three months prior to the survey. The data show that people who use the Internet tend to use it regularly. In 2008, 91 % of Internet users within the European Union accessed it at least once a week. Between 2008 and 2010 this percentage increased to 94 %. The figures for the share of the population who use the Internet regularly are closely related to the figures for Internet connections. In addition, the percentage of regular Internet users who live in a household with broadband access is on average higher than the share of regular Internet users living in a household with narrowband access only. Consequently, countries or regions

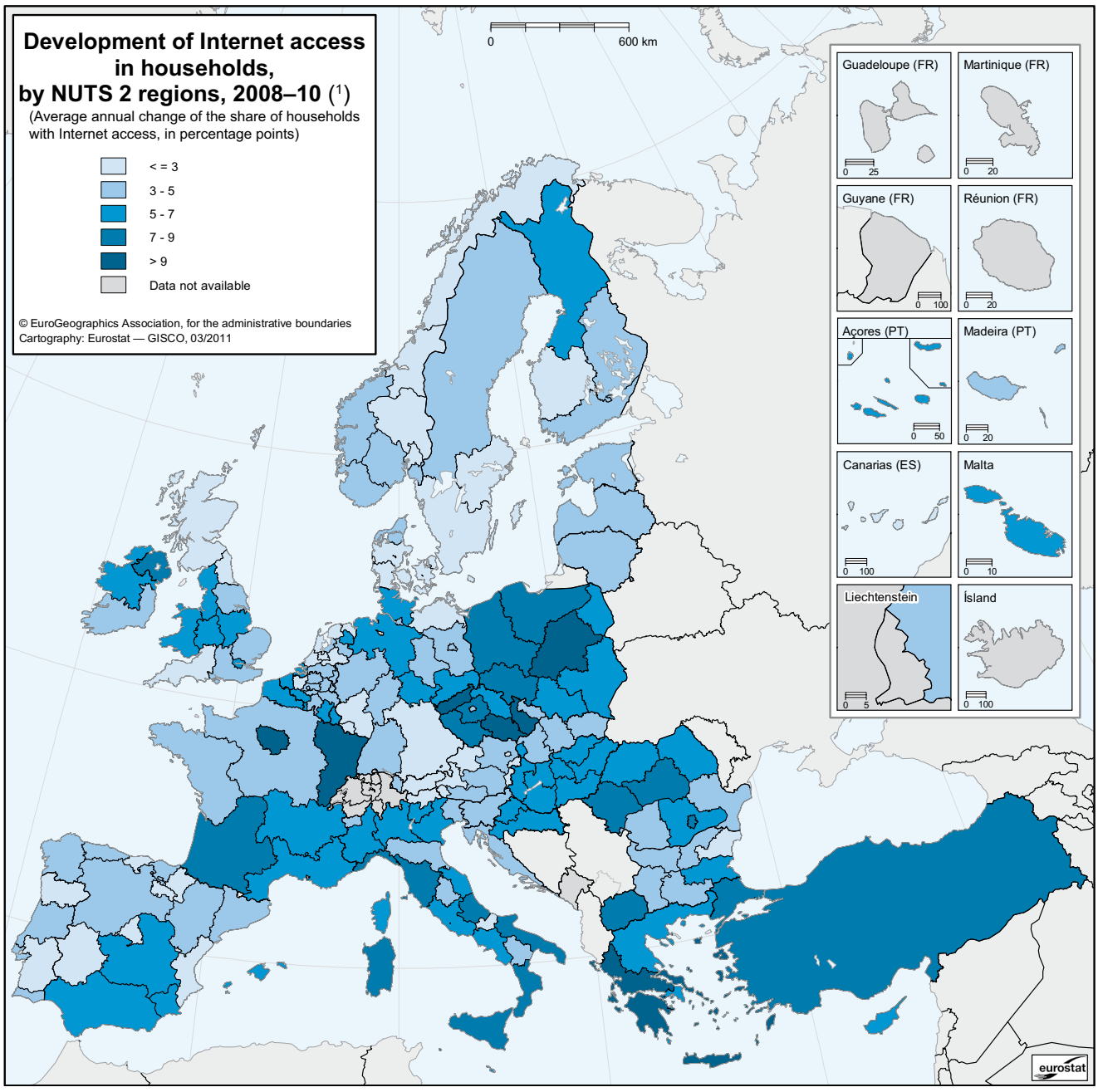
Map 10.1: Development of broadband connections in households, by NUTS 2 regions, 2008–10 (1)
(Average annual change of the share of households with broadband connections, in percentage points)



(1) Netherlands and United Kingdom, 2008–09; Slovenia and Turkey, national level; Germany, Greece, France, Poland, Sweden and United Kingdom, by NUTS 1 regions; Finland, Åland combined with Länsi-Suomi .

