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Part 4 of 4

COMMISSION STAFF WORKING DOCUMENT

Digital Agenda Scoreboard 2013

COMMISSION STAFF WORKING DOCUMENT

Digital Agenda Scoreboard 2013

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3. INTERNET USE AND SKILLS

3.1. Introduction

This chapter looks at recent developments in internet usage and skills in the EU27, Iceland, Norway, Croatia and (for data on enterprises) the Former Yugoslav Republic of Macedonia. It first looks at progress in achieving the Digital Agenda key performance targets for regular internet use of the average population and of disadvantaged individuals and well as toward the overall Digital Agenda goal of making "Every European Digital". In doing so it also analyses the barriers to achieving these goals and the differences across countries. The chapter then looks at developments digital skills (user skills and ICT professional skills) and patterns in the use of various activities online, as well as the relationship between the two. It also looks in some more detail at developments in the use of eGovernment and eCommerce, both by citizens as well as by enterprises. The final section summarises the main results of the analysis contained in the chapter and makes some conclusions for policy in this area.

3.2. Regular and frequent use of the internet in the EU27+[1]

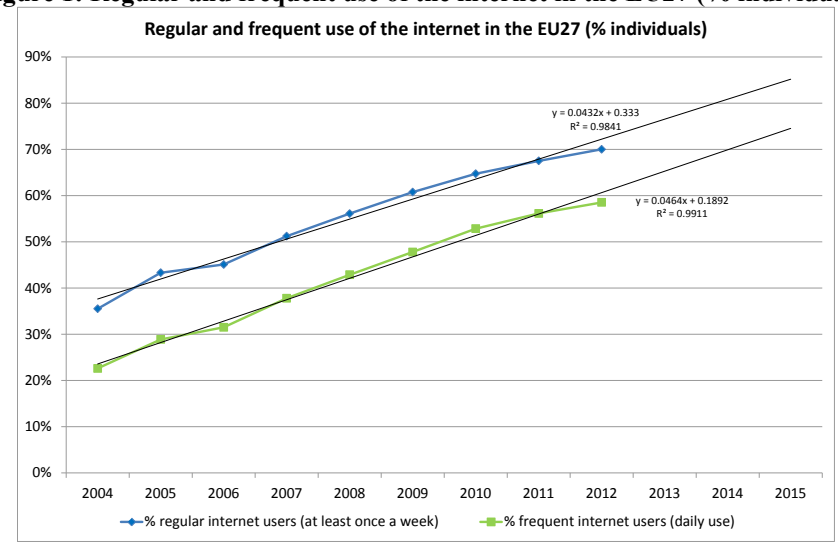
3.2.1. Developments at EU level

"Regular" (at least once a week) use of the internet increased by 2 p.p., from 68% in 2011 to 70% in 2012, in the EU27; showing continued steady progress towards the Digital Agenda key performance target for regular use of 75% by 2015. Indeed, forward projection of the linear trend in regular internet user in the EU indicates that the key performance target for regular internet use will be met before 2015.

Frequent (daily) use of the internet grew by 3 p.p. between 2011 and 2012 in the EU27, from 56% to 59%; showing that not only is the proportion of the population going regularly online increasing, but that it is increasingly becoming a daily activity.

[1] EU27+ refers to the 27 member countries of the EU plus Iceland, Norway and Croatia (Turkey and Macedonia are not included due to lack of available data). The use of EU aggregated data from Eurostat refers to the 27 Member States.

Figure 1: Regular and frequent use of the internet in the EU27 (% individuals)



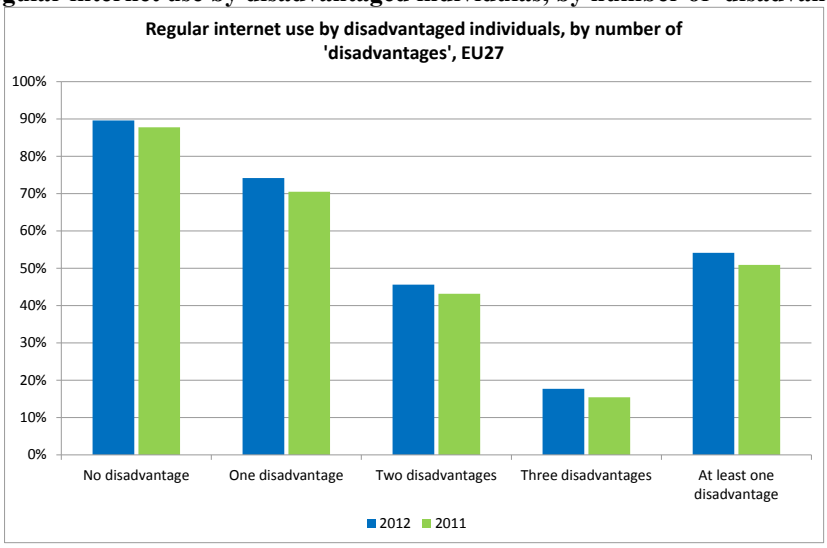
Source: Eurostat

Over the past few years, convergence between regular and frequent use has been rather slow: since 2005 the proportion of the population using the internet weekly, but not daily, has fallen only by around 3 p.p. from around 14% to 11%. It can be expected however that as rates of regular internet use approach saturation, convergence is likely to pick up, as once new users become more experienced they tend to increase their frequency, and variety, of use – using the internet more and for more activities.

While the internet can do much to mitigate the effects on people's lives of certain economic and social disadvantages, it is true that rates of regular internet use of individuals with such disadvantages (in particular older individuals, the low educated and economically inactive) are often lower than for the average population. Furthermore, this effect is compounded by multiple disadvantages: as the number of disadvantages increases, rates of regular use fall. That is why the Digital Agenda also has a key performance target for the **regular internet use of disadvantaged people** of 60% by 2015. Good progress has been made in the last year towards this target: regular internet use of disadvantaged people rose by 3 p.p. between 2011 and 2012, from 51% to 54%; this trend in the regular use of disadvantaged people indicates that the target for disadvantaged people will also be met by 2015.[2]

[2] 'Disadvantaged people' are individuals with at least one of the following disadvantages: aged 55-74; low education; unemployed or inactive or retired.

Figure 2: Regular internet use by disadvantaged individulas, by number of 'disadvantages', EU27

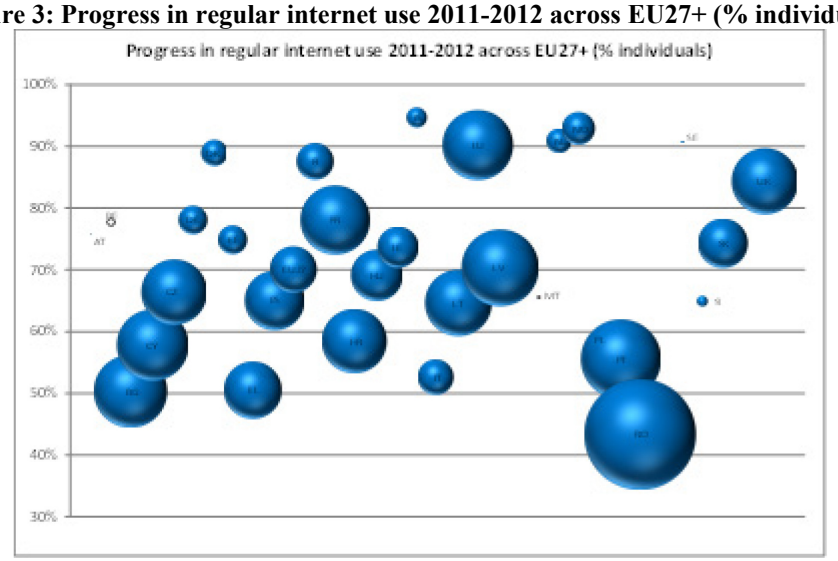


Source: Eurostat

3.2.2. Developments across EU27+ countries

Across Europe rates of regular internet use are still rather dispersed and the rankings of countries with the highest and lowest rates have changed very little over time. The highest rates of regular internet use are found in the Nordic countries (Iceland (95%), Norway (93%), Sweden (91%), Denmark (89%) and Finland (88%), as well as the Netherlands (91%) and Luxemburg (90%), where rates are approaching saturation. At the other end of the scale, countries with the lowest rates of regular internet use (Romania (43%), Bulgaria and Greece (50%), and Italy (53%)) have around half of their populations, or more, not using the internet on a regular basis.

Figure 3: Progress in regular internet use 2011-2012 across EU27+ (% individuals)



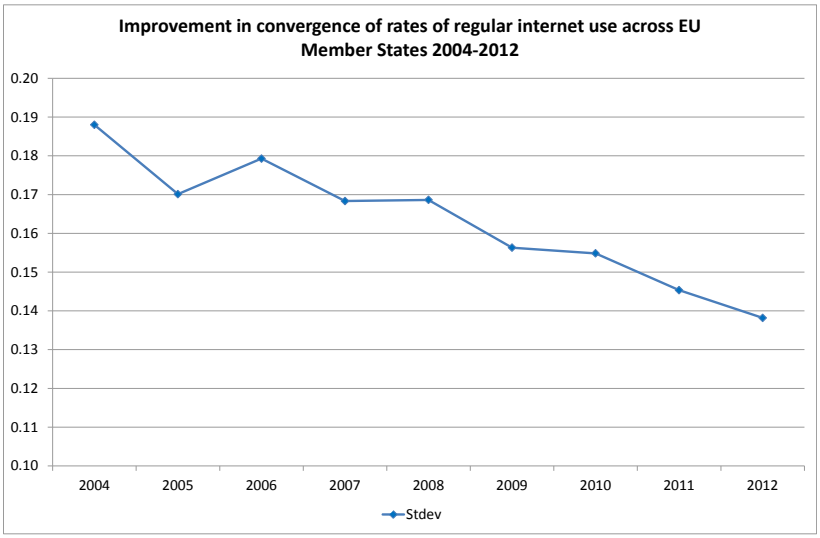
Note: Bubble size represents the size of the increase in the rate of regular internet use between 2011 and 2012; Countries are in alphabetical order from left to right. Source: Eurostat

Never-the-less, progress in rates of regular internet use over the last year shows that catch-up is taking place: on average countries with below (EU) average rates of regular internet use have made more progress than those with above average rates. The countries with the some of the largest

percentage point increases in regular use between 2011 and 2012, were those with the lowest rates (e.g. Romania (+6 p.p.); Portugal, Bulgaria, Cyprus, the Czech Republic, Croatia, Lithuania and Latvia (+4 p.p.); Greece, Spain, Hungary and Croatia (+3 p.p.)). The major exception here is Italy: while Italy made some progress (+2 p.p.) in increasing its rate of regular internet use over the last year, this was less than the average in the EU, and resulting in Italy falling to one of the countries with the lowest rates of regular internet use in the EU27+. However, some countries with above average rates of regular use have also made substantial increases in the last year (e.g. Luxemburg, the UK and France (+4 p.p.). Little or no progress in regular internet use was achieved in the last year in Austria, Belgium, Slovenia, Poland, Malta and Sweden. While in the case of Sweden it is perhaps to be expected given the countries near saturation, in the other five countries this is not the case.

The development in measures of dispersion over time shows that convergence in regular internet use is a continuing trend: the difference between the maximum and minimum rates of regular internet use in the EU has fallen from 65 p.p. in 2004 to 48 p.p. in 2012, the standard deviation has fallen from 0.19 to 0.14.

Figure 4: Improvement in convergence of rates of regular internet use across EU Member States 2004-2012



Source: Commission Services based on Eurostat data

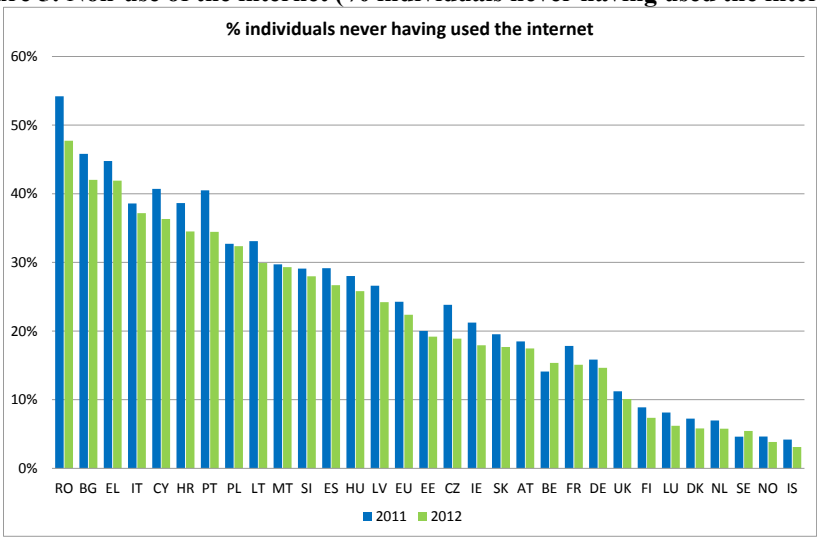
3.3. Making "Every European Digital" and the main barriers to getting there

3.3.1. Progress in getting people online

Non-use of the internet is a major policy concern in Europe, indeed the overarching mantra of the Digital Agenda for Europe is "Every European Digital". This is why the Digital Agenda for Europe has a key performance target to halve the number of non-users from 30% (in 2009) to 15% by 2015. While the rate of non-users continued to fall in 2012 (by 2 p.p. over 2011) bringing it closer to this target, 22% of the EU population has still never used the internet. Furthermore, across the EU27+, rates of non-use vary substantially, from under 5% in the best performing countries (Iceland, Norway and Sweden) to above 40% in Bulgaria, Greece, and Romania.

As with regular internet use, however, good progress in reducing rates of non-use has been made in the last year by the countries with the largest rates of non-users: Portugal (-7 p.p., to 34%), Romania (-6 p.p., to 48%), Cyprus (-5 p.p., to 36%), Bulgaria (-4 p.p., to 42%), Croatia (-4 p.p., to 35%), Greece (-3 p.p., to 42%), Lithuania (-3 p.p., to 30%). The major exceptions here are Italy (-2 p.p., to 37%) and Poland (-1 p.p. to 32%), which made more moderate reductions. The Czech Republic, which is an average performer in terms on non-use, also made a substantial reduction in its rate of non-users over the last year (-5 p.p, to 19%). Finally, no reduction in rates of non-users were observed for Sweden and Belgium over this period; mirroring the lack of progress in increasing rates of regular users in these countries.

Figure 5: Non-use of the internet (% individuals never having used the internet)

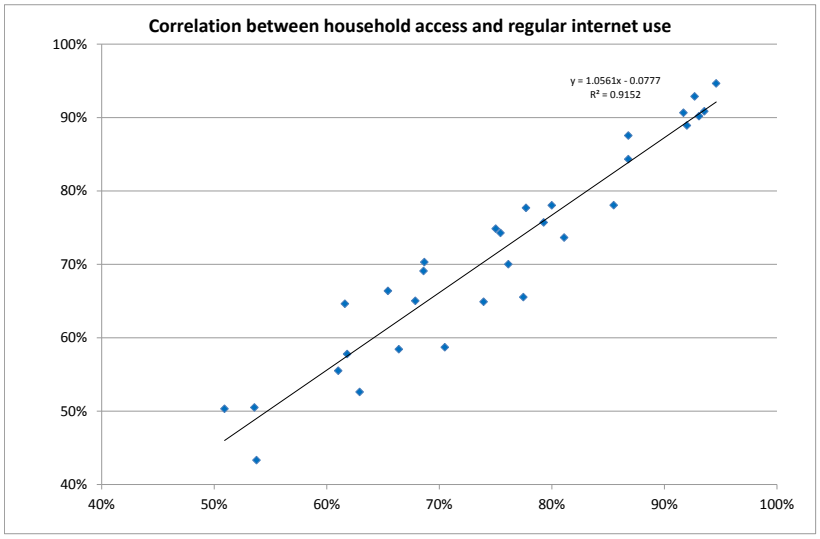


Source: Eurostat

3.3.2. Barriers to internet use

A prerequisite to being able to use the internet is having access to it. Across the EU27+ household access is highly correlated with regular use of the internet (with a correlation coefficient of 0.96), confirming the importance of household access for regular use. However, not all households in the EU27 have access to the internet. In 2012, 76% of households had access to the internet, up from 73% in 2011, as such almost a quarter of households were without access.

Figure 6: Correlation between household access to the internet and regular use of the internet in 2012 (% individuals)

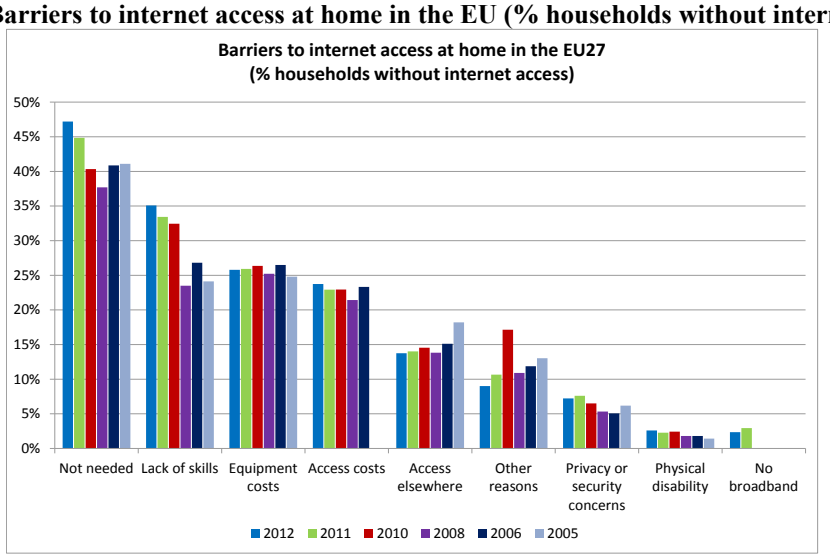


Source: Commission services based on Eurostat data

Understanding the barriers to household access to the internet is therefore important for policy towards the Digital Agenda goals on internet use. Evidence on barriers shows that as internet use increases, an increasing proportion of those who remain as non-users say that they don't need it (47% in 2012), and/or do not have the necessary skills (35% in 2012). Access (24% in 2012) and equipment (26% in 2006) costs are the next most important factors and their importance has

changed little over time. Access elsewhere has been declining in importance and other factors such as privacy and security concerns and no broadband availability are less mentioned. Physical disability remains a less mentioned barrier in the overall population; however, the share of the disabled in the population is also low. A declared lack of interest in the internet by non-users could relate to a number of things: lack of knowledge and skills, a genuine lack of interest, lack of an appropriate offer or not wanting to report financial reasons or lacking skills. The catch-all nature of this choice could help explain the importance of this reason.

Figure 7: Barriers to internet access at home in the EU (% households without internet access)

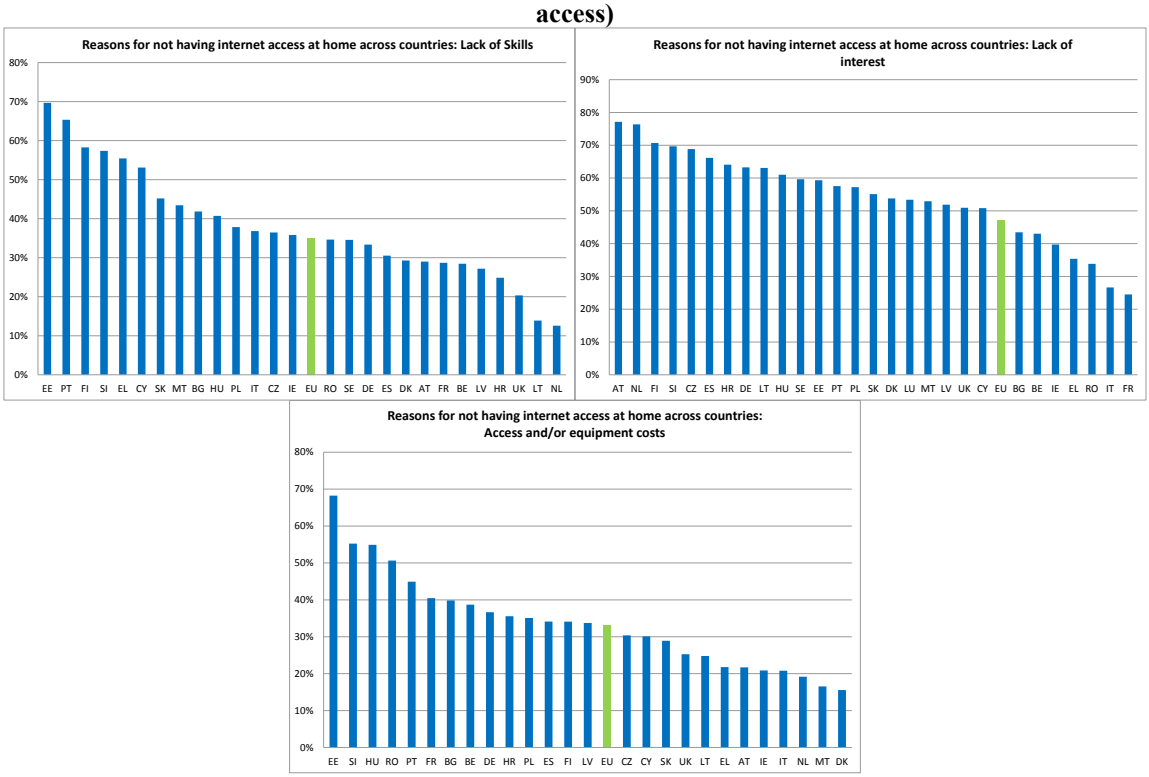


Source: Eurostat

Across the EU 27+ countries the three main factors remain lack of interest, lack of skills and cost. However, there is some variation in the importance of these three reasons. In the majority of countries, lack of interest is an important factor. However, lack of skills is also very important in Bulgaria, Cyprus, Estonia, Greece, Finland, Hungary, Malta, Portugal, Slovenia and Slovakia. Costs are particularly important as a reason in Belgium, Bulgaria, Germany, Estonia, France, Hungary, Portugal, Romania and Slovenia.

Generally speaking, it can be said that for countries with relatively higher rates of non-users all three reasons are important, while for countries with less non-users the overriding factor becomes lack of interest.

Figure 8: Main barriers to internet access at home in EU27+ countries (% households without internet access)



Source: Eurostat

Evidence on barriers suggests that getting the remaining part of the population that is offline to become regular internet users, policy increasingly needs to focus on two main issues: on the one hand, tackling the increasing importance of lack of skills and awareness among non-users by for example implementing awareness raising and skills development initiatives, and, on the other, enabling the persistent proportion of non-users for which financial constraints are an issue to overcome them, such as by providing vouchers or tax incentives to low income non-user households for their first computer and/or internet connection. Furthermore, in countries where costs for access are still relatively high, policy should be implemented to provide affordable access to all: this seems of particular importance in Hungary, Slovenia and Portugal where not only are average prices of popular telecoms bundles high but also countries were non-users complain the most about high costs.

3.4. Digital skills in the EU

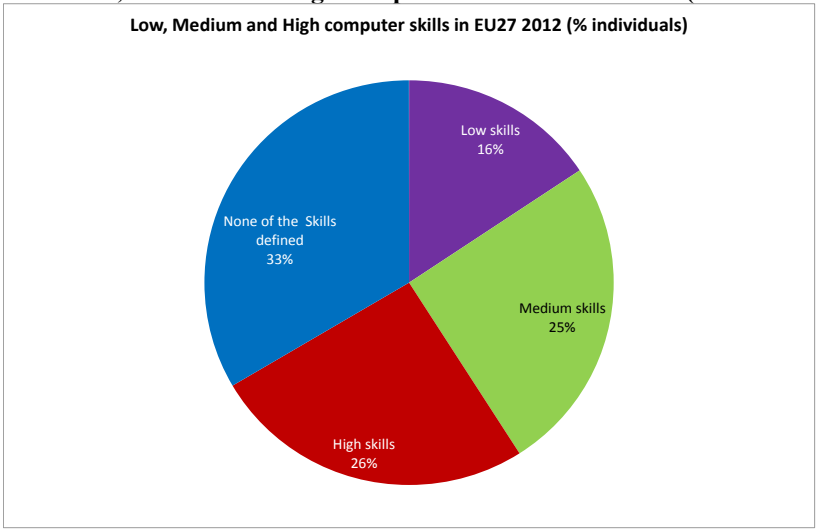
3.4.1. ICT user skills

Digital skills are fundamental to an effective use of ICT. As such every year the Commission collects data on the digital skills of the EU population through its survey of ICT use by individuals and households. Digital skills are measured by asking individuals if they have ever performed certain computer and/or internet related activities. Low, medium and high skills are then calculated by whether individuals have performed 1 or 2, 3 or 4, or 5 or 6 of the listed internet or computer activities. In 2012, data were collected on computer skills only.

In the EU, 67% of individuals had some level of **computer skills**, unchanged from 2011: 26% of individuals had high skills (-1 p.p. over 2011), 25% medium skills (unchanged) and 16% low skills (+2 p.p.). 33% had none of the defined skills. As such almost 50% of the EU population still has little or no computer skills (low skills + none of the defined skills[3]). While no data on internet skills is available for 2012, data from 2011 show that similar to computer skills around 70% of the population (73%) have internet skills. However, the distribution of skills is more shifted towards low (30%) and medium (32%): only 11% had high level skills.

Given the growing necessity for digital skills in Europe – in particular, the projected 90% of jobs that will soon require some digital skills - it seems much needs to be done to improve the digital skills levels of EU citizens, and the perception of more than half of the labour force that their current digital skills are not sufficient were they to look for another job.