Source: Eurostat (online data code: isoc_r_broad_h).

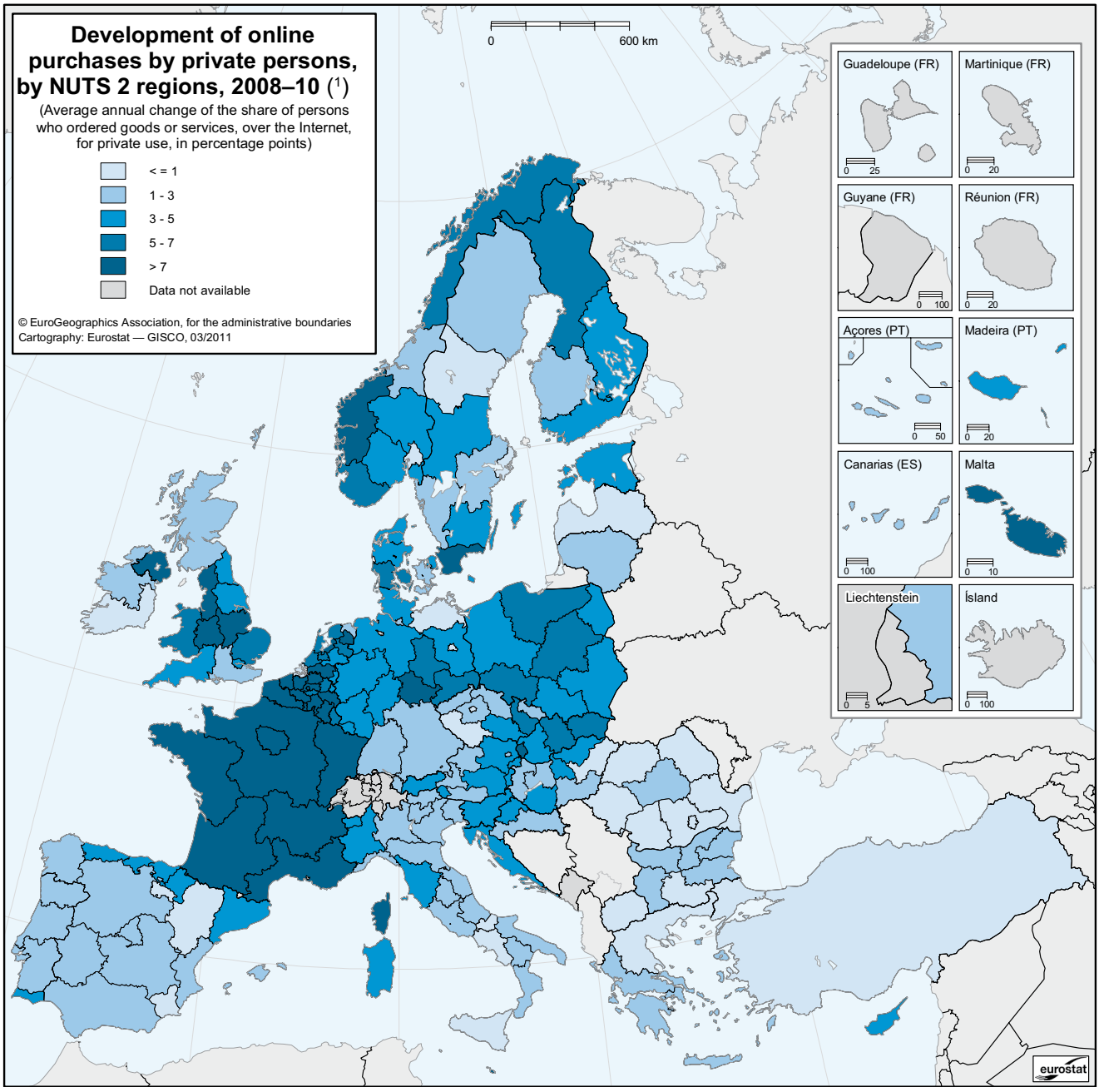
Map 10.2: Development of Internet access in households, by NUTS 2 regions, 2008–10 (1)
(Average annual change of the share of households with Internet access, in percentage points)



(1) Slovenia and Turkey, national level; Germany, Greece, France, Poland, Sweden and United Kingdom, by NUTS 1 regions; Finland, Åland combined with Länsi-Suomi.

Source: Eurostat (online data code: isoc_r_iacc_h).

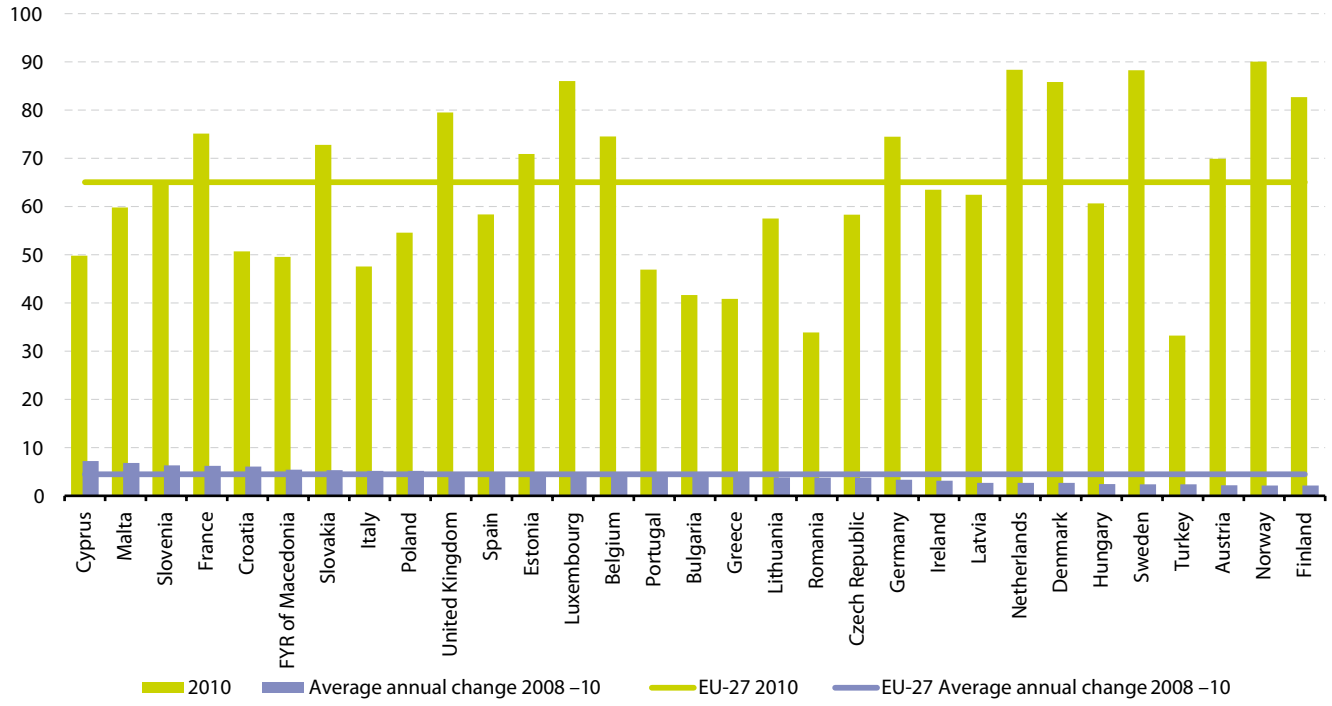
Map 10.3: Development of online purchases by private persons, by NUTS 2 regions, 2008–10 (1)
(Average annual change of the share of persons who ordered goods or services, over the Internet, for private use, in percentage points)



(1) France and Sweden, 2009–10; Slovenia and Turkey, national level; Germany, Greece, France, Poland and United Kingdom, by NUTS 1 regions; Finland, Åland combined with Länsi-Suomi.

Source: Eurostat (online data code: isoc_r_iacc_h).