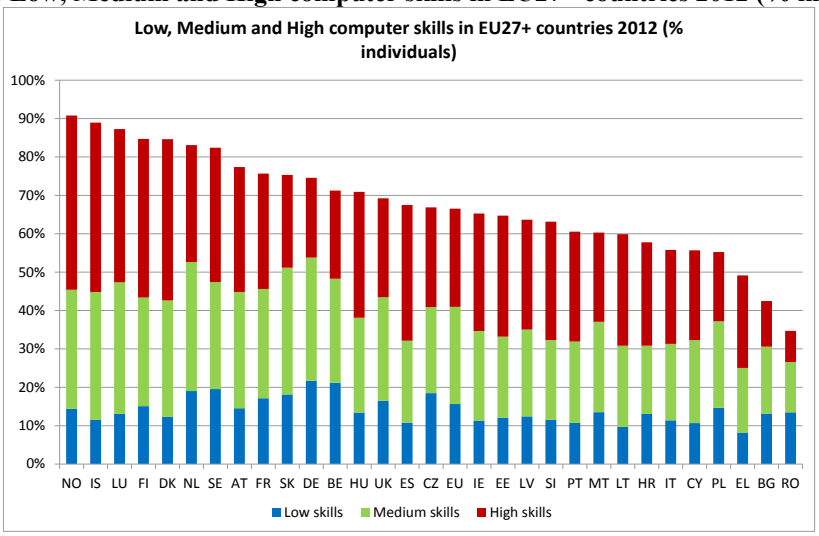
Figure 9: Low, Medium and High computer skills in EU27 2012 (% individuals)



Source: Eurostat

[3] "None of the defined skills" refers to the proportion of individuals questioned that do not report having carried out any of the six computer related activities asked about or that answered having never used a computer.

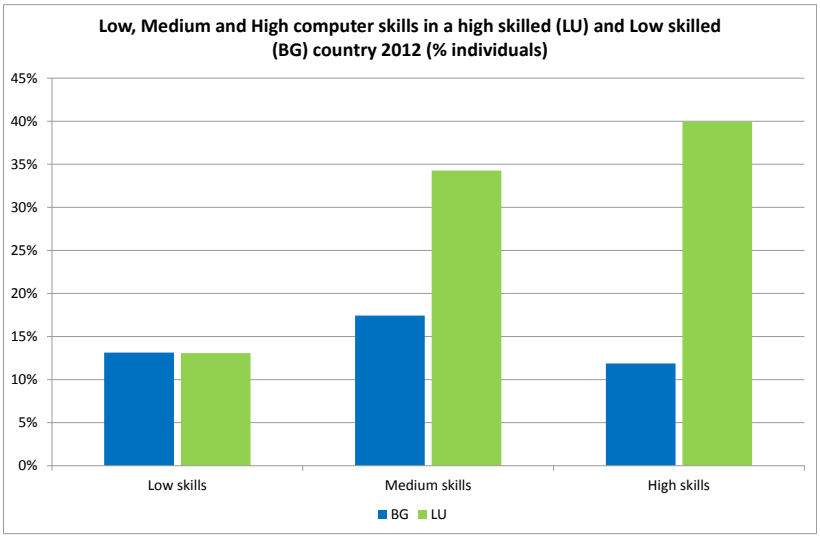
Figure 10: Low, Medium and High computer skills in EU27+ countries 2012 (% individuals)



Source: Eurostat

Across the EU 27+ countries rates of skills vary from 35% in Romania to around 90% in Norway and Iceland. Furthermore, as rates of skills among the population increase so the skills distribution shifts towards higher skills. This can be seen most clearly by taking the example of a high skilled country like Luxemburg and comparing the skills distribution to that of a lower skilled country like Bulgaria. Data for these two countries show that while both countries have similar rates of low skilled individuals, Luxemburg has around twice as many medium skilled and three times as many high skilled individuals as Bulgaria. A similar pattern can be seen for other countries.

Figure 11: Low, Medium and High computer skills in a high skilled (LU) and Low skilled (BG) country 2012 (% individuals)

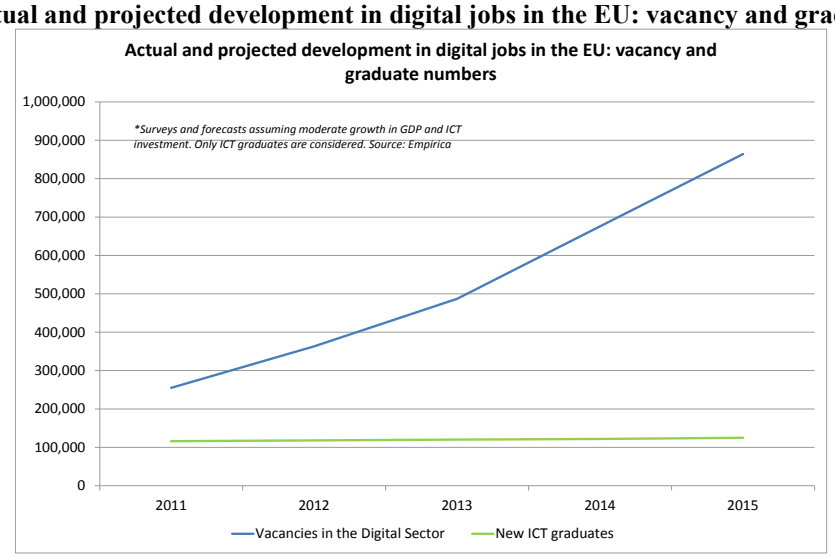


Source: Eurostat

3.4.2. Skills of ICT professionals[4]

The EU is also in need of highly skilled ICT professionals. Evidence shows that there is a growing gap emerging in the supply and demand of ICT professionals in the EU. While ICT professional employment has grown by an average 3% over the last 10 years, graduate numbers have fallen. As a result, it has been projected that by 2015 there may be as many as 900,000 unfilled vacancies for ICT professionals in the EU. This growing gap is of major concern to European competitiveness, not only of the ICT sector itself, but for the economy as a whole given the growing integration of ICT across the economy.

Figure 12: Actual and projected development in digital jobs in the EU: vacancy and graduate numbers



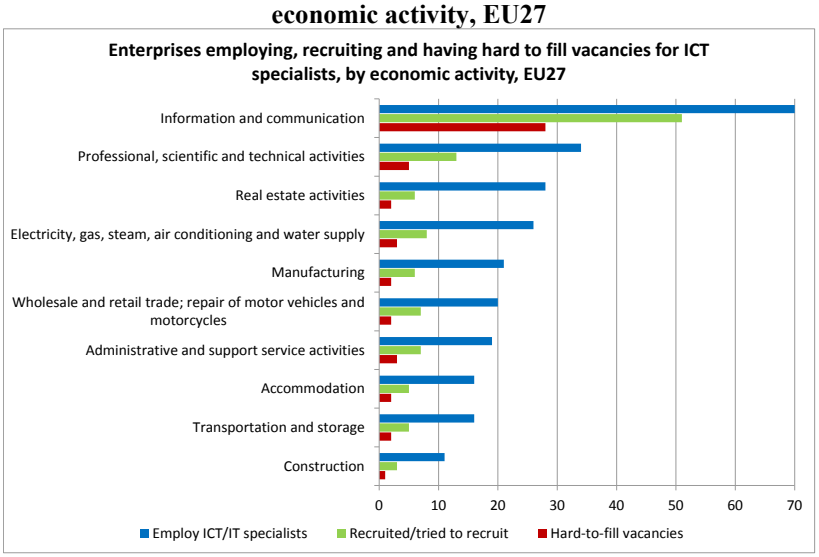
**Surveys and forecasts assuming moderate growth in GDP and ICT investment. Only ICT graduates are considered. Source: Empirica*

These trends are supported by recent Eurostat evidence on the employment and recruitment of ICT specialist in the EU. This evidence shows that, in 2012, one in five EU enterprises employed ICT specialists (21%). While 70% of enterprises in the information and communication sector employed ICT specialists, in other sectors the figure ranges from 12% (in construction) to 34% (for professional, scientific and technical activities).

As well as employing ICT specialists, the information and communication sectors (51% in 2011) dominated the proportion of EU enterprises recruiting them. However, demand for ICT specialists at lower levels was spread across enterprises in the rest of the economy. The percentage of EU enterprises other than in information and communication recruiting ICT specialists in 2011 ranged from 3% of enterprises in construction, to 13% in professional, scientific and technical activities.

[4] ICT specialists are those who have ICT as their main job and hence are capable of dealing with a wide range of tasks concerning ICT systems.

Figure 13: Enterprises employing, recruiting and having hard to fill vacancies for ICT specialists, by economic activity, EU27

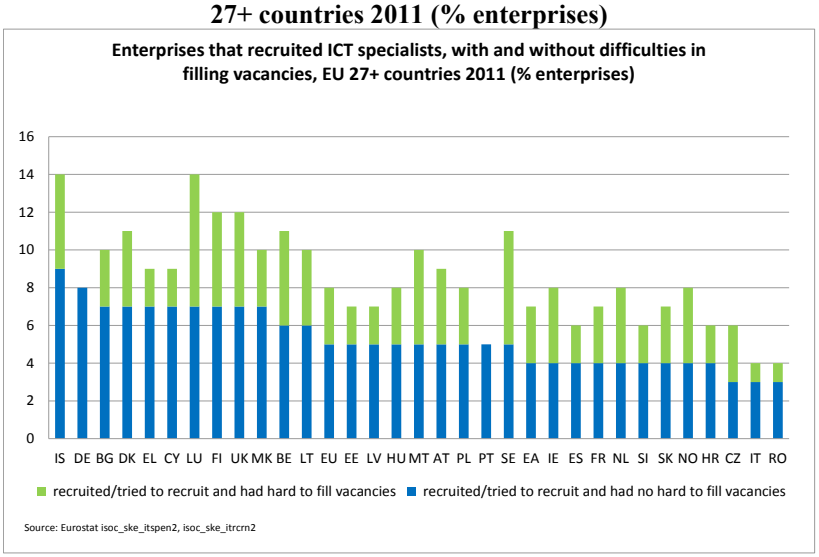


Source: Eurostat

On average, 8% of EU enterprises recruited or tried to recruit ICT specialists in 2011, while 3% reported having hard-to-fill vacancies for jobs requiring persons with relevant ICT skills. As such, around 40% of enterprises that recruited or tried to recruit ICT specialists in 2011, reported difficulties in filling vacancies. Enterprises in all countries reported difficulties in recruiting ICT specialists. For those that did recruit specialists in 2011, the ratio of enterprises that reported hard-to-fill vacancies over those that did not report difficulties in recruitment was highest for Ireland, Luxembourg, Austria and Sweden.

To a certain extent internal training can replace the need to hire in external staff with certain ICT skills. Some 9% of EU enterprises provided their ICT specialists with training to upgrade their ICT skills in 2011. 17% provided training for other staff to develop their ICT skills.

Figure 14: Enterprises that recruited ICT specialists, with and without difficulties in filling vacancies, EU 27+ countries 2011 (% enterprises)



Source: Eurostat

To tackle the issue of lacking ICT professional skills in Europe, the European Commission has launched a "Grand Coalition for Digital Jobs"[5] an EU-wide multi-stakeholder partnership, with the goal of starting to increase the number of ICT professionals by 2015, so that by 2020 there is a sufficient number of them.

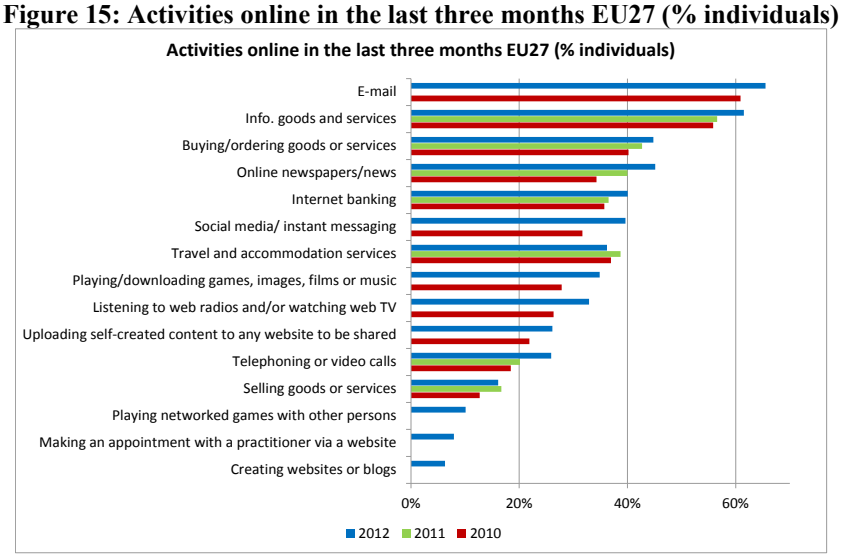
3.5. Activities online[6]

Looking at **what people do online** provides useful insights into the development of online life. Looking at the types of activities undertaken, *email* remains the most popular activity on the internet with 66% of individuals reporting using it in the last three months. This is an increase over 2010 (last available data) of 5 p.p. This is closely followed by *looking for information about goods and services* (62%, +5 p.p. over 2011) and then by reading online news or newspapers (45%, +5 p.p. over 2011).

The next most popular activities are *internet banking* (40%, +3 p.p. over 2011*), posting messages to social media sites or instant messaging* (40%, +8 p.p. over 2010 – last available data), using *travel and accommodation services* (36%, -3 p.p. over 2011), buying/ordering goods or services (35%, +1 p.p. over 2011), *playing /downloading games, images, films or music* (35%, +7p.p. over 2010) and *listening to web radio and/or watching web TV* (33%, +7p.p. over 2010 – last available data). The majority of these activities have also witnessed strong growth over the last year or two, with the exception of *travel an accommodation services.*

Less popular activities include: *uploading self-created content* (26%, +4 p.p. over 2010), *telephoning or video calls* (26%, +6 p.p. over 2011), *selling goods or services* (16%, -1 p.p. over 2011), *playing networked games with other persons* (10%), *making a doctor's appointment* (8%) and *creating websites or blogs* (6%).[7] Never-the-less, many of these activities too have seen strong growth over the last couple of years, indicating that activity online is becoming more diverse as it develops.

Figure 15: Activities online in the last three months EU27 (% individuals)



Source: Eurostat

[5] https://ec.europa.eu/digital-agenda/en/grand-coalition-digital-jobs-0

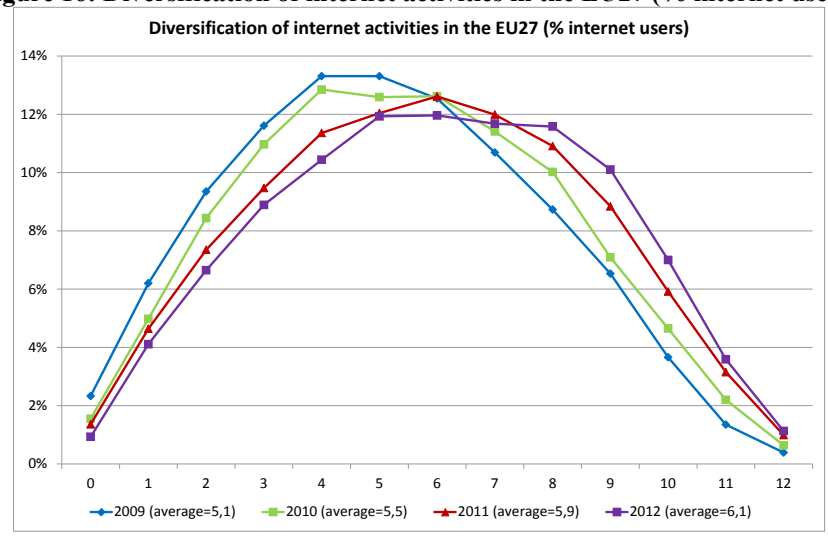
[6] eGovernment and eCommerce are treated separately below.

[7] No comparison data are available for the last three activities.

Increased diversification of internet use is supported by the analysis of the number of activities carried out by individuals online. Data for the period 2009 to 2012, on the number of activities carried out online by internet users, shows that the mean number of activities undertaken – out of a selected group of 12 activities[8] - has grown continuously, from 5.1 in 2009 to 6.1 in 2012. This confirms the intuition that as people become more experienced and confident with internet use, and life online develops; users not only increase their frequency of use but also become increasingly diversified in their activities.

[8] The diversification index is based on 12 activities for which data are available every year since 2009. The index is calculated individuals having used the internet during last 3 months, and is computed simply as the number of activities realised out of the 12 selected. The list include: sending/receiving e-mails, browsing for information about goods and services, reading online newspapers/news, looking for information on travel/accommodation services, posting messages to social media, interaction with public authorities, internet banking, telephoning or video calls, selling goods or services, purchases of content (films, music, software), purchase of goods, purchase of services.

Figure 16: Diversification of internet activities in the EU27 (% internet users)



Source: Eurostat

Looking across the EU27+ countries shows that diversification of activities varies substantially from country to country While in 2012 internet users from Italy, Greece, Bulgaria, Romania and Croatia were performing on average only 4-5 activities, those from Scandinavia and the Netherlands were performing almost double the number: 7-8 activities on average, out of the selected twelve. There appears to be no relationship between a country's progression in the number of internet users and progression in diversification of activities.

Across the EU27+ there has been little variation in the progression of diversification of activities over time. Most countries have increased by around 1.0 between 2009 and 2012. Exceptions are Sweden, Slovakia and Bulgaria (1.5) which have moved a bit faster and Finland, France, Italy, Luxemburg, Estonia, Portugal, Spain, Lithuania, Austria and Belgium (0.5) which have moved slower. For some countries it is harder to say because micro-data are available only for the last two years: Croatia, Germany and the UK; although the latter looks like it has fast progression, at least since 2011. As such we can estimate that while the leading countries such as Denmark, Sweden, Norway and Iceland are around four and half years ahead of the EU average, the internet users of countries such as Romania, Bulgaria, Italy, Greece and Croatia are four and a half or more years behind the average in terms of diversification of their online behaviour.

Table 1: Time matrix for the average of the diversification index – evolution 2009-2012

	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5
DK									...	**2010-12**
SE							2009	2010	2011	**2012**
NO								2009	2010-11	**2012**
IS								2009-10	2011	**2012**
FI								2009	**2010-12**	
NL							2009	2010-11	**2012**	
LU							2009-10	**2011-12**		
UK					...	2011		**2012**		
DE							...	**2011-12**		
EE						2010	**2012**			
SK				2009		2010-11	**2012**			
EU27					2009-10	2011	**2012**			
IE					2009-10	2011	**2012**			
FR						2009	**2010-12**			
MT					2009-10		**2011-12**			
SI					2009-10	2011	**2012**			
BE				2011	2009-10	**2012**				
AT					2009-10	**2011-12**				
LT					2009-10	**2011-12**				
ES					2009-11	**2012**				
LV					2010	**2012**				
HU				2009	2010-11	**2012**				
CZ				2009-10	**2012**	2011				
PT				2009-11	**2012**					
CY			2009	2010	**2011-12**					
PL			2009	2010-11	**2012**					
HR			...	**2011-12**						
EL		2009	2010	**2011-12**						
IT			2009-10	**2011-12**						
BG	2009		2010-11	**2012**						
RO	2009	2010	**2011-12**							

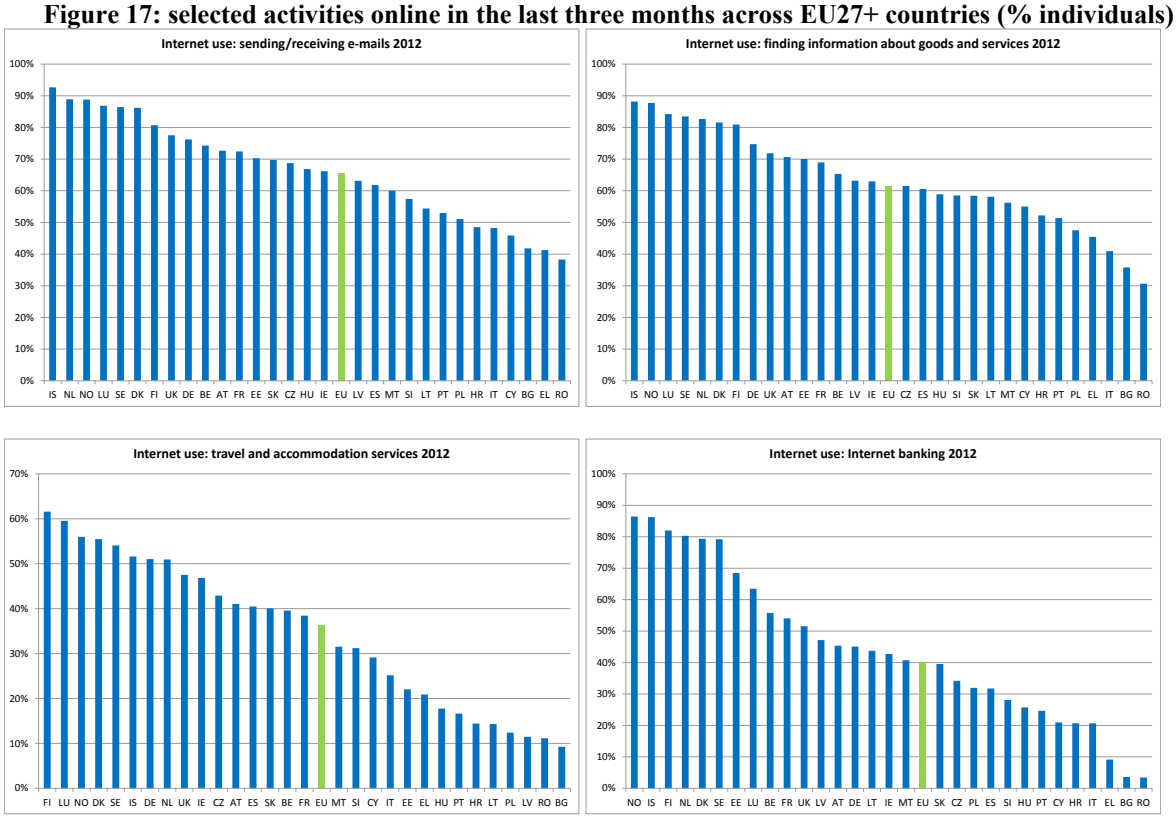
Source: EC services based on Eurostat data

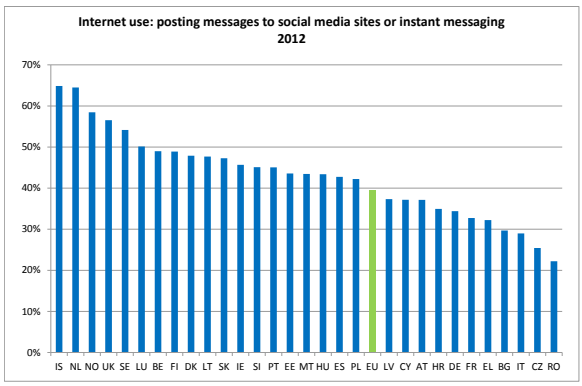
Across the EU27+ use of different internet activities by the population varies substantially by country. Looking first at the *most popular activities* across Europe; while *email* is used by above 80% of the population in Iceland, the Netherlands, Norway, Luxemburg, Sweden, Denmark and Finland, it is used by less than half the population in Romania, Greece, Bulgaria, Cyprus, Italy and Croatia. *Finding information about goods and services* is also above 80% in Iceland, Norway, Luxemburg, Sweden, the Netherlands, Denmark and Finland; while it is below 50% in Romania, Bulgaria, Italy, Greece and Poland.

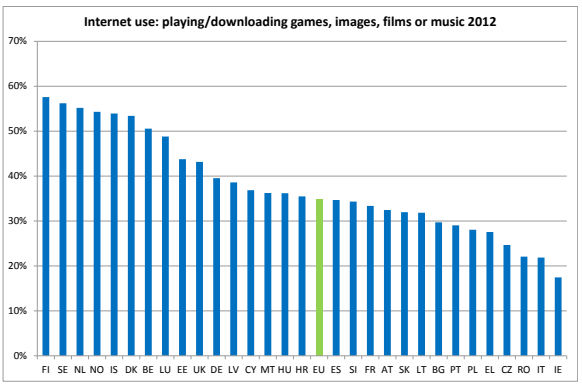
Of other relatively popular activities, *Internet banking* is carried out by around 80% of the population or more in Norway, Iceland, Finland, the Netherlands, Denmark and Sweden; however, rates of below 10% are found in Romania, Bulgaria and Greece; in Italy, Croatia and Cyprus rates are just above 20%. 80% of the population or above in Iceland, Norway, Sweden and Finland also *read online news*, whereas it is only around a third of the population in six countries (Poland, Italy, France, Ireland, Romania and Bulgaria). Use of *social media and/or instant messaging* is most popular in Iceland, the Netherlands, Norway, the UK and Sweden, where it is above 50%; while it is at or below 30% in Romania, the Czech Republic, Italy and Bulgaria. Use of *travel and accommodation services* is over 50% in Finland, Luxemburg, Norway, Denmark, Sweden, Iceland, Germany and the Netherlands; however it is around 10% in Bulgaria, Romania, Latvia and Poland. *Playing/downloading games, images, films or music* is most popular in Finland, Sweden, the Netherlands, Norway, Iceland, Denmark and Belgium (above 50%); while it is less popular in Ireland, Italy and Romania (around 20%). Finally, *web radio and web TV* are popular in Norway, Sweden, the Netherlands and Finland (around and above 50%), but are significantly less so in Italy and Romania (about 20%).