Figure 10.4: Regular use of the Internet, 2008–10 ([1])
(share of persons who accessed the Internet on average at least once a week in 2010 and average annual change, in percentage points)



([1]) Iceland, data not available.

Source: Eurostat (online data code: isoc_ci_ifp_fu).

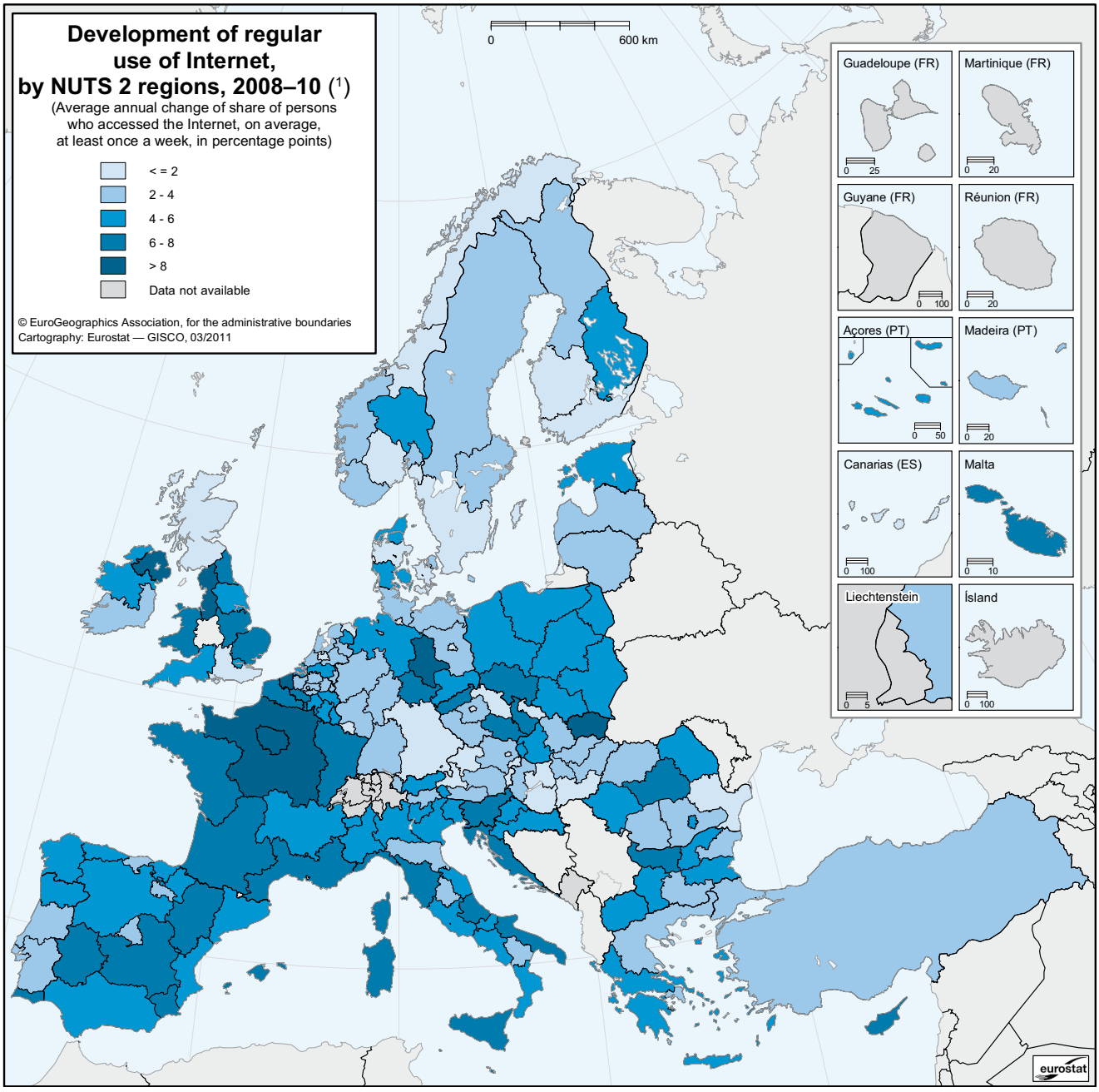
with a higher share of broadband access at comparable levels of Internet household connections are expected to have a larger share of regular Internet users.