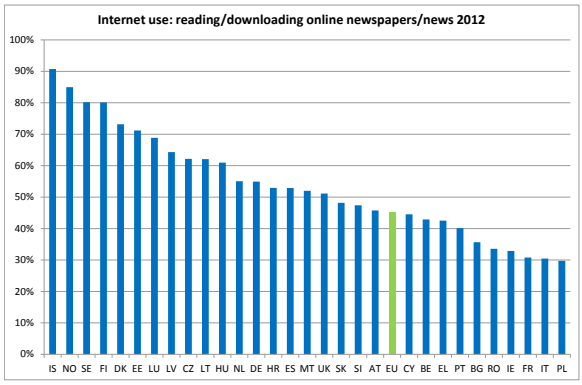
Of the less popular activities, *uploading self-created content* is most popular in Iceland, the Netherlands and Denmark (above 40%); whereas it is at or below 20% in a number of countries (Belgium, Italy, Greece, Bulgaria, Poland, Romania and Malta). Use of the internet for *telephoning and video calls* is popular a number of countries (Iceland, Lithuania, Slovakia, Estonia, Latvia, Denmark, Bulgaria and the Czech Repbulic) where 40% or more of individuals engage in these activities. However, lowest rates of use are just under 20% of the populations in Italy Portugal and Slovenia. *Selling goods and services* over the internet by individuals is most popular in Slovenia, France and Norway; where a quarter to a third of the population participates in such activities; less than 5% of the populations of Cyprus, Romania, Greece, Portugal, Latvia and Lithuania do so. *Playing networked games with other persons* is as high as 20% and more in Denmark and Iceland and between 15 and 20% for in Croatia, Sweden, Norway and the Netherlands. In a majority of countries, however, it is around 10% or less. While *making an appointment with a practitioner* is an internet activity carried out by almost 30% of people in Denmark, 26% in Finland and 22% in Spain, for the majority of the countries the rate is at or below 5%. Finally, *creating websites or blogs* is most popular in the Netherlands, Iceland, Hungary, Denmark, Norway, Luxemburg and Sweden (10-15%), however the lowest rates are only around 2-4% (Cyprus, Italy, Poland, Bulgaria, Lithuania, Romania and Ireland).

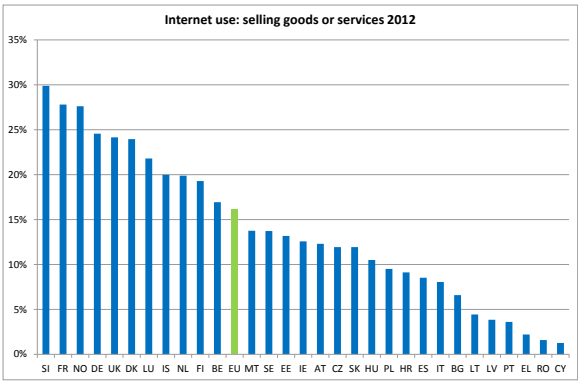
Figure 17: selected activities online in the last three months across EU27+ countries (% individuals)

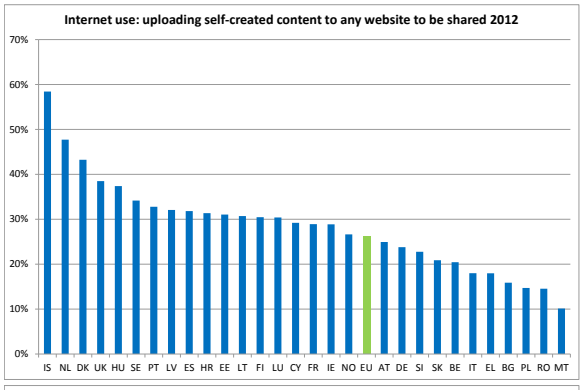


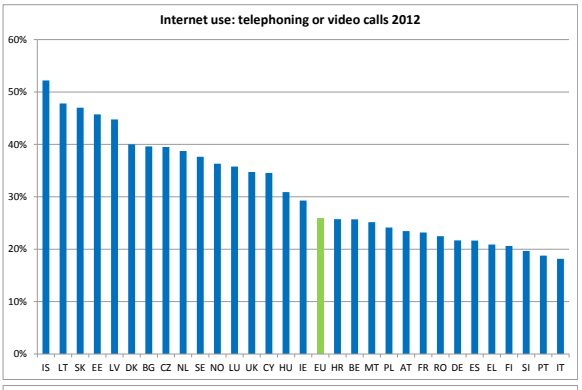

Internet use: posting messages to social media sites or instant messaging 2012
70%
60%
50%
40%
30%
20%
10%
0%
IS NL NO UK SE LU BE FI DK LT SK IE SI PT EE MT HU ES PL EU LV CY AT HR DE FR EL BG IT CZ RO

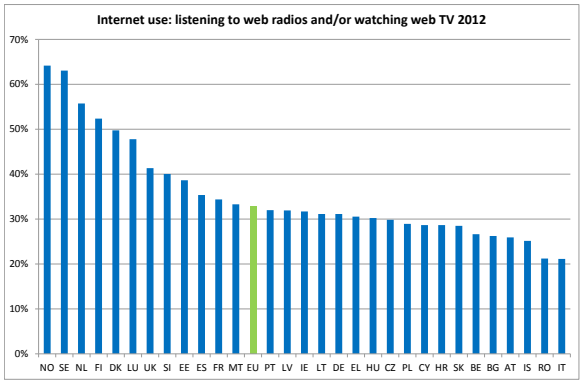

Internet use: playing/downloading games, images, films or music 2012
70%
60%
50%
40%
30%
20%
10%
0%
FI SE NL NO IS DK BE LU EE UK DE LV CY MT HU HR EU ES SI FR AT SK LT BG PT PL EL CZ RO IT IE

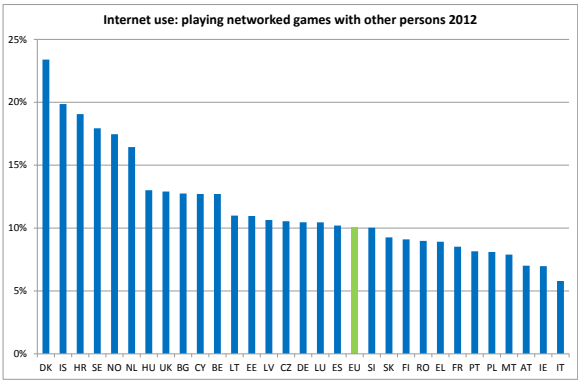

Internet use: reading/downloading online newspapers/news 2012
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
IS NO SE FI DK EE LU LV CZ LT HU NL DE HR ES MT UK SK SI AT EU CY BE EL PT BG RO IE FR IT PL

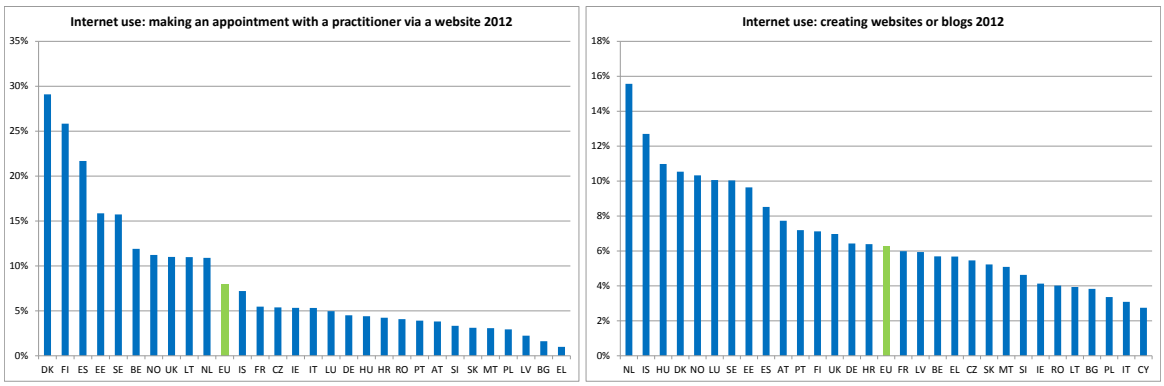

Internet use: selling goods or services 2012
35%
30%
25%
20%
15%
10%
5%
0%
SI FR NO DE UK DK LU IS NL FI BE EU MT SE EE IE AT CZ SK HU PL HR ES IT BG LT LV PT EL RO CY


Internet use: uploading self-created content to any website to be shared 2012
70%
60%
50%
40%
30%
20%
10%
0%
IS NL DK UK HU SE PT LV ES HR EE LT FI LU CY FR IE NO EU AT DE SI SK BE IT EL BG PL RO MT


Internet use: telephoning or video calls 2012
60%
50%
40%
30%
20%
10%
0%
IS LT SK EE LV DK BG CZ NL SE NO LU UK CY HU IE EU HR BE MT PL AT FR RO DE ES EL FI SI PT IT


Internet use: listening to web radios and/or watching web TV 2012
70%
60%
50%
40%
30%
20%
10%
0%
NO SE NL FI DK LU UK SI EE ES FR MT EU PT LV IE LT DE EL HU CZ PL CY HR SK BE BG AT IS RO IT


Internet use: playing networked games with other persons 2012
25%
20%
15%
10%
5%
0%
DK IS HR SE NO NL HU UK BG CY BE LT EE LV CZ DE LU ES EU SI SK FI RO EL FR PT PL MT AT IE IT



Source: Eurostat

Across the EU27+ countries, rates of use of the more popular activities such as email and searching for information about goods and services, as well as internet banking, follow a similar pattern to that of rates of regular internet use – having correlation coefficients of 0.98, 0.98 and 0.95, respectively, with regular internet use. Quite high correlations are also found between regular use of the internet and use of travel and accommodation services (0.85), playing/downloading games, images, films or music (0.82), posting messages to social media sites or instant messaging (0.78), selling goods and services (0.74), reading/downloading online newspapers/news (0.71) and listening to web radios and/or watching web TV (0.69).

However, the level of regular internet use is not the only factor determining use of activities across countries, as shown by a number of outlier countries for certain activities. The main outliers are Estonia and Latvia, which both have higher rates of use of internet banking than would be expected given their rates of regular internet use. Also Slovenia and France have relatively high rates of selling online; while Latvia, Lithuania and Cyprus in particular have relatively low rates of selling online.

Uploading self-created content (0.63), Playing networked games with others (0.50), making an appointment with a practitioner (0.50) and telephoning and video calls (0.41) are less correlated with regular internet use, showing that in some countries these activities are undertaken by relatively large numbers of individuals, despite them ,not having the highest rates of internet users and vice versa. Good examples here are the popularity of making appointments with practitioners in Spain, of uploading and sharing self-created content in Hungary, of playing networked games with others in Croatia and of using the internet for telephoning and video calls in Bulgaria.

3.6. Activities and skills levels

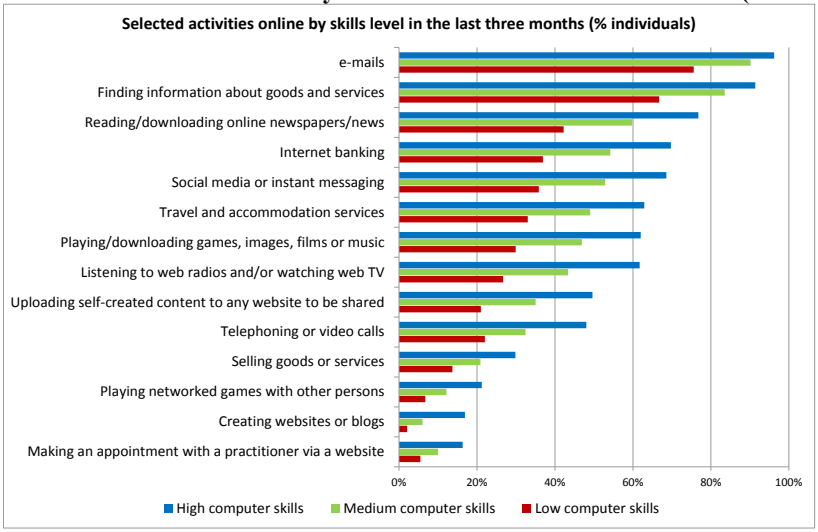
Data on activities by skills level (computer skills)[9] shows that engagement in most activities is strongly skills dependent. Only highly popular activities such as email and finding information about goods and services, where most users are active and the least popular activities, like playing networked games, creating websites or blogs, making an appointment with a practitioner and selling goods or services, where few individuals engage in the activities, show lower variation in rates of use by skills level.

[9] For the definition of levels of skills, see part 3.4.1.

For email, the most popular activity online, for example the rate of use of highly skilled individuals is 96%, compared to 76% for low skilled individuals, a 20 p.p. difference. For creating websites or blogs, one of the least popular activities, for example the rate of use of highly skilled individuals is 17%, compared to 2% for low skilled individuals, a 15 p.p. difference.

Most other activities are more skills dependent. For most activities there is around a 30 p.p. gap between the rate of use of highly skilled and low skilled individuals; ranging from 29 p.p. for uploading self-created content to 35 p.p. for reading/down loading newspapers/news and listening to web radios and/or watching web TV.

Figure 18: Selected activities online by skills level in the last three months (% individuals)



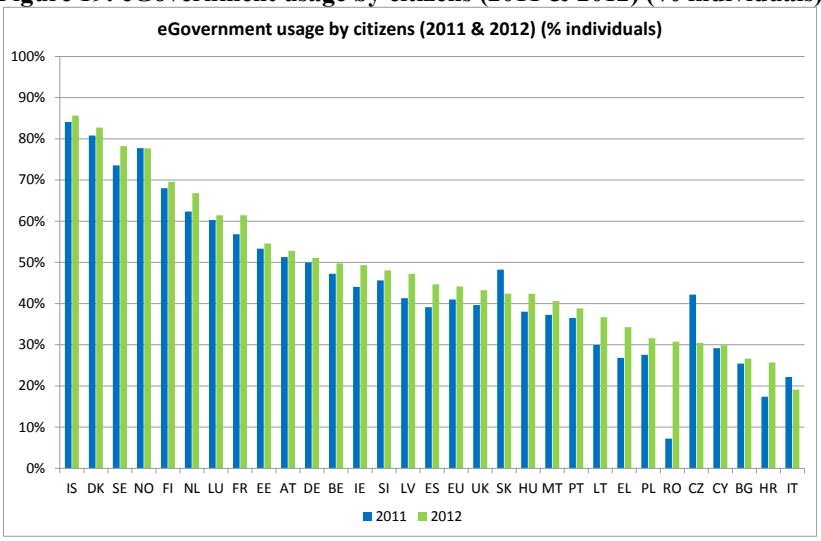
Source: Eurostat

3.7. eGovernment

Use of eGovernment services by citizens saw moderate growth between 2011 and 2012 in the EU27 increasing from 41% to 44%. Usage increased in all countries, except the Czech Republic (-12 p.p.)[10], Slovakia (-6 p.p.) and Italy (-3 p.p.). Large increases in the use of eGovernment services by citizens were recorded for Romania (+24 p.p.), Croatia (+8 p.p.) and Greece (+7 p.p.). Strong performance over the last year in these countries shows that catch-up of lagging countries is taking place. However, some of the top users have also seen substantial increases in the last year; like Sweden (+ 5 p.p. to 78%), France (+5 p.p. to 61%) and the Netherlands (+5 p.p. to 67%) for example.

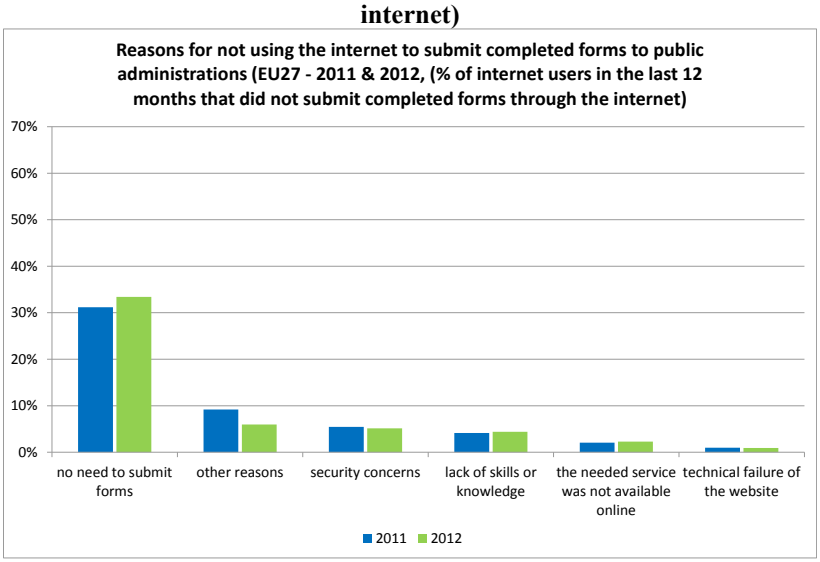
[10] The Czech Republic experienced a sudden doubling in the share of citizens using eGovernment services in 2011, from 23% in 2010 to 42% in 2011. This relates to the fact that in 2011 there was a census in the Czech Republic and it was (for the first time) possible to fill in the census form on-line.

Figure 19: eGovernment usage by citizens (2011 & 2012) (% individuals)



Source: Eurostat

Figure 20: Reasons for not using the internet to submit completed forms to public administrations, EU27 - 2011 & 2012, (% of internet users in the last 12 months that did not submit completed forms through the internet)



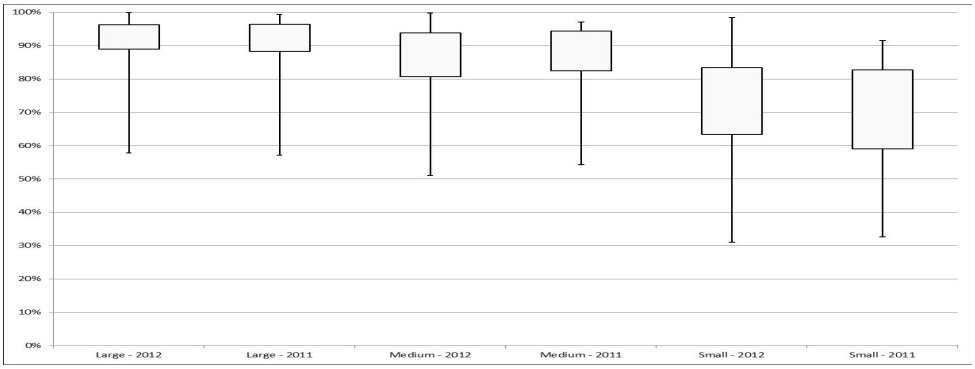
Source: Eurostat

Looking at the **reasons why citizens don't use interactive eGovernment services** (i.e. sending completed forms through the internet), a lack of need increased in importance (+4 p.p.) and "other reasons" fell (-6 p.p.). The importance of other named reasons, such as security concerns (10%), lack of skills (8%), lack of supply (4%), and quality of supply (2%), remained largely unchanged. Interestingly, lack of need has increased in importance despite an unchanged reference population[11]. If we take into consideration only citizens that actually needed to contact the public administrations (and who were also internet users), then the proportion of eGovernment users raises to 53% of

[11] The percentage of internet users in the last 12 months that did not submit forms through the internet, which was equal to 53% of the population in both 2011 & 2012.

potential users[12] for the EU27 in 2012. The ranking also changes dramatically as countries like BE, DE and LU shift down by many positions and countries like RO, BG and EL move forward significantly.

Figure 21: Percentage of enterprises using the internet for sending filled in forms electronically – by firms' size[13] (boxplot* - variation across EU 27 countries in 2011 & 2012)



EU 27	91.1%	90.0%	86.0%	84.7%	68.6%	66.1%

** Boxplot: The length of the bar represents the range of variation between countries in the first and fourth quartiles (25% highest and lowest values) for the selected variable (interactive use of online public services by businesses), while the box represents the range of variation of the second and third quartiles.*

For what concerns **eGovernment usage by Enterprises**, the comparison between 2011 and 2012 suggests that, for advanced eGovernment usage, there has been a pronounced improvement of 2.5 p.p. for small enterprises coupled with a small reduction in dispersion in the central part of the distribution (the boxes in Figure 21). For the rest the situation is quite stable, with modest improvements of 1.0 p.p. and 1.4 p.p. for large and medium enterprises respectively; and with almost unchanged dispersion from last year. This may signal some saturation of usage, with the still existing non-users which could well have outsourced the discharge of obligations toward the public administrations to external service providers. Unfortunately, the amplitude of the phenomenon of outsourcing is not measurable with existing methodologies.

3.8. eCommerce

3.8.1. eCommerce by Citizens

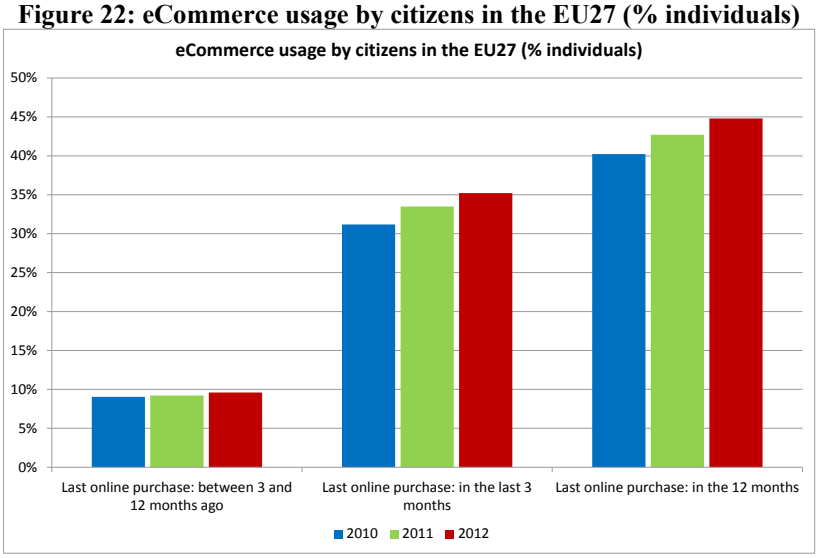
Citizens' engagement in eCommerce showed continued moderate growth in the last year. The percentage of individuals ordering or buying goods or services for private use over the internet in the last 12 months prior to the survey rose to 45% in 2012, up from 43% in 2011 and 40% on 2010; suggesting that the Digital Agenda target of 50% of the population buying online by 2015 is well on its way to being met. Most of this increase was due to more individuals having bought items within

[12] This percentage is defined as the % of population that sent completed forms divided by that percentage plus percentage of internet users in the last 12 months that didn't have to submit completed forms

[13] The size class of a firm is determined with reference to the firm's number of employed persons with the following thresholds:10-49 for small firms, 50-249 for medium firms and 250+ for large firms

the last 3 months (+2 p.p. over 2011). The percentage of the population having made purchases between 3 to 12 months ago hardly changed.

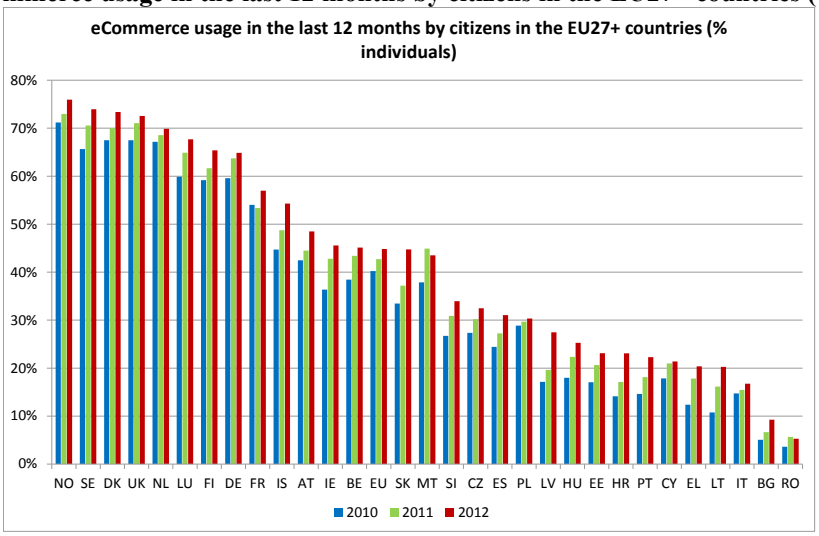
Figure 22: eCommerce usage by citizens in the EU27 (% individuals)



Source: Eurostat

Across the EU27+ countries, the **top performers in terms of online purchasing in the last 12 months** by citizens are the Nordic countries (Norway, Sweden Denmark and Finland), the UK (73%, +2 p.p. over 2011), the Netherlands (70%, +1 p.p.), Luxemburg (68%, +3 p.p.) and Germany (65%, +1 p.p.). In these countries around two thirds, or more, of citizens make purchases online. Countries with particularly low rates of eCommerce use in the last 12 months include Romania (5%), Bulgaria (9%), Italy (17%), Lithuania (20%), Greece (20%), Cyprus (21%), Portugal (22%), Croatia and Estonia (2%); with less than a third of their populations engaging in eCommerce.

Figure 23: eCommerce usage in the last 12 months by citizens in the EU27+ countries (% individuals)

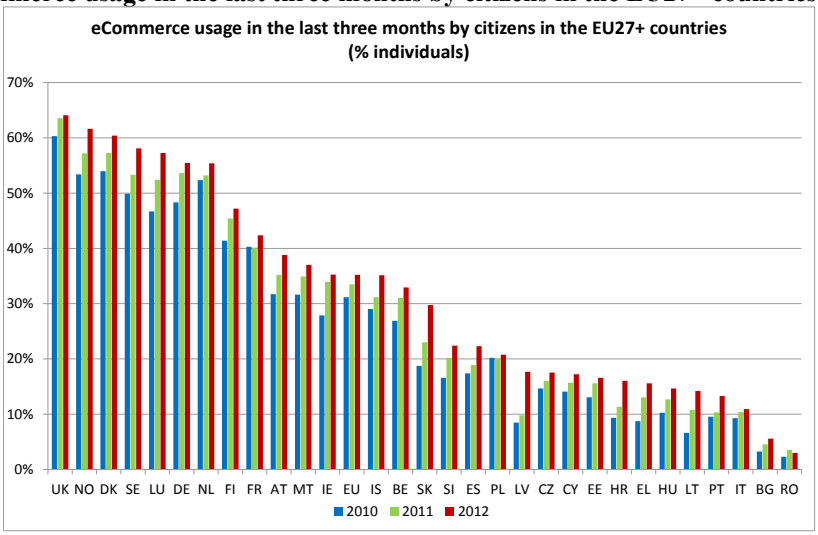


Source: Eurostat

Looking at a **higher frequency of eCommerce use** (within the last three months), the rank order of countries changes somewhat. In particular, the UK (64%) performs significantly better, jumping from rank four to the top position, and Germany (55%) climbs two positions to rank 6, showing that

significant proportions of eCommerce users in these countries are higher frequency users. Iceland (35%) drops significantly in the ranking to position 13, below the EU average (35%). Portugal (13%) also drops significantly from rank 24 to rank 27. The Czech Republic (17%) falls three positions to rank 20. This shows that large proportions of the eCommerce users in these countries engage in less frequent eCommerce use.