The aim of the Digital Agenda for Europe is to increase the regular use of the Internet from 60 % in 2009 to 75 % of the total population by 2015. The average annual increase in the share of regular Internet users among the total population in the European Union is 4.5 percentage points. Overall, the European average of the share of regular Internet users among the total population rose from 56 % in 2008 to 65 % in 2010. Assuming that the growth maintained this pattern, this target would already be reached by 2013. As in the case of the share of households with Internet connections, there is a negative correlation — albeit a weaker one — between the share of regular Internet users that has already been reached and its annual increase. The countries with a large share of regular Internet users and a high annual growth (both above EU average) are Slovenia, France, Slovakia, the United Kingdom, Estonia and Luxembourg. On the other hand, Portugal, Bulgaria, Greece, Romania, the Czech Republic and Turkey are the countries that are well below the EU average in terms of the share of regular Internet users and annual average growth. At regional level, the regions with a growth of less than 1 percentage point are Groningen (Netherlands), Trøndelag (Norway), Wien (Austria), Sør-Østlandet (Norway), Scotland (UK), Länsi-Suomi (Finland) and Közép-Dunántúl (Hungary). All of these regions have a level above or close to the average (Közép-Dunántúl) in terms of the level of regular Internet usage that has already been reached. Regions which are more than 9 percentage points below the EU average with regard to the share of regular Internet users in 2010 and showing a annual increase of 3 percentage points or less are located in Romania (Nord-Vest, Sud-Est, Sud - Muntenia, Sud-Vest Oltenia), Bulgaria (Yuzhen tsentralen), Czech Republic (Severovýchod, Moravskoslezsko), Greece (Attiki), Hungary (Dél-Dunántúl, Észak-Alföld), Spain (Canarias) and Italy (Provincia Autonoma Bolzano/Bozen). The regions with the highest growth between 2008 and 2010 are located in Germany (Sachsen-Anhalt, Thüringen), Slovakia (Východné Slovensko), Belgium (West-Vlanderen), the United Kingdom (North West, Northern Ireland) and France (Île de France, Bassin Parisien) with an average annual growth of at least 8 percentage points. All regions in France, Poland and Croatia show an annual increase over the EU average of 4.5 percentage points.

Conclusions

Statistics on the use of information and communication technologies in households and by individuals are collected annually at regional level. The available statistics reveal

Map 10.4: Development of regular use of Internet, by NUTS 2 regions, 2008–10 (1)
(Average annual change of share of persons who accessed the Internet, on average, at least once a week, in percentage points)



(1) Slovenia and Turkey, national level; Germany, Greece, France, Poland, Sweden and United Kingdom, by NUTS 1 regions.

Source: Eurostat (online data code: isoc_r_iuse_i).

considerable differences between 2008 and 2010 in the development of access and use among the regions of the European Union. Within the last few years, all Member States have increased access to and use of ICTs. However, there is a risk that the introduction of the Internet and related services is already compounding the existing differences in society, as was demonstrated for some regions which are lagging behind the average development at EU-27 level. In order to overcome this issue, the European Union has shaped explicit policy targets to achieve an inclusive information society. The policies are benchmarked according to the Benchmarking Digital Europe framework ([1]).

The maps in this chapter reveal specific spatial patterns that vary according to the chosen indicators. The countries where the majority of regions are experiencing a big increase in Internet access are Greece, Poland and the Czech Republic. This picture changes when observing the broadband access of households by region. As with Internet connections, the majority of regions in Greece, Poland and the Czech Republic show a high increase. Additionally, regions in Germany, Slovenia, Croatia and Italy experienced high growth compared to the EU average. In terms of the development of regular Internet use, there is a greater regional variation, with a bigger increase in Cyprus, Malta, Slovenia and France. The regions with the highest growth as regards the share of population shopping online between 2008 and 2010 are located in France, Belgium, Luxembourg and the Netherlands. Regions in the south and the south-east of the European Union are lagging behind in terms of the development of online shopping within the population.

In order to achieve the policy goals of inclusive participation in the information society, it will be necessary to maintain existing efforts to provide affordable access to the Internet via broadband and to educate people in the necessary skills to enable them to access and exploit the riches of the Internet.