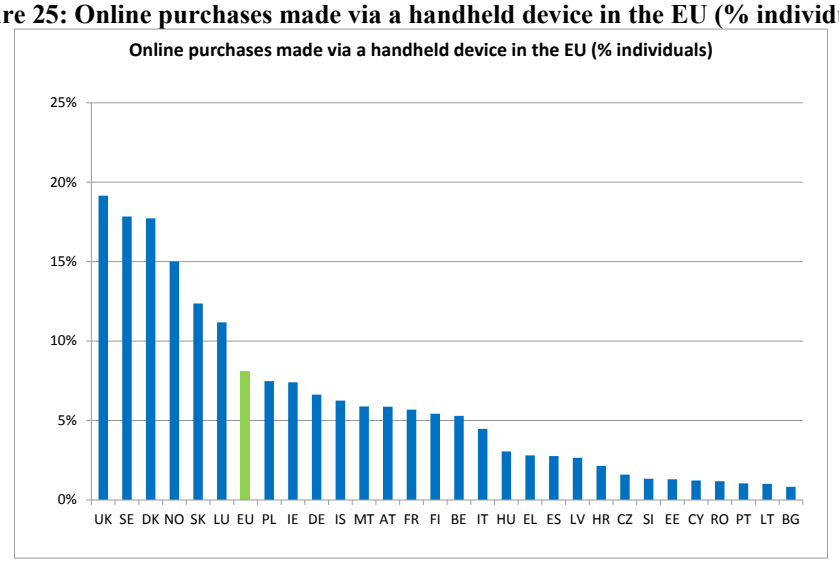
Figure 24: eCommerce usage in the last three months by citizens in the EU27+ countries (% individuals)



Source: Eurostat

On average, most eCommerce takes place over a computer (laptop/desktop or tablet computer). Very little is done over handheld devices (e.g. mobile phones). Only 7% of individuals in the EU ordered goods or services from a hand held device in the previous 12 months in 2012. However, in a few countries it is more prevalent. The countries with the highest figures are: UK (19%), Sweden and Denmark (18%). Particularly low rates of use by individuals (below 5%) are found in an array of countries (Bulgaria, Lithuania, Portugal, Romania, Cyprus, Estonia, Slovenia, Czech Republic, Croatia, Latvia, Spain, Greece, Hungary, and Italy).

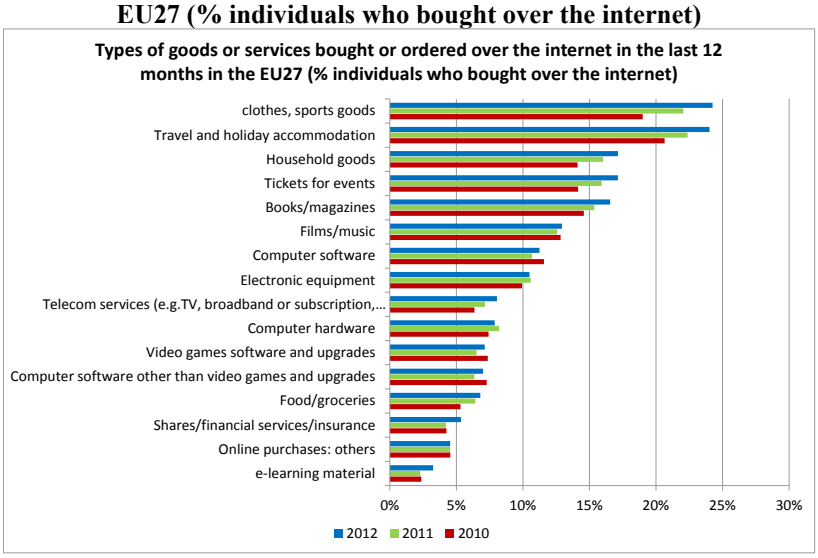
Figure 25: Online purchases made via a handheld device in the EU (% individuals)



Source: Eurostat

In terms of **what people buy online**, by far the most popular purchases are for clothes and sports goods and travel and accommodation services (both 24%). In particular, clothes and sports goods have risen in popularity in recent years (+2 p.p. over 2011; + 5 p.p. over 2010), to become the most popular activity. The next most popular purchases are for household goods, tickets for events and books and magazines (all 17%; up 1 p.p., 1 p.p. and 2 p.p. over 2011 respectively). Thereafter follow film/music, computer software, and electronic equipment. Purchases of other goods and services are less represented and have seen slower progression in recent years.

Figure 26: Types of goods or services bought or ordered over the internet in the last 12 months in the EU27 (% individuals who bought over the internet)



Source: Eurostat

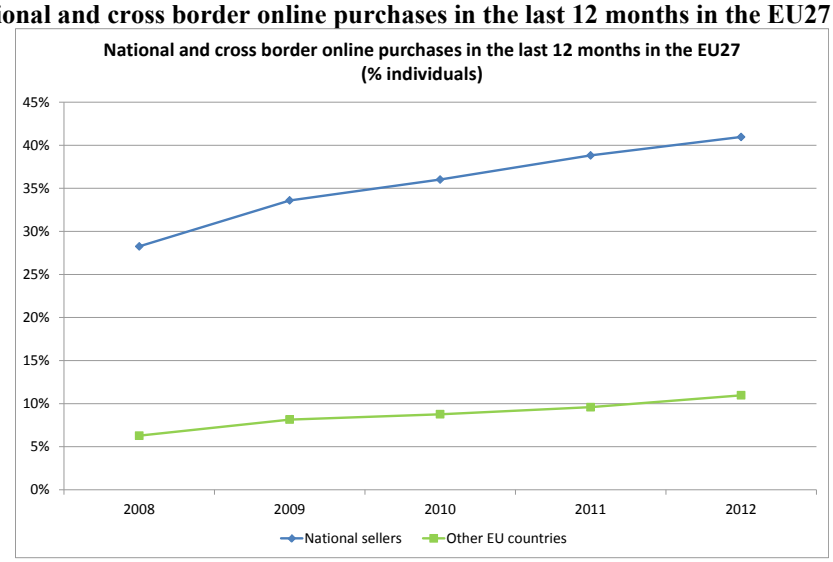
Looking at data on purchases by individuals who had made online purchases in the previous 12 months, we can examine **purchasing patterns across the EU27+.** Looking first at the most popular activities in 2012, it can be seen that the percentage of such individuals purchasing *clothes and sports goods* was highest in Bulgaria (64%), Germany (63%) and the UK (62%); significantly above the EU average of 54%. While purchases of *travel and accommodation services* were made by 54% of individuals buying online across the EU, they were as high as 76% in Sweden, 75% in Ireland and 72% in Norway. The percentage of individuals buying online who bought *tickets for events* was well above average in Iceland (73%), Sweden (66%) and Denmark (65%). With regard to purchasing *household goods*, the percentage of individuals buying online that bought these types of goods was highest in the UK (55%), Germany (50%) and Poland (45%); the EU average was 38%. Finally, buying *books and magazines* was particularly popular in Luxemburg (63%), Germany (51%), and Austria (47%); significantly above the EU average of 37%.

Of the less popular activities, it is noteworthy that purchasing medicines is rather popular in Germany (27%) and Romania (15%) - the EU average is 10% of online purchasers. It should be noted, however, that national differences and the general lack of popularity might reflect the fact that such sales for pharmaceutical products are often banned in Member States, and, even where they are allowed (such as in the two countries mentioned), they are extremely regulated. Finally, purchasing

telecom services is very popular in Iceland (62%), Denmark (37%), Portugal and Sweden (34%) – well above the EU average of 18%.

In the EU, **the majority of eCommerce continues to takes place at national level**. In 2012, 41% of individuals made purchases from national sellers, up from 39% in 2011. The proportion of individuals in the EU making purchases from other EU member states remained low (11%) - marginally higher than in 2011 (10%). Looking at the trend over time it can be seen that while gradual progress is being made towards the Digital Agenda target of 20% of individuals buying online from other EU Member States, it is clear that if this trend continues, the target will only be met by around 2020, rather than the current target date of 2015. It should however be taken into account that measurement of progress towards this target is based on self-reporting by consumers and on the assumption that consumers can differentiate between domestic and cross-border transaction; which is not always the case.[14] This may lead to under-reporting of cross-border buying. Furthermore, above a certain volume retail sales across borders are not the most efficient strategy for companies. There is an incentive for companies to establish a physical presence in countries where they have significant online sales, thus turning what was cross-border eCommerce into domestic eCommerce, suggesting that there may also be a limit to the growth of cross-border eCommerce.

Figure 27: National and cross border online purchases in the last 12 months in the EU27 (% individuals)



Source: Eurostat

3.8.2. eCommerce by Enterprises

Ordering online goods and services is an opportunity not only for consumers but also for the exchanges between enterprises and all their business partners.

The percentage of ***small and medium sized enterprises (SMEs)*** selling online is progressing slowly, gaining around one percentage point every two years. In 2011, 15% of SMEs in EU27 received orders via "computer mediated networks". Behind the latter concept there are two different technologies: web-sales and EDI (electronic data interchange or XML formats). Web-sales is the main channel, used

[14] Multinational companies may estabilish national websites dedicated to clients from a ertain country, which may look to consumers as domestic eCommerce even if the actual purchases may be cross-border.

by 12% of SMEs, and the majority (9% of EU SMEs) use only this channel. 3% use both web-sales and EDI and 3% use only EDI.

eCommerce sales by ***large enterprises*** is more developed than that of SMEs and the means by which it takes places also differs. For large enterprises EDI is somewhat more prevalent (26%) than web-sales (23%).Looking more closely at web sales (which is the channel holding most opportunity for a variety of customers, such as final consumers, other enterprises and public administrations), data on total turnover of SMEs via this channel can shed light on its relative importance vis-à-vis non-web sales. The data show that on average in the EU web sales are responsible for between 1 and 10% of turnover in almost 5% of SMEs. For just under 4% of SMEs it is responsible for between 10 and 50% of turnover. For just over 2% it is responsible for less than 1% and for only 1.5% of SMEs are web sales responsible for over half of turnover.

Table 2: Relevance of selling via the web for SMEs (2011) – proportion of turnover from web sales (% SMEs)

anecdotal = less than 1% of their turnover	**2,2%**
low = 1% or more but less than 10%	**4,8%**
consistent = 10% or more but less than 50%	**3,8%**
dominant = 50% or more of their turnover	**1,5%**
Total	**12,3%**

Source: Eurostat

Looking at the distribution of web-sales across countries, it can be seen that while on average in the EU around 12% of SMEs have web-sales, this rises to 20% and above in Norway, Iceland, Croatia Denmark, Sweden, Germany and Ireland; while it is 6% or less in Bulgaria, Macedonia, Italy and Romania. Interestingly, it can be seen that in the countries where eCommerce is more diffused, it largely remains a complementary channel involving less than 10% of their turnover. The main exceptions to this are the Czech Republic, Lithuania, Croatia and Luxemburg; where for the majority of enterprises doing online sales they represent a more significant part of their turnover. Similarly, on the bottom side of the ranking, we have countries where few SMEs sell via the web, but for these few enterprises it is a relevant source of business: Slovakia, Estonia, Portugal, Poland, Greece, Macedonia and Romania.

Table 3: Relevance of web-sales across the EU27+

		Relevance of web-sales: distribution of SMEs having web-sales into four classes based on the percentage of their turnover coming from web-sales			
	% SMEs having web-sales	anedoctical < 1%	low 1-10%	consistent 10-50%	dominant >50%
NO	34,5%	10%	49%	31%	10%
IS	29,4%	20%	45%	20%	14%
HR	24,8%	16%	27%	31%	26%
DK	22,9%	11%	53%	27%	8%
SE	20,8%	2%	49%	37%	11%
DE	20,1%		not declared		
IE	20,0%	0%	49%	37%	14%
BE	18,0%	5%	51%	31%	13%
UK	16,2%	20%	37%	31%	12%
MT	15,8%	22%	42%	25%	11%
CZ	15,5%	7%	37%	35%	21%
NL	15,3%	16%	45%	29%	10%
LT	14,9%	15%	27%	37%	21%
FI	14,4%	25%	40%	25%	10%
LU	13,3%	14%	36%	50%	0%
EU27	**12,3%**	**18%**	**39%**	**31%**	**12%**
SI	12,0%	20%	31%	39%	10%
AT	11,2%	38%	32%	23%	7%
SK	10,9%	17%	37%	28%	19%
FR	10,2%	26%	30%	32%	12%
ES	10,0%	13%	40%	33%	14%
EE	9,4%	16%	32%	35%	18%
HU	8,8%	21%	37%	30%	11%
PT	8,6%	7%	40%	53%	0%
PL	8,2%	23%	27%	50%	0%
EL	7,9%	23%	23%	36%	18%
LV	7,3%	26%	31%	28%	15%
CY	7,2%	8%	49%	37%	6%
BG	5,6%	40%	37%	16%	7%
MK	5,2%	19%	27%	35%	20%
IT	4,6%	35%	29%	28%	8%
RO	4,6%	6%	29%	48%	16%

Source: Eurostat

The 2012 survey has started to investigate also the relative part of these web-sales coming from consumers and the part coming from other enterprises or the public sector. The indicator is available only for few countries (Austria, BBulgaria, Spain, Finland, France, Hungary, Ireland, Lithuania, Luxemburg, Malta, the Netherlands, Portugal, SI, SK) because the question was optional for this first pilot exercise.

Around one third of the volume of web-sales comes from consumers and the two thirds come from B2B or B2G transactions. The situation varies according to the economic sectors, and as expected the reverse is valid in the retail sector (70% of web sales are from B2C), in telecommunication (61%) and in the accommodation sector (52%).

Bearing in mind the previous analysis which shows how that selling online is often only a minor part of total turnover, the survey estimates that only 1% of all SMEs turnover comes from web-sales to

consumers, with the exception of Ireland (4%), Lithuania and Malta (both 3%). The sectors with the largest proportion of their turnover from online selling, as could be expected, are tourism (accommodation and travel), transport arrangements (booking flights, train, etc) and telecommunications; also retail but with a lower percentage because the traditional "bricks and mortar" channel remains dominant.

Table 4: B2C Sales via a website over the last calendar year – as a % of turnover (leading sectors)

Sales B2C via a website over the last calendar year - as a % of turnover (leading sectors)	
Accommodation 10+	9,3%
Adm&support services: Travel agency; tour operator reservat	8,3%
Telecommunications 10+	4,8%
Transport and storage 10+	4,6%
Retail trade, except of motor vehicles and motorcycles 10+	3,3%
Publishing activities; films & television, sound & music publi	1,8%

Source: Eurostat

Finally, the data in the table below confirm that, in most cases, those enterprises investing in the organisation of web-sales attract or include final consumers as a relevant part of their clients. Two out of three SMEs having web-sales, have consumers covering at least 10% of the sales realised through the web channel.

Table 5: Enterprises with significant B2C sales

	Enterprises where B2C sales via a website over the last calendar year are 10% or more of the total websales	Enterprises having received orders via a website
MT	14,3%	15,8%
LT	11,8%	14,9%
NL	9,1%	15,3%
LU	8,9%	13,3%
AT	8,8%	11,2%
SI	8,4%	12,0%
SK	8,4%	10,9%
EU27	8,3%	12,3%
IE	7,6%	20,0%
FI	7,3%	14,4%
HU	6,9%	8,8%
ES	6,3%	10,0%
FR	5,8%	10,2%
BG	4,8%	5,6%
PT	4,2%	8,6%
MK	4,0%	5,2%

Source: Eurostat

3.9. Summary and conclusions

This chapter has looked at recent developments in internet use and digital skills in the EU27 , Iceland, Norway, Croatia and (for data on enterprises) the Former Yugoslav Republic of Macedonia. The chapter finds that ***progress towards the Digital Agenda key performance targets on internet use are on track.*** More people are going online than ever before (70%) and most are doing so every day (59%). Furthermore, disadvantaged people are catching up with the average population in terms of their use of the internet (54%) and the target for internet use by this group will also most likely be met. Across the EU countries, ***rates of regular internet use are still quite dispersed*** and the leaders and laggards have changed little over time. However, ***catch-up is taking place*** for the majority of those with the lowest rates of use; though there are some exceptions. The major exception is Italy, which is seeing its relative position slip and now belongs to the group of countries with the lowest rates of use. Furthermore, there are a number of "average performers" which have also made little recent progress (Austria, Belgium, Slovenia, Poland and Malta); they also risk seeing their relative position slip. Never-the-less, overall catch-up is confirmed by the gradual decline over time in measures of dispersion.

Progress is also being made in making "Every European Digital". The percentage of non-users has declined once more in the last year. However, in some countries, rates are still substantial: 40-50% in Bulgaria, Greece and Romania; and above 30% in Italy, Cyprus, Croatia, Portugal and Poland. As the number of non-users falls, reasons for not having access to the internet concentrate around a "lack of need" and "lack of skills"; and to a lesser extend "costs". There is some variation across countries in reasons. However, in general it can be said that for countries with relatively high rates of non-users all three reasons are important, whereas for countries with less non-users the overriding reason given is lack of interest. This evidence suggests getting the remainder of the population online policy should increasingly focus on, on the one hand, talking the increasing importance of lack of skills and awareness among non-users by for example implementing awareness raising and skills development initiatives, and, on the other, enabling the persistent proportion of non-users for which financial constraints are an issue to overcome them, such as by providing vouchers or tax incentives to low income non-user households for their first computer and/or internet connection. Furthermore, in countries where costs for access are still relatively high, policy should be implemented to provide affordable access to all: this seems of particular importance in Hungary, Slovenia and Portugal where not only are average prices of popular telecoms bundles high but also countries where non-users complain most often about high costs.

Turning to digital skills, latest evidence shows that there has been ***little improvement in the digital skills*** of the EU population over the past year. The proportion of those having digital skills has remained unchanged at 67% and the composition low/medium/high saw a slight deterioration: increased low skills/ fall in high skills. As a result, almost half of the EU population has low or no skills; an increasingly concerning situation given the growing necessity for digital skills in Europe: the projected 90% of jobs that will soon require some digital skills and the more than half of the labour force that says it feels its skills would be insufficient if it they were to need to look for a job. Again skills vary substantially by country. The analysis contained in this chapter has shown that ***as countries develop digitally, with higher rates of internet users so skills levels shift up towards medium and***

high levels and also diversity of internet use increases. In particular, analysis on progress in diversity of internet activities shows that on average both laggard and leading countries are developing at a similar rate: with the laggards being around four and a half years behind the EU average in terms of the number of activities undertaken online, while the leaders are about four and half years ahead. While internet users in the least developed online countries undertaking around 4-5 activities, those in the most advanced engage in twice the number. ***Across countries, variations in rates of use of internet activities follow to a large extend rates of regular use***, especially for the most diffused activities. However, there are some exceptions. Looking at the interrelation between skills and activities shows that ***most activities are skills dependent***: rates of use of all activities are higher for those individuals with higher skills.

ICT professional skills are also lacking in Europe and it is projected that there could be as many as 900,000 unfilled vacancies for ICT professionals in Europe. ICT professional skills are needed throughout the economy in many sectors, not only in the ICT sector. However, evidence shows that around 40% of enterprises seeking to recruit such professionals have difficulty doing so. Difficulty in filling ICT vacancies is a cross-European issue; however particular difficulties are evidenced in four countries (IE, LU, AT, SE). To counter this trend, the European Commission has launched an EU-wide "Grand Coalition for Digital Jobs". ***Use of eGovernment also saw moderate growth*** over the last year from 41% in 2011 to-44% of individuals in 2012. Some catch-up was also witnessed here. The overriding reason given by internet users for not using interactive eGovernment services was "no need" and this reason grew in importance despite an unchanged reference population (% internet users not submitting filled in forms remained unchanged at 53%), suggesting that citizens do not find enough (net) benefit in doing so or are unaware of the benefits. In terms of enterprises, there has also been an increase in eGovernment use, though the improvement was more pronounced for SMEs than larger enterprises, suggesting large enterprises are reaching saturation.

Finally, the chapter looked in some detail at developments in eCommerce use by citizens and enterprises. eCommerce by citizens showed continued positive growth in 2012, suggesting that the Digital Agenda for Europe ***target relating to eCommerce use by citizens of 50% will be met*** by the target date of 2015. Across countries there are large differences in eCommerce use, the top performers were the Nordic countries, the UK, the Netherlands, Germany and Luxemburg with around two thirds of citizens making purchases online. In the countries with the lowest rates (Romania, Bulgaria, Italy, Lithuania, Greece, Cyprus, Portugal, Croatia and Estonia) less than a third of citizens do so.

Purchasing patterns across the EU differ. While buying clothes and sports goods was most popular among online buyers in Bulgaria, Germany and the UK; travel and accommodation was most popular in Sweden, Ireland and Norway. Tickets for events were popular in Iceland, Sweden and Denmark, while purchasing of household goods was popular in the UK, Germany and Poland. Books and newspapers were particularly sought after in Luxemburg, Germany and Austria. Of the less popular purchases, noticeable that purchasing medicines was popular in Germany and Romania, while telecoms services was popular in Iceland, Denmark, Portugal and Sweden.

Most eCommerce remains national. Cross-border eCommerce remains low (11% of individuals) and it is clear that the ***2015 target of 20% of individuals buying over the internet from other EU countries is unlikely to be met***, based on current trends.

In terms of eCommerce by enterprises, ***eCommerce by SMEs is developing slowly*** and reached 15% in 2011 (latest data). Most is done by web-sales (12%), while 6 % is done with EDI (electronic data interchange or XML formats); 3% use both. ***eCommerce by large enterprises is more developed*** and EDI (26%) is somewhat more prevalent than web-sales (23%). SME turnover from web-sales is usually less than from non-web sales. For only 1.5% of SMEs is it the dominant part. Across countries, eCommerce by SMEs is above 20% in a hand full of countries (NO, IS, HR, DK, SE, DE and IE), it is around 6% or less in four countries BG, MK, IT and RO. As such turnover from eCommerce also varies. Finally, the analysis shows that on average the largest proportion of web-sales come from the B2C and B2G channels, rather than from B2C. However, this varies by country and sector and is the reverse for retail, telecommunication and accommodation/travel services.

In analysing recent developments in internet use and skills in the EU27 and selected other countries, this chapter has touched upon developments in the use of various online content, as well as mobile use of the internet. The following two chapters are devoted to a more in-depth analysis of available data thereon.

4. THE MOBILE USE OF THE INTERNET BY INDIVIDUALS AND ENTERPRISES

4.1. Introduction

This chapter looks at mobile use of the internet by individuals and enterprises, benefiting from new data collected in special modules on mobile use of the internet contained in the 2012 Eurostat survey on ICT (Information and Communication Technology) usage in households and by individuals and in the survey of enterprises. With regard to individuals, it first looks at progress made in the development in use by individuals of mobile internet in the EU and its Member States, and the types and frequency of access. It then looks at the relationship between skills levels and mobile internet use and between household income and mobile internet use. It also looks at the perceived barriers to mobile use of the internet. Finally, the chapter examines the types of activities undertaken online via mobile device and problems encountered. With regard to enterprises, the chapter presents data on provision of mobile devices to staff, how this varies by enterprise size, the sophistication and main uses of mobile devises and obstacles to use. The last section summaries and concludes the chapter.

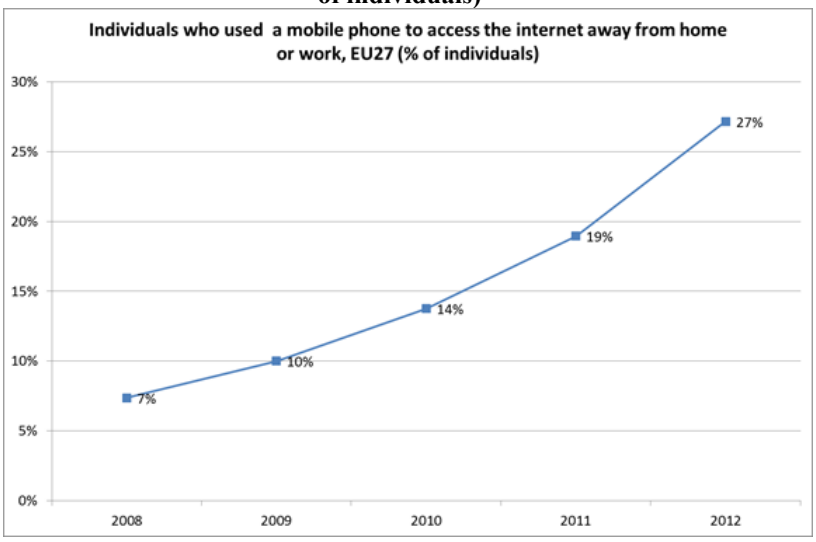
4.2. Mobile use of the internet by individuals in the EU27

4.2.1. Progression in individuals mobile use of the internet in the EU27

In 2012, 87% of the EU population used a mobile phone or a smart phone (last three months). About one in three used them to access the internet. At the same time, the percentage of people who used the Internet on the move with a portable computer or a handheld device was 36%. Regarding portable computers, 7% of people have used a tablet.

In particular, accessing the internet via mobile phone or smart phone has seen a substantial increase in popularity in the EU27 over the past few years. The proportion of the population using a mobile phone to access the Internet has increased by 20 p.p., from 7% in 2008 to 27% in 2012, and the rate of growth has increased – while the increase was a mere 3 p.p. between 2008 and 2009, over the last year the increase was some 8 p.p..

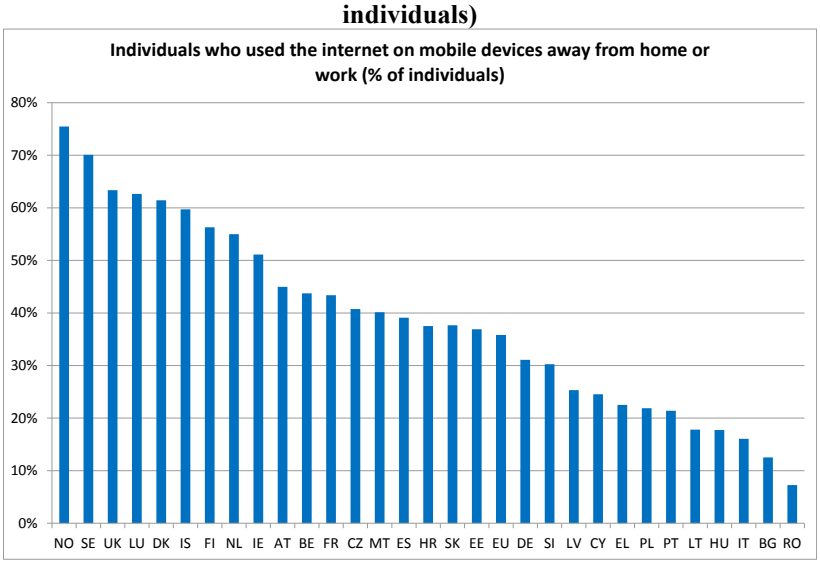
Figure 28: Individuals who used a mobile phone to access the internet away from home or work, EU27 (% of individuals)[15]



Source: Eurostat

Across the EU27 Member States, the percentage of people accessing the internet on the move in 2012 varies substantially. The percentage of the population using the internet on mobile devices (portable computer or handheld device[16]) away from home or work was higher than 60% in four Member States: Denmark (61%), Luxembourg (63%), the United Kingdom (63%) and Sweden (70%). However, it was less than 20% in Lithuania (18%), Hungary (18%), Italy (16%), Bulgaria (13%) and Romania (7%).

Figure 29: Individuals who used the internet on mobile devices away from home or work (% of individuals)



Source: Eurostat

[15] Data for 2008-2010 refers to the use of a mobile phone to access the Internet at any place.

[16] Portable computers include e.g. laptops, netbooks, tablet computers. Handheld devices include e.g. mobile phones or smartphones, mp3 player, games console, PDA.

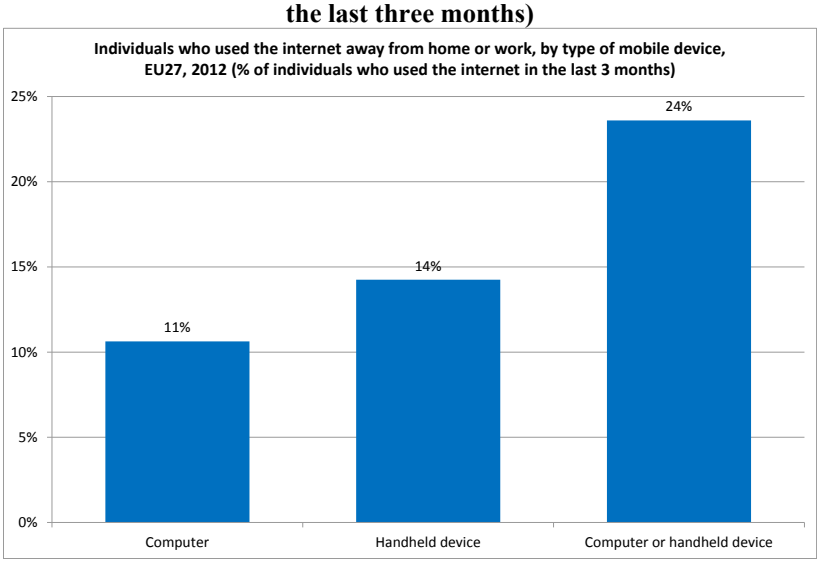
4.2.2. Type and Frequency of mobile access to the internet

Looking at the at the devices used to access the internet on the move shows that most internet users use both a computer and a handheld device, significantly fewer people use only one or other: In 2012, 11% of the individuals who accessed the internet on the move did so by using a portable computer only, 14% of them used a handheld device only and 24% used both a portable computer and a handheld device.

Data on ***frequency of mobile internet access in the EU*** shows that most users are frequent users, accessing the internet via a mobile device every day or almost every day. On average in the EU, 62%of individuals who used the internet on the move with a portable computer in 2012 did so at least once a week. 41% of them used the Internet on the move on a daily basis, while 21% did so at least once a week, but not every day.

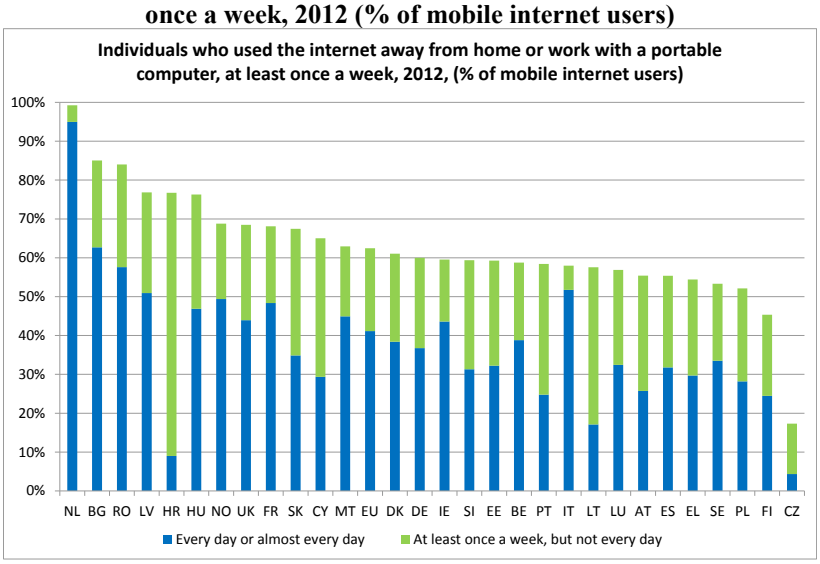
Across the EU27, the percentage of individuals who used the Internet on the move with a portable computer at least once a week was above 80% in three Members States: the Netherlands (99%), Bulgaria (85%) and Romania (84%). While at the other end of the scale it was less than 50% in Finland and less than 20% in Czech Republic.

Figure 30: Type of device used for mobile access to the internet (% individuals who used the internet in the last three months)



Source: Eurostat

Figure 31: Individuals who used the internet away from home or work with a portable computer at least once a week, 2012 (% of mobile internet users)

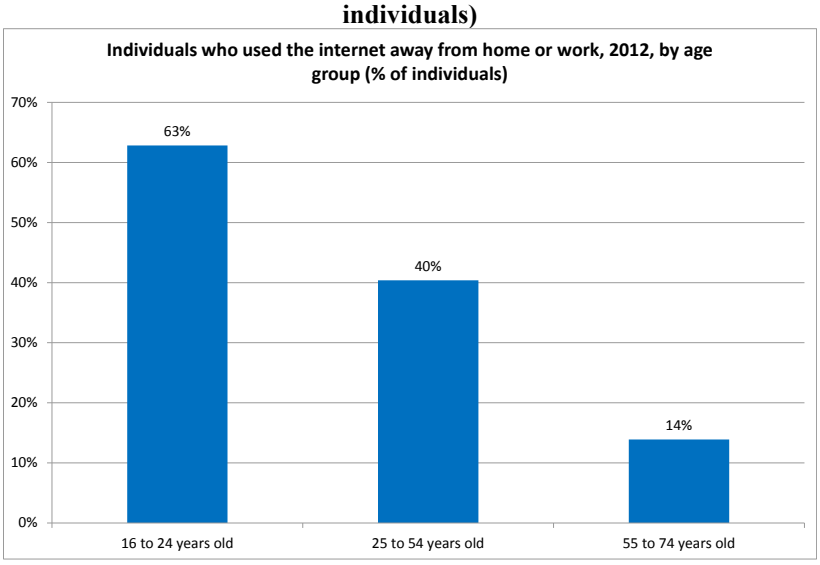


Source: Eurostat

4.2.3. Mobile use of the internet by age category

In general, the young population is adopting mobile internet use more readily than other population segments. While 63% of the people aged 16-24 used the Internet on the move, for individuals aged 55 to 74 it is less than 15%.

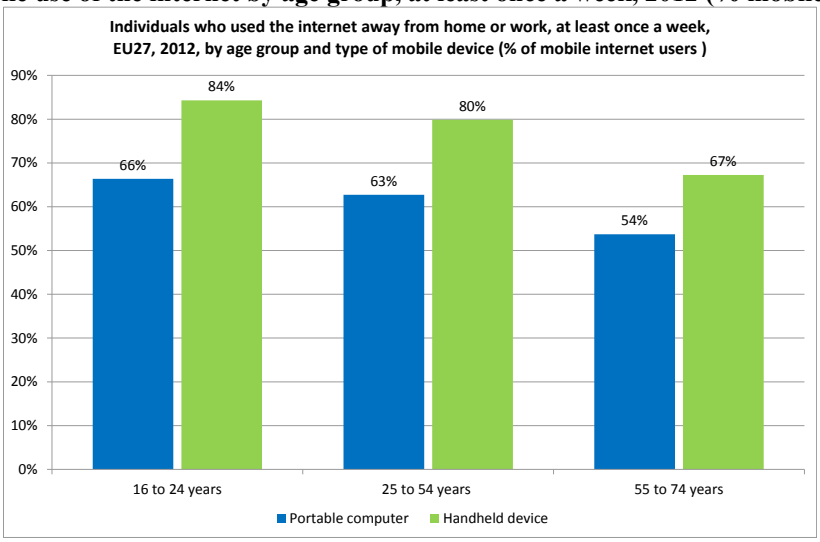
Figure 32: Individuals who used the internet away from home or work, 2012, by age group (% individuals)



Source: Eurostat

Their frequency of use is also higher: young people tend to use mobile internet more often than people aged 55 to 74. 84% of individuals who used the internet on the move aged 16-24 do so at least once a week with a handheld device. This falls to 67% for the 55-74 years age group. For portable computer use, which is somewhat less popular, the figures are 66% for the 16 to 24 age group but 54% for those aged 55 to 74 years.

Figure 33: Mobile use of the internet by age group, at least once a week, 2012 (% mobile internet users)

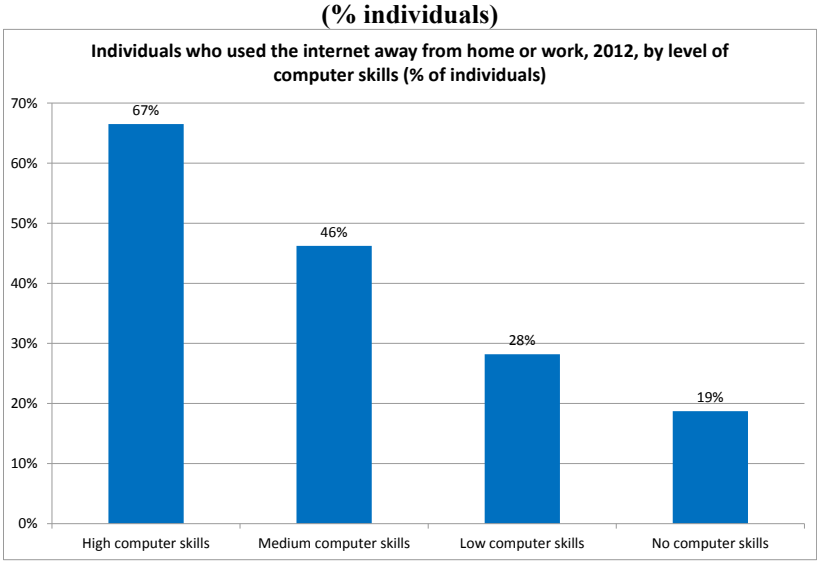


Source: Eurostat

4.2.4. Skills and mobile use of the internet

The level of computer skills has a big influence on the use of the internet on the move in the EU27. [17] Indeed, 67% of people who had high computer skills used the Internet on the move in 2012. The rate falls already substantially to 46% for those with medium skills and again to 28% for those with low skills. For individuals with no computer skills at all it is less than 20%.

Figure 34: Individuals who used the internet away from home or work, 2012, by level of computer skills (% individuals)



Source: Eurostat

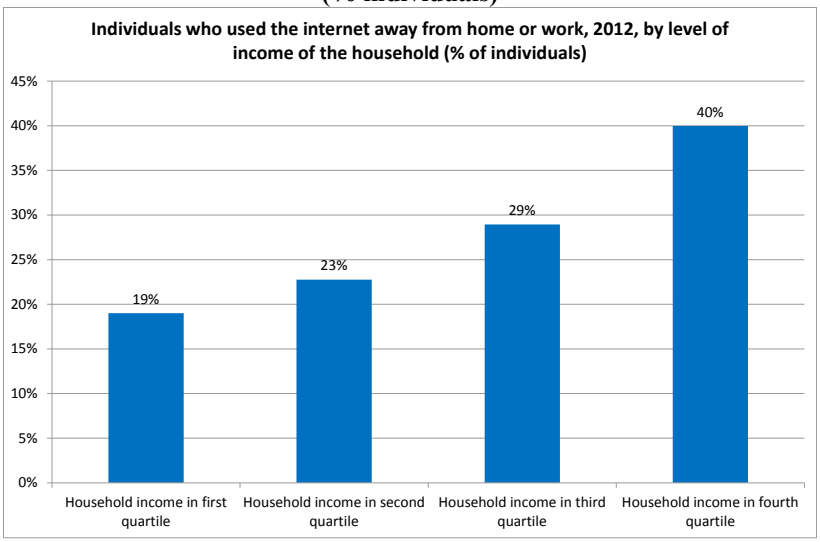
4.2.5. Mobile internet use by income category

Mobile use of the internet is also significantly influenced by household income. In 2012, people belonging to a household with the highest income used about two times more the Internet on the

[17] For the definition of levels of skills, see chapter 3.4.1.

move than the ones with the lowest income. People belonging to a household with a lower income were also about 25% to give the cost of the service as a reason not to use it. In particular, students were about one third to declare that they didn't use the Internet on the move because the service was too expensive. One in four unemployed evoked the same reason. Retired and other inactive people were 16% to see the cost as a barrier.

Figure 35: Individuals who used the internet away from home or work, 2012, by level of household income (% individuals)

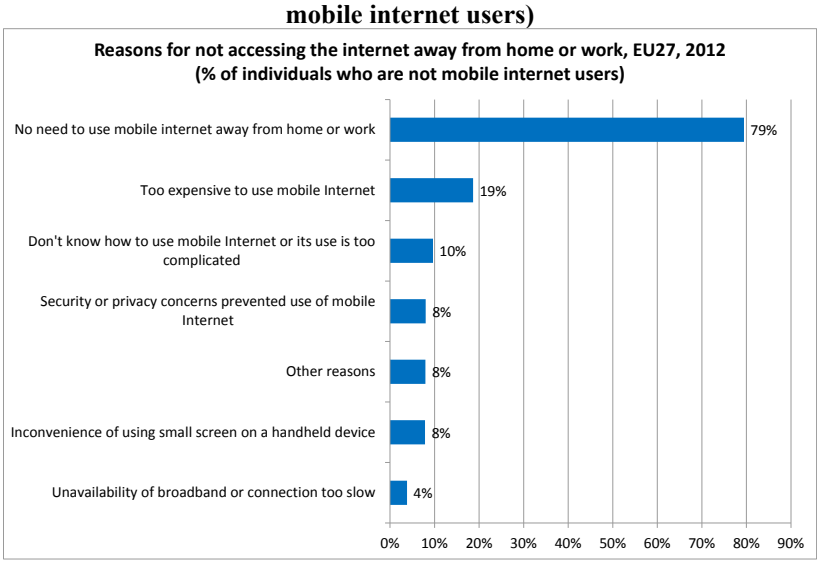


Source: Eurostat

4.2.6. Perceived barriers to mobile use of the internet

As with use of the internet overall, individuals who do not use mobile internet report a lack of need, lack of skills and costs as the three main factors preventing them from using mobile internet. However, the first factor, lack of need, is reported as by far the most important one – unlike for internet access in general. Indeed, about 80% of people who did not access the Internet on the move in 2012 replied that they didn't need it. It may well be the case that mobile access is perceived as less needed by non-mobile users than overall access to the internet by non-internet user, as many of them will have fixed internet access. However, mobile access is still in its relative infancy, as it develops lack of need may well become a less dominant reason for non-use, as both the supply of mobile internet services and the knowledge thereof increases.

Figure 36: Reasons for not accessing the internet away from home or work (% of individuals who are not mobile internet users)

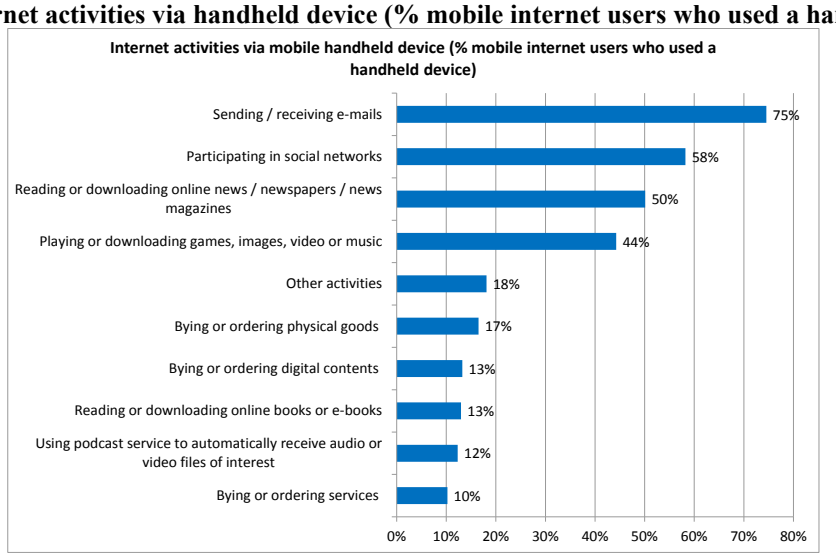


Source: Eurostat

4.2.7. Internet activities via handheld device

In the EU27, around three quarters of people who used the internet on the move communicated with their handheld device by email. Social media is an important mean of communication too, especially among young people. In 2012, 58% of people who used the internet on the move with a handheld device participated in social networks. About half of them used their handheld device to read the online news, newspapers or news magazines. 17% of the people bought or ordered some physical good (e.g. electronics, clothes, toys, food, groceries, books, CD/DVDs) via their handheld device, while 13% of them bought or ordered digital content (e.g. films, music, e-books, e-newspapers, games, paid applications, etc.). Of course, the size of the screen influences the type of activities for which people have used the internet on the move. In particular, it seems that buying goods and services via handheld device is a lot less frequently done via a handheld device than that over a computer, as the data on online purchases via any device in chapter 3.8.1 suggest.

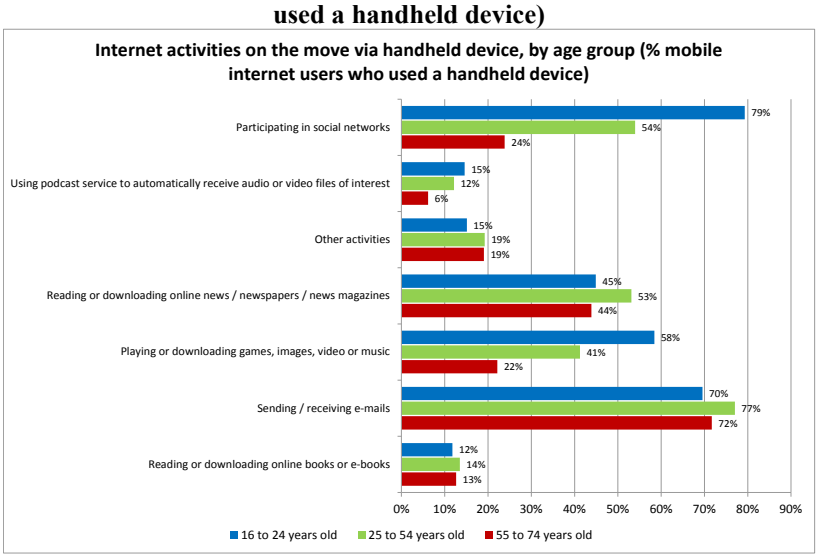
Figure 37: Internet activities via handheld device (% mobile internet users who used a handheld device)



Source: Eurostat

While age does not seems to affect activity levels via mobile device for most activities, for two activities there are marked differences in rates of use by age segment. In particular, contrary to people aged 55 to 74, young people use more social networks. Around 80% of them who used the internet on the move with a handheld device were active on these networks. Furthermore, while 58% of those aged 16 to 24 play games or download music, videos or images, it is only 22% for people aged 55 to 74; illustrating differences in choice of ways of communicating and social activities between age groups.

Figure 38: Internet activities on the move via handheld device, by age group (% mobile internet users who used a handheld device)

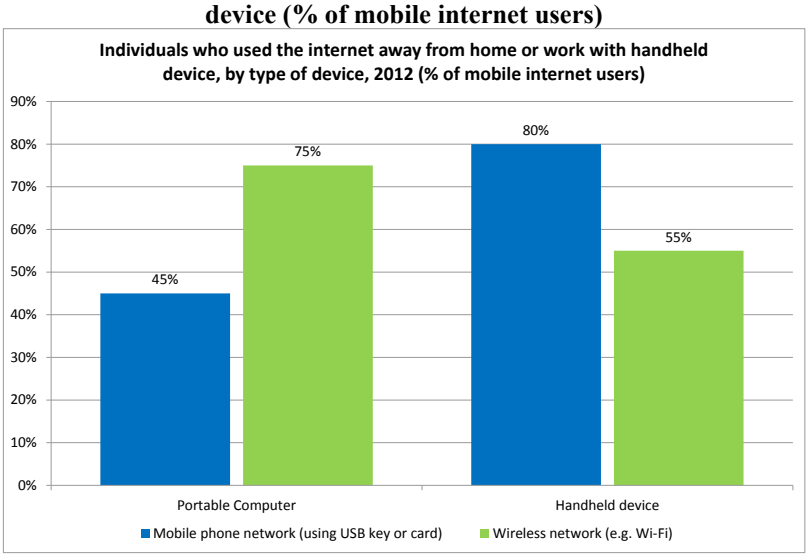


Source: Eurostat

4.2.8. Type of mobile connection used and problems encountered with them

In 2012, 80% of people who used a handheld device to access the Internet on the move used their mobile phone network and 66% of them used at least a 3G connection. More than half of the people who used a handheld device to access the Internet on the move used a wireless network. In comparison, 45% of people who used a portable computer to access the Internet on the move used their mobile phone network, with a USB key or card, while 75% of them used a wireless network (for example Wi-Fi).

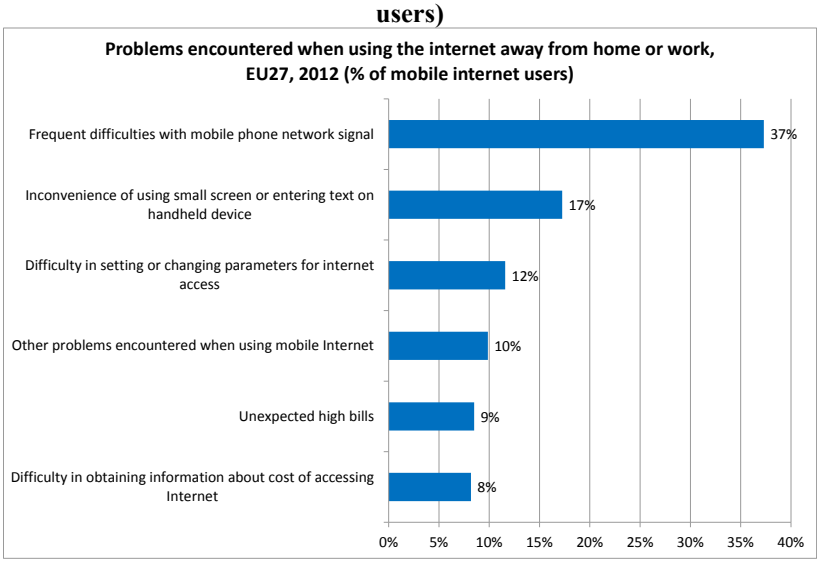
Figure 39: Individuals who used the internet away from home or work with handheld device, by type of device (% of mobile internet users)



Source: Eurostat

In the EU27, mobile Internet users had some issues with the quality of their network. For instance, 37% of them said they had frequent difficulties with their mobile phone network signal. Apart from that, 17% of the people who used the Internet on the move think that using small screen or entering text on handheld device is an issue. In that case, people aged 16-24 were less likely to raise the size of the screen as an issue. Finally, 12% of the users also had some difficulties in setting or changing parameters for their mobile Internet access.

Figure 40: Problems encountered when using the Internet away from home or work (% mobile internet users)



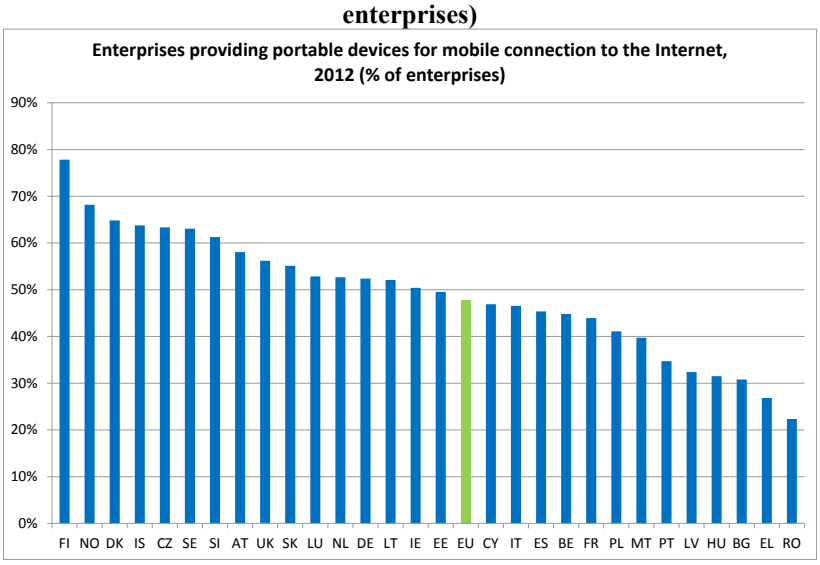
Source: Eurostat

4.3. Mobile use of the internet by enterprises in the EU27

4.3.1. Provision of devices to staff

In 2012, 48% of enterprises in the EU27 provided some staff with portable devices for mobile connection to the Internet. The proportion of enterprises providing portable devices to some of their employees was more than 60% in Finland (78%), Denmark (65%), Czech Republic (63%), Sweden (63%) and Slovenia (61%). These shares were the lowest in Bulgaria (31%), Greece (27%) and Romania (22%).

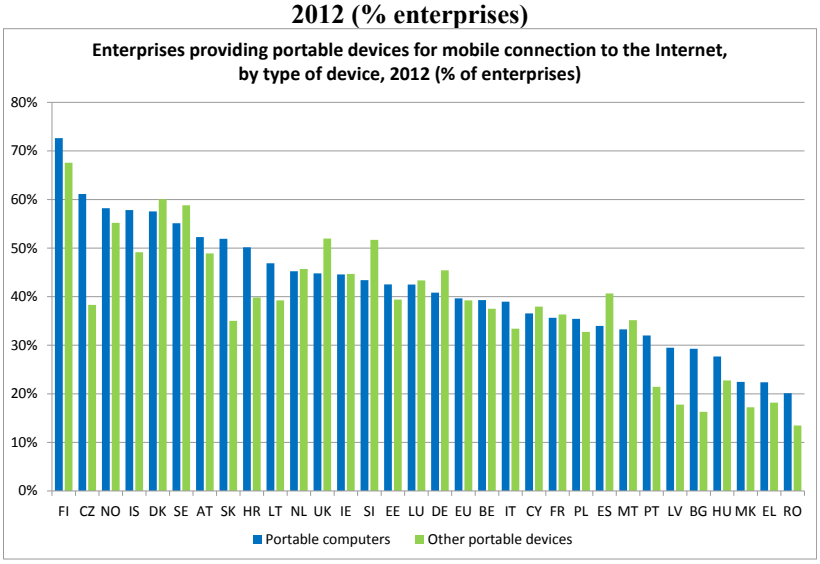
Figure 41: Enterprises providing portable devices for mobile connection to the internet, 2012 (% enterprises)



Source: Eurostat

In the EU27, enterprises provided portable computers (e.g. laptops, notebooks and tablets) and other portable devices (smartphones, PDA, etc.) in equal proportion. Some 40% of enterprises provide portable computers and 39% of enterprises provide other portable devices. Across countries, it is also pretty even; except in the Czech Republic, Slovakia, Portugal, Latvia and Bulgaria where portable computers outweigh considerably other portable devices.

Figure 42: Enterprises providing portable devices for mobile connection to the internet, by type of device, 2012 (% enterprises)

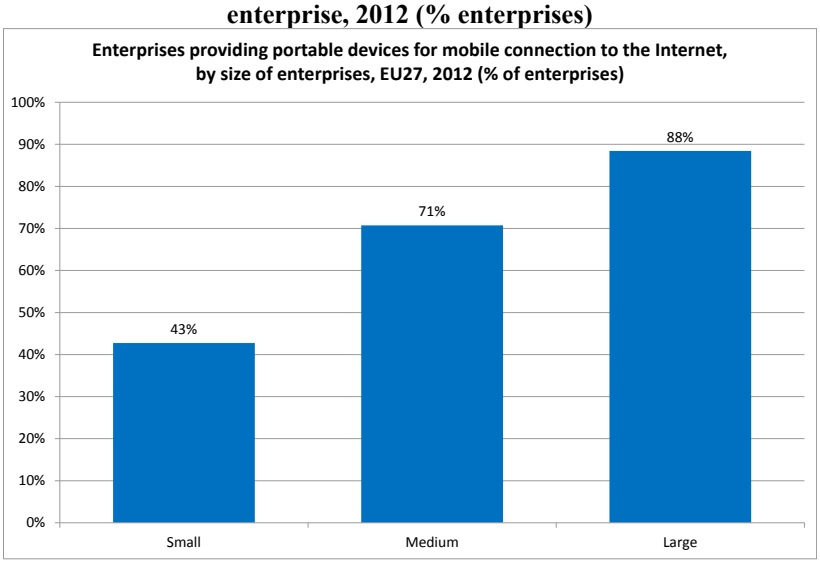


Source: Eurostat

4.3.2. Companies supporting mobility

Almost 90% of large enterprises provided a portable device for mobile connection to the Internet in 2012. The proportions of small and medium enterprises were respectively 43% and 71%.

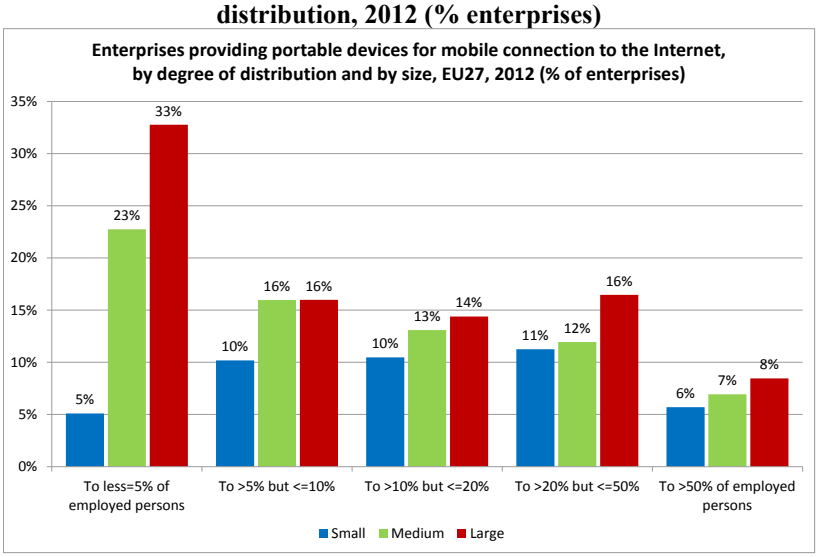
Figure 43: Enterprises providing portable devices for mobile connection to the internet, by size of enterprise, 2012 (% enterprises)



Source: Eurostat

More than a third of large enterprises providing a portable device for mobile connection to the Internet provide such portable device to less than 5% of their staff. This means that a lot of large enterprises tend to limit the provision of such devices to their management. The proportion of enterprises providing such device to more than 10% of their staff is relatively similar among small, medium and large enterprises.

Figure 44: Enterprises providing portable devices for mobile connection to the internet, by degree of distribution, 2012 (% enterprises)

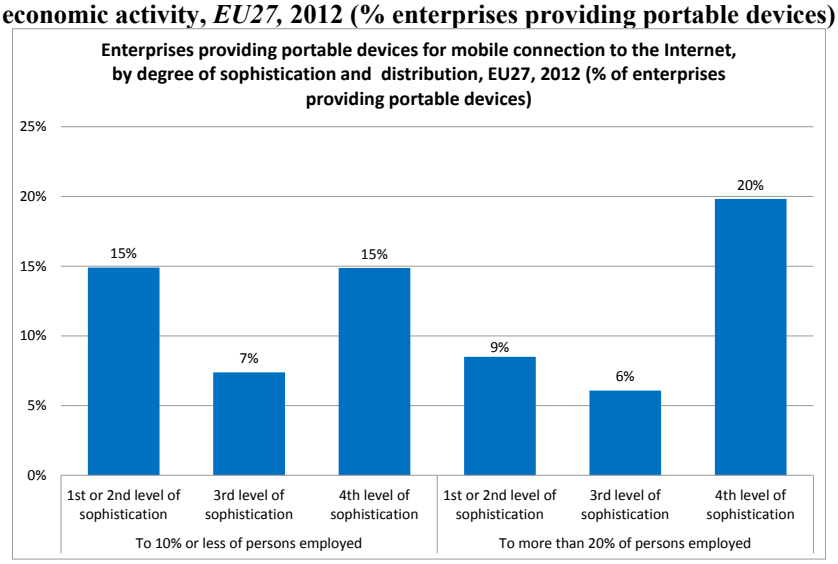


Source: Eurostat

4.3.3. Sophistication and main uses of mobile devices

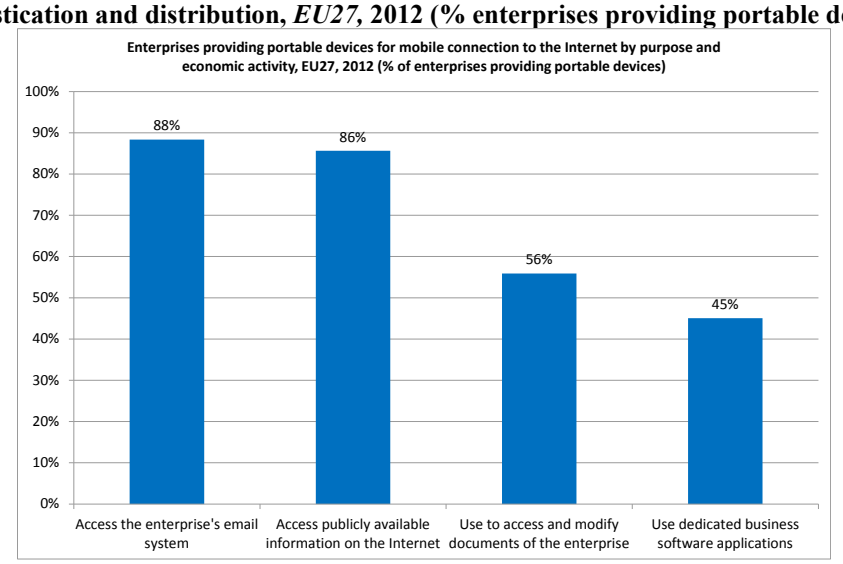
In 2012, 88% of enterprises providing portable devices used them to access the enterprise's email system. During the same period, 86% of enterprises used portable devices to access publicly available information on the internet. More than a half of these enterprises used such portable devices to access and amend documents (third level of sophistication) and 45% to use dedicated business software applications (fourth level of sophistication).

Figure 45: Enterprises providing portable devices for mobile connection to the internet, by purpose and economic activity, *EU27*, 2012 (% enterprises providing portable devices)



Source: Eurostat

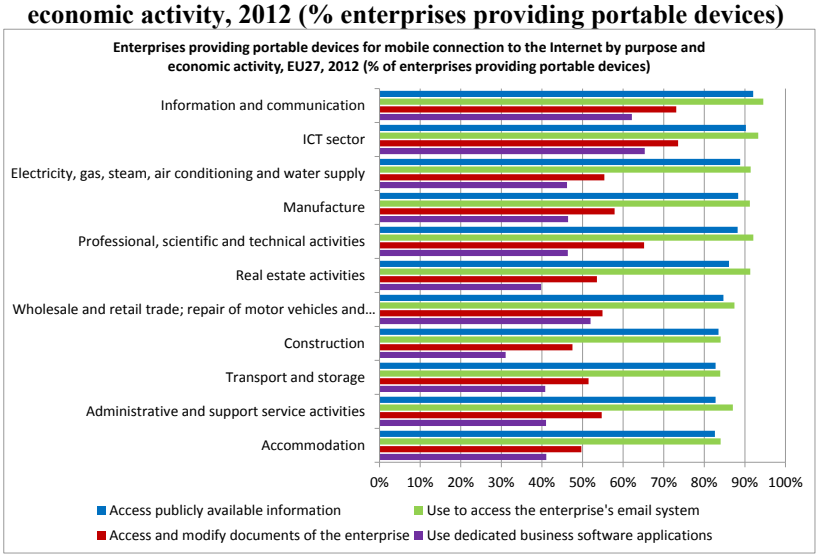
Figure 46: Enterprises providing portable devices for mobile connection to the internet, by degree of sophistication and distribution, *EU27*, 2012 (% enterprises providing portable devices)



Source: Eurostat

The use of mobile device to have access to e-mail was one of the main business uses of portable device in 2012. This is true across all sectors of activity. Enterprises in the ICT sector make more use of mobile devices to have access and to modify documents than enterprises in other sectors. They also make more use of dedicated business software applications.

Figure 47: Enterprises providing portable devices for mobile connection to the internet, by purpose and economic activity, 2012 (% enterprises providing portable devices)



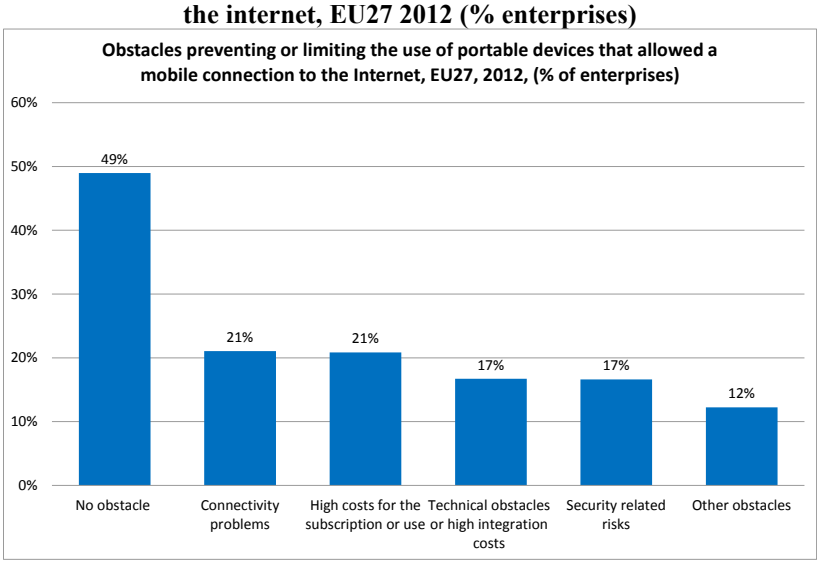
Source: Eurostat

4.3.4. Obstacles to the use of mobile devices

Among enterprises that provided their staff with a portable device, about 40% reported no major obstacle. The main obstacle reported by these enterprises was the quality of the mobile telephone network. In general, large enterprises seem to be more concerned by security related risks than small enterprises.

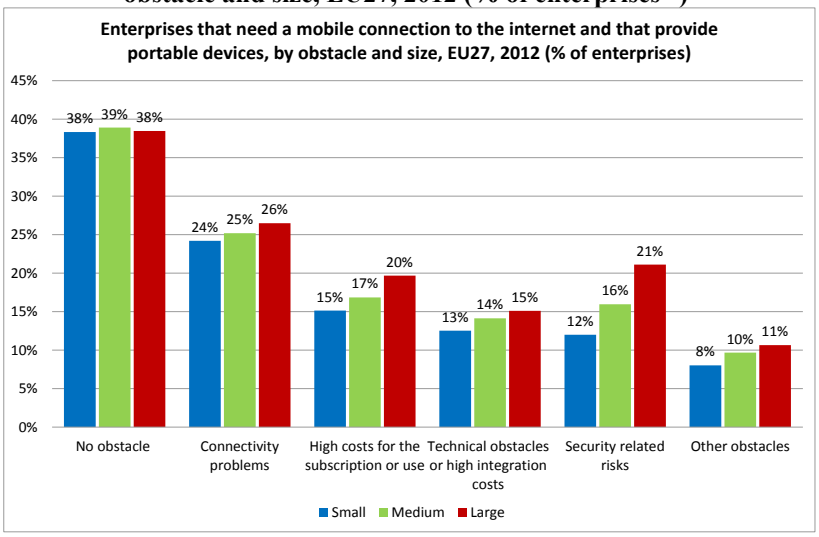
Some 21% of enterprises reported connectivity problems related to their mobile telephone network as a limitation. High cost for the subscription or use of the Internet was an obstacle for 21%. 17% of enterprises also mentioned the technical obstacles and the security related risks as an obstacle.

Figure 48: Obstacles preventing or limiting the use of portable devices that allowed a mobile connection to the internet, EU27 2012 (% enterprises)



Source: Eurostat

Figure 49: Enterprises that need a mobile connection to the internet and provide portable devices, by obstacle and size, EU27, 2012 (% of enterprises[18])



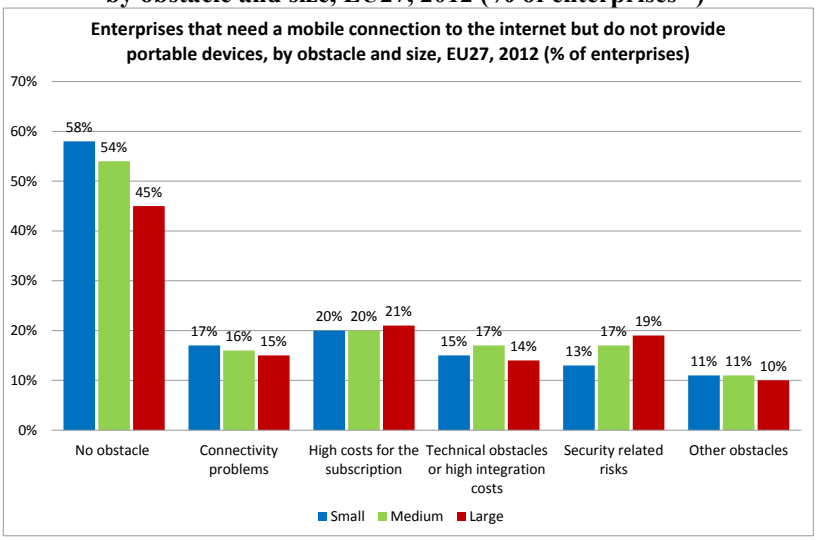
Source: Eurostat

A large proportion of enterprises that did not provide their staff with portable devices but could identify some need for a mobile connection to the internet reported other obstacles. These enterprises might not yet have considered providing their staff with mobile devices. They may not be able to identify which potential obstacles might limit or prevent their use of mobile devices. Among

[18] % of enterprises that need a mobile connection to the Internet for business uses and that provide to the persons employed portable devices that allow a mobile connection to the internet.

the enterprises that have reported some obstacles, the connectivity problems and the high cost of subscription are seen as an important obstacle, especially for small enterprises.

Figure 50: Enterprises that need a mobile connection to the internet but do not provide portable devices, by obstacle and size, EU27, 2012 (% of enterprises[19])



Source: Eurostat

4.4. Summary and conclusions

This chapter has looked at mobile use of the internet by individuals and enterprises, benefiting from new data collected in special modules on mobile use of the internet contained in the 2012 Eurostat survey on ICT (Information and Communication Technology) usage in households and by individuals and in the survey of Enterprises.

First turning to **mobile use of the internet by individuals**: this new data show that mobile use of the internet is becoming increasingly popular: 27% of individuals now use their mobile phones to access the internet and 36% do so via a portable computer or handheld device. Most mobile internet users are frequent users, going online every day. As with internet access via any device, mobile use varies across countries. It is also strongly age dependent, with significantly higher rates of younger users (62% of those aged 16-24) accessing the internet on the move than older age categories (14% of those aged 55-74). Younger people accessing the internet on the move also show somewhat higher frequency of access than older users. Skills levels have a big influence on mobile use of the internet; with more than twice as many individuals with high skills going online on the move than those with low skills. Income too affects rates of use.

As with use of the internet overall, individuals who do not use mobile internet report a lack of need, lack of skills and costs as the three main factors preventing them from using mobile internet. However, the first factor, lack of need, is reported as by far the most important one – unlike for internet access in general. Indeed, about 80% of people who did not access the internet on the move in 2012 replied that they didn't need it. It may well be the case that mobile access is perceived as less

[19] % of enterprises that need a mobile connection to the Internet for business uses but that do not provide to the persons employed portable devices that allow a mobile connection to the internet.

needed by non-mobile users than overall access to the internet by non-internet user, as many of them will have fixed internet access. However, mobile access is still in its relative infancy, as it develops lack of need may well become a less dominant reason for non-use, as both the supply of mobile internet services and the knowledge thereof increases.

The most popular internet activities undertaken on the move via handheld device are sending and receiving email, participating in social networks, reading/down loading news and playing or downloading games, video, images or music. Making purchases online, reading and downloading books/eBooks and using podcast services were less popular; no doubt partly influence by screen size but also impracticality of performing such activities while on the move. Generally speaking age does not seem to affect which activities mobile internet users undertake. The main exceptions to this are for use of social networks and play games or download music, videos or images which are undertaken more often by younger people; illustrating differences in choice of ways of communicating and social activities between age groups. The most popularly cited issue surrounding internet access on the move was problems with network signals. To some extent screen size was a problem, but more so for older people than the young.

Turning to **mobile use of the internet by enterprises**, the data show that in enterprises too mobile use of the internet is popular. Almost 50% of enterprises provide staff with portable devices for mobile access to the internet in 2012, ranging from above 60% in Finland, Denmark, Sweden, the Czech Republic and Slovenia, to around 30% or less in Bulgaria, Greece and Romania. In most countries, portable computers and other portable devices are provided in more or less equal proportion. Larger companies (88%) more readily provide portable devices for access to the internet than small (43%) and medium (71%) sized firms. 88% of enterprises used portable devices to access the enterprise's email system, 86% to access publicly available information on the Internet and around half used portable devices to access and amend documents as well as used dedicated business software applications. Across sectors, email and accessing publicly available information were the two most popular activities. Accessing and modifying documents was particularly popular in the Information and Communication and ICT sectors. The most reported problems regarding mobile access to the internet by enterprises related to connectivity problems and high costs for the subscription or use. (21% of enterprises each). Larger firms report more obstacles. Of firms that do not provide such devices, high cost is the most reported obstacle.

5. INTERNET CONTENT

5.1. Introduction

Increased frequency of internet usage, coupled with faster speeds and the growth of mobile access are accelerating recent trends in internet use and inducing new and different behaviour patterns by users. On the other hand, consumers increased demand for services, information and entertainment "anytime, anywhere", is putting pressure on providers of services, content and equipment for constant innovation. This dynamic interplay between demand for new services and the development of technologies making them possible is generating a fast-changing landscape in the industry.

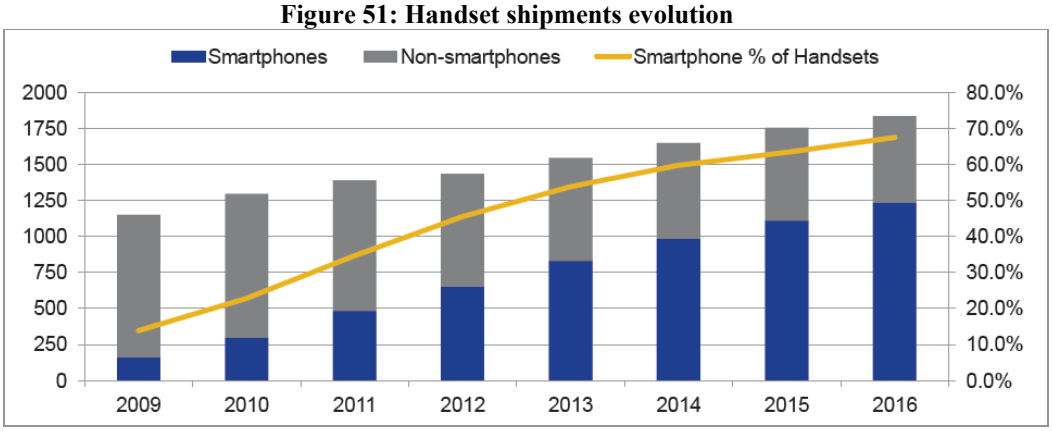
5.2. Market trends

5.2.1. Mobile Internet access

Mobile data traffic is driving an exponential increase in data transmission through the internet. Mobile devices like smartphones and tablets are increasingly moving away from being purely "utility" devices, with entertainment occupying more and more of a central role in the usage of internet on the go.

Smartphones are expected to account for more than half of all handset shipments in 2013, and the percentage is expected to continue to grow, mainly due to decreasing prices and the perceived value and greater integration of mobile apps into everyday life (Figure 51).

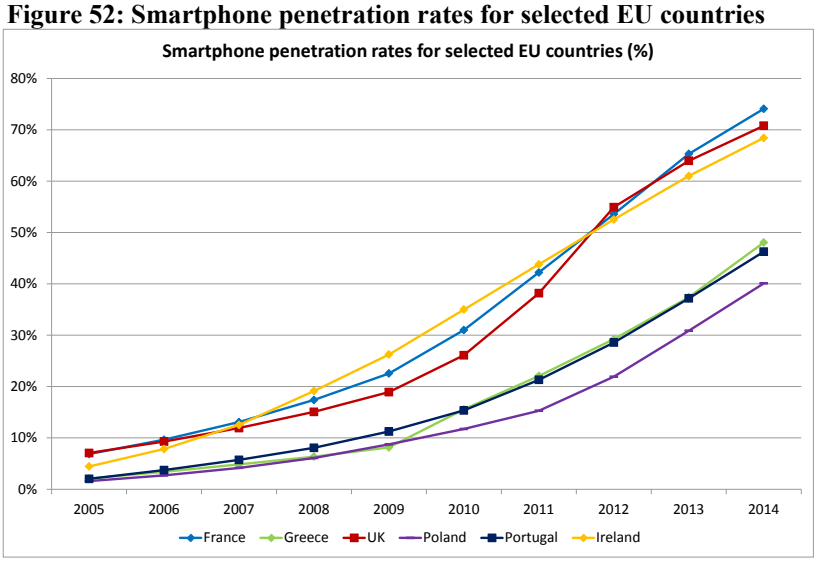
Figure 51: Handset shipments evolution



Source: HIS ScreenDigest

But adoption levels are not homogeneous across Europe: While in France, the UK and Ireland the penetration rate of smartphones already exceeds 60% in 2013, Greece, Portugal and Poland have adoption rates below 40% (30% in the case of Poland) (Figure 52).

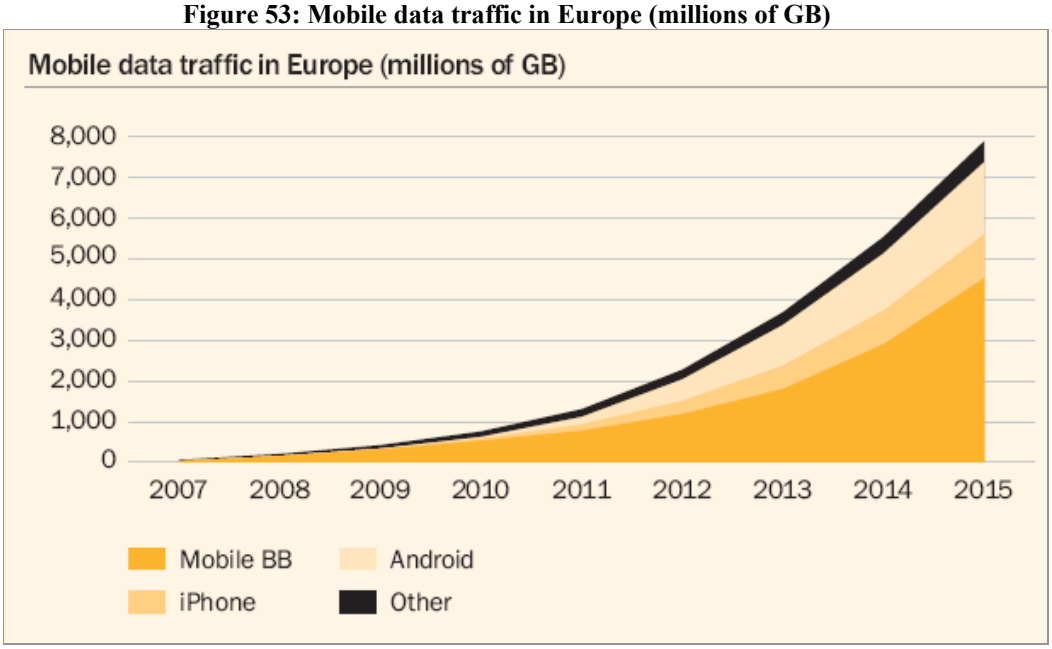
Figure 52: Smartphone penetration rates for selected EU countries



Source: HIS ScreenDigest

Smartphones and mobile broadband services are driving the exponential increase in mobile data traffic in Europe. The volume of mobile data traffic is expected to grow more than tenfold in the period from 2010 to 2015, reaching almost 8.000 million GB of data (Figure 53).

Figure 53: Mobile data traffic in Europe (millions of GB)



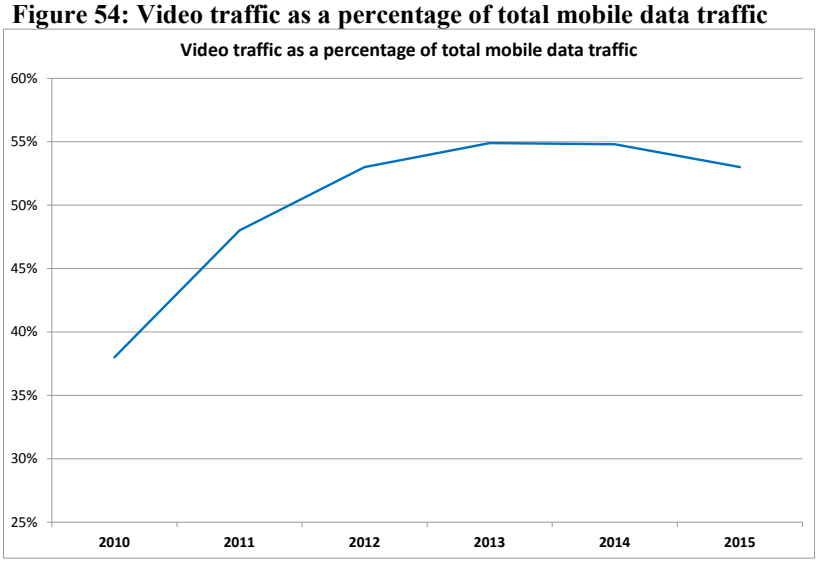
Source: HIS ScreenDigest

The enhanced speed of 4G or Long-term Evolution (LTE) is also increasing the attractiveness of games, video and interactive services. And it is projected that mobile video data traffic will grow nearly 14 times by 2015[20], representing over half of total data traffic (Figure 54). This will be mainly driven by YouTube (1 billion unique users are now visiting Youtube every month, nearly one out of

[20] ScreenDigest January 2012 report

every two people on the Internet), but with 4G long form video becoming more viable over mobile networks (Figure 55).

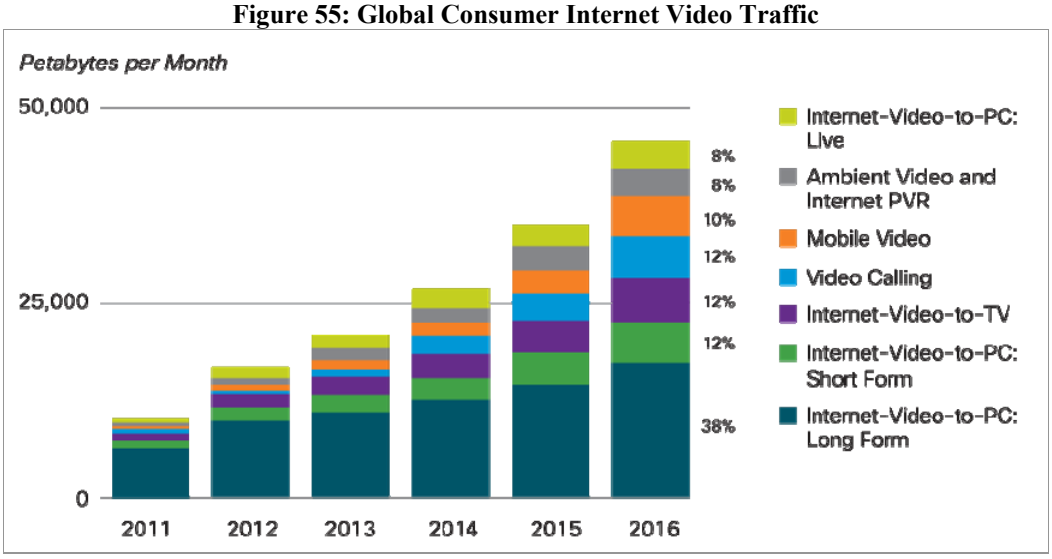
Figure 54: Video traffic as a percentage of total mobile data traffic



Source: HIS ScreenDigest

Yet mobile video is just around 10% of total Internet video traffic. While long form video-to-PC is expected to account for the biggest share of video traffic, other forms are expected to grow further in relative importance.

Figure 55: Global Consumer Internet Video Traffic

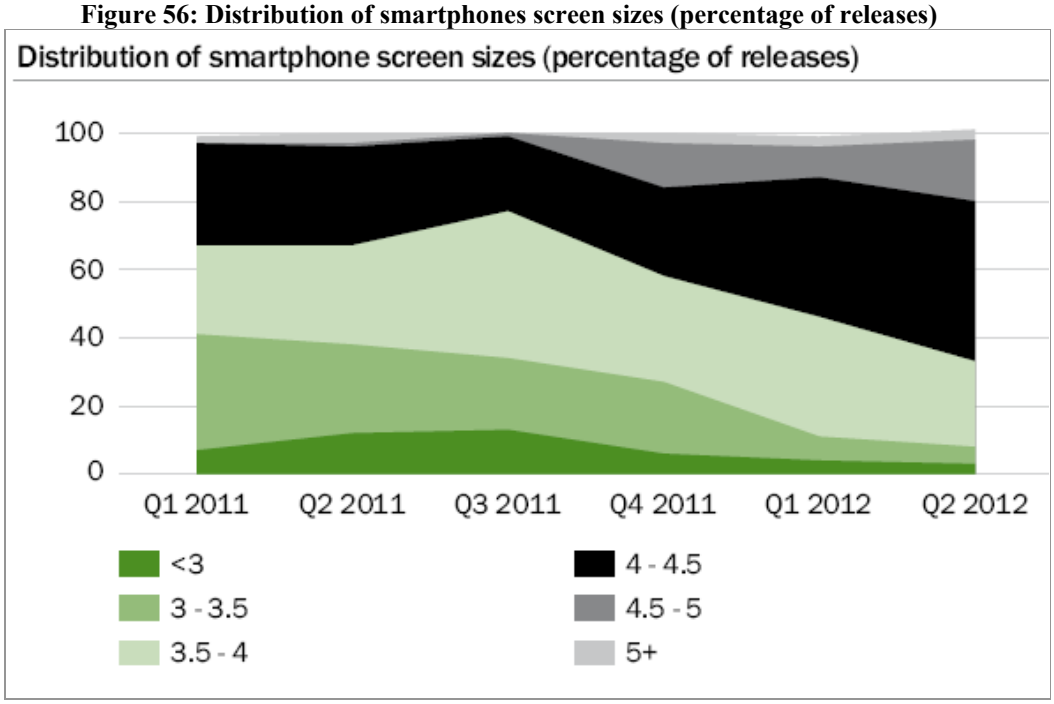


Source: Cisco VNI Global Forecast, 2011-2016

5.2.2. Technology meets demand

The growing importance of video traffic in total mobile data traffic is coming hand in hand with changes in mobile devices themselves. Smartphone producers are now delivering models with better colour reproduction and easier to view in daylight, as well as larger screens to make them more suitable to video viewing than previous models (Figure 56):

Figure 56: Distribution of smartphones screen sizes (percentage of releases)



Source: HIS ScreenDigest

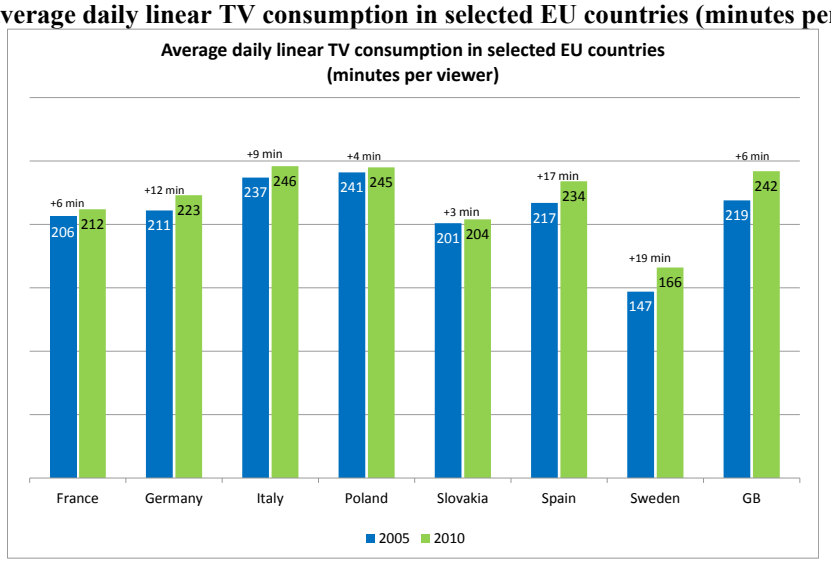
This is a very new trend that began in late 2011 with the launch of new devices and has continued throughout 2012. It is having a very noticeable effect on consumer behaviour, with mobile video consumption, as observed before, finally becoming a mainstream activity after many years of trials, launches and commercial failures. Consumer demand now for HD content for their large smartphones is in turn driving the deployment of faster 4G networks. It is also having a noticeable impact on both the movie and the television industries. Besides the ones mentioned in the next point, it is worth mentioning the emergence of Social TV apps that allows the user to interact and share comments about specific TV shows or movies while watching.

5.2.3. Television "anytime, anywhere" and online movies

The emergence of faster and widely accessible internet connection is having an impact on the television and movie sectors, the outcome of which is still hard to realize. Still, concepts like SmartTV, PayTV or VoD (video-on-demand) should soon become more familiar than traditional direct television or movie viewing.

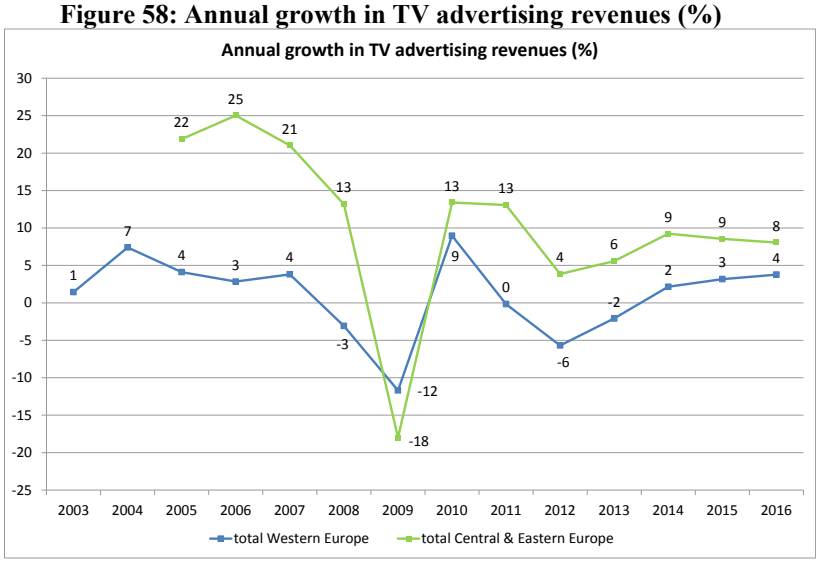
The traditional TV sector is showing considerable resilience to the changing ecosystem. The once fashionable belief that the Internet would "kill off" television has lost all credibility. The European television business is holding on: Average daily linear TV viewing times have been increasing in most major European countries (Figure 57), and the growth in TV advertising revenues has been mainly on positive ground (let aside the severe dip in 2009 and 2012 associated with the economic crisis) (Figure 58).

Figure 57: Average daily linear TV consumption in selected EU countries (minutes per viewer)



Source: 2013 e-Media Institute

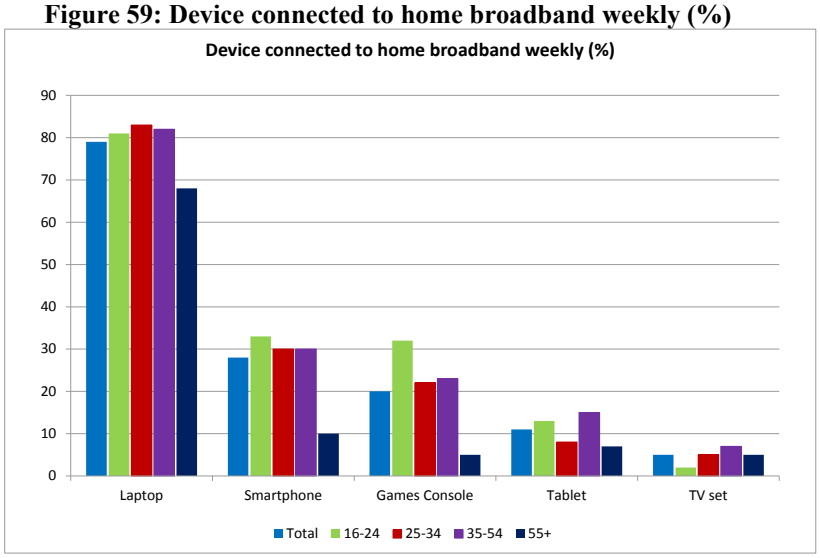
Figure 58: Annual growth in TV advertising revenues (%)



Source: HIS ScreenDigest

But the emergence and rise of connected viewing is changing the rules of the game, and is expected to increasingly keep doing so. More than one out of every four television sets shipped worldwide in 2012 was a smart TV. This will increase to over half in 2015. Continuing growth in wired broadband and Wi-Fi access and the recent launch of 4G are benefiting the downloading and streaming experience in different connected devices, which have as well been catching up in terms of screen size and colour reproduction quality. Even though the laptop is still the leader device used in connecting to the internet at home, smartphones, game consoles and tablets are increasingly being used by individuals, while connected TV sets are still expected to pick up in the coming years (Figure 59).

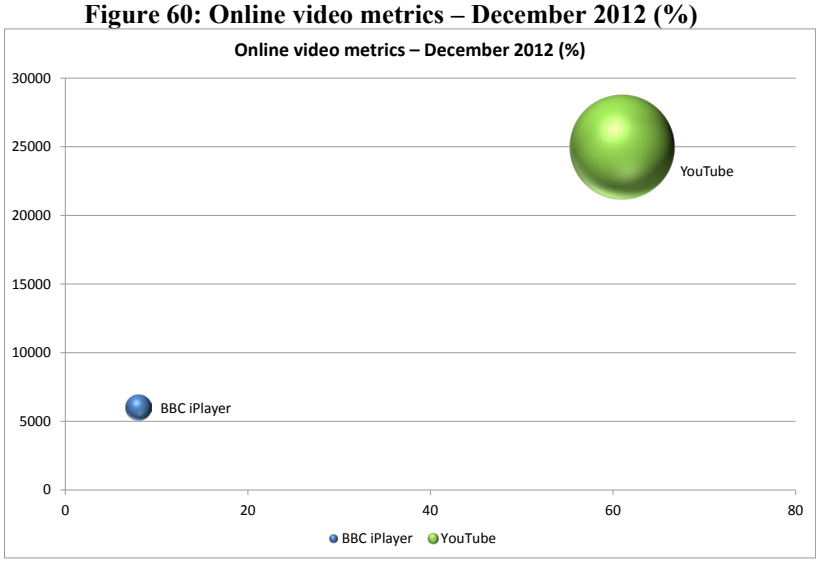
Figure 59: Device connected to home broadband weekly (%)



Source: Ofcom; GfK

One reason for the much higher volume of online access on other screens than the TV is the prominence of short-form content. Viewing stats for the PC, 59% of total online video time in December 2012 in the UK was consumed by YouTube, which dwarfed all other online video sites (Figure 60).

Figure 60: Online video metrics – December 2012 (%)



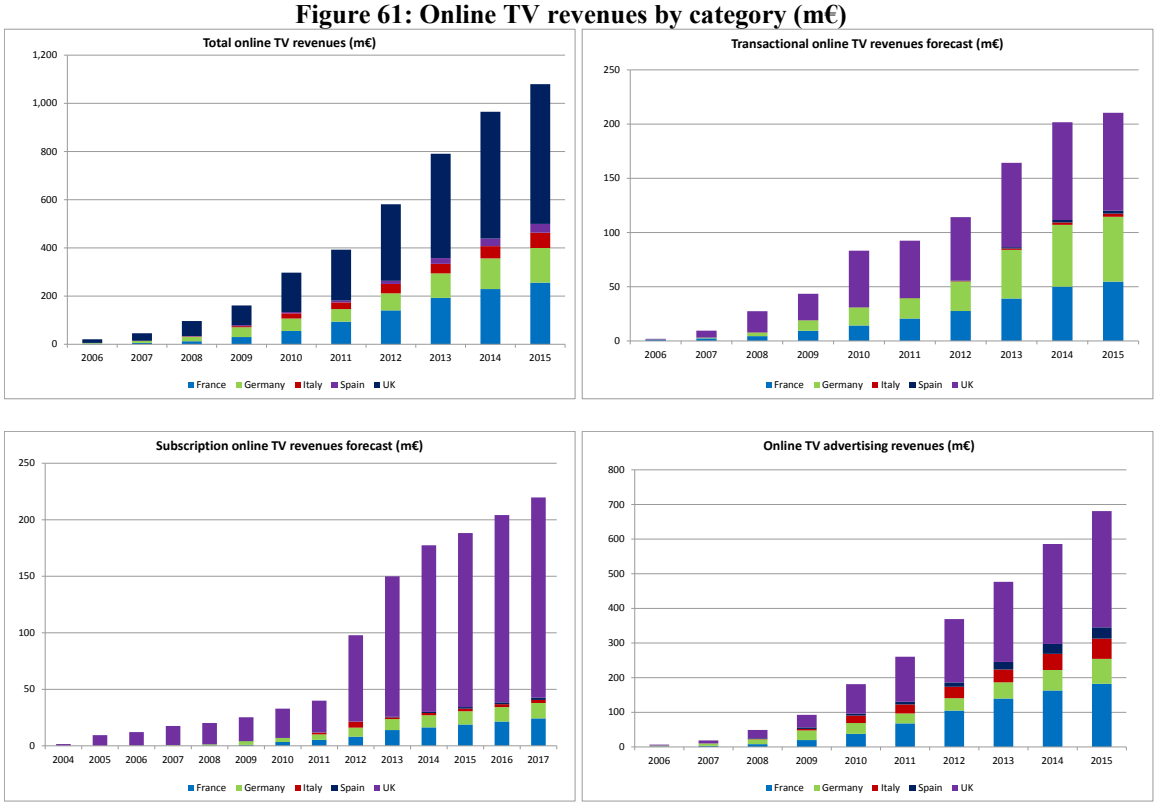
Source: Nielsen

But established broadcasters have not sat back and are at the forefront of innovation in the sector, investing significantly in content for online and multi-device distribution, with broadcasters' own sites among the most popular online video destinations in many European countries[21]. The European audiovisual industry has grown 56% in the decade between 2000 and 2010, and it was worth around €279 billion (2.3% of GDP) in 2010. Broadcasters are very active and reinvesting about 50% of their turnover in new content[2], an increasing share of that being invested in dedicated online content. For example, the European broadcaster RTL Group reported a 25 per cent increase in online video

[21] Creative Media Europe, Audiovisual Content and Online Growth, March 2012

consumption in 2012, with its services generating over 2.4bn user-requests for professionally-produced content. Additionally, for the major broadcasters in Europe, video consumption via mobile devices accounts for between 15 and 20 per cent of video requests, which is also a noticeable impact of the previously mentioned increase in video-suitable mobile devices available. The established broadcasters are feeding this trend, and *Youtube* recently announced that it is launching more than 60 new video channels with content from Britain, Germany and France.

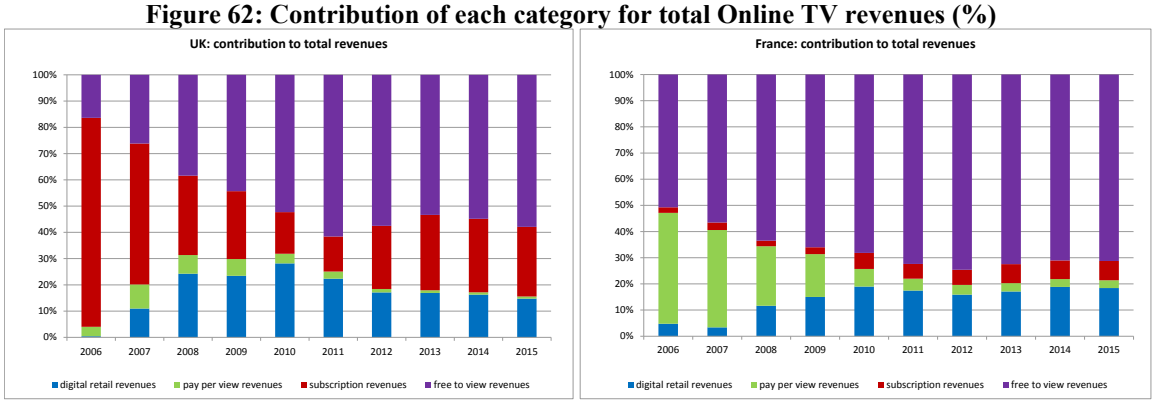
Figure 61: Online TV revenues by category (m€)



Source: HIS ScreenDigest

In the five largest EU markets, total online TV revenues have been increasing exponentially, and are forecasted to surpass a thousand million Euros in 2015. The UK, France and Germany are the largest contributors to this trend, while in other countries this market is still rather small. While with regard to transactional online TV revenues (consisting of digital retail revenues and pay per view revenues) these 3 countries share similar relevance, online TV advertising is bigger in the UK and France, while the subscription sector is significantly more advanced in the UK than in any other country (Figure 62).

Figure 62: Contribution of each category for total Online TV revenues (%)

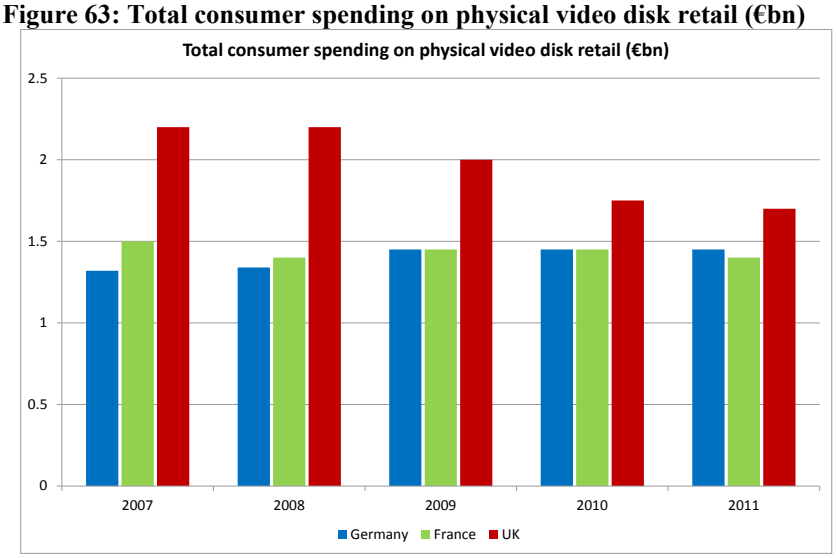


Source: HIS ScreenDigest

Comparing the contribution of the different segments to total online TV revenues, in both countries free-to-view revenues make up 60% or more of total online TV revenues, digital retail make up 20% or less, and the subscription sector is quite relevant in the UK, accounting to more than 20% of revenues (where Netflix, Lovefilm and Virgin Media try to challenge the clear leading position of BskyB).

The increase in subscription services is also taking its toll on physical video retail (Figure 63). There is a slow but steady downward trend throughout Europe in consumer spending on physical video disk retail. This trend is quite visible in the case of the UK, and still perceivable in France.

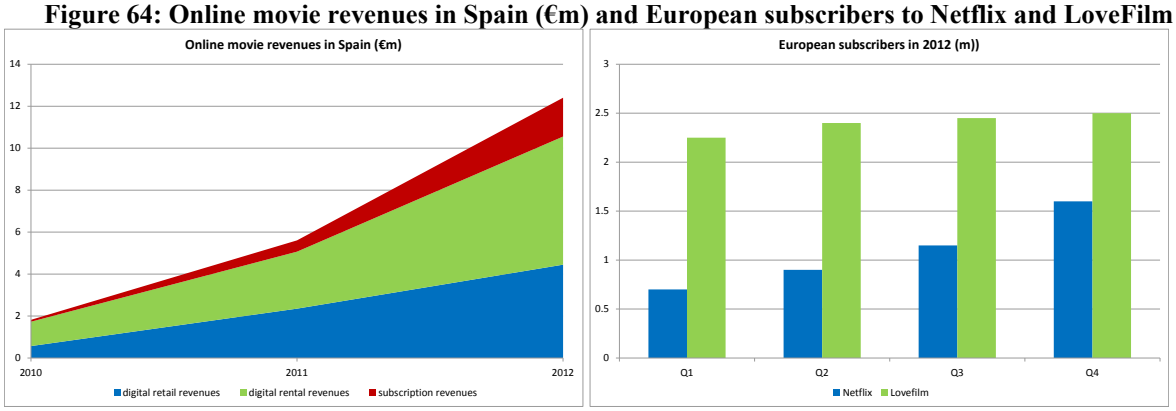
Figure 63: Total consumer spending on physical video disk retail (€bn)



Source: HIS ScreenDigest

Part of the reason behind these trends can be exemplified with the help of the following figures. The chart on the left shows the increase from online movie revenues in Spain. The market for online movies in Spain was worth €5.7m in 2011, showing 211 per cent growth and the market is expected to more than double in 2012, reaching €12.5m. Additionally, the figure on the displays the increase in the number of European subscribers throughout 2012 to Lovefilm and (mainly to) Netflix, two online video providers.

Figure 64: Online movie revenues in Spain (€m) and European subscribers to Netflix and LoveFilm



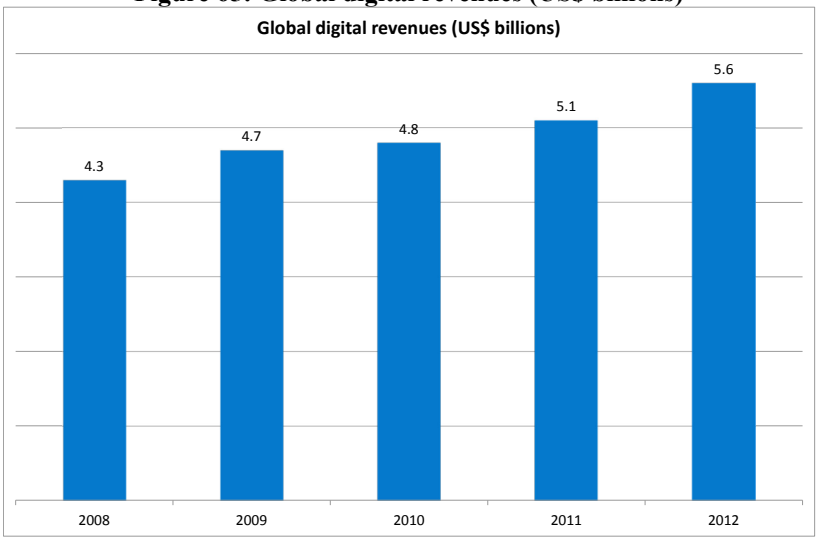
Source: HIS ScreenDigest

Regarding online viewing of TV and video content, differences can still be observed at the extremes of the age spectrum, between groups aged 16-24 and +55. In the UK, watching video clips (for example through *Youtube*) is the most common activity, while Video on Demand (VoD) movie watching has not yet gained that much popularity.

5.2.4. The online music market

Digital revenues increased by an estimated 9 per cent to EUR 4.3 billion in 2012, now accounting for around 34% of global industry revenues, continuing the growing trend of previous years (Figure 65). These results are of growing importance to the industry, which recorded growth in 2012 for the first time since 1999. The EUR 12.6 billion revenues represent an increase of 0.3%[22].

Figure 65: Global digital revenues (US$ billions)

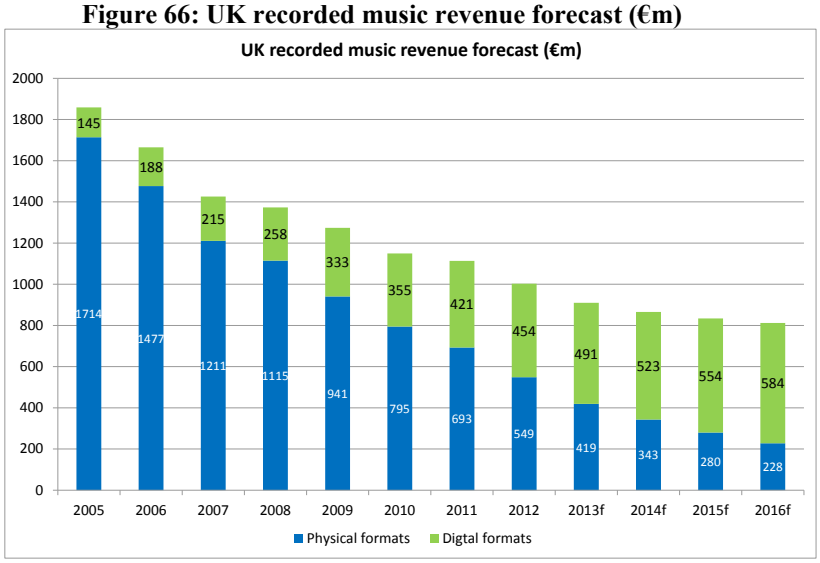


Source: EFPI

But when considering Europe alone, the picture looks less optimistic for the industry as a whole. For example in the UK, by far the largest music market in Europe, the evolution of the recorded music revenues reveals a daunting prospect (Figure 66):

[22] IFPI Digital Music Report 2013

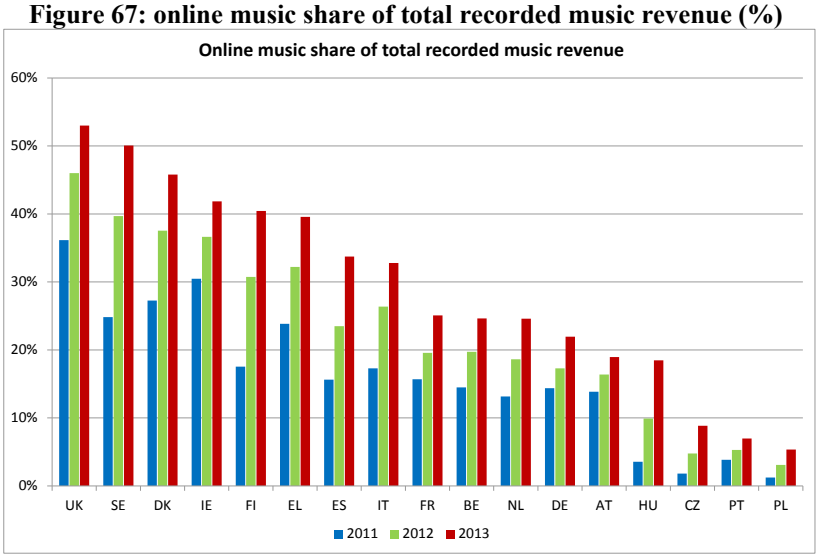
Figure 66: UK recorded music revenue forecast (€m)



Source: Enders Analysis

Two striking features emerge: the decline in the overall size of the market, and the stark increase in the contribution of digital formats to overall revenue. The turning point is expected to occur in 2013 for the UK, when more than 50% of the revenues will come from digital formats. Other European countries (like Sweden, Denmark and Ireland) will approach this pattern, with more than 40% of recorded music revenues expected to come from digital formats in 2013, but significant cross-country differences still persist: for example, in Portugal and the Czech Republic this contribution will still fall below 10%. The average for Europe is in line with the global share mentioned above: some 34% of global industry revenues come from digital formats (Figure 67).

Figure 67: online music share of total recorded music revenue (%)

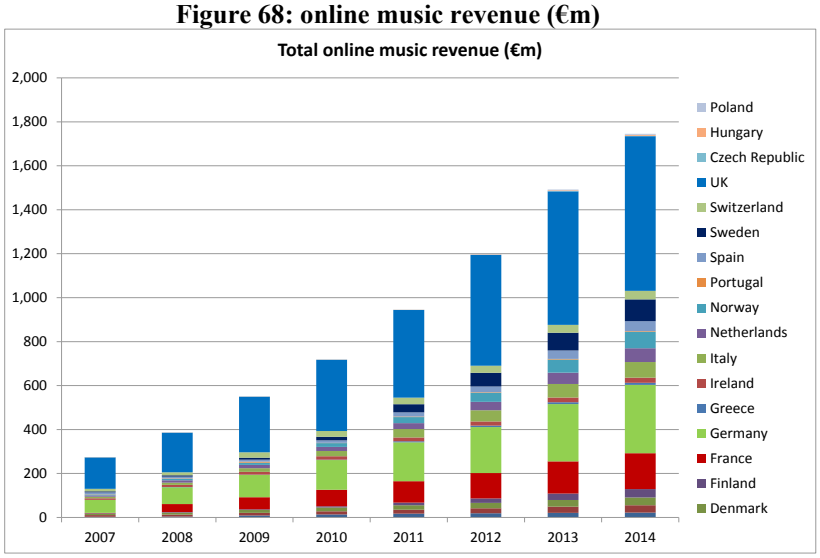


Source: HIS ScreenDigest

The mentioned increase in absolute revenues from online music for the UK is featured as well in other European countries. Even though the UK is by far the largest market and the biggest contributor to its growth, the German online music market is also growing and gaining importance.

France is the third biggest market, but it is interesting to observe the noteworthy growth in Sweden, and as well in Norway and Italy (Figure 68).

Figure 68: online music revenue (€m)



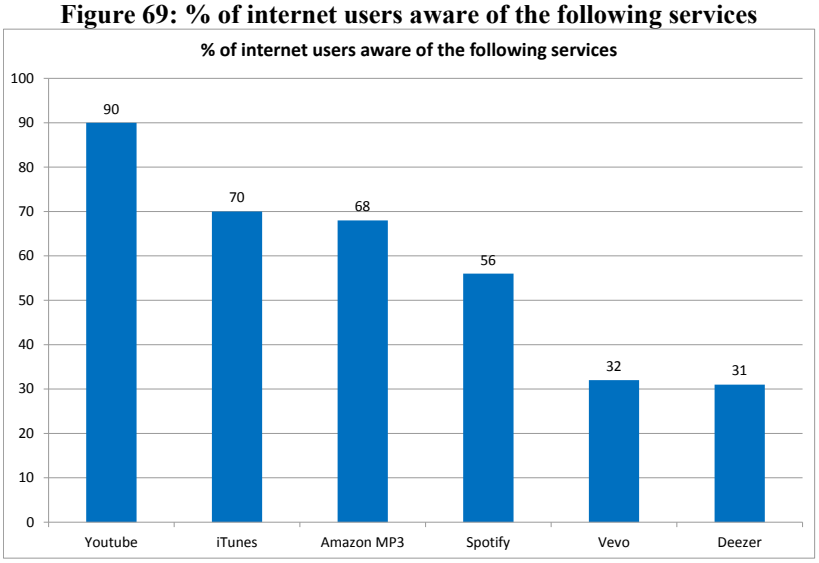
Source: IHS Screen Digest

The importance of online music in not confined to its own borders. Though the CAGR of 38% from 2006 to 2016 of total online music consumer revenue is impressive in itself, music is an engine of the digital world, helping drive a wider digital economy, ranging from social networks to devices, broadcasters and live performance. Music is also helping power social media platforms. For example, nine in 10 of the most watched videos of all time on *YouTube* are music videos. Nine in 10 of the most liked people on *Facebook* are artists. Seven of the top 10 most followed people on *Twitter* are artists[23].

Youtube is the leading platform in terms of consumer awareness in what regards listening to music online as well, way ahead of services like *Spotify* (Figure 69). It has also been observed to be one of the leading means through which young people listen and share music and are aware of new artists (in association with social networks).

[23] IFPI Digital Music Report 2013

Figure 69: % of internet users aware of the following services

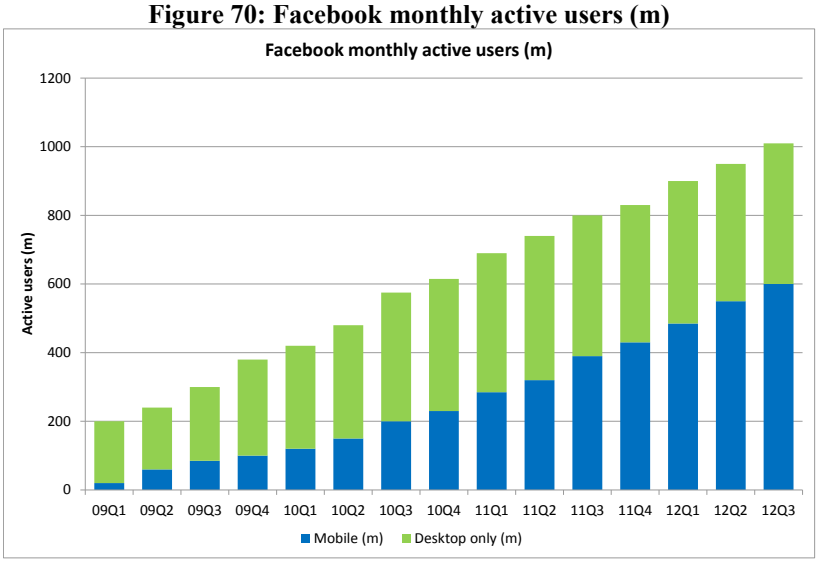


Source: Ipsos Media CT

5.2.5. Social networks and online gaming

As described above, the use of social media sites has grown over the past few years and posting messages to social media sites or instant messaging has become one of the most popular activities of European internet users with same levels of take-up as reading newspapers or internet banking. Social networking is above all a mobile activity; in 2012 58% of people who used the internet on the move with a handheld device participated in social networks. Facebook is by far the largest social network in the EU. With more than 1bn total active users, 60 per cent of them access it on mobile devices **(**Figure 70**).**

Figure 70: Facebook monthly active users (m)



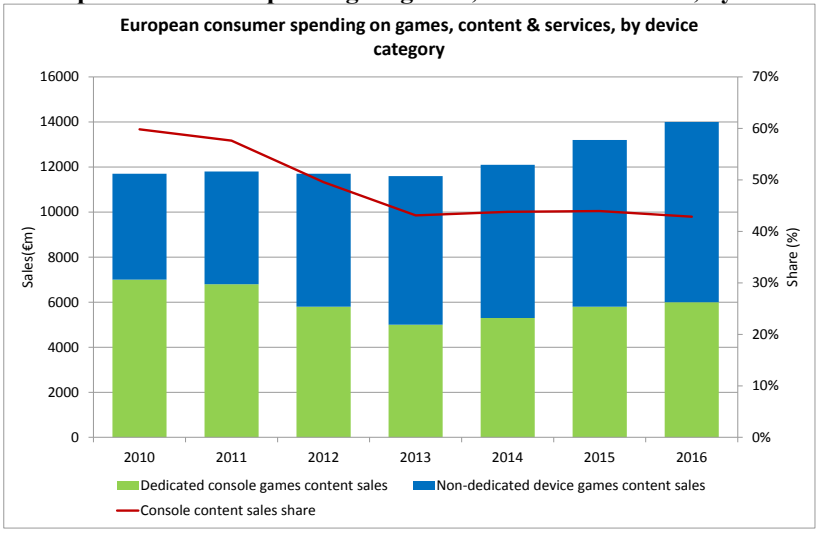
Source: HIS ScreenDigest

Social networks like *Facebook* are also driving another trend: that of video games played online in non-dedicated devices (Figure 71). In 2012 there was an increase in the number of cheap connected devices used as games consoles. These devices are commonly based on custom versions of

smartphone applications and are built to offer more advanced games that, while not at the level of established consoles and PC games, are a more competitive offering than many existing smart TV apps.

Social network services are also one of the driving factors behind the production and uptake of casual games played on general purpose devices supported by online app stores, including the PC browser, smart phones and tablets, and to a lesser degree smart TVs and TV connected boxes. Surveys in 2012 put gaming rates of smartphone users at around 40%. Casual gaming on these platforms is reaching a much broader market and demographic than that tied to dedicated consoles and handhelds, reaching older age groups and levels of female players almost equalling that of male players. This is accompanied by radical shifts in the business models away from a product to a service model, with revenues from freemium services such as game purchases, virtual currencies, subscriptions, upgrades and in-game advertising and marketing games. Growth is occurring not only in game production, but in dedicated social gaming platforms that provide messaging, monetisation and gamification services[24].

Figure 71: European consumer spending on games, content & services, by device category



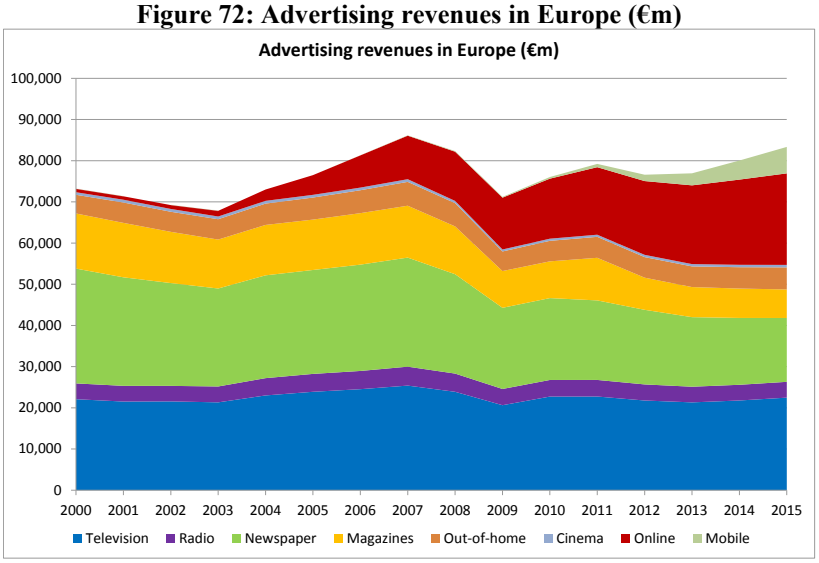
Source: HIS ScreenDigest

5.2.6. Advertising

The financial crisis had deep consequences for advertising revenues throughout Europe. After the severe dip in advertising revenues in 2009, the recovery in the traditional sectors has been meagre. In contrast, the online advertising segment has experienced a consistent increase in revenues ever since (Figure 72).

[24] Stewart J and Misuraca G (2012) The Industry and Policy Context for Digital Games for Empowerment and Inclusion: Market Analysis, Future Prospects and Key Challenges in Videogames, Serious Games and Gamification, JRC Scientific and Technical report, JRC77656, available at: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6099

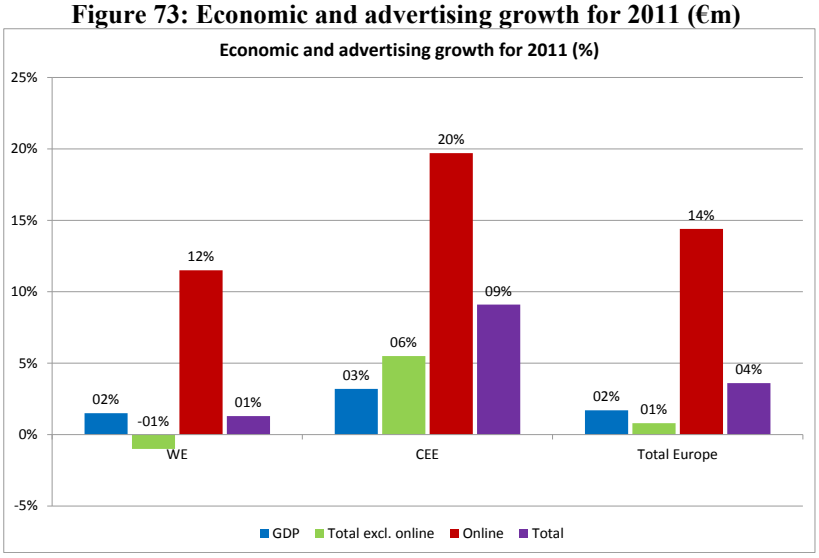
Figure 72: Advertising revenues in Europe (€m)



Source: HIS ScreenDigest

This increase in advertising revenues in Europe is quite remarkable considering the dire economic situation in most European markets. In 2011, advertising revenues grew at a rate that was twice that of European economic growth (Figure 73). Central and Eastern Europe (CEE) countries were very dynamic in driving growth, and confirm the vital importance on the online segment in driving this growth.

Figure 73: Economic and advertising growth for 2011 (€m)

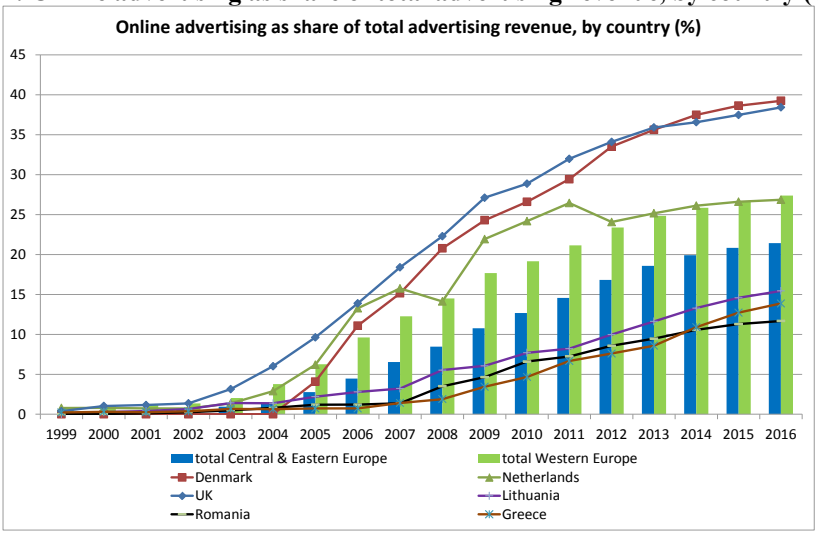


Source: HIS ScreenDigest

The pronounced growth of the online segment and stagnation in traditional advertising has brought about a steep increase in the importance of online advertising as a share of total advertising revenues. But this phenomena is still in quite different stages in different countries: while mature markets like the UK, Denmark and the Netherlands display the highest shares (near or above 35%) and some level of saturation (a decrease in the rate of growth), Greece, Romania and Lithuania exhibit shares around 10% and a potential for further growth (Figure 74). There is a fast increase in

Western Europe and a catching-up process derived from an even faster growth of online advertising as a share of total advertising revenue.

Figure 74: Online advertising as share of total advertising revenue, by country (%)



Source: HIS ScreenDigest

In conclusion, traditional means like TV advertising still amount for the bulk of the revenue, but flat growth in many markets (1.4% on average in Western Europe) calls for diversification of the traditional ad model. Broadcasters must advance their IP-delivered video advertising strategies to ensure sustainable growth in the monetization of content, since through the proliferation of tablets, mobile video consumption will escalate.

In 2012, mobile advertising grew 81 per cent globally. This was driven primarily by mobile internet advertising (display and search), which accounted for 71 per cent of total mobile advertising. For most advertisers, mobile has now become a fixture in their marketing mix.

Global mobile advertising revenue is predicted to increase 73 per cent year-over-year in 2013. Yet, the diversity of mobile advertising companies in terms of business models and philosophies also points to larger questions around the best way forward for mobile.

5.3. Conclusions

The growth of digital content is forecasted to accelerate in the coming years, with digital formats accounting for more than half of revenues in the music industry, and sharply gaining importance in the audio-visual, advertising and videogames industries, replacing traditional physical formats. The widespread and increase in speed of broadband internet access and the development of more modern devices allows for a range of new usages whose demand, in turn, accentuate the pressure for technological development and innovation on the part of service providers.

Still, despite the overall increase in relevance of the overall economy, there are some relevant disparities across member states. The largest markets are at the forefront of change. In particular, the UK is by far the biggest market in what concerns for example online digital music sales, as well as subscription to online TV. Nordic countries as well display leading roles, for example on online

videogames. But regardless of where countries are located in the adoption curve, and the speed at which new developments are being adopted, the trends are quite clear. Central and Eastern European countries are displaying very strong growth in the online advertising markets, outpacing Western Europe in its rates of growth. Digital content is blossoming, and video sites keep shaping the landscape, adding up to their user-generated content new offers of online channels and dedicated content generated by traditional broadcasters, who are themselves increasing their online offers.