Data sources and availability

European statistical data on the use of information and communication technologies have been available since 2003. Harmonised data have been published since 2006 based on Regulation (EC) No 808/2004 of the European Parliament and of the Council of 21 April 2004 concerning Community statistics on the information society. The regulation describes two modules or areas of statistical data production: namely statistics on the use of ICT in enterprises and statistics on ICT use in households and by individuals. Annual Commission regulations define the set of indicators for which data are collected by the EU Member States. Regional data on a limited list of indicators have been available at the level of NUTS 1 since 2006 as a voluntary contribution by the Member States and since 2008 on a mandatory basis. Some Member States provide regional data at NUTS 2 level on a voluntary basis. The collection of data for each module is divided into a core part, i.e. access to ICT, and general use of ICT. Questions on access to ICT are addressed to the household, while questions on the use of ICT are answered by individuals within the household. Following the principles of the i2010 benchmarking framework, the model questionnaire includes a topic of special focus each year, i.e. e-government (2006), e-skills (2007), advanced services (2008), e-commerce (2009) and security (2010).

The scope of the survey comprises individuals aged between 16 and 74 years and households with at least one member within this age range. The reference period is the first three months of the calendar year.

The presentation of statistics on ICT use is restricted to a number of core indicators for which regional data are available. These regional indicators are 'access to the Internet at home by household', 'access to the Internet via broadband by household', 'regular Internet users', 'persons who have never used the Internet' and 'e-commerce by individuals'.

The term 'access' does not refer to 'connectivity', i.e. whether connections can be provided in the households' area or street, but to whether anyone in the household was able to use the Internet at home.

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 are a digital subscriber line (DSL) or cable modem.

Internet users are persons who have used the Internet within the last three months. Regular Internet users have used the Internet at least once a week within the three-month reference period.

For the purpose of the households module, e-commerce via the Internet is defined as placing orders for goods or services via the Internet. Purchases of financial investments, e.g. 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 accepted. Delivery or payment by electronic means is not a requirement for an e-commerce transaction.

Context

During the course of the last decades, information and communication technologies have penetrated all areas of economic and social life. They have accounted for a

([1]) http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/benchmarking_digital_europe_2011-2015.pdf

significant increase in the productivity of the economy and the growth of GDP, and are transforming our societies in a profound and unprecedented way. The introduction of the Internet and the World Wide Web has led to the development of what we call 'the information society'. With access to the Internet, it is very easy to obtain information on almost any topic. Search engines provide rapid and easy access to websites and information sources. Many activities, such as communicating and selling or buying goods and services, can be performed online. These developments have created new dimensions of economic, social or political participation for individuals or groups of individuals. As these activities are not bound by any specific geographic location, they have the potential to bridge large distances. In principle, the actual geographic location where these activities are performed does not matter any more, as long as there is a connection to the Internet. Nowadays, 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. Electronic shopping sites offer the possibility of buying or selling items via the Internet. ICTs support working from home or from other places outside the enterprise, delivering greater flexibility in work organisation from which both the enterprise and the employee can benefit. 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, i.e. 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 new services offered on the World Wide Web and those who are excluded from these services. 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 gender, age, education, income, social group or geographic location. This chapter emphasises the geographic aspects of the digital divide.

Policies within the European Union at national and European levels have acknowledged the importance of bridging the digital divide to give citizens equal access to ICTs and to enable them to participate in the information society. The Digital Agenda for Europe ([1]), which is a successor to the i2010 strategy for growth and employment, outlines a number of actions in the area of very fast Internet access and sustainable digital society. Unlike the i2010 strategy, which focused on providing access to ICTs, the Digital Agenda emphasises the quality of services. One of the targets of the Digital Agenda is that all households should have broadband subscriptions at a minimum speed of 30 Mbps by 2020. The key benchmarking indicators are defined in the European Commission's 'Framework for benchmarking digital Europe 2011–15' ([2]), which is monitoring the development of the European information society and the degree of achievement of the policy objectives set out in the Digital Agenda for Europe, which is a flagship initiative under the Europe 2020 strategy for smart, sustainable and inclusive growth ([3]), to further develop an economy based on knowledge and innovation.

([1]) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF
([2]) http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/benchmarking_digital_europe_2011-2015.pdf
([3]) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF