



## REPORT 2

Supply of services in monitoring regulatory and market developments for electronic communications and information society services in Enlargement Countries

2011-2013

July 2012

## Executive Summary

This document is the second edition in a series of four study reports monitoring the electronic communications and information society sectors in the nine countries that are seen as potential members of the European Union, either in the short or medium term: Croatia, Iceland, the former Yugoslav Republic of Macedonia (Macedonia), Montenegro, Serbia, Turkey, Albania, Bosnia & Herzegovina and Kosovo\*. It reports on the key developments between November 2011 and June 2012 and the progress made by each country in adopting the EU regulatory framework and aligning national ICT policies with the goals and priorities of the Digital Agenda for Europe.

Three and a half years after the unprecedented global financial crisis began in 2008, the economic outlook remains weak and there is deep uncertainty about the implications of the euro area crisis for both the European and global economies. Most of the enlargement countries experienced a modest return to growth in 2010 and the first half of 2011, but following the renewed turmoil in the euro area in late 2011, the recovery is expected to slow further in 2012.

The electronic communications market in the enlargement countries grew in 2011 by 5.7% to a total value of €16.07bn. The strongest growth rate of 23.2% was demonstrated by internet services, which accounted for almost 13% of the total value of the electronic communications sector in the nine countries in 2011. The next fastest growing segment was cable TV services, achieving 9.5% growth. Mobile communications, which represents 60% of the market, grew by 7.6%.

The overall trend of decline in both fixed telephony revenue and lines has continued, reflecting the effects of fixed-to-mobile substitution. The total number of fixed telephone lines in the enlargement countries was 21.94m at the end of 2011 – a drop of a million lines compared with 2010. A similar decrease was reported a year earlier. The average penetration rate for the nine countries was 22.6%, but ranged from nearly 48% in Iceland to just below 5% in Kosovo. A slight increase in the number of fixed lines reported in Croatia and Macedonia was mainly driven by the increase in the number of VoIP subscriptions, now approaching 20% of total fixed lines in both countries.

The incumbents' market share remained robust and decreased only marginally in most cases, pointing towards stagnation of market competition. Only in Iceland and Croatia is the incumbent's market share comparable to the EU average.

The total number of mobile subscriptions in the nine enlargement countries increased by approximately 4m, to 92.4m at end 2011, which corresponds to an average penetration rate of 95%. Particularly strong growth was observed in Albania and Turkey. In Croatia, the reported number of mobile subscriptions has decreased as a result of the revised definition of an active SIM card. Three countries – Albania, Montenegro, and Serbia – reported mobile penetration rates above the EU-27 average of 127%.

In 2011, the overall level of competition in the mobile markets continued to increase. The market shares of third-placed operators continued to rise – and Iceland's Nova and Macedonia's VIP have crossed the 25% threshold for market share by subscriptions, while Albania's Eagle mobile has crossed the 20% threshold. Number portability in mobile networks is now available in seven countries – Croatia, Iceland, Macedonia, Montenegro, Turkey, Albania and Serbia. In Bosnia & Herzegovina, this facility was initially scheduled to be implemented in January 2012 but is not yet available, despite fines imposed by the regulator on mobile operators.

Particularly strong reductions in retail mobile prices between September 2011 and March 2012 were reported in Macedonia, Turkey and Bosnia & Herzegovina, whereas mobile termination rates were reduced in Croatia, Iceland, Macedonia, Montenegro, Serbia and Albania.

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\*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence.

The fixed broadband market grew by 10% in 2011, reaching a total of 10.59m connections. This represents an increase of almost one million lines over the year to give an average fixed broadband penetration rate of 10.9%.

Iceland has the highest fixed broadband penetration rate of 35.1%, above the EU-27 average of 27.7%, followed by Croatia with 19.5%. Incumbents continue to dominate the fixed broadband market, with overall market share at 74.2% of subscriber lines in the nine countries. This is well above the EU average of 43.3%.

The majority of fixed broadband connections in the enlargement countries are based on xDSL, with the exception of Bosnia & Herzegovina and Kosovo, where copper-based xDSL lines represent around 25% of the market. Alternative infrastructures, such as cable TV and fixed wireless access networks, have been driving broadband growth in Kosovo, Macedonia, Serbia and Bosnia & Herzegovina. A significant increase in the number of fibre-based broadband lines in 2011 (FTTH and FTTB/C) was reported in Turkey, Iceland, Albania and Bosnia & Herzegovina.

The distribution of retail broadband lines by speeds shows a steady movement towards higher-speed packages in all countries. Users in Iceland have by far the fastest connections, where nearly 30% of broadband lines have advertised peak download speeds of 20 Mbps and above. On the other hand, connections with download speeds below 2 Mbps still prevail in Montenegro and Kosovo.

The mobile broadband market remains by far the most dynamic segment. The penetration of dedicated 3G mobile data cards/wireless modems at the end of 2011 in Iceland and Montenegro, with respective penetration rates of 13.1% and 10.4%, had surpassed the EU-27 average of 8.1%. In Turkey, the number of dedicated mobile broadband connections more than tripled in 2011, reaching a penetration rate of 6.7%.

All countries, except Kosovo, have awarded spectrum licences for 3G mobile services in the 2.1 GHz band. Croatia and Montenegro have allowed both UMTS and LTE services along with GSM in the 900 MHz and 1800 MHz bands, while Iceland, Macedonia and Bosnia & Herzegovina have so far only allowed UMTS. Two Croatian operators, VIPnet and Hrvatski Telekom, were first in the monitored countries to launch commercial LTE services in the 1800 MHz band in March 2012.

Only Croatia and Iceland have completed analogue terrestrial switchover, and Macedonia plans to have terminated analogue transmissions by June 1, 2013. All three countries are currently planning further steps to make the digital dividend spectrum available for wireless broadband. At the same time, most of the remaining countries have given up their initial plans for early switchover dates and the one-day switchover concept. Instead, they are now likely to opt for a switchover in stages, stretching until the first half of 2015.

So far, only Croatia, Montenegro and Serbia have developed national broadband plans. A new broadband plan has also been drafted in Iceland as part of the new Telecom Policy statement. The Icelandic strategy is particularly ambitious as it envisages availability of broadband with 30 Mbps download speeds to 90% of the population by 2014. The Serbian strategy for the development of information society aims at ensuring availability of 4 Mbps download speeds to 100% of the population already by the end of 2012.

Six of the monitored countries – Croatia, Iceland, Macedonia, Serbia, Turkey and, since October 2011, also Montenegro – collect on a regular basis national statistics on the key information society indicators based on Eurostat methodology.

For many of the available statistical indicators, Croatia, Macedonia, Montenegro, Serbia and Turkey are below the EU-27 average, whereas Iceland can be compared with Denmark and Sweden and is generally far above the EU-27 average. For example, the percentage of individuals regularly using the internet ranges from 36% in Turkey to 55% in Croatia, whereas the respective indicator in Iceland is 94%, which is well above the EU-27 average of 68% and also above the Digital Agenda target of 75% by 2015. Internet services for buying online are used by 4% of individuals in Macedonia, 7% in Turkey, 14% in Serbia, 17% in Croatia and 49% in Iceland - which is again above the EU-27 average of 43% and very close to the Digital Agenda target of 50% by 2015.

The degree of alignment of national electronic communications and information society legislation with the EU directives varies among the monitored countries. The highest level of harmonisation with the EU *acquis*, comparable to the EU member states, has been achieved by Iceland and Croatia. However, only Croatia has fully aligned its legislation with the provisions of the revised EU 2009 framework.

Electronic communications legislation based on the EU 2003 regulatory framework is in place in Albania, Iceland, Montenegro, Macedonia, Serbia and Turkey. Amendments based on the EU 2009 framework have been drafted in Iceland, Albania and Montenegro. Kosovo is about to adopt a new law that would transpose both the EU 2003 and 2009 regulatory frameworks. Macedonia is planning to draft the necessary amendments in 2012. There has been no progress in adopting the EU 2003 and 2009 regulatory frameworks in Bosnia & Herzegovina, as legislative processes were further slowed down by the delays in the establishment of the central government after the October 2010 elections.

The EU legal framework for information society services has been the focus of recent legislative developments in Kosovo and Albania. In spring 2012 Kosovo adopted a new Law on the information society services covering electronic commerce, liability of ISPs, distance contracts, electronic invoicing, electronic payments, electronic signatures, data protection and protection of information systems. Albania has several pending legislative activities, including a draft law transposing the Audiovisual Media Services Directive, a new law on rights of way and the final alignment of the law on electronic commerce with the Electronic Commerce Directive.

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## I. INTRODUCTION

The project, called “Monitoring regulatory and market developments for electronic communications and information society services in Enlargement countries”, is a three year initiative funded by the European Commission and managed by Cullen International. The countries monitored in this project – Albania, Bosnia & Herzegovina, Croatia, Iceland, Montenegro, Serbia, Kosovo\*, the former Yugoslav Republic of Macedonia (Macedonia) and Turkey – have been given the perspective of becoming EU members once they fulfil the necessary conditions, and are at various stages on their road towards the EU.

Croatia is an acceding country. The EU accession treaty between Croatia and the EU was signed on December 9, 2011. Subject to its ratification by all the EU member states, Croatia is expected to join the EU on July 1, 2013.

Five other countries, namely Iceland, Macedonia, Montenegro, Serbia and Turkey, have been granted the status of EU candidate countries. Accession negotiations are underway with Turkey and Iceland, and have just started with Montenegro in June 2012.

Albania and Bosnia & Herzegovina have signed a Stabilisation and Association Agreement with the EU. An exceptional case is Kosovo (under the United Nations Security Council resolution 1244), following its unilateral declaration of independence from Serbia on February 17, 2008. The EU remains divided on the recognition of its independence and EU member states decide individually on their relations with Kosovo in accordance with national practice and international law. However, notwithstanding differing positions on Kosovo's status, the EU has repeatedly confirmed that Kosovo shares the European perspective of the Western Balkans and is part of the Stabilisation and Association Process.

Compliance with the EU *acquis* is a key requirement for the accession countries that must be fulfilled prior to becoming member states. The Stabilisation and Association countries also have formal commitments to make progress towards compliance with the EU *acquis* and as a condition for achieving the status of an EU candidate country.

The main objective of the project is to assist the Commission and the authorities in the countries concerned in monitoring the progress made by each country towards compliance with the EU rules for electronic communications and information society services and convergence with the EU internal market. This is second of the four interim study reports that will be produced for this project every nine months in the period from 2011 to 2013.

## II. PARTICIPATING COUNTRIES

The table below lists the participating countries in order in which they are presented in the study report: the acceding country, followed by the five candidate and the three potential candidate countries. It also introduces two letter codes that will be used to identify specific entities on graphs and charts. The codes are based on the international two letter ISO codes that are also used for Internet domain names assigned by Internet Assigned Numbers Authority (IANA).

| Country       | Code | Comments   |
|---------------|------|--|
| Croatia       | HR   | Croatia is an acceding country. The EU and Croatia signed Croatia's EU Accession Treaty on December 9, 2011. Subject to ratification of the Treaty by all the Member States and Croatia, Croatia will become the EU's 28th Member State on July 1, 2013.   |
| Iceland       | IS   | -  |
| FYR Macedonia | MK   | The constitutional name is the Republic of Macedonia, though it is not recognised under this name by some countries. The EU refers to it by the provisional reference under which it was admitted to the United Nations: "the Former Yugoslav Republic of Macedonia". This does not prejudice the outcome of the negotiations on the name of the country that are underway. A short term 'Macedonia' is frequently used in this report without prejudice to positions on the official name of the country. |

\*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence.

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| Country              | Code | Comments  |
|----------------------|------|---|
| Montenegro           | ME   | -   |
| Serbia               | RS   | On March 1, 2012 European Council confirmed Serbia as an EU candidate country.  |
| Turkey               | TR   | -   |
| Albania              | AL   | -   |
| Bosnia & Herzegovina | BA   | <p>Bosnia &amp; Herzegovina (BiH) comprises two entities:</p> <ul style="list-style-type: none"> <li>• The Federation of Bosnia &amp; Herzegovina</li> <li>• Republika Srpska</li> </ul> <p>A separate federal district of Brčko belongs to both.</p> <p>Bosnia &amp; Herzegovina is presented as a single geographic unit because its constituent parts have a common legislative and institutional framework for electronic communications and information society services, established at the entity level.</p> <p>The report treats separately the three incumbent operators that, while now operating nationally, were initially established in different parts of the entity:</p> <ul style="list-style-type: none"> <li>• BH Telecom d.d Sarajevo (BA-bh) based in Sarajevo, the Federation of Bosnia &amp; Herzegovina</li> <li>• Hrvatske Telekomunikacije d.o.o. Mostar (BA-ht) based in Mostar, the Federation of Bosnia &amp; Herzegovina</li> <li>• Telekom Srpske a.d. Banja Luka (BA-ts) based in Banja Luka, Republika Srpska</li> </ul> |
| Kosovo*              | XK   | <p>*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence.</p> <p>Kosovo does not have an officially assigned ISO 3166 code. However, the structure allows for so-called user assigned codes. The code "XK" is used by Eurostat and some other organisations.</p>   |

Table A.1 – Countries covered in the report



### III. METHODOLOGY

In the data collection process, the project relies on the support of the national regulatory authorities for electronic communications and the government bodies responsible for electronic communications and information society policies. The principal sources of the information are listed in the table below. Some additional information will be taken from Eurostat and national statistics offices.

| Country | Electronic communications                                       | Information society services  |
|---------|---|---|
| HR      | Croatian Agency for Post and Electronic Communications (HAKOM)  | Ministry of Maritime Affairs, Transport and Infrastructure<br>Ministry of Administration (former eCroatia office) |
| IS      | Post and Telecom Administration (PTA)                           | Ministry of the Interior  |
| MK      | Agency for Electronic Communications (AEC)                      | Ministry of Information Society and Administration  |
| ME      | Agency for Electronic Communications and Postal Services (EKIP) | Ministry for Information Society and Telecommunications   |
| RS      | Republic Agency for Electronic Communications (RATEL)           | Ministry for Culture, Media and Information Society, Digital Agenda Administration                                |
| TR      | Information and Communication Technologies Authority (ICTA)     | Ministry of Development   |
| AL      | Electronic and Postal Communications Authority (AKEP)           | National Agency on Information Society (NAIS)   |
| BA      | Communications Regulatory Agency (RAK)                          | Ministry of Communications and Transport  |
| XK      | Telecommunications Regulatory Authority (TRA)                   | Ministry of Economic Development  |

Table A.2 – Authorities supplying data for this project

The information collection process involves four sets of questionnaires distributed to the relevant ministries and authorities, three for electronic communications and one for information society services:

1. Electronic communications: Regulatory and organisational information. The questionnaire addresses institutional and organisational issues as well as regulatory processes, such as the completion of market analyses, regulatory obligations imposed on operators with SMP, competitive safeguards and the universal service and consumer protection framework.
2. Electronic communications: Price information. The questionnaire covers a range of retail and wholesale tariffs.
3. Electronic communications: Market information. The questionnaire covers general economic background and key indicators for the electronic communications market and its main sectors: fixed, mobile and broadband communications.
4. Information society services. The questionnaire covers regulatory aspects of information society services and a limited set of statistical indicators.

The information provided by the regulatory authorities has been reviewed and validated by Cullen International experts

### IV. INTERIM STUDY REPORT STRUCTURE

The structure of the nine-monthly interim study reports comprises four principal chapters:

- Summary report: an overview of the most important legislative, regulatory and market developments over each nine-months reporting period. It presents key findings, highlights the major market trends and provides a summary assessment of the market data.
- Country profiles: an overview of policy making and regulatory authorities for electronic communications and information society services in the monitored countries, the key legal and policy documents, regulatory decisions and market structure.

- Cross-country comparative data: Presented as a separate Annex I to the report, this chapter compiles the indicators for electronic communications and information society services in the form of cross-country comparative tables and figures.
- Electronic communications and information society legislation: Presented as a separate Annex II to the report, this chapter lists the relevant national legislation on electronic communications and information society topics, with the title of the law or ordinance in the original language and in English translation and a reference to the official gazette number of the original version and later amendments.

## V. SUMMARY REPORT

### A. General economic background

The enlargement countries, similarly to the rest of Europe, experienced a slow return to economic growth in 2010, after the economic recession of 2008-2009. Growth remains fragile and the outlook uncertain, however, as the cloud of troubles in Greece and other southern European economies hangs close over neighbours in the region.

GDP growth was modest in most enlargement countries in 2010, and below the 2% EU-27 average except in Turkey, which bounced back to 9% GDP growth in 2010 after a 4.7% decline in GDP in 2009. The boom made Turkey one of the fastest recovering economies not just in Europe, but in the world, with growth driven by strong domestic demand, which continued to drive growth in the Turkish economy in 2011.

In Iceland and Croatia, the two enlargement countries worst hit by the crisis, GDP once again declined in 2010 but less severely than in 2009, as both made progress back towards growth. Serbia achieved a strong turnaround, recording 1% GDP growth in 2010.

The economic crisis led to substantial fluctuations in exchange rates against the euro, which continued to be unstable in 2010 but, averaged over 2011, settled out. Turkey again showed the sharpest changes, as the Turkish Lira appreciated against the euro in 2010 before depreciating again in 2011.

During the economic downturn some governments sought to increase taxes on the telecoms industry to help meet shortfalls in overall government budgets. The temporary additional 10% tax on mobile communications services in Serbia was abolished from January 1, 2011 but the additional 6% tax on mobile communications services in Croatia that had been abolished on January 1, 2012 was re-introduced on February 1, 2012 – and from March 1, 2012 the VAT rate in Croatia was also increased to 25%. On June 20, 2012 the Croatian government announced that the 6% tax on mobile services will be removed from July 1, 2012. Instead, the government is now considering increasing the annual spectrum usage fees paid by mobile operators to the state budget.

The population of the EU-27 and of Turkey has been increasing over the past five years; while the EU-27 population grew by approximately 1.5% from 2007 – 2011, however, Turkey's population grew more than three times as fast, by 5.8%.

Most other enlargement countries have seen a gradual decline in their populations, which is clearly shown in the new census data published for several of the countries in 2011, including Croatia, Serbia, Albania and Kosovo.

### B. Electronic communications market overview

The total value of the electronic communications market in the nine Enlargement countries in 2011 was calculated as €16.07bn. This represents an increase year on year of 5.7% (using revised figures for 2010, which have been updated since the last report and total €15.19bn).

Mobile telecommunications represent 60% of the market. Fixed voice telephony represents just under a quarter of the market, followed by internet services, with much smaller shares for data communications and cable television.

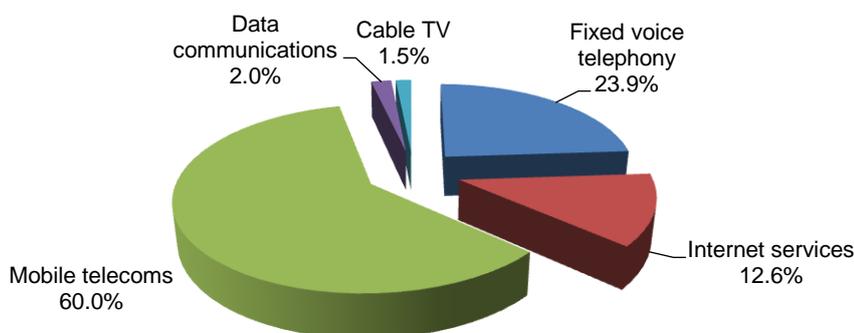


Figure B.1 – Electronic communications market revenue share by service category in 2011

What is clear, however, is that the internet services sector is growing in all countries, while the traditional fixed voice telephony sector is declining in most countries. In 2011 there was, moreover, a return to steady growth in the mobile sector, where growth had stagnated in 2010, although mobile revenue in Croatia, Macedonia, Montenegro and Albania declined. The cable television sector, where it operates, also recorded steady growth.

Examining the splits by country, it can be seen that in Macedonia internet services accounted for 18.6% of revenue in 2011, and in Iceland and Croatia 14.4% and 14.3% respectively.

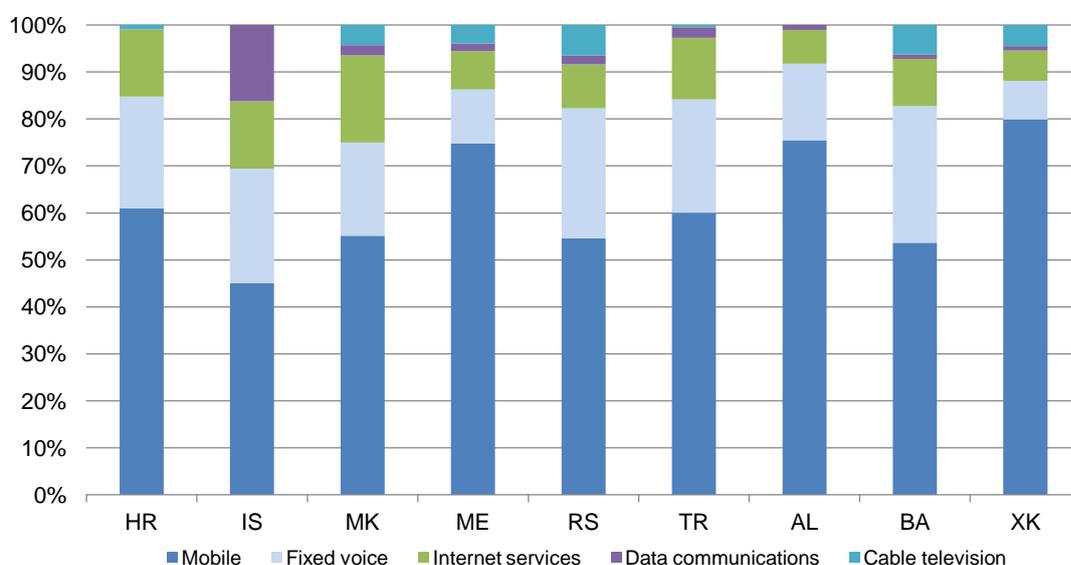


Figure B.2 – Electronic communications market, percentage of revenue by service category by country in 2011

Overall investment in electronic communications in the seven enlargement countries for which data is available was €2.45bn in 2011. This represents a slight increase from 2010 when the total for the nine countries was €2.41bn.

In Iceland, investment in support services held up in 2011 at ISK 1.09bn (€6.74m), while investment in mobile telephony more than halved compared with 2010, to just ISK 500m (€3.1m) in 2011.

In Kosovo, there was a significant decrease in investment in fixed voice telephony (from €16.3m in 2010 to €2.7m in 2011). This was due to the government's decision to freeze most of the capital and investment projects at the incumbent operator because of the privatisation process.

## 1. Fixed voice telephony market

The total number of fixed telephone lines continues to decline at a steady rate of approximately one million per year across the enlargement countries, dropping to 21.94m at end-2011, compared with 22.95m at end-2010.

The average fixed-line penetration for the nine enlargement countries was 22.6%, although the variation between countries remains wide, ranging from 48% in Iceland to just 5% in Kosovo. In Albania there was a slight increase in the number of fixed lines but the penetration appeared to jump 1.5 percentage points, after the release of lower population figures for 2011, following publication of the country's 2011 census.

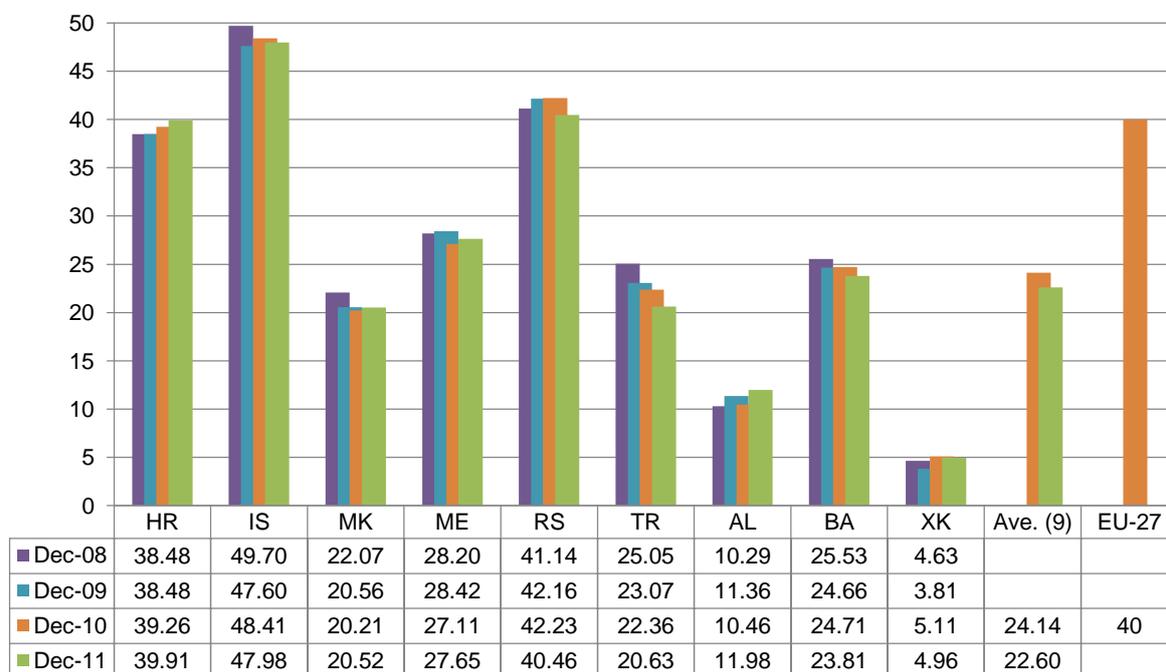


Figure B.3 – Fixed lines per 100 population

Note:

Serbia: Calculated using a figure of 2,881,232 fixed lines, which is based on ISDN subscriptions, rather than ISDN channels

The slight rise in the number of fixed lines in Croatia (from 1.74m in 2010 to 1.76m in 2011) was mainly due to a rise in the number of VoIP subscriptions, which reached well over 300,000.

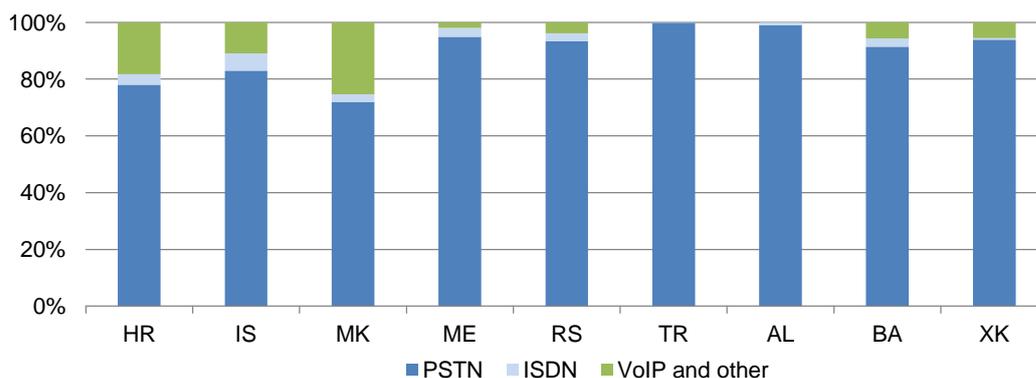


Figure B.4 – Fixed network lines by technology, Dec. 2011

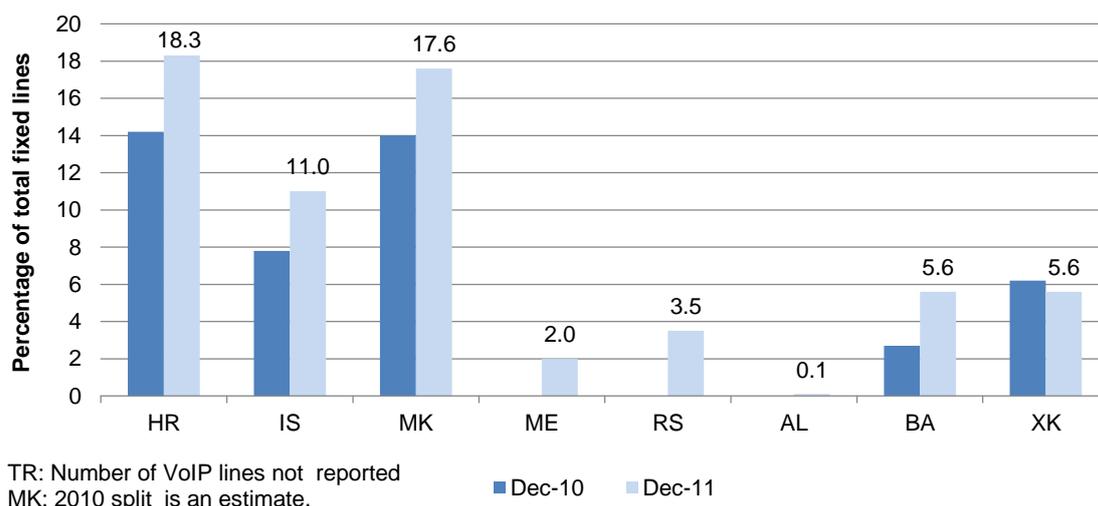


Figure B.5 – VoIP as a percentage of total fixed lines, 2010 - 2011

In Turkey, the data on the number of VoIP lines is not available; however, according to the statistics released by ICTA for Q1 2012, VoIP represents about 60.3% of the traffic of alternative operators.

Despite the growing uptake of VoIP, the continued dominance of the incumbent operators is clear. The high incumbent market shares for international traffic suggest that basic measures to introduce competition, by opening international gateways, have not always been effective.

In Macedonia, the retail revenues for international calls at incumbent Makedonski Telekom have remained more or less stable since 2010 but the international traffic and call revenues of some alternative operators, for example ALO, decreased in 2011, which is why the incumbent's market share appears to have increased in this segment compared with 2010 (from 76.2% to 81.2%).

In Iceland the incumbent's market share is lower than in the eight Enlargement countries in South Eastern Europe and is comparable to the EU average.

In Albania, in 2011 the incumbent provided some offers of bundles of national call minutes for a fixed fee. This explains the rise in the incumbent's share of national call traffic compared with 2010 (from 93.3% in 2010 to 97% in 2011) despite a fall in the incumbent's share of retail revenue from fixed calls. At the same time, the voice telephony users of the largest alternative operators in Albania have tended to use a low number of national call minutes, choosing to buy a fixed voice telephony subscription mainly because it is bundled with a broadband subscription.

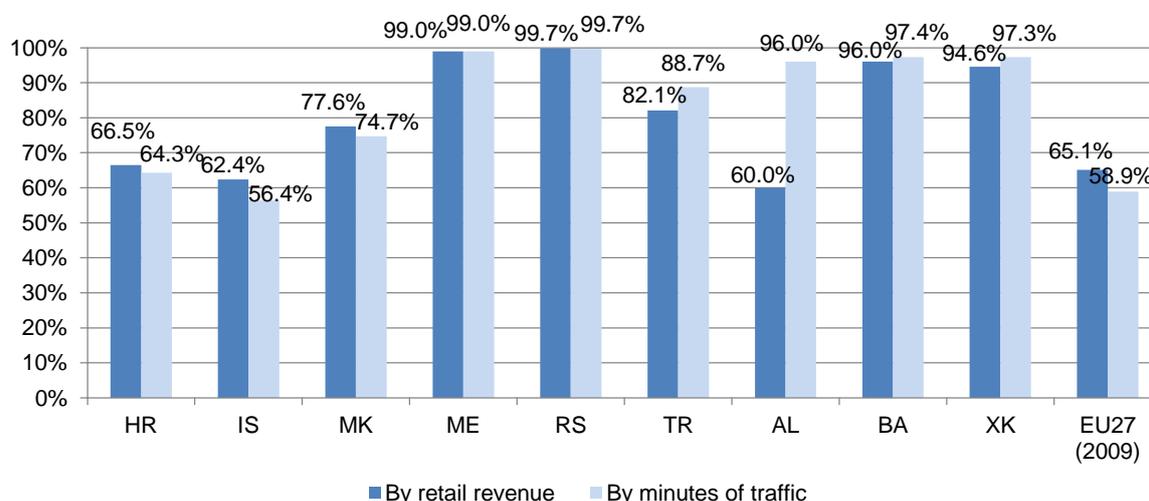


Figure B.6 – Incumbent operators' overall market shares in fixed voice telephony, Dec. 2011 (%)

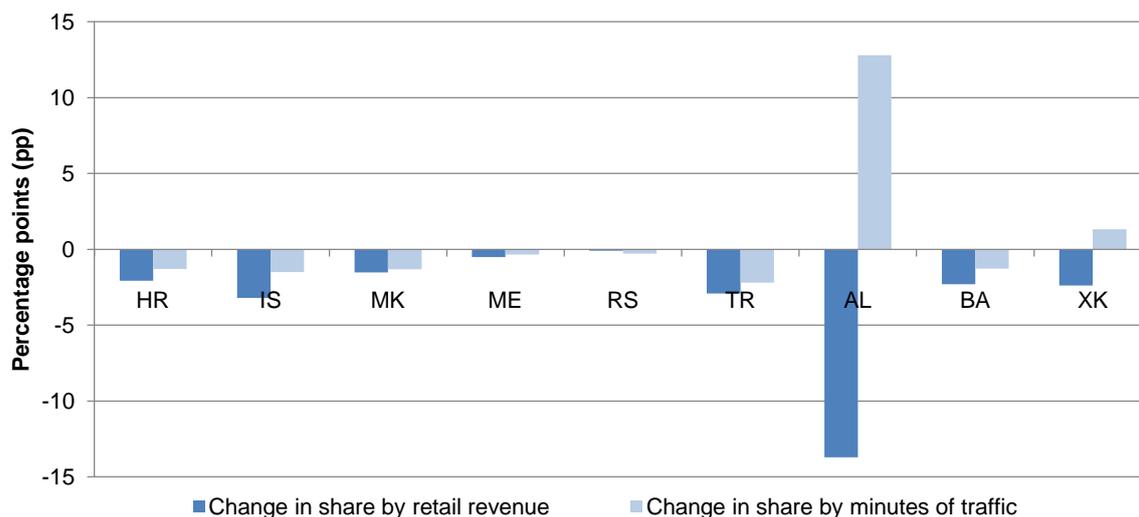


Figure B.7 – Change in incumbent operator's market share, Dec. 2010 – Dec. 2011

Although alternative operators are only slowly increasing their share of revenue, the number of subscribers using alternative providers for fixed voice telephony services increased in all the enlargement countries in 2011 except Kosovo. In Macedonia, this growth continues to be fuelled by cable operators.

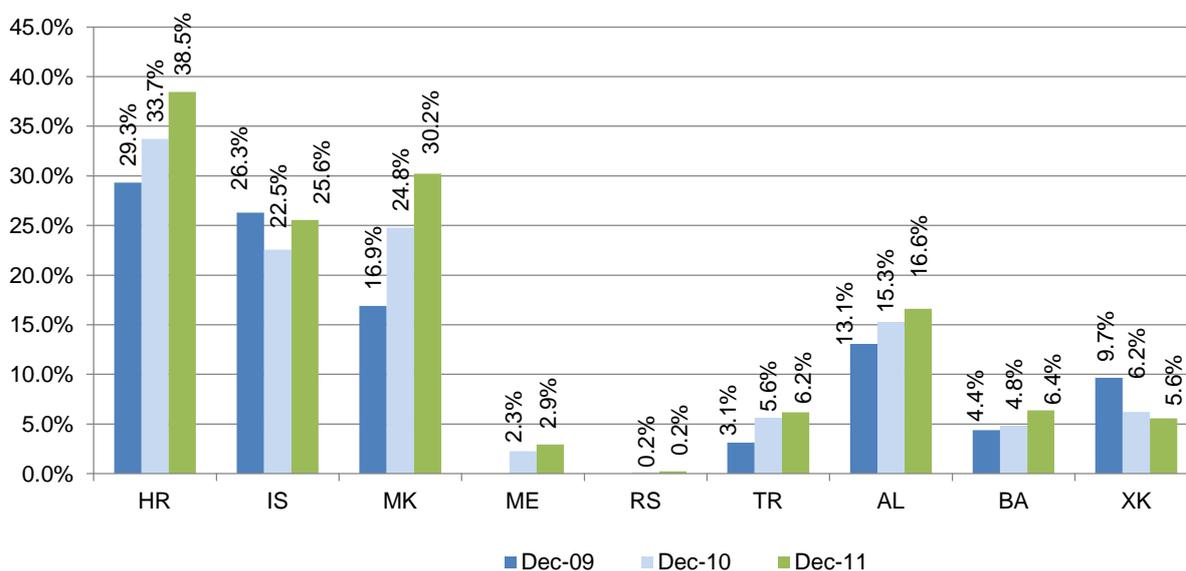


Figure B.8 – Subscribers using alternative providers for fixed voice telephony, as percentage of total fixed lines

## 2. Mobile market

The total number of mobile subscriptions in the nine enlargement countries increased by approximately 4m, to 92.4m at end 2011. There was particularly strong growth in Albania, where subscriptions exceeded 5m for the first time, as well as a rise of more than 3m subscriptions in Turkey that brought the country's total to more than 65m.

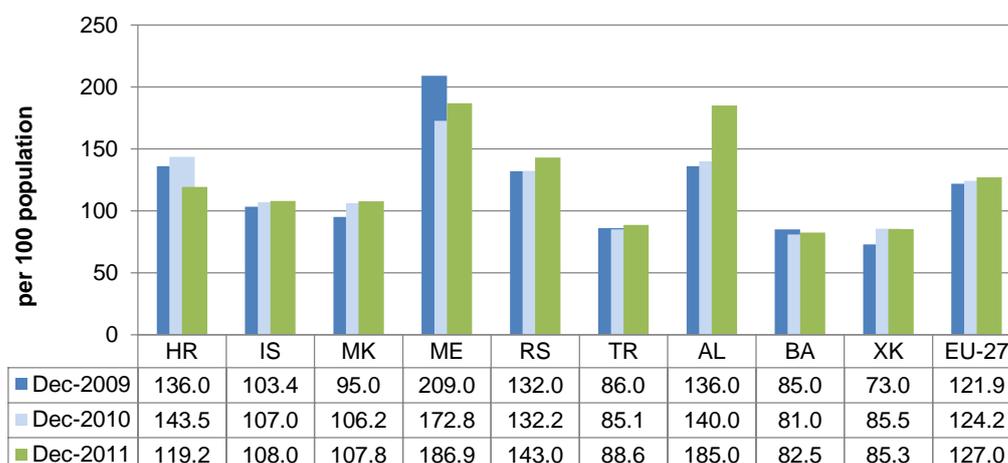


Figure B.9 – Mobile subscriptions per 100 population, by country, Dec. 2009 – Dec. 2011

In Croatia, the definition of an active prepaid user was standardised for all operators at the beginning of 2011, such that it included only subscriptions that had been used or topped up in the last 90 days. This tightening of the definition led to an apparent drop in the mobile penetration rate in Croatia.

The jump in the mobile penetration rate in Serbia in 2011 is largely explained by a decrease in the population (based on the latest census data).

The share of postpaid-to-prepaid subscriptions in Serbia and Turkey has increased, suggesting a maturing of these countries' mobile markets. In other enlargement countries the split between prepaid and postpaid subscriptions has remained fairly stable.

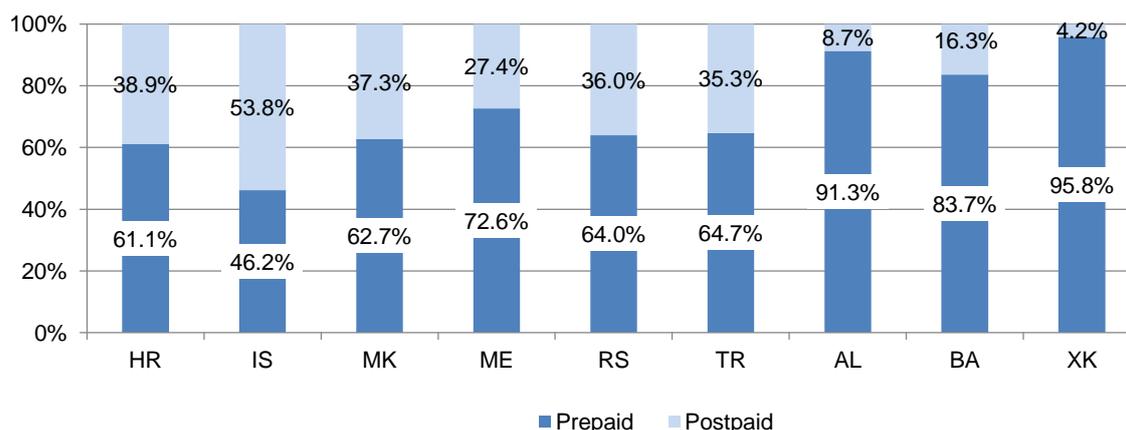


Figure B.10 – Mobile subscriptions - share of prepaid and postpaid, Dec. 31, 2011 (%)

Competition has been effectively implemented in all mobile markets. (In Kosovo, although there are only two mobile network operators, there are also two service providers using the networks of both respective mobile operators.)

The market shares of third-placed operators have continued to rise – and Iceland's Nova and Macedonia's VIP have crossed the 25% threshold for market share by subscriptions, while Albania's Eagle mobile has crossed the 20% threshold.

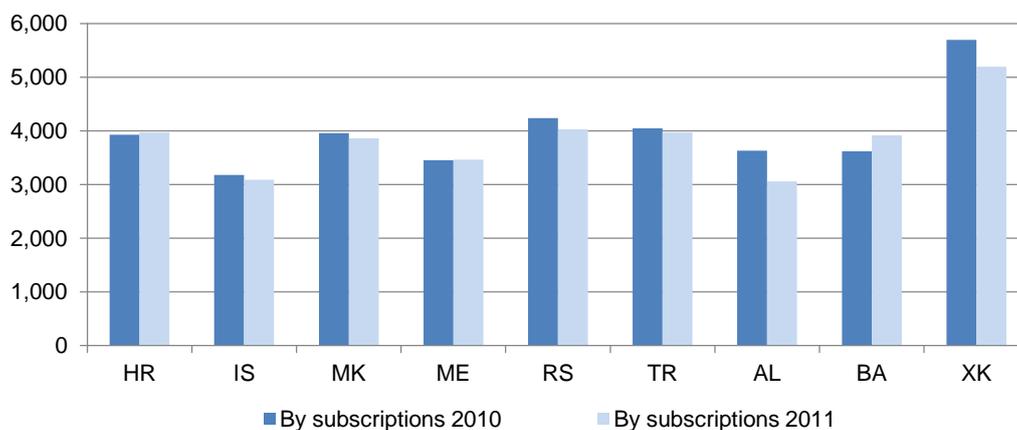


Figure B.11 – Mobile market concentration levels, HHI, by subscriptions

The Herfindahl-Hirschmann Index (HHI), the sum of the squares of the market shares, is commonly used in assessing concentration in competition law. The HHI value for the mobile markets measured both in terms of subscriptions and in terms of revenues has fallen in most of the enlargement countries in 2011 – a sign of improved competitiveness.

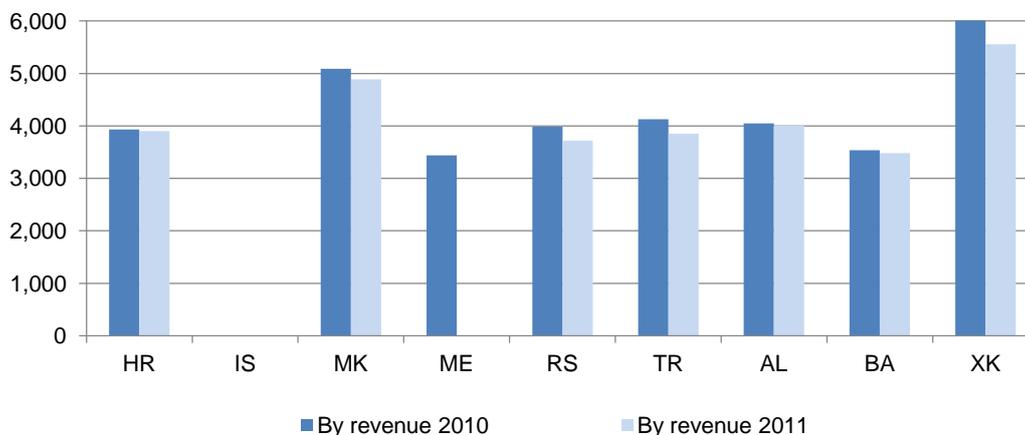


Figure B.12 – Mobile market concentration levels, HHI, by revenue

### 3. Fixed broadband market

The fixed broadband market grew nearly 10% in the enlargement countries in 2011 and the total number of fixed broadband subscriptions exceeded 10m, to reach 10.59m at year-end.

The fixed broadband penetration rate, measured as the overall number of fixed broadband lines divided by the national population, averaged 10.9% in the nine Enlargement countries at the end of December 2011.

Only in Iceland was the penetration above the EU average, at 35.1%, while in the eight other countries it was significantly below the EU-27 average rate (which was 27.7% as of January 2012). The highest fixed broadband penetration level among these countries was observed in Croatia (19.5%) – which was above the level of Romania and Bulgaria that joined the EU in 2007.

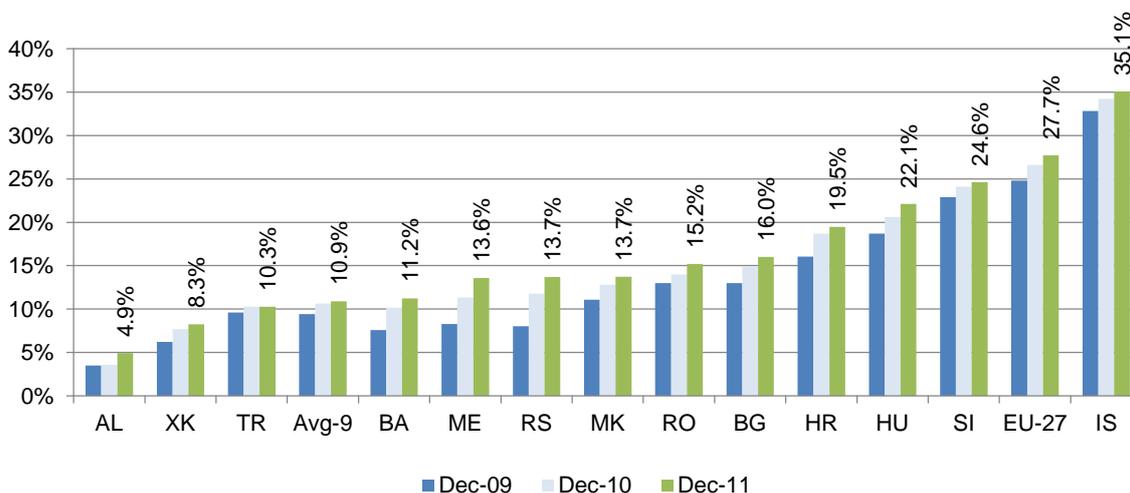


Figure B.13 – Fixed broadband penetration rate, 2009 - 2011

The fastest growth in the fixed broadband penetration rate in 2010 was recorded in Montenegro, Albania, Serbia and Bosnia Herzegovina, where it jumped by more than one percentage point in all cases, as illustrated below.

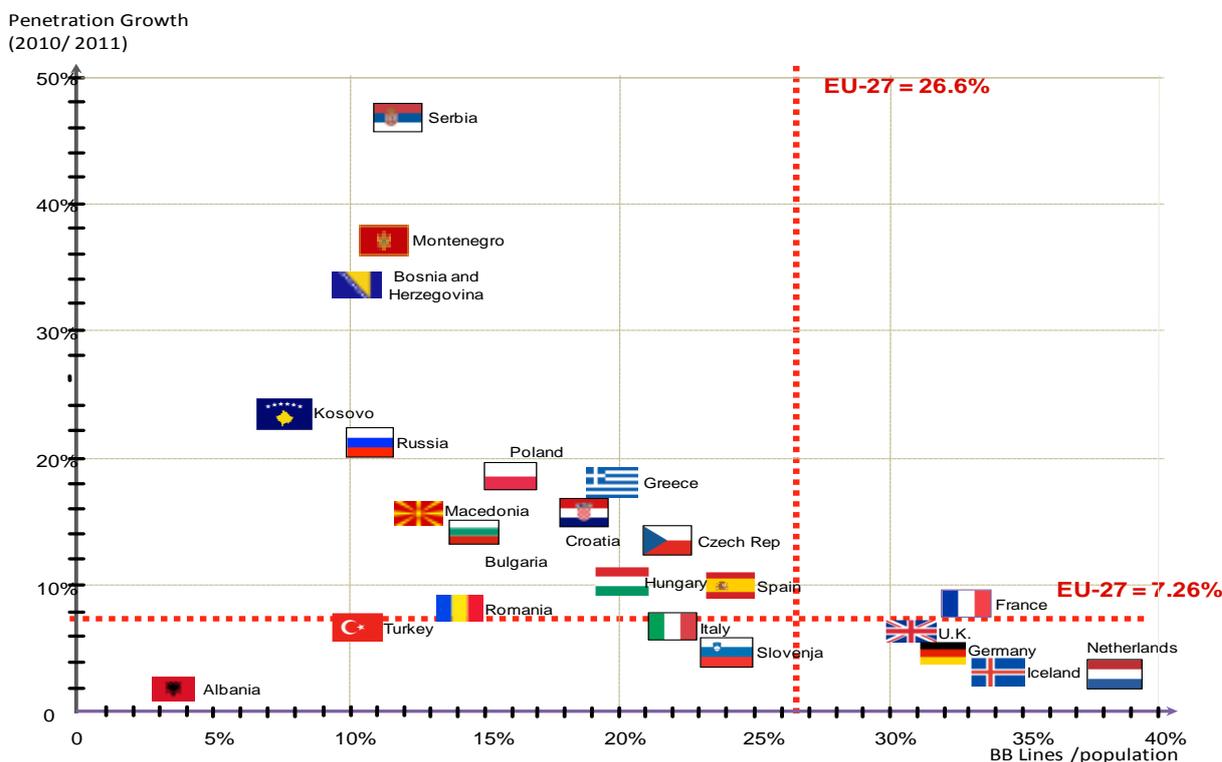


Figure B.14 – Fixed broadband growth dynamics, 2010-2011

The growth dynamics has somewhat slowed in 2011, when the fastest growing broadband markets were Albania (although from a lower base), Montenegro and Serbia.

Incumbents continue to dominate the market: although all countries except Iceland and Montenegro have at least 35 active ISPs, the incumbent ISP retains more than a 40% market share everywhere except Kosovo. In Iceland, Macedonia, Serbia and Albania the incumbent's market share is nonetheless comparable with the EU average incumbent market share (by connections) of 43.3%.

In Turkey, TTNNet, the subsidiary of the incumbent Turk Telekom has a market share of 85%, in terms of both revenues and connections in the fixed broadband market, but this represents a fall of two percentage points since end-2010.

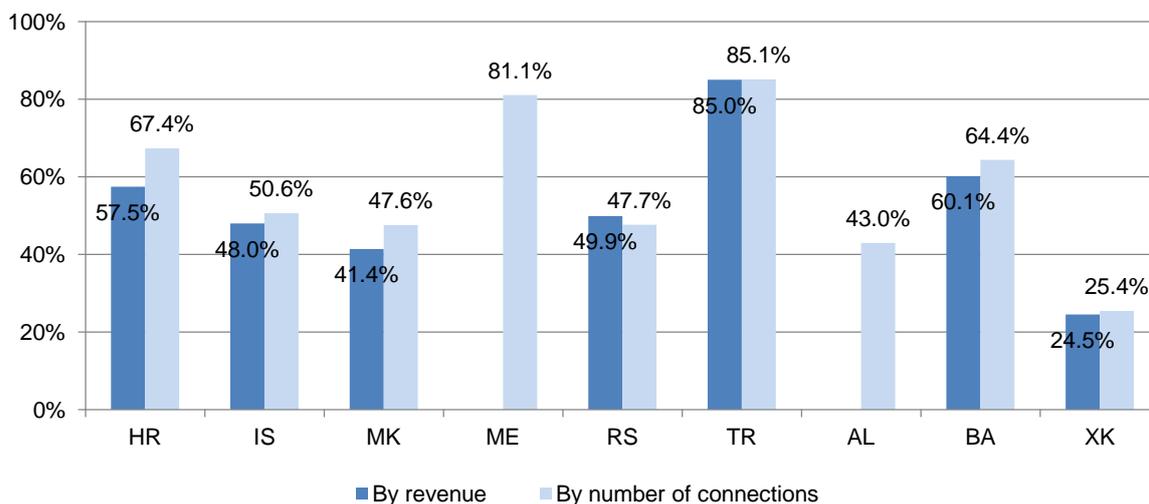


Figure B.15 – Incumbent ISP's retail market share, Dec. 2011

While the incumbent's share by connections has fallen in all markets except Serbia since 2010, the incumbent's share by revenue has grown in most countries in 2011; it has fallen only in Turkey and Bosnia Herzegovina, where it remains over 60%.

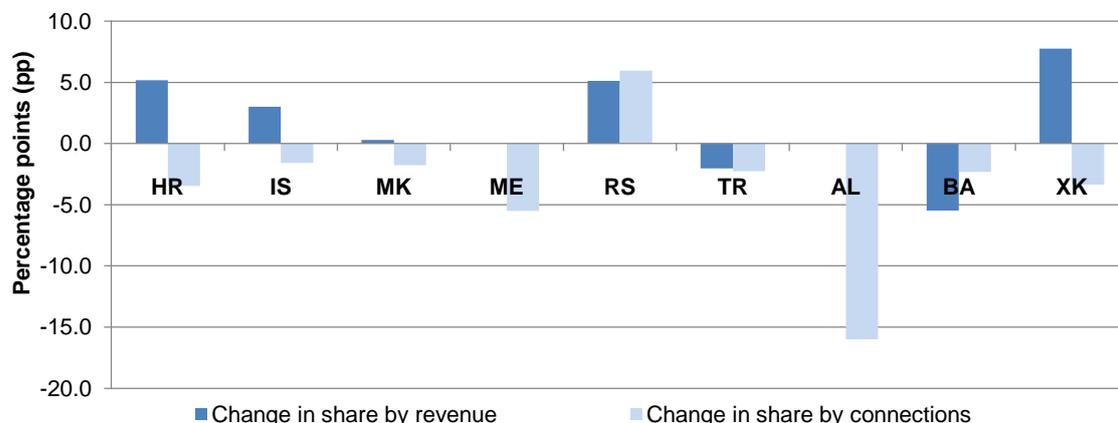


Figure B.16 – Change in incumbent ISP's retail market share, Dec. 2010 – Dec. 2011

When it comes to the split by technology in the broadband market, xDSL continues to dominate and to account for the vast majority of fixed broadband connections in the enlargement countries. This is comparable to the situation in the EU, where xDSL lines represent 75.9% of all broadband lines, followed by cable connections with 16.7%.

In Albania and Bosnia Herzegovina, alternative operators are using their own xDSL networks, while in Serbia and Turkey alternative operators providing xDSL are almost entirely dependent on bitstream services.

In Croatia, most alternative operators are using full LLU, while in Iceland a greater proportion use shared access.

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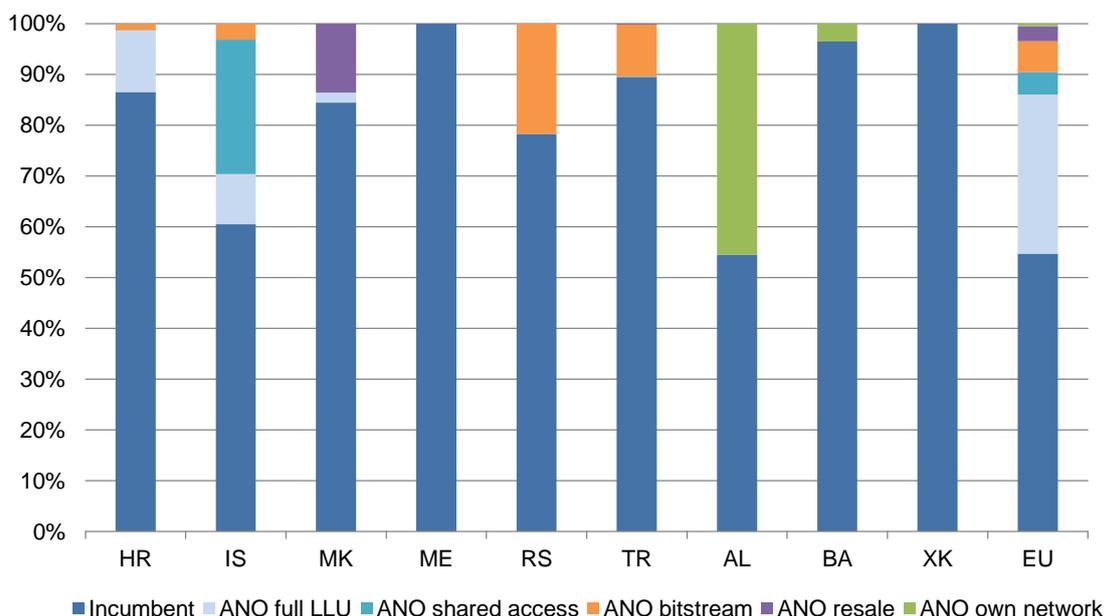


Figure B.17 – xDSL lines by type of access, Dec. 2011 (%)

Although xDSL continues to dominate, cable networks and fibre networks are making inroads in some markets. There is a particularly strong cable presence in Kosovo, where nearly 70% of all fixed broadband connections are cable-based. Cable broadband networks are also significant in Macedonia, Serbia, Bosnia & Herzegovina and to some extent Albania.

In 2011 there was strong growth in the number of fibre subscriptions in Turkey (up by 103,000 to more than 267,000) and Iceland (up by 5,700 to more than 17,000). In Turkey both the incumbent operator Turk Telekom and alternative operator Turkcell-Superonline are investing in FTTH/B deployments. In Iceland, growth in fibre uptake is being driven mainly by alternative operator Fjarskipti.

In Bosnia Herzegovina, BH Telecom had 143,761 FTTC lines at end-2011, which are now being reported as FTTx lines in this report (not xDSL), since BH Telecom is deploying fibre to the street cabinet.

In Albania, FTTx for the incumbent Altelecom refers to 6,000 xDSL connections connected via MSANS, plus 47 FTTB connections. (The remainder of Altelecom's FTTN connections are counted as xDSL.)

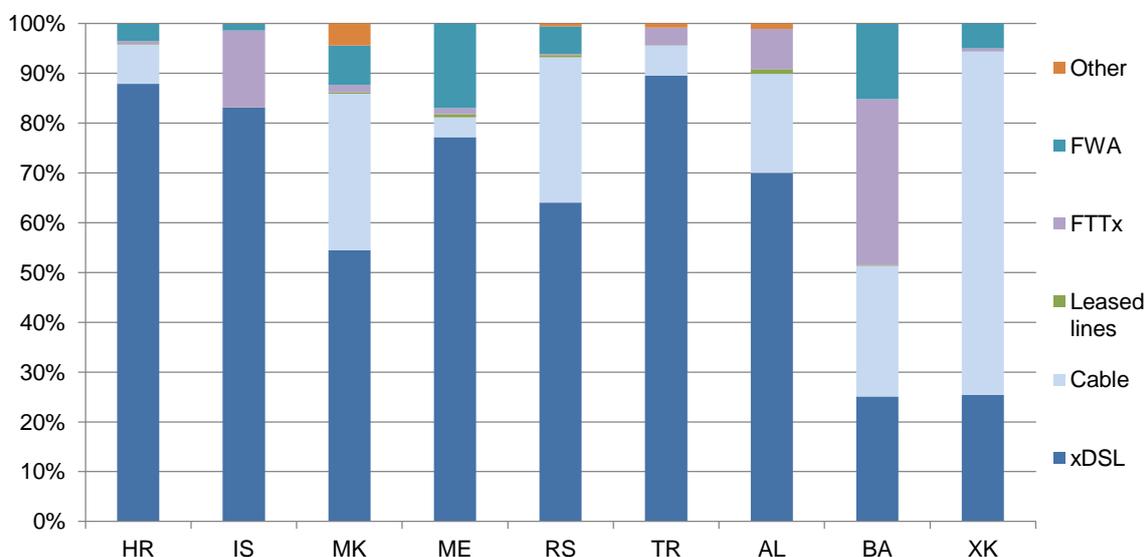


Figure B.18 – Fixed retail broadband connections by technology, Dec. 2011

The distribution of retail broadband lines by speeds shows a steady movement towards higher-speed packages in all countries.

Users in Iceland have by far the fastest connections – and there was strong growth in the +20 Mbps category in 2011, which accounted for nearly 30% of connections by the end of the year, up from approximately 10% at end-2010.

In Turkey the majority of users buy connections advertised as ‘up to 8 Mbps’ – and Turk Telekom reported that the number of its customers buying such packages increased 24% in 2011.

In Montenegro there has been strong growth in the 4-8 Mbps category in 2011 and in Kosovo in the 2-4 Mbps category, which now accounts for more than half of subscriptions.

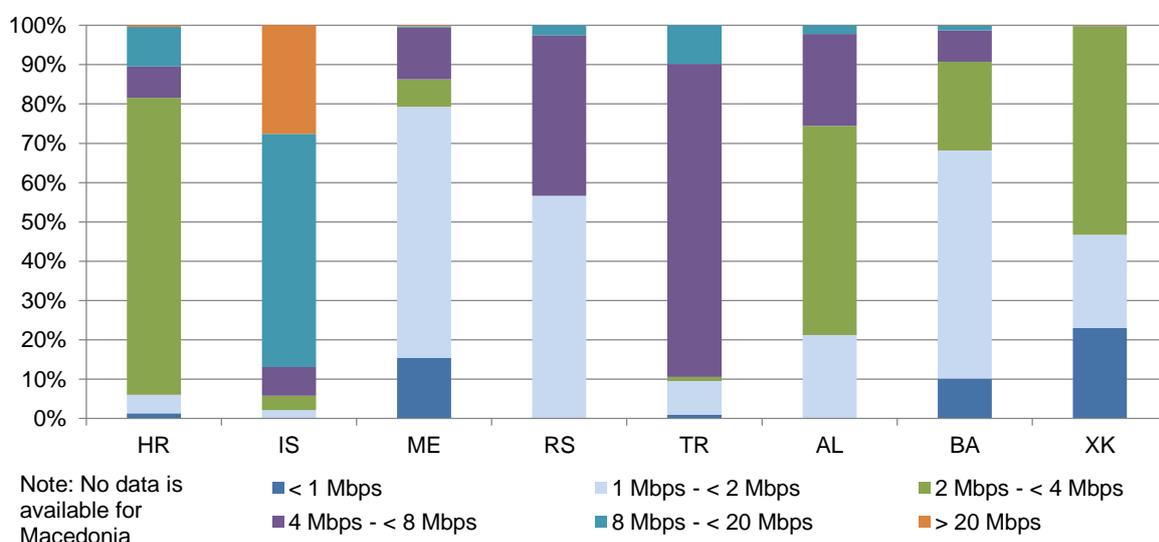


Figure B.19 – Distribution of retail broadband lines by download speeds, Dec. 2011

Users in Turkey and Serbia have access to super-high speed packages offering speeds up to 100 Mbps, and in addition Turkish alternative operator Superonline is advertising speeds up to 1Gbps in ten regions of the country.

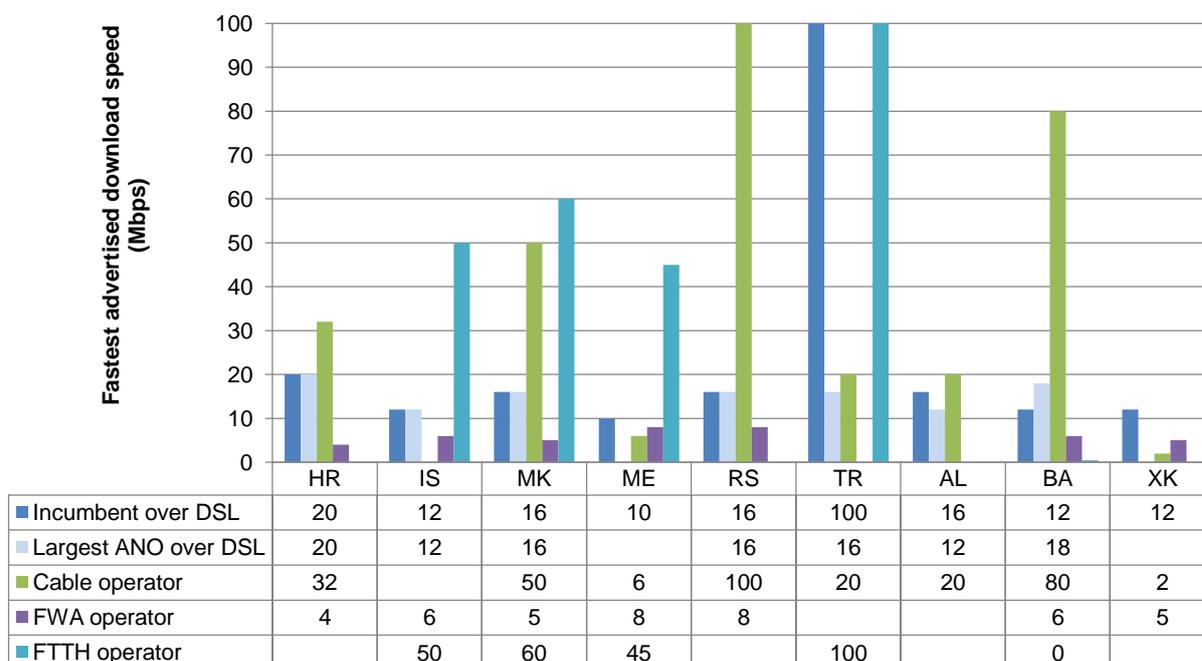


Figure B.20 – Fastest advertised retail broadband connection (Mbps), by country, Dec. 2011

#### 4. Mobile broadband market

Despite the fact that many fixed broadband operators are offering users access to higher-speed packages, mobile broadband remains an appealing alternative, thanks its flexibility. Indeed, in some areas where there is no fixed broadband coverage, mobile networks provide the only form of broadband access.

In 2010 the penetration rate of dedicated 3G mobile datacards/modems doubled in most enlargement countries, having started from a very low base. Growth in the penetration rate in 2011 has been no less impressive and penetration now exceeds the EU-27 average in Iceland and Montenegro.

In Croatia, the apparent fall in the penetration rate is caused by the change in the definition of an active prepaid subscription, which, as for voice connections, was standardised at the beginning of 2011 such that it included only subscriptions that had been used or topped up in the last 90 days.

The penetration rates shown in the graph below do not include mobile broadband access via smartphones (for which consistent data is unavailable) but it is known also to be growing fast in the enlargement countries.

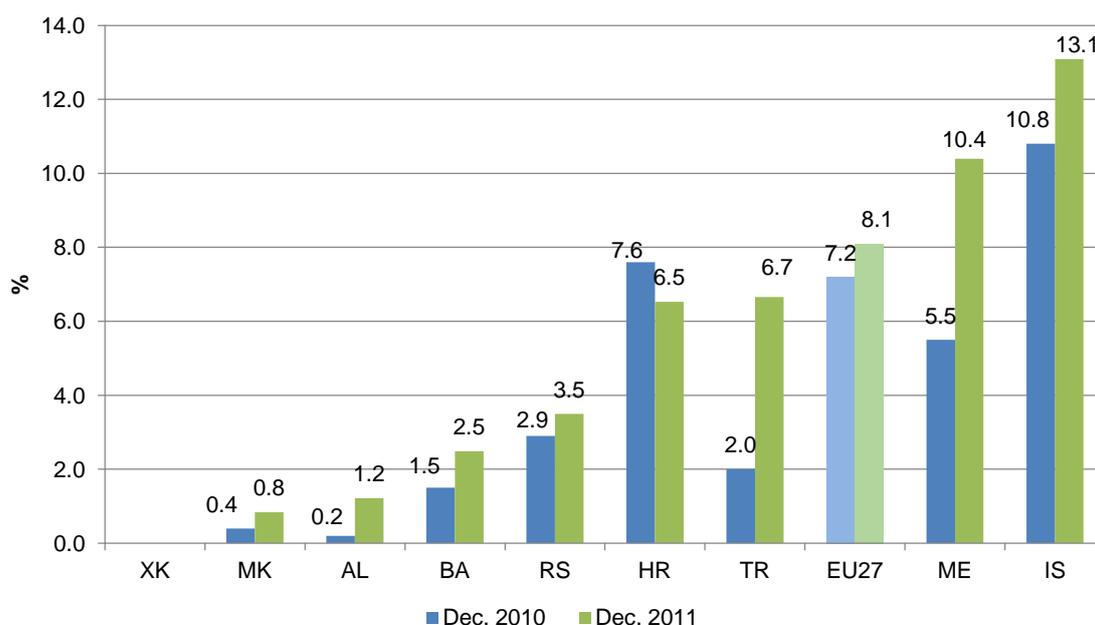


Figure B.21 – Dedicated datacards/wireless modems per 100 population, 2010 – 2011

### C. Legislative, policy and institutional framework

#### 1. Information society legislation

All participating entities have been aligning their information society legislation with the relevant provisions of the EU directives.

The following table provides an overview on the relevant legislation. It shows only the year of the original version of the law which is currently in force, not the later amendments. Detailed information, links and official reference numbers can be found in Annex 2 of this report, which also contains references to laws not covered in this study, such as the competition law, audiovisual media legislation and the data protection law.

|   | HR   | IS   | MK           | ME   | RS   | TR                                  | AL    | BA   | XK   |
|---|------|------|--------------|------|------|-------------------------------------|-------|------|------|
| <b>Electronic communications law</b>                        | 2008 | 2003 | 2005         | 2008 | 2010 | 2008                                | 2008  | 2003 | 2002 |
| <b>Based on EU 2003 regulatory framework?</b>               | ✓    | ✓    | ✓            | ✓    | ✓    | ✓                                   | ✓     | ✗    | ✗    |
| <b>Draft for implementing EU 2009 regulatory framework?</b> | –    | ✓    | –            | –    | –    | –                                   | ✓     | –    | ✓    |
| <b>EU 2009 regulatory framework adopted?</b>                | ✓    | –    | –            | –    | –    | –                                   | –     | –    | –    |
| <b>Electronic commerce law</b>                              | 2003 | 2002 | 2007         | 2004 | 2009 | ✗                                   | 2009  | 2007 | 2012 |
| <b>Electronic signature law</b>                             | 2002 | 2001 | 2001         | 2003 | 2004 | 2004                                | 2008  | 2006 | 2012 |
| <b>Audiovisual media law based on AVMSD</b>                 | 2009 | ✗    | ✗            | 2010 | ✗    | ✗                                   | draft | ✗    | ✗    |
| <b>Data protection law</b>                                  | 2003 | 2000 | 2005         | 2008 | 2008 | ✗                                   | 2008  | 2006 | 2010 |
| <b>Cybercrime legislation</b>                               | ✓    | ✓    | ✓            | ✓    | ✓    | ✓                                   | ✓     | ✗    | ✓    |
| <b>Electronic document law or E-government law</b>          | 2005 | –    | 2001<br>2009 | 2008 | 2009 | 2 <sup>nd</sup><br>legis-<br>lation | 2010  | –    | 2012 |

Table C.1 – Information society legislation

The most important part of the *acquis* is the regulatory framework for electronic communications. Seven countries have adopted laws which are based on the EU 2003 regulatory framework. Croatia is the first of the monitored countries that in July 2011 adopted amendments to transpose the EU 2009 regulatory framework.

Audiovisual media regulation is not assessed in the scope of this study, but references to the relevant legislation can be found in Annex 2. Croatia (2009) and Montenegro (2010) adopted new Laws on electronic media. In Albania a draft law is in the parliamentary procedure. The other countries have not yet transposed the directive.

All countries except Turkey implemented the Electronic Commerce Directive 2000/31/EC. Turkey is preparing a draft transposing the directive.<sup>1</sup> The Turkish Law no. 5651 addresses some of the topics regulated in the directive, but is not aligned with it and would not be replaced by the new law. In particular, liability of internet service providers would not be regulated as in the directive.

All countries have adopted an electronic signature law based on Directive 1999/93/EC. All countries except Turkey have adopted a data protection law.

Cybercrime legislation is usually not covered by a separate law, but by provisions in the Criminal Code. The table above therefore does not show the date of the law, but whether the national legislation is more or less aligned with the Convention on Cybercrime (for details see Table R.1 below).

There is no requirement from the *acquis* to adopt laws on electronic documents or electronic government, but most countries adopted such laws. Turkey has secondary legislation on electronic documents standards.

In most of the monitored countries the legislation is structured in similar way: The country has an electronic communications law, an electronic commerce law, an electronic signature law, and various laws on broadcasting/media/electronic media (usually separate for the public service broadcaster and other media). Some noteworthy exceptions:

- In Turkey both primary and secondary legislation is complex. Electronic communications regulation has been addressed by various laws and the Law no. 5809 on electronic communications (adopted in 2008) has not entirely replaced those previous laws. In particular Law no. 406 on telegrams and telephones (enacted in 1924) and the Wireless Law no. 2813 (enacted in 1983) are still in force, although most of their articles have been either repealed or replaced by new text during the last years. Law no. 406 is now mostly about the incumbent's legal

<sup>1</sup> The draft is published (in Turkish) at <http://www.basbakanlik.gov.tr/Handlers/FileHandler.ashx?FileId=6593>

status, but also the legal basis of a telecommunications tax. The Wireless Law no. 2813 received a new title and is now called Law no. 2813 on the Establishment of the Information Technologies and Communications Authority.

- In Kosovo most of the information society legislation was adopted in 2002 as a single law, the Law on the information society services. In April 2012 a new Law on the information society services was published in the official gazette, which covers electronic commerce, liability of ISPs, distance contracts, electronic invoicing, electronic payments, electronic signatures, data protection, electronic signatures and protection of information systems. Data protection is covered by a separate law of 2010. Kosovo is also renewing its electronic communications legislation, see the next chapter.
- Bosnia & Herzegovina has laws both at state level and at entity level, in particular both the state and the Republika Srpska have laws on electronic commerce and electronic signature.

## 2. Ongoing legislative work

Aligning national legislation with the EU *acquis* is not a one-time effort, but requires continuous monitoring of new legislation at the EU level and assessing what needs to be changed in the national legislation.

The participating countries show significant differences with respect to the question whether their responsible ministries are actively pursuing this task.

EU member states had to transpose the EU 2009 regulatory framework by May 2011. Although most EU member states missed this deadline, about two thirds had at least submitted a bill to parliamentary procedure within this time frame. In the enlargement countries, some of the responsible ministries have still not developed a plan on how to transpose the new framework.

In some countries legislative work depends on support by international experts, for example in projects funded by the EU or the EBRD.

The differences between participating countries can be summarised as follows:

- Croatia has brought its legislation in line with the information society *acquis*, and has also been the first of the participating countries that implemented the EU 2009 regulatory framework. The law which amended the Electronic communications act was adopted in July 2011.
- Iceland has been transposing EU directives as soon as they are incorporated into the EEA Agreement. A draft bill for transposing the EU 2009 regulatory framework is in the parliamentary procedure and adoption is expected in 4Q 2012. Iceland has also plans to transpose the Audiovisual Media Services Directive and identified during the screening process several details that need transposition.<sup>2</sup>
- Kosovo is renewing its entire information society legislation. After adoption of the new Law on the information society services in spring, a new Law on electronic communications is in the final stages of parliamentary procedure, with adoption expected in June 2012. It will transpose the EU 2003 and 2009 regulatory frameworks.
- Montenegro has consulted on a proposal to transpose the EU 2009 regulatory framework in March 2012. The responsible Ministry for Information Society and Telecommunication is now finalising the draft. Adoption in parliament is expected in 3Q 2012. The ministry is also preparing legislation on digital switchover and e-governance.
- Albania has several pending legislative activities, all of them aiming for full alignment with the *acquis*. Amendments to align the law on electronic communications with the EU 2009 regulatory framework have been prepared and the Council of Ministers is supposed to submit the draft bill to Parliament in due course. Draft laws on transposing the Audiovisual Media Services Directive and on the rights of way are in the parliamentary procedure. Albania also works on the final alignment of the law on electronic commerce with the Electronic Commerce Directive.

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<sup>2</sup> See the negotiation position of Iceland for chapter 10, information society and media, [http://europe.mfa.is/media/ees\\_i/Chapter-10-Draft-Position-Paper-Iceland---FINAL.pdf](http://europe.mfa.is/media/ees_i/Chapter-10-Draft-Position-Paper-Iceland---FINAL.pdf)

- In Macedonia the Ministry of Information Society and Administration plans to work on transposition of the EU 2009 regulatory framework in 2012.
- Although Turkey is actively adopting new laws, the legislation is complex (see above) and the parliamentary procedure is slow. The draft law on data protection was submitted to Parliament in 2008 and the draft electronic commerce law in 2010. Newly adopted legislation is not always based on the EU *acquis* and sometimes does not aim at full alignment. For example, the electronic communications law of 2008 introduced a general authorisation scheme, but did not abolish the old concessions. Also, the regulation of content transmitted over the internet and internet service providers' liability is not aligned with EU policy and legislation. Turkey regulates these issues in law no. 5651, which was adopted in 2007, but is not based on the EU Electronic Commerce Directive of 2000. Turkey does not yet have specific plans for transposing the EU 2009 regulatory framework.
- Serbia has in 2010 adopted the new law on electronic communications, which transposes the EU 2003 legislative framework and introduces some elements of the 2009 framework covering provisions on consumer contracts, quality of service, network and information security. Serbia is now solely reporting work on secondary legislation. Work on completing the transposition of the EU 2009 regulatory framework has not yet started.
- Bosnia & Herzegovina is lagging behind. Its Communications Law is mainly based on the EU 1998 framework and there is no legislation on cyber crime, electronic documents or e-government at state level. A law on creating an agency for the information society at state level and a law on amending the Law on broadcasting system have been blocked in parliament. However, the responsible Ministry of Communications and Transport is now working on a new draft law on electronic communications (based on the EU 2003 and 2009 regulatory frameworks) and two broadcasting laws and expects public consultations on the draft laws by the end of 2012.

### 3. Information society policy

Each of the participating countries has a high-level responsible body for information society policy. This is usually a ministry.

In Croatia the government has been reorganised. Three ministries are now involved in policy-making: the Ministry of Administration (information society policy in general), the Ministry of Maritime Affairs, Transport and Infrastructure (electronic communications, broadband) and the Ministry of Economy (electronic business strategy).

In Iceland the department responsible for information society policy in general has been moved from the Prime Minister's Office to the Ministry of the Interior, which has already been responsible for electronic communications policy.

In Macedonia the regulator AEC has recently adopted an extensive five years regulatory strategy for the years 2012 to 2016. AEC is the only regulator in the monitored countries with such a long-term strategy. Most regulators have annual plans.

This study assesses whether countries have an information society policy or strategy document in general, as well as policies for specific topics. The full title and links to the respective documents can be found in Table C.2 of Annex 1.

As the following table shows, each country except Croatia has a strategy document for information society in general and for electronic communications, and also separate documents for most or all topics covered by this report.

|                                       | HR | IS | MK | ME | RS | TR | AL | BA | XK  |
|---------------------------------------|----|----|----|----|----|----|----|----|-----|
| <b>Information society in general</b> | X  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓   |
| <b>Electronic communications</b>      | X  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | (✓) |
| <b>Broadband</b>                      | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | (✓) |
| <b>Digital TV</b>                     | ✓  | ✓  | ✓  | ✓  | ✓  | X  | ✓  | ✓  | (✓) |

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|  | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|--|----|----|----|----|----|----|----|----|----|
| eSEE Initiative (eg government adoption of the eSEE Agenda+)   | ✓  | –  | ✓  | ✓  | ✓  | –  | ✓  | ✓  | ✓  |
| Network security   | ✗  | ✓  | ✓  | ✗  | ✓  | ✓  | ✗  | ✓  | ✗  |
| Cybercrime   | ✗  | ✓  | ✗  | ✗  | ✓  | ✓  | ✗  | ✓  | ✗  |
| E-Government   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| E-Business   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  |
| ✓ is covered by a policy document, (✓) policy being drafted, ✗ is not explicitly covered by a policy document – not applicable (no eSEE Initiative member) |    |    |    |    |    |    |    |    |    |

Table C.2 – Information society policy documents

The Albanian government adopted in May 2012 a new strategy on switchover from analogue to digital terrestrial TV broadcasting. Iceland expects adoption of the new Telecom policy statement for the years 2011 to 2022 (including electronic communications, broadband and digital TV) in the pending spring session of parliament.

Turkey is preparing a new version of its comprehensive information society strategy and action plan (the current version covers the years 2006 to 2010), but also covers information society aspects in its medium term programme for 2011–2013 and annual programme for 2012. In Kosovo, a sector strategy has been prepared for all areas of the former Ministry of Transport and Communications, but due to the reorganisation of ministries the parts covering electronic communications and broadband have not been adopted. The Ministry of Economic Development is now planning to adopt a policy document based on these drafts in 2012. Kosovo has also established a working group to prepare a digital TV switchover strategy by the end of 2012.

Some of the policy documents mentioned in the table above are relatively old, in particular in Bosnia & Herzegovina the main information society policy document was adopted in 2004 and the policy for the telecommunications sector in 2008.

#### 4. Bodies responsible for electronic communications and information society

The questionnaire for this report asked for a comprehensive overview over all ministries, authorities or agencies that are responsible for certain topics of legislation, policy-making or administration.

The following table shows for which areas the participating countries have designated a responsible body. The names and websites of these bodies can be found in Table C.3 of Annex 1.

|   | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|---|----|----|----|----|----|----|----|----|----|
| Electronic communications legislation and policy                      | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Information society policy  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| National regulatory authority   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| National competition authority  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Audiovisual media regulator   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Body responsible for R&TTE  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Information society statistics  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  |
| Electronic Commerce Directive: supervision and national contact point | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  |

|  | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|--|----|----|----|----|----|----|----|----|----|
| Electronic Signatures Directive: supervisory authority                                 | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✗  |
| Data protection authority  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  |
| Network security (Art. 13a, 13b Framework Directive)                                   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Personal data security (Art. 4 e-Privacy Directive)                                    | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Enforcement of intellectual property rights  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Computer emergency response team (CERT)  | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  |
| Domain name policy   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | –  |
| Domain name registry   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | –  |
| ✓ responsibility defined, ✗ no dedicated body responsible, – not applicable (no ccTLD) |    |    |    |    |    |    |    |    |    |

Table C.3 – Responsible bodies for electronic communications and information society

Turkey has not yet adopted a data protection law or electronic commerce law and therefore also no authorities for supervising these fields. Turkey is planning a reorganisation of responsibilities in the fields of domain name administration.

Albania has recently established a new National Cyber Security Agency (ALCIRT).

Bosnia & Herzegovina has an electronic signature law since 2006, but has not yet established a supervisory authority.

In Kosovo the new Law on the information society services entitles the Ministry of Economic Development to establish a supervisory authority for electronic signatures. The new Law on electronic communications will give the regulator the task to establish a CERT. The Kosovo Agency of Statistics has not yet been given the task to develop information society statistics.

## D. National regulatory authorities

The establishment of an independent NRA is a cornerstone of the EU regulatory framework for electronic communications. Independence involves at least three key elements: (i) structural separation of the NRA from the regulated firms, (ii) isolation of the NRA from political intervention and (iii) functional effectiveness that can be achieved through adequate human and financial resources and enforcement powers.

The two latter aspects of NRA independence have been particularly emphasised in the provisions of the EU 2009 regulatory framework that seek to limit political interference in the day-to-day duties of NRAs, to set predictable and transparent rules for the appointment and dismissal of NRA management, and to ensure that NRAs have their own independent budget and sufficient numbers of qualified staff.

NRA independence, however, does not mean that regulators should function in a vacuum, particularly in countries where the legal and judicial infrastructure is still immature. Independence must be balanced with clearly identified requirements for accountability, including strict procedural rules, reporting mechanisms, public consultation and transparency requirements, as well as the possibility of judicial review.

These aspects of NRA independence and accountability have been addressed in detail by the study and are discussed in the sections below.

## 1. NRA structural separation

Under the EU regulatory framework, there has been no requirement for the privatisation of any state-owned telecommunications undertakings but any reduction in the state shareholding usually strengthens the independence of the NRA (and also the credibility of the NRA with other interested stakeholders).

Article 3 of the Framework Directive requires that regulatory tasks must be carried out by competent bodies that are legally distinct and functionally independent from any organisations providing electronic communications networks and services. However, where the state retains control of undertakings providing electronic communications networks and services, the activities associated with state ownership and control must be structurally separate from regulatory functions.

Croatia and Montenegro are currently the only monitored countries without any state ownership in telecommunications operators.

In Iceland, the government privatised the incumbent operator, Síminn, through the sale of its 98.8% share to Skipti ehf in July 2005. In 2007 Síminn was split into three separate companies: Síminn hf, the main operating company; Fasteignafélagið Jörfi ehf, a real estate company, and Míla ehf which owns and operates the national trunk and access networks. The Icelandic state however retains a stake in the company Farice ehf that operates submarine fibre optic cables from Iceland to Denmark and the UK.

In the remaining countries the level of state ownership in major telecommunications operators ranges from 24% up to 100%. The governments in Macedonia and Turkey also retain ‘golden shares’, i.e. special powers granted by law or by the articles of association of a company allowing the state to maintain a special influence in the operators concerned.

Recent privatisation attempts announced by the governments in Serbia for a 51% stake in Telekom Srbija and in Kosovo for a 75% stake in PTK have both turned unsuccessful. In December 2011, OTE, the Greek telephone operator controlled by Deutsche Telekom, agreed to sell its 20% stake in Telekom Srbija back to the company for €397m. As a result of the transaction finalised in January 2012, the Serbian incumbent operator is currently 100% state owned. In Kosovo, the privatisation of PTK was re-launched in 2012.

There are no clear trends in the management of the ownership functions, although in most of the monitored countries these functions typically rest with the ministry of finance (Iceland, Macedonia and Serbia) or the State Treasury (Turkey). In Bosnia & Herzegovina, the control of two incumbent operators that have not yet been fully privatised is exercised by the government of the relevant entity, the Federation of Bosnia & Herzegovina, whereas in Albania this function belongs to the Ministry of Economy, Trade and Energy. Only in Kosovo is the control of the incumbent operator assigned to the same body that has policy making and legislative functions in the electronic communications sector, the Ministry of Economic Development.

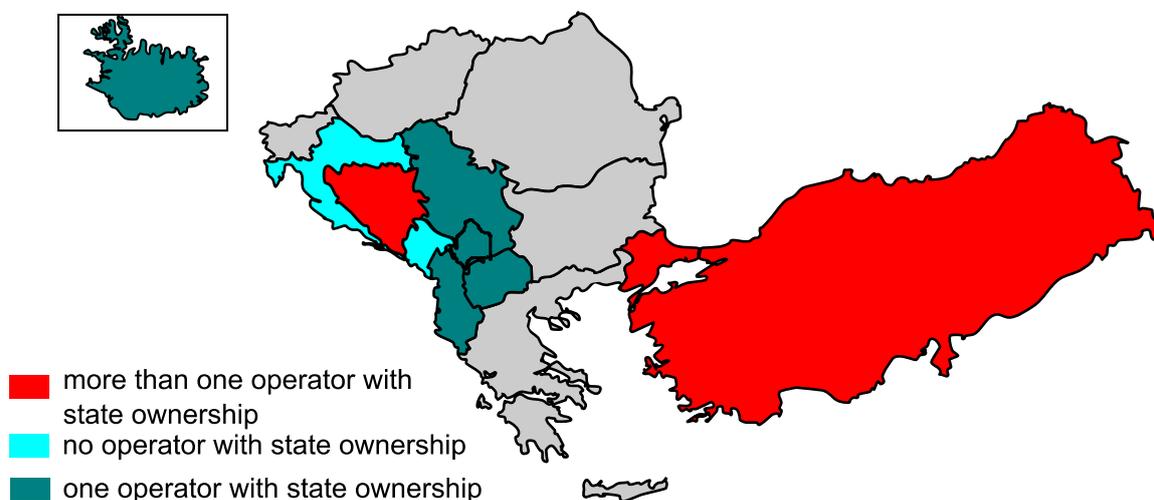


Figure D.1 – State ownership of telecommunications operators

## 2. Division of responsibilities between the government and the NRA

Concerns about possible political influence can be raised by the mere possibility that NRAs could be put under pressure from arbitrary political intervention. Therefore, the effective independence of the NRA is best achieved by providing it with a distinct legal mandate, free of ministerial control and eliminating political interference in its day-to-day tasks.

In general, the concept of NRA independence is being progressively introduced in the national regulatory frameworks alongside the adoption of new laws on electronic communications. The key functions of the government and the regulator were redefined in the laws adopted in Croatia, Turkey, Albania and Montenegro in 2008 and in Serbia in 2010. The Macedonian Law on Electronic Communications was amended several times during 2010 – 2012 to clarify the role of the NRA and the scope of its responsibilities.

In Kosovo, a more clear definition of the respective tasks carried out by the ministry and by the NRA is envisaged in the new Electronic Communications Law which is expected to be adopted in 2012.

To summarise, the common objective of these legislative changes has been to make more distinct the division between the legislative and policy-making tasks carried out by the government (or the relevant ministry), and the regulatory tasks performed by the NRA.

Nevertheless, there is a significant variation between the nine countries concerning the range of specific regulatory decisions that remain subject to government approval, as illustrated by the table below.

| Country | Spectrum | Universal service | Fees | Market analysis | Secondary legislation |
|---------|----------|-------------------|------|-----------------|-----------------------|
| HR      | ✓        | -                 | -    | -               | -                     |
| IS      | -        | -                 | ✓    | -               | ✓                     |
| MK      | ✓        | ✓                 | ✓    | -               | -                     |
| ME      | ✓        | ✓                 | ✓    | -               | ✓                     |
| RS      | ✓        | ✓                 | ✓    | -               | -                     |
| TR      | -        | ✓                 | ✓    | -               | -                     |
| AL      | ✓        | ✓                 | ✓    | -               | -                     |
| BA      | -        | ✓                 | -    | -               | -                     |
| XK      | ✓        | ✓                 | -    | -               | -                     |

Table D.1 – Regulatory decisions subject to the government approval

In all countries, with the exception of Iceland, Turkey and Bosnia & Herzegovina, the government is involved in spectrum management, where its role may include approval of the frequency allocation table, spectrum award procedures or determining the number of spectrum authorisations to be issued for specific services.

Institutional frameworks in Macedonia, Montenegro, Turkey, Albania, Bosnia & Herzegovina and Serbia foresee the involvement of the government or the relevant ministry in the implementation of universal service. This involvement however varies, ranging from the overall responsibility for the universal service framework to certain specific aspects covering the universal service scope, designation procedures for the providers or the financing mechanism.

In Iceland, Macedonia, Montenegro, Serbia and Turkey the government is involved in determining the level of administrative fees for the use of limited resources. In Iceland and Montenegro, the government also approves the fees collected by the NRA for its regulatory tasks.

In Iceland and Montenegro, the responsible ministry plays the key role in adopting the secondary acts drafted by the NRA. In other countries this responsibility has been largely delegated to the NRA. Furthermore, in Iceland, the NRA has to seek the ministry's approval in order to be able to appeal decisions of the first instance appeal body to the courts. In Montenegro, the Law on electronic

communications gives the ministry administrative review powers over NRA decisions as the first instance appeal body, effectively undermining the NRA’s independence.

### 3. Appointment and dismissal of the NRA management

The rules and procedures for the appointment and dismissal of the management of the NRAs are highly relevant to independence. The EU 2009 regulatory framework introduced an explicit requirement for transparent and pre-defined provisions on the dismissal of the NRA management, including clear statements of the reasons for dismissal.

This section considers: the NRA management structure; appointment procedures and the bodies involved; term in office; and grounds for dismissal.

There are two main models of management structure for NRAs: the collegiate body (a board or commission composed of several members) and the single regulator (often given the title of chairperson or president). Each has its advantages and disadvantages, and variations of each model are also observed in the monitored countries.

The collegiate model, involving individuals with different areas of expertise able to bring different perspectives on each regulatory issue, is often seen as more independent, as it is unlikely that all members would be influenced by the same actors, whether in the government or the private sector. This model also conveys more legitimacy in decision-making, as it is less likely that a single individual is responsible for any particular decision. However, as in any decision-making process involving more than one actor, the adoption of regulatory decisions can be a slow process that is often complicated by internal politics.

By comparison, the single regulator model has the potential benefit of a more consistent approach to regulation and decision-making. A single regulator should be able to make decisions much more quickly but is also potentially more vulnerable to undue influence exerted by external actors. In addition, a single individual may not be able to match the expertise of a collegiate body made up of individuals from different backgrounds, although experienced supporting staff can compensate for any lack of expertise.

Iceland is the only country where the NRA is headed by a single managing director who oversees all regulatory, management, and administrative activities of the regulatory authority. Until 2008, this was also the case in Montenegro but this has changed with the adoption of the new law.

In all other countries, the NRAs are headed by collegiate bodies, comprising five to seven members. In most countries, the NRA organisation also includes an executive director who handles the day-to-day management and administrative functions of the regulator. In Albania, Kosovo and Turkey, there is no separate executive director position, and this function is assigned to the chairperson of the managing collegiate body.

| Country | Management  | Appointment by   | Term in office                    | Reappointment                         |
|---------|---|--|-----------------------------------|---------------------------------------|
| HR      |  | Parliament following Government proposal               | 5 years<br>(4 years for Director) | Unlimited                             |
| IS      |  | Government   | 5 years                           | Unlimited                             |
| MK      |  | Parliament   | 5 years                           | Two terms                             |
| ME      |  | Parliament following Government proposal               | 5 years<br>(4 years for Director) | Two terms                             |
| RS      |  | Parliament following Government proposal               | 5 years                           | Two terms<br>(unlimited for Director) |
| TR      |  | Council of Ministers, with final approval by President | 5 years                           | Unlimited                             |

| Country | Management  | Appointment by                           | Term in office | Reappointment |
|---------|---|--|----------------|---------------|
| AL      |  | Parliament following Government proposal | 5 years        | Two terms     |
| BA      |  | Parliament following Government proposal | 4 years        | Two terms     |
| XK      |  | Parliament following Government proposal | 5 years        | Two terms     |

Table D.2 – NRA management

The appointment procedures for the NRA management also vary from country to country with appointment (i) by parliament only (Macedonia), (ii) appointment by parliament following a government proposal (Albania, Bosnia & Herzegovina, Croatia, Montenegro, Serbia, Kosovo), or (iii) by the government only (Iceland). In Montenegro, the parliamentary appointment was introduced following amendments to the Electronic Communications Law adopted in June 2011, whereas the previous procedure foresaw appointment by the government. In Turkey, the board members of the NRA, following a complex nomination procedure involving industry, consumer bodies and the relevant ministry, are appointed by the Council of Ministers subject to the final approval by the President of the country.

In the countries where there is a separate position of the executive director in charge of the NRA's day-to-day operations, the appointment is usually done by the NRA board members, with the exception of Bosnia & Herzegovina which requests the approval of the Council of Ministers.

However, even in the presence of well defined rules and deadlines for appointment of the NRA management, in some countries there have been undue delays in the appointment procedures. As a result, the management functions often are carried out without a formal mandate, which undermines overall regulatory certainty for the sector. Particularly worrying is Bosnia & Herzegovina where, although the office term of the executive director expired in 2007 and the mandate of the NRA council members ended in early 2009, no new appointment has taken place so far.

The term in office of the board and executive director is generally four to five years with the possibility of one renewal, except in Croatia, where the board of the NRA and the executive director may be reappointed without limitations. In Serbia, the possibility of reappointment without limitations is foreseen only for the position of the director of the NRA. Unlimited reappointment is also possible for the head of the NRA in Iceland and the board of the NRA in Turkey.

Grounds for discharge and dismissal are rather similar in all monitored countries, mostly listing certain specific situations: (i) resignation; (ii) inability to perform duties; (iii) criminal conviction; (iv) professional misconduct and/or abuse of the position; and (v) conflict of interest. Only Croatia has so far fully transposed the new provisions of the EU 2009 framework concerning the clear and transparent rules for dismissal of the NRA management.

#### 4. NRA budget and sources of financing

The financial resources available to the NRA, the number of employees and its ability to attract and retain suitably qualified staff are particularly important aspects in assessing the capacity of the NRA to operate effectively. Article 3 of the Framework Directive of the amended EU 2009 regulatory framework establishes a requirement that NRAs must have their own separate annual budgets and adequate financial and human resources. Article 12 of the Authorisation Directive requires that administrative charges for financing the NRA activities must be objective, transparent, and proportionate and set at the minimum level necessary to cover administrative costs of the NRA.

The figure below shows the NRA operational budget in 2011 set in the context of the size of the regulated electronic communications markets based on the 2010 revenue.

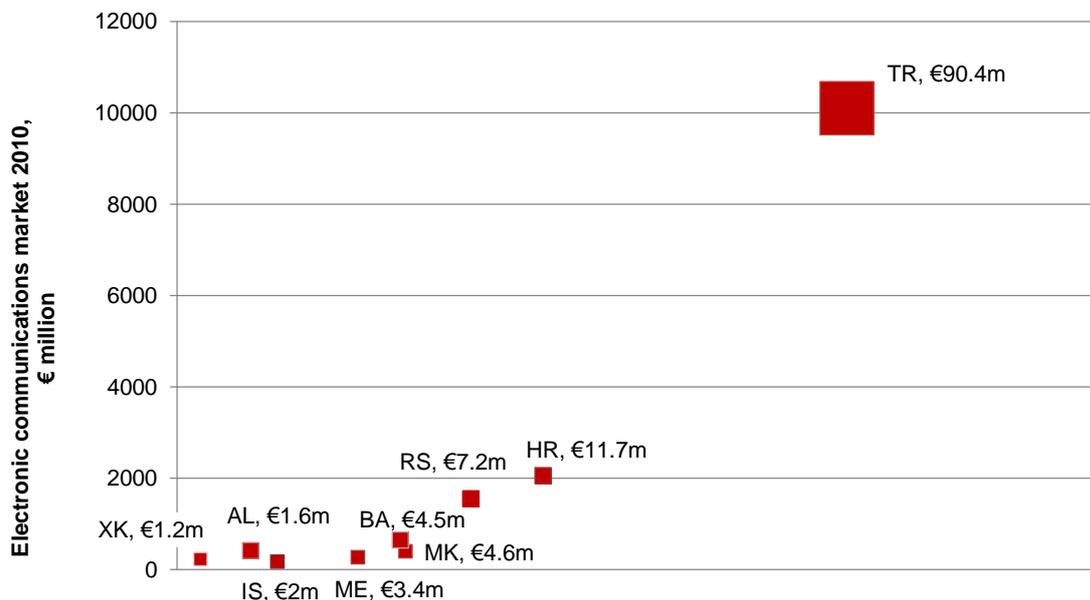


Figure D.2 – NRA operational budget and electronic communications market value (€, million)

The main sources of NRA funding vary. Spectrum usage fees are the main source of financing of the NRAs in Albania (87%), Turkey (84%), and Macedonia (74%). Annual fees paid by licensed operators and numbering usage fees are the main funding source for the NRA in Bosnia & Herzegovina, while the funding sources for the NRAs in Croatia, Iceland and Montenegro are mainly composed of annual revenue-based and spectrum usage fees. In Serbia, the NRA funding is balanced among several different revenue sources, whereas in Kosovo the NRA has been relying on one-off authorisation fees as the main source of its funds.

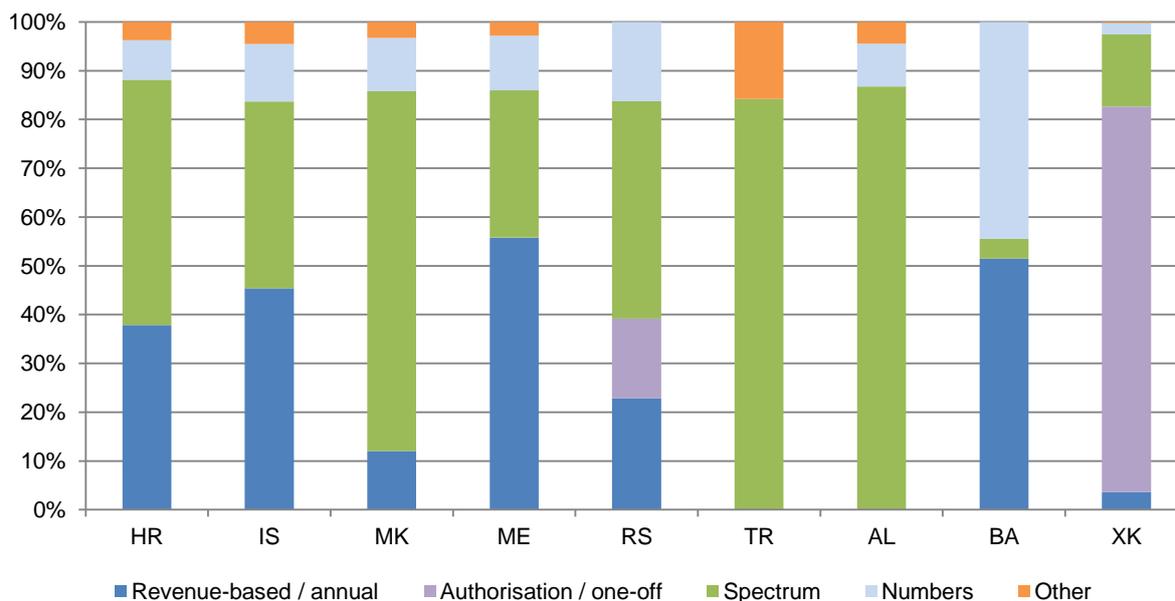


Figure D.3 – NRA funding sources in 2011

The annual budgets of the NRAs are subject to prior approval either by the government or by parliament, as further described in the section on the NRA accountability below.

The next figure shows NRAs operational expenses as a percentage of their total collected revenue in 2011.

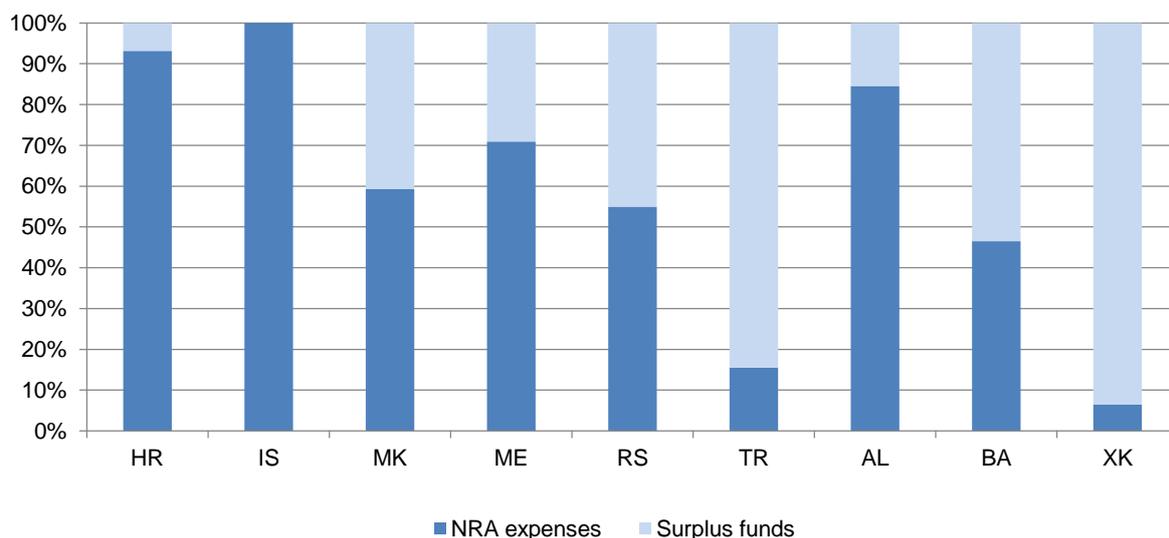


Figure D.4 – NRA operational expenses as proportion of total collected revenue in 2011

The rules on the allocation of any surplus NRA budget vary among the countries. In Croatia, Iceland, Macedonia and Montenegro, the NRAs are allowed to transfer the surplus of collected funds to the next calendar year's budget. In Iceland, however, following the economic breakdown in 2008, the NRA had to reserve any surplus funds as "restricted equity" on its balance sheet which it is not allowed to spend on its activities. In the 2011 budget, the restricted equity amounted to 13.5% of all fees collected by PTA. From 2013, the regulator should be able to use these funds provided that this has been explicitly approved in its budget.

In all other countries, the NRAs are required to return any surplus funds to the state budget. The amount of surplus funds transferred by the NRAs to the state budget often significantly exceeds their own operational budgets. In 2011, this was particularly apparent in Turkey and Kosovo, where, respectively, 84% and 94% of revenues collected by the NRAs were paid to the state budget. In Turkey, about one fifth of this revenue is earmarked for universal service and transferred to the universal service fund. In Serbia, the Law on Electronic Communications provides that any surplus funds collected by the NRA should be allocated to the development of the electronic communications and information society sector. Furthermore, the new Serbian Law on Cinematography adopted in December 2011 also requires the NRA to transfer 10% of its gross revenue to the National Film Centre, a body in charge of promoting domestic film production.

## 5. NRA staffing

The total number of the NRA staff in 2012 ranges from a team of 26 in Iceland to 761 in Turkey, as shown in the figure below. Since 2011, staff increases have been reported by Turkey, Croatia, Serbia and Iceland.

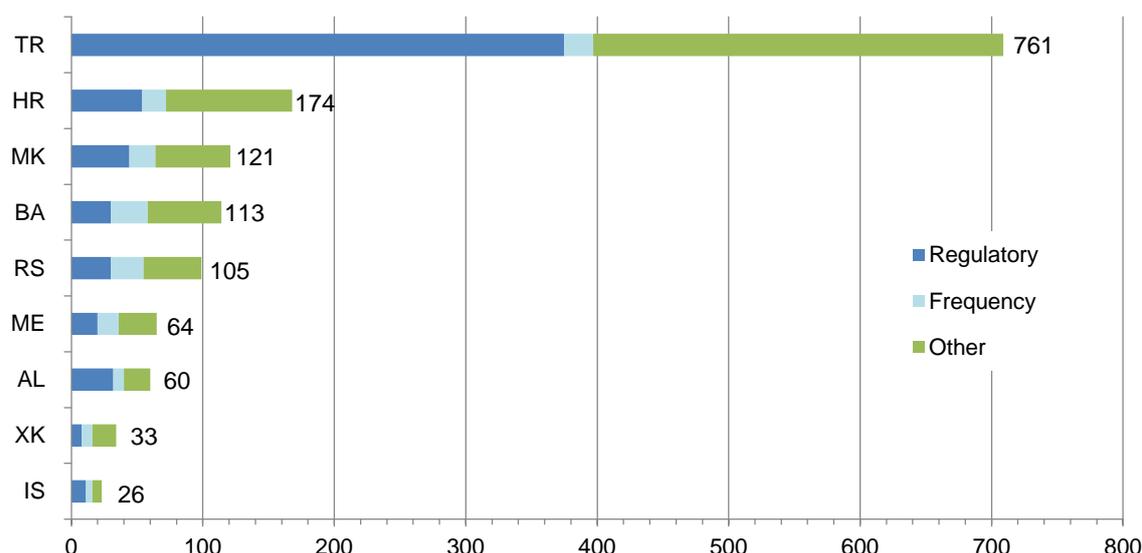


Figure D.5 – NRA organisation: total staff and number of regulatory and frequency experts

The distribution of the number of staff handling electronic communications regulatory tasks and frequency monitoring tasks also varies. Kosovo reported the lowest number of eight regulatory experts, raising concerns about a lack of competent resources to ensure implementation and enforcement of the regulatory framework. In Iceland, the number of regulatory experts is 11, whereas in Turkey it is as many as 378. In the remaining countries, the number of NRA regulatory experts ranges from 22 in Montenegro to 63 in Croatia.

NRAs in most countries have to comply with certain restrictions when deciding on the salary level of their employees within the approved budgets. In Albania, Bosnia & Herzegovina and Kosovo, the salaries of the NRA staff are linked to the salary levels of civil service positions, and a similar restriction was introduced in November 2011 in Turkey.

Calculating the ratio of the NRA's budget to the number of its staff allows another comparison of the NRA resources. The NRA in Turkey is the best resourced with a ratio of €119,000 of operating budget per employee per year, while the NRA in Albania is at the lower end of the scale with €27,000 per year per employee.



Figure D.6 – NRA operating budget per employee in 2011 (€, thousand)

## 6. NRA accountability

Independence needs to be reconciled with measures to ensure that the NRAs are accountable for their actions through: (i) approval and publication of an action plan that sets forth explicit objectives governing the regulator; (ii) specific requirements for reporting and review of the NRA's performance by the government or Parliament; and (iii) financial reporting.

One of the common features observed in most of the monitored countries, with the exception of Iceland and Bosnia & Herzegovina, is increasing parliamentary involvement in the approval of the NRA's plans and the review of its performance.

In Croatia, the NRA's annual activity plan is approved by the government while the NRA's performance is reviewed annually by the government and parliament. A similar procedure applies to the NRA's financial plan which is approved by the government, while its financial reports are reviewed by both the government and parliament.

In Macedonia, Montenegro, Albania and Kosovo, parliament plays the central role in the approval of the NRA's activity plans and financial plans, as well as in the review of the annual reports. In Montenegro, parliamentary approval of the NRA's budget replaced the previous system of government approval, following the amendments to the Law on electronic communications adopted in June 2011. The NRA's annual activity report is reviewed by both the government and parliament. In Turkey, parliament approves the NRA budget.

In Serbia, the NRA's financial plan is subject to government approval, whereas the annual report on the NRA activities is submitted to parliament.

In Iceland, the approval of the annual plan and the review of the results are carried out by the Ministry of Interior, whereas the financial plan of the NRA is approved by the Ministry of Finance and the Ministry of Interior and reviewed by the National Audit Office.

In Bosnia & Herzegovina, annual activity and financial plans of the NRA are approved by the government and it is also the government that reviews the NRA's annual activity and financial reports.

As a regular practice, NRAs are required to publish activity plans and audited financial reports on their websites.

## 7. NRA enforcement powers

There is no credible independence unless the NRA has the necessary enforcement powers to carry out its tasks. The NRA bears the primary responsibility of ensuring compliance with the obligations imposed on SMP operators after carrying out a market analysis procedure. To that effect, the NRA should have specific investigatory and sanctioning powers.

In order to ensure effective compliance of the undertakings with regulatory obligations, the NRA's sanctioning powers should in particular allow it to impose fines with a sufficient deterrent effect. Sanctions should be sufficiently high, taking into account the substantial commercial benefits that can be achieved by the misconduct. Moreover, the threat of sanctions should also be sufficiently real to deter SMP operators from failing to comply with their regulatory obligations.

| Country | Power to impose fines                                   | Maximum amount              |
|---------|---|-----------------------------|
| HR      | Referral to court                                       | 5% annual gross revenue     |
| IS      | Limited (linked to enforcement of specific obligations) | €3,000 per day              |
| MK      | Referral to court                                       | 10% annual gross revenue    |
| ME      | Referral to court                                       | €16,500 (300 minimum wages) |
| RS      | Referral to court                                       | €20,000                     |
| TR      | Directly  | 3% annual gross revenue     |

| Country | Power to impose fines | Maximum amount           |
|---------|-----------------------|--------------------------|
| AL      | Directly              | 10% annual gross revenue |
| BA      | Directly              | €76,000 - €153,000       |
| XK      | Directly              | €250,000                 |

Table D.3 – NRA powers to impose fines

Only in four countries: Turkey, Albania, Bosnia & Herzegovina and Kosovo, the NRAs have the power to impose fines directly. In Croatia, Macedonia, Montenegro and Serbia, the NRAs are required to initiate a misdemeanour procedure before the relevant court in order to impose a fine, whereas in Iceland, the NRA power to impose fines is limited to enforcement of specific obligations (i.e. no possibility to impose financial sanctions for general non-compliance with the law).

In four countries, the maximum amount of any fine is set as a percentage of the total annual turnover, with the level varying from 3% to 10%: Turkey (3%), Croatia (5%), Macedonia and Albania (both, 10%). In Montenegro, Serbia, Bosnia & Herzegovina and Kosovo, the maximum fine is set as a specific monetary amount. In Iceland, there is a maximum amount of €3,000 that can be imposed on a daily basis but no maximum limit to the total amount of fine.

Financial penalties have not been applied in practice by the NRAs in Iceland, Macedonia, Serbia and Albania.

## 8. Resolution of disputes between undertakings

Article 20 of the Framework Directive establishes a requirement for NRAs to be able to issue binding decisions to resolve commercial disputes between undertakings arising from obligations under the regulatory framework. The maximum timeframe for resolving a dispute may not exceed four months, with an exception for certain special circumstances.

In the monitored countries, the deadline for the NRA to resolve a dispute varies from one to four months. Five countries envisage particularly short deadlines for dispute resolution: Albania, Bosnia & Herzegovina, Montenegro, Kosovo and Macedonia, although this deadline can be extended in exceptional circumstances.

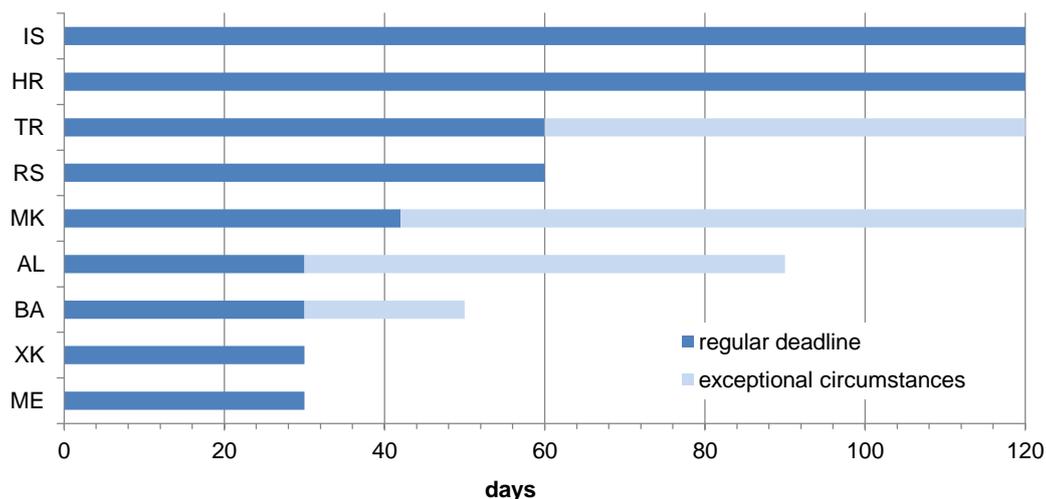


Figure D.7 – Deadlines for resolution of disputes between undertakings

Some countries specify a minimum period of unsuccessful negotiation from 42 days up to 90 days before the dispute can be passed to the NRA.

All countries, except Bosnia & Herzegovina and Kosovo, have an obligation for the NRAs to publish their decisions on disputes.

In addition to resolving disputes between undertakings, NRAs in all countries, except Albania, also have the power to settle disputes between providers and end users, as further discussed below.

## 9. Appeal procedures

Article 4 of the Framework Directive sets out a requirement for effective judicial review mechanisms, enabling any party affected by an NRA decision to submit an appeal against the decision to an appeal body that is independent of the parties involved. Therefore, there is a requirement of independence for the appeal body, similar to that existing for the NRA itself. The article also establishes several requirements for the appeal mechanism:

- The appeal body may be a court or a non-judicial body. In the latter case, the second level of appeal must be a court or a tribunal.
- An appeal of the NRA decision shall not automatically suspend the application of the appealed decision.
- The appeal body must be able to take the merits of the case into consideration and not only rule on procedural grounds.

In addition, the timeframe for obtaining a decision on appeal is important, given the inherent legal uncertainty caused by such appeal processes and their potential retroactive effects.

In five of the monitored countries, the NRA's decisions are final and the first level of appeal is a court. In Albania and Bosnia & Herzegovina, before being submitted to a court, the appealed NRA decisions are first reviewed by the council of the NRA. In Montenegro, the NRA's decisions in the first instance are appealed to the Ministry of Information Society and Telecommunications. In Iceland, the NRA's decisions are first appealed to the Rulings Committee for electronic communications and postal affairs, appointed by the Ministry of Interior. In both countries, the appeal mechanisms raise concerns over the independence of the appeal body.

With the exception of Albania, where an administrative appeal to the council of the NRA would automatically suspend the implementation of the appealed decision, there is no automatic suspension of the appealed decision, unless the appeal body or the NRA decides to grant a suspension upon the complainant's request.

In all countries, except Macedonia, the appeal body is able to consider the merits of the case, where the court is limited in the appeal process to consideration of the correct administrative process. Also, all countries, except Macedonia, allow a third party to appeal an NRA decision, if it can prove a legitimate interest in the case.

Except in a few instances where the first level appeal body is an institution different from a court, the judicial review systems do not foresee any specific deadlines for adopting decisions on appeals. Lengthy and inefficient court procedures taking several years were reported in most countries, but some improvement has been observed in Croatia and Serbia.

In countries where the first level of appeal is a non-judicial body, it is common to set a deadline for decisions on appeals. In Albania, the NRA council has to decide on appeals within 30 days, with this limit being 60 days in Bosnia & Herzegovina. In Montenegro, the appeal procedure brought before the Ministry must be completed within 60 days, whereas in Iceland the deadline for the Rulings Committee to decide on an appeal is eight weeks.

## 10. NRA transparency and participation

NRAs need to exercise their powers impartially and transparently. A lack of transparency undermines legal certainty and increases the potential for political interference. Furthermore, according to the principle of transparency, regulatory processes should allow for formal consultation with stakeholders before decisions are made.

The rules and procedures vary from country to country but, to a certain degree, all NRAs have an established practice to organise public consultations on specific decisions. The average period for comments is 30 days, with a maximum of three months in Montenegro and a minimum of 10 days in Serbia.

It has not yet become common practice for the NRAs to publish a summary of the received responses to the consultation along with their reasoned opinion. Only regulators in Croatia, Macedonia, Montenegro and Serbia publish the summary of the public consultation responses as part of their regular procedures.

In all countries it is a regular practice for NRAs to publish their decisions on their websites.

### 11. Cooperation between NRA and national competition authority

The EU regulatory framework for electronic communications is intended to apply during the intermediate phase in the transition from a regulated monopoly to normal competition, governed only by general competition law. Under this theory, sector specific ex ante regulation and competition law should serve as complementary instruments to achieve policy objectives in the electronic communications sector and address the lack of effective competition. At the same time, a principle underlying the regulatory framework is that ex ante regulation should only be imposed where competition law remedies are insufficient and rolled back when it is no longer needed.

Furthermore, the use of sector specific regulation, when it is found to be justified, relies extensively on competition law principles in defining the relevant markets that are susceptible to ex ante regulation, in assessing market dominance and in formulating remedies to address anticipated competition law breaches.

Therefore, the EU 2003 regulatory framework for electronic communications introduced an important convergence of competition law and sector specific ex ante regulation. In its practical application, NRAs are advised to consult with their national competition authorities (NCAs) when deciding whether the use of both complementary regulatory tools is suitable to deal with a specific topic, or whether competition law instruments are sufficient. NRAs are also required to carry out analysis of the relevant markets in close collaboration with NCAs. In practice, it is advisable for both authorities to conclude an agreement covering the scope of their cooperation in the electronic communications sector and the division of specific responsibilities.

In all countries with the exception of Bosnia & Herzegovina, the NRA and the NCA have established such a formal cooperation.

## E. Market access conditions in electronic communications

### 1. Liberalisation of electronic communications networks and services

The liberalisation of telecommunications markets in the monitored countries was evolving at different speeds. Furthermore, in some countries it was a complex process stretched over several years with a step-by-step approach starting from data services and moving into specific segments of voice telephony networks and services. By now all monitored countries have liberalised electronic communications networks and services.

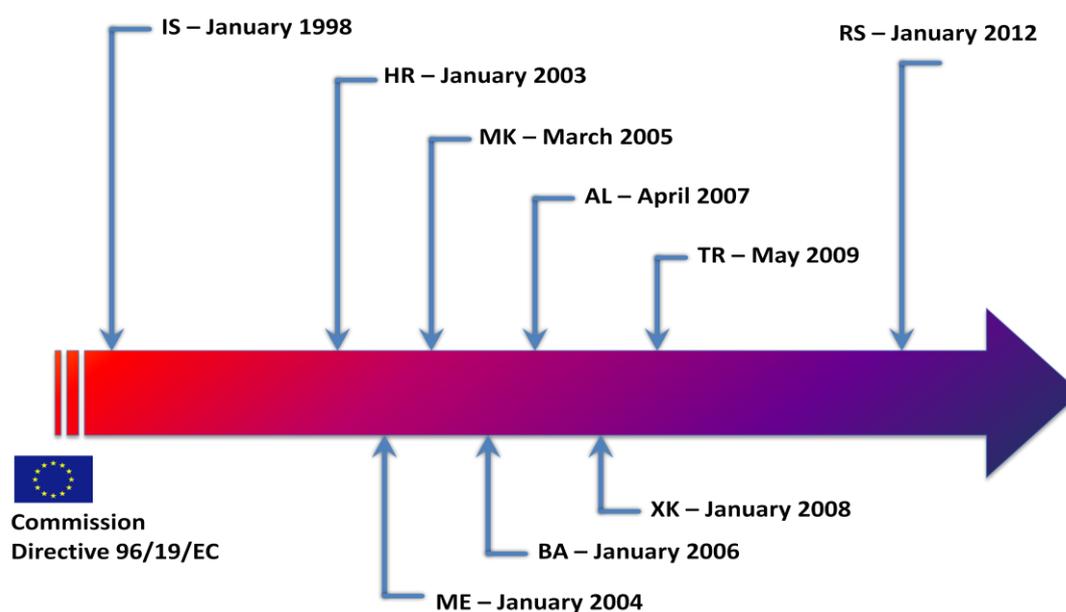


Figure E.1 – Full liberalisation of telecommunications markets

Iceland was the first country to introduce full liberalisation of telecommunications networks and services on January 1, 1998, in line with the requirements set out in the agreement on the European Economic Area (EEA) and in accordance with the European Commission Directive 96/19/EC.

Croatia liberalised telecommunications markets on January 1, 2003, followed by Montenegro on January 1, 2004. However, until April 2007 the high Montenegrin licensing fees, especially for international services, presented a barrier to market entry. In Macedonia, full liberalisation was implemented in 2005 following the adoption of the Law on electronic communications.

Bosnia & Herzegovina liberalised local and domestic long distance services in 2002. International voice telephony services were opened to competition on January 1, 2006.

In Albania, liberalisation of fixed telephony networks and services was a gradual process starting with rural local services in 1998, moving to domestic long distance services in July 2003 and international services in January 2005. The provision of urban local networks and services was liberalised in April 2007 following the introduction of regional licences, although *de facto* this segment remained closed to competition until the Law on electronic communications was adopted in 2008.

In Kosovo, the liberalisation of fixed networks and services was formally achieved by the Law on telecommunications of May 12, 2003. However, the NRA only completed the secondary legislation on authorisations for alternative providers in 2006. PTK, the incumbent operator, maintained exclusive control over international gateway facilities until December 31, 2007.

In Turkey, domestic long-distance and international networks were liberalised on January 1, 2004, while local fixed telephony networks and services were opened to competition only in May 2009 with the entry into force of the general authorisation regime under the new Electronic communications law.

In Serbia, the fixed incumbent operator was granted until June 9, 2005 an exclusive right to provide all types of fixed telecommunications services, with the exception of internet and cable TV services that were open to competition. Telekom Srbija remained the only licensed public fixed telephony network operator until February 2010, when the second licence for the provision of public fixed telecommunications networks and services was issued to Telenor following a public tender procedure. Furthermore, no similar new licences had been issued until the end of 2011, thereby keeping competition in the sector limited despite the adoption of the new primary law which envisages full liberalisation. Effectively, the Serbian market is fully liberalised as of January 1, 2012.

## 2. Authorisation regime for electronic communications services

The EU 2003 regulatory framework has established a general authorisation regime for the provision of electronic communications networks and services. Undertakings may only be required to notify the intention to commence the provision of electronic communication networks or services and to submit information required to allow the NRA to keep a register or list of providers. There is no requirement to obtain an explicit decision by the NRA before starting activities. Individual authorisations can only be required for the rights to use spectrum and numbers.

Seven of the monitored countries have implemented a general authorisation regime for all categories of electronic communications services: Croatia, Iceland, Macedonia, Montenegro, Serbia, Turkey and Albania.

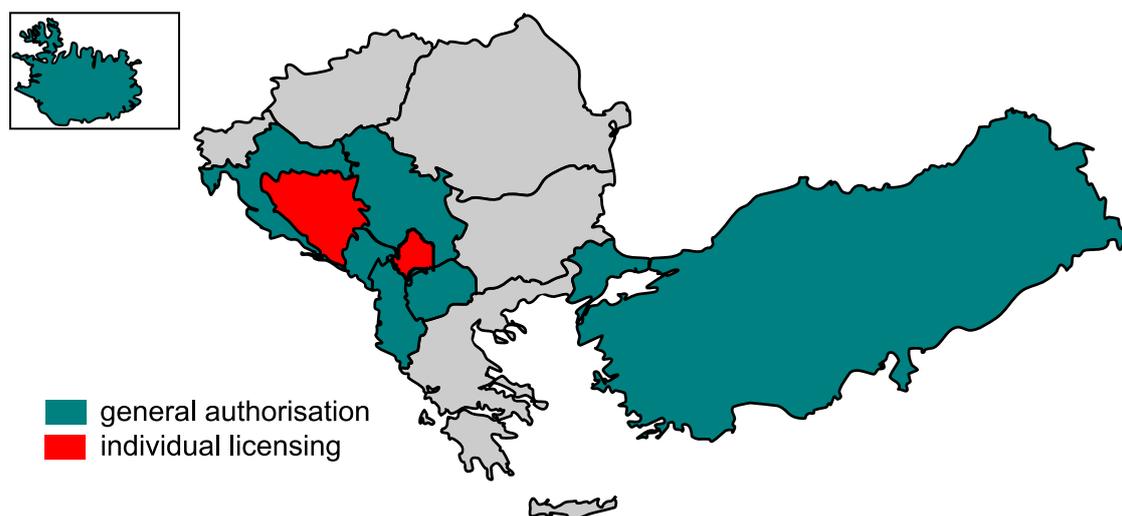


Figure E.2 – Authorisation regime for electronic communications services

In Turkey, authorisation and concession agreements issued before the entry into force of the Electronic Communications Law of November 2008 will, however, remain in force until their expiry (due in 2023 for GSM services, in 2029 for 3G services and in 2026 for Turk Telekom). Currently, Turksat (the satellite provider) operates under an authorisation agreement, Turk Telekom and the three mobile providers operate under concession agreements. Specific obligations and conditions stemming from the respective authorisation and concession agreements also continue to apply to the authorisation holders. These conditions in particular include retail price control regulations and universal service obligations.

Serbia introduced general authorisation regime for all electronic communications services in 2010, except public voice telephony services provided over public fixed telephony networks, for which general authorisation regime applies from January 1, 2012.

In Bosnia & Herzegovina and Kosovo, the authorisation regimes are based on individual licences. Both countries have recently reduced the applicable licensing fees. In January 2012, the Bosnian NRA reduced by 5-10% annual fees for main categories of electronic communications services, following an earlier 30% decrease implemented in January 2011. In Kosovo, the one-off licence fees were reduced by 30-50% in March 2011.

The table below provides an overview of the authorisation regimes for electronic communications networks and services and one-off and annual fees paid by authorised undertakings. Annual fees are shown either as a percentage of revenue or a corresponding amount in euro. Where applicable, a maximum amount foreseen by the law is shown in parentheses.

| Country | General authorisation | One-off fees   | Annual fees (% of revenue) |
|---------|-----------------------|----------------|----------------------------|
| HR      | 2008                  | 0              | 0.25%                      |
| IS      | 2003                  | 0              | 0.30%                      |
| MK      | 2005                  | 0              | 0.07-0.35% (max €250,000)  |
| ME      | 2008                  | €1,000         | 1.01% (max 1.5%)           |
| RS      | 2010-2012             | 0              | max 0.4%                   |
| TR      | 2009                  | 0              | 0.35%                      |
| AL      | 2008                  | 0              | 0 (max 0.5%)               |
| BA      | X                     | €255 - €511    | €511 - €255,000            |
| XK      | X                     | €500 - €50,000 | 0.30%                      |

Table E.1 – Authorisation regime for electronic communications services

The operation of cable TV networks is subject to a general authorisation regime with a simple notification to the NRA in Croatia, Iceland, Montenegro and Turkey. In Macedonia, in addition to the general authorisation regime with a notification to the NRA, cable TV operators are required to register the provision of broadcasting retransmission services with the media regulator. In Albania and Serbia, in addition to the general authorisation regime with a notification to the NRA, a separate authorisation to provide broadcasting services has to be obtained from the national media regulators. Furthermore, in Albania cable TV operators are restricted from offering electronic communications services, such as voice telephony or internet access. In practice, Albanian cable TV operators have to establish separate legal entities in order to be able to offer electronic communications services.

In Kosovo, provision of cable TV services requires an individual licence from the broadcasting regulator without any specific authorisation from the NRA. An individual licence from the NRA would be however required for provision of electronic communications services such as voice telephony or internet access. In Bosnia & Herzegovina, cable TV services require two licences from the NRA: a network licence for the provision of a public network and a service licence for content distribution services over a cable TV network.

### 3. Rights of way

Rights of way are necessary to establish electronic communications infrastructure. For fixed network operators rolling out new infrastructures, access to public and private land is required to install cables and ducts. Similarly, access to building sites and construction permits is important for operators installing mobile network infrastructure.

Article 11 of the Framework Directive requires that applications for granting the rights to install infrastructure on public or private property shall be handled by the relevant authorities in a transparent, non-discriminatory manner and without delay. It also states that the authorities issuing building permits must be structurally separated from the network operators. Expropriation procedures must be available and justified as a safeguard mechanism for access to private as well as to public land.

In all monitored countries the rights of way for electronic communications infrastructure are addressed in the primary laws on electronic communications that provide for the non-discriminatory right of use of public and private land. In addition, more specific procedural issues are set out in the relevant acts on spatial planning and constructions. Recent legislative initiatives aimed at improving the transparency of the procedures and shortening the deadlines for issuing relevant permits have been implemented in Croatia, Serbia and Kosovo. Also, new legislation on the rights of way for electronic communications infrastructure has been drafted in Albania and is awaiting parliamentary approval.

The deadlines for issuing construction permits foreseen by the relevant legislation in the monitored countries are varying from eight to 60 days. However, the NRAs typically have little or no control over the procedures for granting rights of way, which involve issuing of building permits by local or regional authorities and location permits by authorities in charge of urban and country spatial planning. Therefore, in practice the time required to obtain construction permits may still well exceed 12 months.

## F. Radio spectrum

### 1. Frequency management

Frequency management includes two main tasks: (i) frequency allocation, including the approval of the national frequency plan; and (ii) frequency assignments, covering individual authorisations to use spectrum. Frequencies for the military sector are normally decided outside this framework.

In Iceland, Macedonia and Bosnia & Herzegovina, NRAs are responsible for the full scope of frequency management functions, including frequency allocation and frequency assignments for telecommunications and broadcasting. In Turkey, the NRA is responsible for frequency allocation and frequency assignment for telecommunications, while frequency assignment for broadcasting is carried out by the broadcasting authority. In Croatia, Montenegro, Serbia and Kosovo, frequency allocation is carried out by the government on the basis of a proposal of the NRA, while the NRA performs all frequency assignment tasks. In Kosovo, spectrum assignments for broadcasters, however, are done in coordination with the broadcasting authority. In Albania, frequency allocation is decided by the government on the basis of a proposal of the NRA to the ministry. Similarly to Turkey, the Albanian

NRA is responsible for frequency assignments for telecommunications and the broadcasting authority for frequency assignments to broadcasters.

## 2. Spectrum licences issued to mobile operators

Six of the monitored countries have three 2G/3G mobile operators: Croatia, Montenegro, Serbia, Turkey and Bosnia & Herzegovina. In Macedonia, only two of the three 2G operators have been assigned 3G spectrum.

In Iceland and Albania, there are four mobile operators. In Iceland, three operators have 2G/3G spectrum assignments and one smaller operator 2G spectrum only. In Albania, two of the four established 2G operators have been awarded 3G spectrum. In Kosovo, there are two 2G mobile operators and no 3G spectrum has been awarded yet.

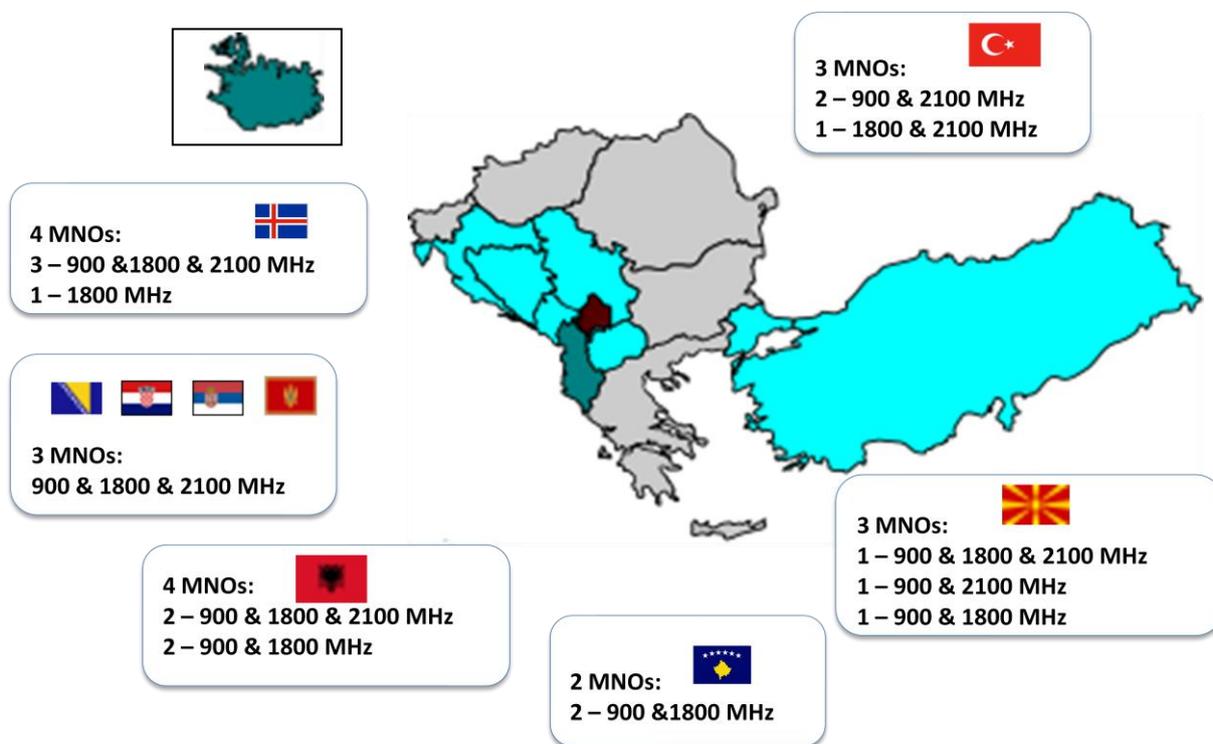


Figure F.1 – Spectrum assignments in 900 MHz, 1800 MHz and 2100 MHz bands

The distribution of spectrum assignments demonstrates some asymmetries, typically between established operators and new entrants. In practice, these asymmetries mean that mobile operators with spectrum assignments in the higher 1800 MHz band often face higher network deployment cost.

In Croatia, the new entrant Tele2 was granted a smaller spectrum assignment in the 900 MHz band than T-Mobile and VIPnet. Also in Serbia, the late entrant VIP mobile has a smaller spectrum assignment in the 900 MHz band, but more in the 1800 MHz compared with the two other established operators. In Turkey, the smallest operator, Avea, has a much smaller spectrum assignment in the 900 MHz band, but also holds the single licence in the 1800 MHz band.

In Montenegro, a tender procedure was launched in November 2011 to award additional spectrum in the 900 MHz, 1800 MHz and 2100 MHz bands – either to a new entrant mobile operator or to the three existing ones. In practice, no new entrant was interested and one of the existing operators, Telenor, was announced the winner with a €1.65m bid. According to the rules of the tender procedure, it had to offer two thirds of the won spectrum in all three bands to two other operators. Only one of them, Crnogorski Telekom, accepted one third of the awarded spectrum, paying to Telenor one third of the bid price. Since the third operator MTEL was not interested, Telenor kept two thirds of the awarded spectrum.

In Macedonia, ONE does not have any spectrum in the 1800 MHz band, while the late entrant VIP operator did not acquire any 3G spectrum in the 2100 MHz band. Furthermore, in the beginning of

2012, because of the high frequency usage fees, ONE decided to return to the regulator some part of its still unused spectrum in the 2100 band.

In Iceland, the late entrant operator, Nova, was awarded a smaller spectrum assignment in the 900 MHz band than the two largest operators, Síminn and Fjarskipt. The fourth and the smallest Icelandic operator, Alterna (IMC) only had a very small spectrum assignment in the 1800 MHz and no spectrum in either 900 MHz or 2100 MHz bands. Some of these asymmetries have been recently addressed by the NRA in the refarming process of 2G spectrum, as explained in the section below.

In Albania, all four mobile operators have similar spectrum assignments in the 900 MHz and 1800 MHz bands, but only two of them, Vodafone and AMC, have been awarded spectrum in the 2100 MHz.

As regards the spectrum assignment method, comparative selection (“beauty contest”) has been historically used in Croatia and Iceland. By contrast, financial auctions have been the principal method used in Serbia and in Turkey.

Four other countries – Albania, Macedonia, Montenegro and Kosovo – have opted for a hybrid method combining a financial bid and other non-financial criteria. However, the amendments to the Macedonian Electronic Communications Law adopted in May 2012 are expected will enable the use of financial auctions for future spectrum awards.

In Bosnia & Herzegovina, all spectrum assignments have been awarded to the three incumbent operators without any competitive procedures.

### 3. Refarming of 2G spectrum for 3G/4G services

In October 2009, Council Directive 87/372/EEC (the ‘GSM Directive’) was amended, removing the restriction that reserved the 900 MHz spectrum exclusively for GSM services. The Commission has also approved the technical parameters that enable the co-existence of 3G (UMTS) and 4G (LTE and WiMAX) mobile technologies, along with the traditional GSM services in the 900 MHz and the 1800 MHz bands. The objective of these Commission initiatives has been to stimulate deployment of wireless broadband services in these bands.

The Commission has also called for redistribution of the existing spectrum assignments in the GSM bands between mobile operators, in order to avoid competition distortions and to modify channelling arrangements from the current 2 x 200 kHz spectrum blocks used by GSM to the 2x5 MHz blocks required for deployment of UMTS and LTE.

Two of the monitored countries have allowed both UMTS and LTE services along with GSM in the 900 MHz and 1800 MHz bands: Croatia and Montenegro, while three others - Iceland, Macedonia and Bosnia & Herzegovina – have so far only allowed UMTS. Two Croatian mobile operators, VIPnet and Hrvatski Telekom, were first in the region to launch commercial LTE services in the 1800 MHz band in March 2012. In Montenegro, LTE 1800 trials have been conducted by Telenor.

In Iceland, in parallel with allowing UMTS services in the 900 MHz and 1800 MHz bands, the regulator also assigned additional spectrum in the 900 MHz band to three mobile operators: Síminn, Fjarskipt and Nova. Further amendments to the spectrum assignments in the 900 MHz and 1800 MHz were undertaken in the context of the renewal of mobile licences in February 2012. As a result, spectrum assignments were redistributed and additional spectrum in the 1800 MHz band was assigned to Nova and IMC in order to allow contiguous spectrum blocks of 2x5 MHz. The NRA intends to allow LTE services in the 1800 MHz band following an auction of 800 MHz and 1800 MHz spectrum scheduled in the second half of 2012.

In Turkey, ICTA presented a proposal to the Ministry of Transport, Maritime Affairs and Communications on refarming of the 900/1800 MHz bands in September 2011. According to this proposal, the deployment of UMTS services in these bands would be allowed after amending and redistributing the current spectrum assignments among operators. Necessary procedures are now being carried out by the regulator. As part of this process, it is planned to auction 2x8.6 MHz of spectrum in the E-GSM band (880-890 MHz paired with 925-935 MHz) to operators that currently hold less than 2x10 MHz of spectrum in the 900 MHz band. Similarly, two blocks of 2x15 MHz in the 1800 MHz band may be auctioned to operators that do not have frequencies in this band.

In Serbia, although successful LTE trials were undertaken by Telekom Srbija in April 2011, there has been no progress on refarming of the GSM spectrum bands. Proposals for amending the national

frequency plan to allow IMT-2000/UMTS services in the 900/1800 MHz were published by RATEL for a consultation in March 2012 but no clear timeline has been given.

#### 4. Broadband wireless access

Spectrum licences for broadband wireless access (BWA) in the 3.5 GHz band have been issued in Croatia, Iceland, Macedonia and Montenegro. All of the regional licences issued in Croatia have either expired or have been returned to the regulator, and in December 2011 a new single national licence was issued to an alternative operator. In Macedonia, out of two initially issued national and 18 regional licences, there are only six valid regional licences covering the whole national territory issued to one licensee. All other licences were revoked, either because of the failure to meet coverage obligations or on request of the licensees themselves.

In Serbia, no national or regional licences have been issued, but there are 51 permits for individual radio stations at specific locations mostly within Belgrade and Novi Sad granted under the previous legislation. In May 2009, the Serbian NRA issued two national fixed wireless access licences in the 410 – 430 MHz band to Telekom Srbija and Orion Telecom (Media Works) following a tender procedure.

In Albania, Bosnia & Herzegovina, Kosovo and Turkey no licences for the provision of broadband wireless access services have been issued so far. In Bosnia & Herzegovina, however, alternative operators are offering broadband services using Wi-Fi spectrum in the license-free 2.4 GHz and 5 GHz bands.

#### 5. Analogue switch-off dates and use of the digital dividend

The 800 MHz (790-862 MHz) band is the upper part of the spectrum band that will be freed up with the switchover from analogue to digital terrestrial television broadcasting. The European Commission calls on all EU member states to have completed their analogue terrestrial broadcasting switch-off by January 1, 2012, although this is not a binding deadline.

In March 2012, the first EU-wide five-year Radio Spectrum Policy Programme (RSPP) was agreed, including a package of measures intended to facilitate investment in fast and ultra-fast broadband networks. The main objective is to make more spectrum available for wireless broadband services. The RSPP sets a deadline of January 2013 for all member states to carry out the authorisation process to allow the use of the 800 MHz band for wireless broadband, with derogations until the end of 2015 in exceptional cases.

Only Croatia and Iceland had completed their analogue terrestrial switchover by January 1, 2012. Macedonia plans to have terminated analogue transmissions by June 1, 2013. In Bosnia & Herzegovina a new proposal has been presented for approval to the Council of Ministers that would postpone the switchover until December 1, 2014, as the earlier switchover date of December 1, 2011 was not achieved in practice. Turkey has plans to complete switchover by March 2015.

In Serbia, the initial date of April 4, 2012 has been postponed by the government until as late as June 17, 2015. Also in Montenegro, June 17, 2015 is currently proposed as the most likely switchover date instead of the earlier adopted December 31, 2012. In Albania, the new national strategy for analogue switch-off adopted in May 2012 envisages a region-by-region approach, starting from April 2013 and ending in January 2015, with the ultimate deadline of June 17, 2015. At the same time, Albania is reported to operate already now well developed DVB-T and DVB-H networks with national coverage.<sup>3</sup> The networks, however, operate outside of the licensing framework for broadcast services adopted by parliament in May 2007.

June 17, 2015 is also being considered by Kosovo, although no final decision has been taken yet.

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<sup>3</sup> <http://www.digitag.org/WebLetters/2008/External-Aug2008.html>

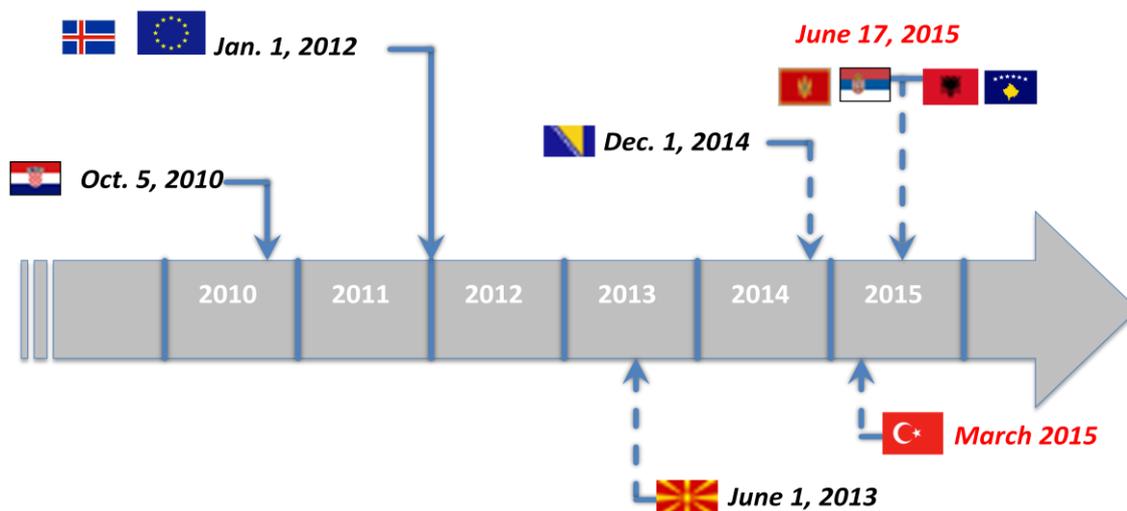


Figure F.2 – Analogue switch-off schedule in the Enlargement countries

At this stage, only three countries are considering further steps to allocate the digital dividend spectrum for wireless broadband. In Iceland, an auction for the 800 MHz spectrum jointly with the available spectrum in the 1800 MHz band is planned in the second half of 2012. Croatia and Macedonia are planning to assign the 800 MHz spectrum in late 2012 or early 2013.

## G. Regulatory framework for market analyses

### 1. Market analysis procedures and regulations

The concept of significant market power (SMP) is one of the central elements of the EU regulatory framework for electronic communications. Following a market analysis by the NRA, an operator can be designated as having SMP in a specified electronic communications market. Subsequently, it may be subject to specific *ex ante* regulatory obligations (remedies).

So far, seven countries with primary legislation based on the EU 2003 regulatory framework have adopted regulations according to the EU guidelines and competition law principles and completed at least one round of market analysis: Croatia, Iceland, Montenegro, Macedonia, Turkey, Albania and Serbia.

Bosnia & Herzegovina and Kosovo are also aligning their regulatory regimes with the EU guidelines and have started their first analyses of relevant markets. Although both countries have primary laws based on the EU 1998 regulatory framework, their NRAs have adopted regulations that provide legal basis for regular analysis of electronic communications markets and imposition of *ex ante* regulatory obligations on operators with SMP. In Kosovo, the NRA adopted a Regulation on market analysis and definition of the providers with SMP in December 2010, and in Bosnia & Herzegovina, the NRA adopted a Rule on analysis of electronic communications markets in October 2011.

In all countries, the NRAs have discretion to define markets relevant for *ex ante* regulation taking into account the EC recommendation on relevant markets and applying the three criteria test for additional markets. In practice, the NRAs in Iceland, Macedonia, Turkey, Albania and Kosovo have so far relied on the 2003 European Commission recommendation in defining relevant markets, whereas the NRAs in Croatia, Montenegro, Bosnia & Herzegovina and Serbia have applied the 2007 version of the recommendation.

With the exception of Kosovo that mainly relies on the 25% market share threshold as a basis for the designation of undertakings with SMP, the monitored countries now apply competition law principles, taking into account market shares and other relevant criteria in accordance with the EU guidelines.

The frequency of the market analyses mandated in the legislation varies between the countries:

- once every year – in Bosnia & Herzegovina and Turkey;
- every two years – in Albania;

- every three years – in Croatia, Iceland, Serbia and Kosovo; and
- left to the discretion of the NRA – in Macedonia and Montenegro.

## 2. Analysis of relevant markets by NRAs

Seven of the monitored countries have completed at least their first round analysis of electronic communications markets in line with the EU guidelines.

### a) Croatia

The Croatian regulator, HAKOM, completed its first round analysis of nine markets in July 2009 covering five markets of the 2007 Commission recommendation on relevant markets – wholesale fixed call origination, wholesale fixed call termination, wholesale infrastructure access and wholesale broadband access markets (markets 2-5/2007) and wholesale mobile call termination (market 7/2007). At the same time HAKOM found no longer relevant for ex ante regulation four markets that have been previously regulated: wholesale fixed transit services (market 10/2003), wholesale mobile access and call origination (market 15/2003) and retail mobile services. HAKOM also assessed the wholesale SMS termination market finding it not fulfilling the three criteria test.

In 2011, HAKOM has carried out its analysis of further markets. In April 2011, retail and wholesale regulatory obligations were imposed on the incumbent operator that was found to have SMP in the retail fixed access market (market 1/2007). In June 2011, HAKOM deregulated retail markets for international calls (markets 4 and 6/2003) after finding them no longer fulfilling the three criteria test. At the same time, the incumbent operator was found to have SMP in the retail markets for local and national calls (markets 3 and 5/2003) and regulatory obligations were imposed in July 2011.

In November 2011, HAKOM completed its analysis of wholesale terminating segments of leased lines (market 6/2007) and wholesale trunk segments of leased lines (market 14/2003). In both markets, the incumbent operator, Hrvatski Telekom, was found to have SMP. However in the market for trunk segments of leased lines the regulation only applies to the routes that were found to be non-competitive.

In March 2012, HAKOM also adopted its final measures on the market for retail broadband internet access services and a closely related market for transmission of pay TV services. The scope of regulatory obligations imposed on Hrvatski Telekom and its subsidiary Iskon Internet includes retail price control, non-discrimination and prohibition of unjustified bundling that would apply to both retail broadband access and IPTV services.

### b) Iceland

The Icelandic regulator, PTA, completed in its first round analysis of the markets defined in line with the 2003 Commission recommendation in 2008. Only the wholesale market for broadcasting transmission services (market 18/2003) was found to be competitive, whereas SMP was found in all other 16 markets. No retail regulatory obligations were imposed in the markets for fixed call services (markets 3-6/2003) as PTA considered wholesale obligations imposed in the corresponding upstream markets to be sufficient to address the identified competition problems.

The second round analysis of the wholesale mobile call termination market (market 16/2003) was completed in July 2010 introducing new glide paths for reductions in mobile termination rates until January 2013 for all mobile operators with SMP. This market was again analysed in 2011 and as a result of the final measures adopted in January 2012, an MVNO was designated as having SMP in addition to the four mobile network operators. In March 2012, PTA completed its second round analysis of the wholesale market for mobile access and call origination (market 15/2003) finding this market as no longer meeting the three criteria test and removing from Síminn all previously imposed regulatory obligations.

### c) Macedonia

In 2010 the Macedonian NRA, AEC, completed its first round analysis of the retail fixed markets for fixed access and call services (markets 1-6/2003), retail and wholesale leased lines services (markets 7, 13 and 14/2003), wholesale fixed call origination, termination and transit services (markets 8-10/2003), wholesale infrastructure and broadband access (markets 11 and 12/2003), and wholesale mobile access and call origination (market 15/2003).

In 2010, AEC also carried out its second round analysis of the wholesale mobile call termination market for all three mobile operators (market 16/2003) and approved asymmetric glide paths for MTRs reductions until August 2013.

In May 2011, AEC completed its analysis of the wholesale market for SMS termination that was found relevant to *ex ante* regulation. All three mobile operators were designated as having SMP and imposed a full set of regulatory obligations including price control based on LRIC methodology.

Currently AEC is finalising its third round analysis of wholesale mobile call termination (market 7/2007) and wholesale infrastructure and broadband access (markets 4-5/2007).

d) Montenegro

The Montenegrin regulator, EKIP, completed in November 2010 its first round of market analysis defined according to the 2007 Commission recommendation. In all seven markets, it imposed a full set of regulatory obligations including retail price controls, wholesale access obligations covering interconnection, carrier selection and pre-selection, wholesale line rental, local loop unbundling, wholesale broadband access and wholesale price controls.

In 2011, EKIP continued analysis of additional markets and in December 2011 it adopted final measures on the following markets that were found relevant to *ex ante* regulation: retail market for fixed local and national calls (markets 3 and 5/2003), retail market for fixed international calls (markets 4 and 6/2003), wholesale market for mobile access and call origination (market 15/2003), wholesale broadcasting transmission services (market 18/2003) and wholesale trunk segments of leased lines (market 14/2003).

e) Serbia

In November 2011, the Serbian regulator, RATEL, adopted final decisions on its first round of market analyses. The list of analysed markets includes the seven markets of the 2007 Commission recommendation and two retail markets that were found satisfying the three criteria test: retail fixed telephony services (markets 3-6/2003) and retail distribution of media content. In all markets RATEL designated undertakings with SMP and imposed regulatory obligations, including carrier selection and pre-selection, local loop unbundling and wholesale broadband access, as well as retail and wholesale price controls. First reference offers imposed by RATEL as part of regulatory obligations on operators with SMP were approved and published in April – May 2012.

f) Turkey

The Turkish regulator, ICTA, completed its second round of market analyses in 2009. In line with its first round, the analysed markets correspond to 16 relevant markets of the 2003 Commission recommendation (excluding the two wholesale markets for international roaming and broadcasting transmission services). Final decisions on all markets were adopted between December 2009 and February 2010. In all markets, similar to the first round analysis, ICTA imposed a full set of regulatory obligations, including the new remedy of wholesale line rental imposed on Türk Telekom in retail fixed markets for residential and business access (markets 1 and 2/2003).

Currently ICTA is carrying out its third round of market analyses.

g) Albania

The Albanian regulator, AKEP, also completed its second round of market analyses. The analysed markets correspond to 16 relevant markets of the 2003 Commission recommendation (same as in Turkey) and an additional wholesale market for SMS termination. The scope of regulatory obligations imposed on the incumbent operator, Albtelecom, in the fixed retail and wholesale markets includes the obligations to provide carrier selection and pre-selection, local loop unbundling and wholesale broadband access.

The second round analysis of wholesale call termination on individual mobile networks covers three mobile network operators that have been imposed a similar set of regulatory obligations, although the price control obligations allow asymmetric MTRs. The regulator has also removed the non-discrimination obligation that previously applied to termination of calls originating abroad. The fourth operator, Plus Communication, is not regulated as it was not active at the time of market analysis,

although it has been subject to regulatory obligations imposed on the wholesale SMS termination market.

Until June 20, 2012 AKEP has been consulting on its third round analysis of wholesale mobile access and call origination and wholesale mobile call termination (M15-16/2003). According to the draft proposals, Plus Communication would be designated as having SMP on the wholesale mobile call termination market, whereas the wholesale access and call origination market would be deregulated.

h) Bosnia & Herzegovina

Until now, the Bosnian regulatory framework has been based on the 25% market share threshold for designation of undertakings with SMP and regulatory obligations pre-defined by the law and licence conditions. Accordingly, the three incumbent operators were designated as having SMP in the markets for fixed and mobile voice telephony services and leased lines.

In October 2011 the NRA adopted a Rule on market analysis that provides legal basis for regular analysis of electronic communications markets and imposition of *ex ante* regulatory obligations on operators with SMP in line with the current EU regulatory framework. In parallel, the regulator has been also carrying out its first round analysis of wholesale mobile call termination (market 7/2007), wholesale fixed call termination (market 3/2007), wholesale unbundled access and broadband access (markets 4 and 5/2007).

i) Kosovo\*

Although the current regulatory framework in Kosovo is still based on the 25% market share threshold for the designation of undertakings with SMP, the regulator, TRA, has made some progress in aligning its market analysis procedures with the EU rules.

In December 2010, TRA adopted a regulation on market analyses and designation of providers with SMP, which defines the procedural steps and main principles for defining relevant markets, designating operators with SMP and imposing regulatory obligations. In February 2012 TRA completed its first round market analysis of fixed retail services (markets 1-6/2003), wholesale call origination, termination and transit (markets 8-10/2003) and wholesale unbundled access (market 11/2003). Currently TRA is analysing the wholesale market for call termination on individual mobile networks (M16/2003).

## H. Competitive safeguards

### 1. Competitive safeguards overview

The next sections address implementation of the competitive safeguards which constitute the basic mechanisms enabling competition when a national market is being liberalised. The table below provides an overview of the implementation status of competitive safeguards in the monitored countries.

|  | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|--|----|----|----|----|----|----|----|----|----|
| Carrier selection/ pre-selection       | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  | ✗  | ✓  | ✗  |
| Fixed number portability               | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  | ✗  | ✓  | ✗  |
| Mobile number portability              | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✗  |
| Fixed Reference Interconnection Offer  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Reference Unbundling Offer             | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  |
| Wholesale broadband access             | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✗  | ✗  |
| Wholesale line rental                  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  | ✗  | ✗  | ✗  |
| Mobile Reference Interconnection Offer | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  |
| National roaming                       | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  |
| MVNO/SP access                         | ✗  | ✓  | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  | ✓  |

Legend: ✓ - available/regulated ✗ - not available

Table H.1 – Implementation of competitive safeguards

## 2. Carrier selection and pre-selection

Carrier selection (CS) and carrier pre-selection (CPS) along with number portability in the EU were mandated already under the 1998 ONP regulatory framework. At the early stage of liberalising telecommunications market, these facilities were viewed as key facilitators of consumer choice and effective competition in a liberalised telecommunications environment.

Under the 2002 regulatory framework, CS/CPS was also still considered a key enabler of competition in the fixed telephony market. Article 19 of the Universal Service Directive 2002/22/EC provided that operators with SMP in the markets for the provision of connection to and use of the public telephone network at a fixed location had to offer CS/CPS. Unlike wholesale obligations under articles 9-13 of the Access Directive 2002/19/EC that could be discretionary imposed by the NRA, CS/CPS obligation would be triggered automatically by the SMP designation in the fixed retail markets.

Under the revised 2009 regulatory framework, article 19 of the Universal Service Directive has been repealed as redundant. Recital 20 of the amending Directive in particular says the following: *"To continue to impose carrier selection and carrier pre-selection directly in Community legislation could hamper technological progress. These remedies should rather be imposed by national regulatory authorities as a result of market analysis carried out in accordance with the procedures set out in Framework Directive 2002/21/EC and through the obligations referred to in Article 12 of Access Directive 2002/19/EC."*

CS/CPS has been implemented in all Enlargement countries, with the exception of Serbia and Kosovo. In Albania, both functionalities were introduced in October 2011 for international calls and from May 2012 are also available for other call categories.

In Croatia, CS since its introduction in 2005 has gradually become less attractive commercially and no longer offered by any provider. At the same time, CPS remains to be used and the number of active users has increased from 235,000 users in 2010 to 240,000 in 2011. In Macedonia, the number of CPS users has increased from 750 in 2010 to over 20,500 in 2011. In Turkey, over the same period there has been a decline in the number of CS users from 550,000 to 260,000, which is partially outweighed by the increase in CPS users: from 178,000 in 2010 to 313 in 2011. Bosnia & Herzegovina reported around 45,000 CS users in 2011.

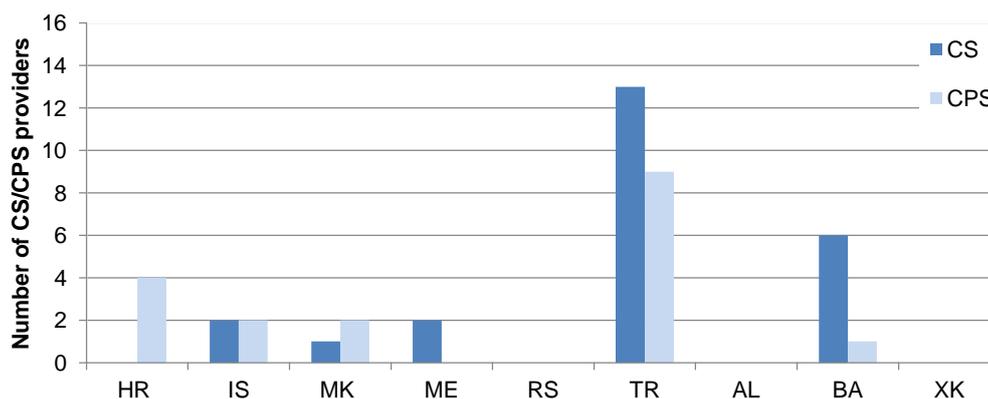


Figure H.1 – Number of providers offering CS and CPS services commercially

## 3. Number portability

Number portability is another important competitive safeguard that enables subscribers to maintain their telephone number when changing the service provider. Article 30 of the Universal Service Directive 2002/22/EC requires all operators of publicly available mobile and fixed telephone services to provide number portability. It must be also available for both geographic and non-geographic numbers.

Croatia, Iceland, Macedonia, Montenegro and Turkey have implemented number portability for both fixed and mobile networks. In 2011, number portability became available in Montenegro for both, fixed and mobile networks, in Albania and Serbia for mobile networks and in Bosnia & Herzegovina for fixed networks.

The table below shows further details concerning implementation of number portability, inter-operator charges (end-user charges in Bosnia & Herzegovina) and implementation statistics.

|    | Fixed number portability |                       |            | Mobile number portability |                       |            |
|----|--------------------------|-----------------------|------------|---------------------------|-----------------------|------------|
|    | Introduction             | Inter-operator charge | Statistics | Introduction              | Inter-operator charge | Statistics |
| HR | July 2005                | €6.80                 | 630,000    | Oct. 2006                 | €6.80                 | 325,000    |
| IS | Sep. 2000                | €3.33                 | 27,000     | Oct. 2004                 | €3.33                 | 45,000     |
| MK | Sep. 2008                | €3.23                 | 85,000     | Sept. 2008                | €3.23                 | 66,000     |
| ME | Dec. 2011                | -                     | -          | Dec. 2011                 | -                     | 800        |
| RS | <i>Dec. 2012</i>         | €9.80                 | -          | July 2011                 | €9.80                 | 54,000     |
| TR | Sep. 2009                | €0.90                 | 208,000    | Nov. 2008                 | €0.90                 | 39m        |
| AL | <i>Sep. 2012</i>         | €4.32                 | -          | May 2011                  | €4.32                 | 9,000      |
| BA | Sep. 2011                | €15.33<br>(end user)  | 900        | <i>June 2012</i>          | €15.33<br>(end user)  | -          |
| XK | <i>Not decided</i>       | -                     | -          | <i>Not decided</i>        | -                     | -          |

Note: implementation statistics refer to March 2012, except May 2012 for Turkey.

Table H.2 – Implementation of number portability in fixed and mobile networks

Article 30(4) of the Universal Service Directive 2002/22/EC amended in November 2009 introduces a requirement for the porting of a number to be carried out within one working day. In the monitored countries, only in Iceland the number porting is completed within one day, for both fixed and mobile networks. The longest timeframe for porting a number – 10 days – is allowed in Bosnia & Herzegovina.

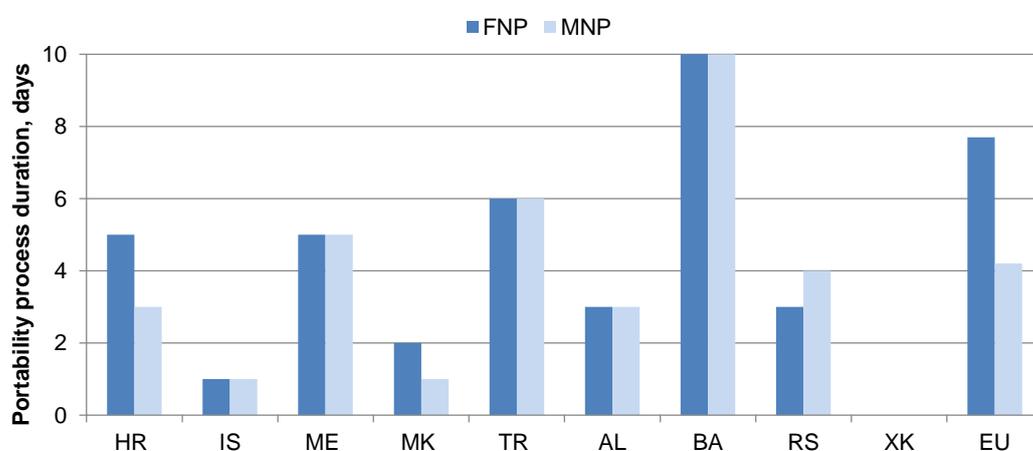


Figure H.2 – Number portability – process duration

#### 4. Reference interconnection offers

One of the key factors enabling a competitive telecommunications market is the availability of reference interconnection offers (RIOs) from SMP operators, which also makes more effective other obligations of transparency and non-discrimination.

In fixed networks, RIOs have been published by fixed incumbent operators in all monitored countries. In Macedonia, this obligation also applies to the provision of network termination services by major alternative operators designated as having SMP. A new reference offer was published by the Serbian incumbent operator in May 2012. In 2012, a RIO has also been updated by the fixed incumbent operator in Croatia.

In mobile networks, RIOs have been published by MNOs designated as having SMP in all countries, except Kosovo. In April 2012, following market analysis completed in November 2011, for the first time RIOs were published by the Serbian mobile operators. In January 2012 RIOs were updated by the Croatian mobile operators.

In Turkey, in September 2011 ICTA amended the reference interconnection offers of all three mobile network operators regarding mobile call termination (market 7/2007) excluding the calls originated outside Turkey from the price regulation envisaged under the reference offers.

## 5. Wholesale unbundled access

The least replicable element in the establishment of a channel to an end-user location is local access or the local loop. There are major obstacles, in terms of cost, time and legal barriers to duplicating the incumbent's local access network. Access networks often represent half of the investment by a fixed network operator and although competitive access technologies are emerging, the copper access network infrastructure is still difficult to duplicate. For this reason, the obligation for local loop unbundling (LLU) is seen as one of the key competition enablers and as an indispensable instrument to speed up the deployment of broadband access.

In the EU, this topic was deemed sufficiently important to justify the adoption of Regulation no. 2887/2000 of the European Parliament and of the Council of December 18, 2000 on unbundled access to the local loop, which also set out a requirement for the publication of a reference unbundling offer. The regulation was later replaced by a corresponding requirement in article 9(4) of the Access Directive 2002/19/EC. The existence of a reference unbundling offer (RUO) is therefore an indication that the local loop facilities of the incumbent operator are available to alternative operators under non-discriminatory terms and conditions.

The obligation to provide unbundled access has been applied in practice in all monitored countries, except Kosovo.

In Croatia, reference unbundling offer (RUO) was introduced by the incumbent operator in October 2005 and by the end of 2011 there were over 130,000 fully unbundled loops used by five alternative operators. However, 35% of these unbundled loops have been deployed by the incumbent's fully-owned subsidiary, Iskon.

In Iceland, local loop unbundling has been imposed on the incumbent's infrastructure subsidiary, Mila, since 2007. There are four agreements in place for full LLU access and six agreements for shared access. However, out of 70,000 fully unbundled loops over 80% are used by the incumbent's retail subsidiary, Siminn. Also, out of 40,000 shared unbundled loops, about 40% are used by Siminn. Furthermore, the use of LLU has been declining as alternative operators are investing in own fibre infrastructure.

In Macedonia, LLU has been available since 2006. There is only one agreement for full LLU in place and by the end of 2011 there were around 3,000 unbundled loops (which represents a decline from 4,300 lines reported a year ago).

In Turkey, LLU has been available since 2006 and currently there are 11 agreements in place for both full and shared LLU access. However, the number of unbundled loops remains very low. As of February 2012 there were around one thousand fully unbundled loops and some 7,500 shared unbundled loops (on a network of around 16 million lines).

In Montenegro LLU was introduced in 2011, following the publication of the reference offer in February 2011. The first reference unbundling offers were approved by the regulator in Serbia in April 2012 and in Albania – in May 2012. There has been no practical implementation so far in any of these three countries, although one LLU agreement has been reported in Serbia.

In Bosnia & Herzegovina, the first RUOs approved by the NRA were published by the three incumbent operators in January 2010. There are three LLU agreements in place and some 100 first shared loops have been reported as of end 2011.

## 6. Wholesale broadband access

Wholesale bitstream access is another option for access to infrastructure, in addition to unbundled access, whereby the incumbent operator hands over the data traffic according to an agreed standard. There are four possible wholesale bitstream access options, representing typical handover points between an incumbent operator and an alternative operator or ISP: DSLAM level, ATM/Ethernet level, IP level and end-to-end resale.

Similar to LLU, the availability of bitstream access varies considerably across the monitored countries. Regulatory obligations to offer wholesale bitstream access have been imposed in all countries, except Bosnia & Herzegovina and Kosovo. In Croatia, Iceland, Macedonia, Montenegro, Serbia and Turkey different options for bitstream access are currently available on the basis of regulated reference offers.

In Croatia, the regulated reference offer for bitstream access with handover at IP level has been available since December 2007. The latest version of the reference offer approved in December 2011

covers both copper and FTTH access networks and includes access options at optical line terminal (OLT) levels. At the end of 2011 there were six agreements in place covering over 25,000 lines.

In Iceland, the regulated reference offer for bitstream access with handover at ATM and IP levels and a resale product has been available since 2008. There are 11 bitstream access agreements in place covering around 3,000 lines.

In Macedonia, Makedonski Telekom initially offered wholesale ADSL on commercial basis, providing a bitstream access product with IP level handover and a resale product. The first regulated reference offer was approved by the NRA in July 2009 enabling handover at DSLAM, ATM and IP levels as well as resale. At the end of 2011 there was one resale agreement covering nearly 21,000 broadband lines.

In Serbia, bitstream access with handover at the IP level was initially introduced by the incumbent operator on commercial basis, but from April 2012 is also available in the form of a regulated reference offer. Currently there are 22 agreements in place covering over 135,000 lines.

An obligation to provide bitstream access with IP handover and resale was imposed on Türk Telekom as early as in 2004, but the first reference offer approved by the NRA became available only in August 2007. Since 2010, the reference offer also covers bitstream access with handover at ATM level. At the end of 2011 there were 36 resale and 17 bitstream access agreements in place, covering respectively, circa 14,000 and 700,000 broadband lines supplied to alternative operators.

In Montenegro and Albania, the obligation to provide wholesale bitstream access was imposed on the incumbent operators following the recent analyses of the wholesale broadband access markets. In Albania, the obligation to offer bitstream access, however, does not involve the requirement to publish a reference offer and also leaves prices subject to commercial negotiation.

In Bosnia & Herzegovina and Kosovo, no form of wholesale bitstream access is currently available.

## 7. Wholesale line rental

An incumbent operator may rent its subscriber lines on a wholesale basis to alternative operators enabling resale of these lines to the end users, known as wholesale line rental (WLR). In combination with carrier pre-selection, WLR enables alternative operators to take control over the billing relationship with the end user.

WLR has been implemented in Croatia, Macedonia and Turkey. In Macedonia, the first incumbent's reference offer was approved by the NRA in March 2009. There is currently one WLR agreement in place covering around 20,000 lines (an increase by four times from 5,000 lines reported in 2010). In Croatia, the first reference offer was published in July 2011 and as of end 2011 there were two WLR agreements in place covering over 111,000 lines. In Turkey, WLR reference offer was introduced in July 2011 and as of June 2012 there are four agreements in place covering around 47,000 lines.

Regulatory obligations to provide WLR and to publish reference offers have been imposed on the incumbent operator in Montenegro, but so far there has been no practical implementation.

## 8. Access obligations in NGA environment

As the deployment of NGA networks is still at a very early phase in most of the monitored countries, very few regulators have considered imposing specific regulatory covering passive and active NGA infrastructure elements.

So far, only regulators in Croatia, Macedonia and Montenegro have addressed fibre deployments within the scope of their analyses of the wholesale infrastructure access market (market 4/2007). The full set of regulatory obligations related to provision of passive infrastructure for NGA was imposed on the incumbent operator in Croatia, including fibre unbundling, access to ducts and provision of dark fibre where access to ducts is not available. In addition, the Croatian regulator has also imposed symmetrical obligations related to access to in-building wiring infrastructure and the requirement to apply FTTH point-to-point topology for all new NGA deployments.

In Macedonia the scope of regulatory obligations related to passive NGA infrastructure only covers access to ducts and dark fibre, while in Montenegro it is limited to duct access.

Active NGA infrastructure has been included in the scope of the wholesale market for wholesale broadband access (market 5/2007) by regulators in Croatia and Macedonia. The obligation to provide wholesale broadband access over FTTH network has been only imposed in Croatia and the new

reference offer covering bitstream access over fibre published by the Croatian incumbent operator in December 2011 includes OLT access option for an FTTH-based wholesale product.

In Turkey, in order to encourage investments in NGA networks, ICTA decided on October 3, 2011 to exclude fibre from market analysis for the next five years or until the percentage of fibre-based subscriptions reaches the 25% of all fixed broadband subscriptions. ICTA also requested Turk Telekom to comply with its own commitments made to ICTA in August 2010, where it pledged to provide wholesale resale and bitstream services over its fibre network on non-discriminatory terms and to notify ICTA of the tariffs for these services before they become operational.

Terms and conditions for facility sharing, including access to ducts and poles, are set out in Turk Telekom's reference offer for co-location and facility sharing offer approved by ICTA. Turk Telekom's RUO also includes a possibility for alternative operators to request access to SLU on case-by-case basis. However, there has been no practice of SLU until now.

## 9. National roaming, mobile access and call origination

Regulatory obligations to provide national roaming could be imposed on the established mobile network operators in order to support network deployment for new entrant operators. Such obligations normally are not intended to be a permanent solution and have some conditions attached, such as the achievement of a minimum level of the network coverage before national roaming is permitted and a maximum duration period.

In the monitored countries, there are several examples where national roaming obligations have been imposed in order to support market entry or to facilitate better network coverage.

Croatia had a temporary national roaming requirement to facilitate the entry of the new mobile operator, Tele2. Now Tele2 continues to use national roaming on T-Mobile (HT) network, but on non-regulated commercial terms.

In Iceland, article 35 of the Electronic Communications Act contains a symmetrical obligation for all mobile operators to provide national roaming to other operators where the establishment of the mobile network is not practicable or difficult, for example due to natural conditions.

In Bosnia & Herzegovina national roaming requirements have been imposed in order to ensure full national coverage for the three MNOs operating in three different entities.

In Macedonia and Serbia, new entrant mobile operators (both are subsidiaries of Telekom Austria) have reached commercial agreements on national roaming with the established mobile operators.

Another way of increasing competition in the mobile market is to impose wholesale access obligations, such as an obligation for MNOs to provide network access for mobile virtual network operators (MVNO) and service providers, in addition to the general obligation to negotiate interconnection.

Based on the market analyses of the wholesale mobile access and call origination (market 15/2003), regulatory obligations to provide different forms of network access were imposed on mobile operators designated as having SMP in Iceland, Macedonia, Montenegro, Turkey and Albania.

In Iceland, Síminn is required to provide at regulated prices access to its network for MVNOs and resellers. In March 2012, the Icelandic regulator, however, decided in its second round analysis of market 15/2003 to remove regulatory obligations imposed on Síminn, as the market is considered no longer fulfilling the three criteria test. In practice, several network access agreements have been established between Icelandic mobile operators and service providers.

In Macedonia, T-Mobile is required to provide MVNO access and national roaming and publish a reference offer. Also in Turkey, Turkcell has to provide MVNO access and national roaming. In Montenegro, all three mobile operators have been designated as having SMP in the market for wholesale mobile access and call origination. In Albania, AMC and Vodafone Albania have been required to offer access and call origination on cost-oriented terms to calling cards operators and providers of 0800 services. They must also offer national roaming and MVNO access on commercial terms. However, in its third round analysis of market 15/2003 published for consultation until June 20, 2012, AKEP has proposed to deregulate this market as no longer fulfilling the three criteria test.

In Kosovo in May 2008, the NRA adopted a policy framework for MVNOs and issued licences to two MVNOs. While there are no legal obligations for access, MVNO operations can be launched on the basis of commercial agreements with the two established MNOs.

In Bosnia & Herzegovina, the NRA has developed guidelines for introducing MVNO and service providers and relevant access provisions were introduced in the first RIOs of mobile operators published in April 2011.

In Croatia, a fixed alternative operator, H1 Telekom, announced plans to launch MVNO operations in the second half of 2012, based on a commercial agreement with one of the three mobile operators.

## 10. Price control and regulatory cost accounting for wholesale prices

When an operator is designated as having SMP in a fixed or mobile wholesale market, NRAs are entitled under article 13 of Access Directive 2002/19/EC to impose a cost accounting obligation to ensure that price control regulation is based on fair, objective, and transparent criteria for allocating costs to services. The directive does not mandate any specific price control methodology. The European Commission recommendation on the regulatory treatment of fixed and mobile termination rates adopted on May 7, 2009, however, envisages that by the end of 2012 NRAs in the EU member states should set both FTRs and MTRs using a pure bottom-up long-run incremental costs (pure BU-LRIC) model.

As implementation of a sound cost accounting methodology is typically a time consuming and resource intensive process, both for the NRAs and the regulated SMP operators, most of the NRAs in the monitored countries have not yet implemented cost-based pricing of regulated wholesale services but opted for the use of some form of benchmarking-based price controls.

So far only regulators in Iceland, Macedonia, Turkey and Albania have made progress in implementing cost accounting methodologies. In Iceland, the regulator applies a top-down LRAIC model for setting mobile termination rates and a FDC model with historical cost base for setting fixed interconnection and LLU prices. The Macedonian NRA completed a BU-LRIC cost model for mobile networks in July 2010 and set individual glide paths for MTRs of T-Mobile, One and VIP until August 2013. In October 2010 it also completed a BU-LRIC model for fixed networks that will replace the currently used top-down LRIC methodology. The Albanian NRA completed its work on BU-LRAIC models for fixed and mobile networks in July 2010 and from 2011 regulated interconnection prices of fixed and mobile operators with SMP are set based on these methodologies.

Retail minus methodologies are the most common approach in the monitored countries for setting prices for regulated wholesale bitstream access and wholesale line rental.

## I. Universal service and end-user rights

### 1. Scope of universal service and provider designation mechanism

Universal Service Directive 2002/22/EC defines universal service (US) as the *"minimum set of services of specified quality to which all end-users have access, at an affordable price in the light of specific national conditions, without distorting competition"*. The current scope of universal service includes:

- connection to the public telephone network at a fixed location;
- access at a fixed location to publicly available telephone services (PATS), including functional internet access;
- provision of directories and directory enquiry services; and
- public payphones.

The Universal Service Directive also requires any designation of US providers to be carried out by "an efficient, objective, transparent and non-discriminatory designation mechanism, whereby no undertaking is a priori excluded from being designated". These rules allow the designation of one or more undertakings to guarantee the provision of universal service and even different or several undertakings to provide different elements of universal service or to cover different parts of the national territory. Furthermore, according to article 8 and recital 8 of the Universal Service Directive, mobile networks may be used for the provision of universal service on a technology neutral basis.

National legislation in all monitored countries defines the scope of universal service as broadly corresponding to the elements listed in the Universal Service Directive. However, only Croatia, Iceland,

Macedonia and Montenegro have so far carried out universal service provider designation procedures in line with the requirements set out in the EU regulatory framework.

In Croatia, the first designation of the incumbent operator HT as USO provider for a 5-year period took place in November 2005 for the entire scope of services. In October 2010, following an open tender procedure, the Croatian NRA designated two providers for different US components: Imenik – for provision of directory services and T-HT – for all other US components, for another five-year period.

In Iceland, the NRA designated in 2007 following a public consultation procedure, nation-wide USO providers for the following service components: the incumbent operator, Síminn – for the provision of functional internet access and public payphones, the incumbent’s infrastructure subsidiary, Mila – for provision of connections at a fixed location, and Já Upplýsingarveitur – for provision of directory and directory enquiry services, including equivalent access for disabled users. In 2011, PTA renewed the designation of Já Upplýsingarveitur for a three-year term, with possible extension until February 10, 2016, whereas the designations of Síminn and Mila were extended for a period January 1 – December 31, 2012 with a possibility of a further one-year extension.

In Iceland, the provision of access to 112 emergency services is also considered as a separate component of universal service. Emergency response services for 112 are provided by Neyðarlínan under a contract with no specific time limit. The Icelandic legislation entitles Neyðarlínan to compensation of its losses through a universal service fund, in the same manner as for other designated US providers, as further discussed in the section below.

In Macedonia, AEC completed the tender procedure to designate nation-wide US providers for a five-year term in June 2011. R3 Infomedia was designated as a US provider for directory and directory enquiry services, whereas the incumbent operator, Makedonski Telekom, was designated for all other components.

In Montenegro, EKIP designated for a five-year term nation-wide USO providers for three components in January 2011, following a public tender procedure. Telenor, a mobile network operator, was designated to offer connections and access to publicly available telephony services, including functional internet access at a fixed location. MCA Maribor was designated as a provider for directory and directory enquiry services. No provider was designated for the provision of public payphones.

In Serbia, in March 2010 the regulator imposed universal service obligations on all licensed fixed and mobile public network operators: i.e. Telekom Srbija, Telenor, VIP mobile and Orion Telecom. The exact scope of the designations and specific geographic coverage requirements applicable to each operator are still to be set out in separate NRA decisions.

In Turkey, the universal service is provided by Türk Telekom under the requirements set out in its concession agreement. The Universal service law of 2005 envisages a tender procedure for the designation of universal service providers but this has not been implemented in practice.

In Bosnia & Herzegovina, the requirement to offer the minimum scope of universal service is covered by the terms of licences of the three incumbent operators.

In Albania and Kosovo currently there are no any obligations in place related to the provision of universal service.

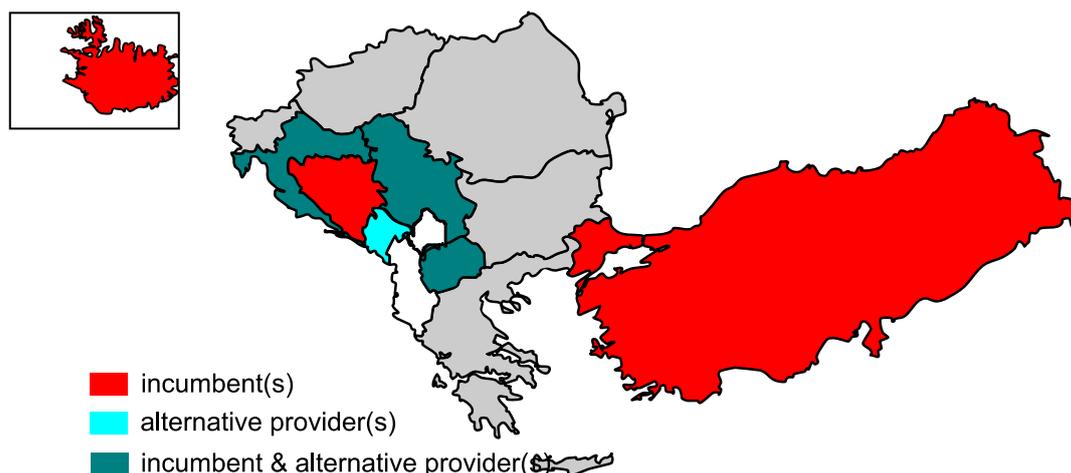


Figure I.1 – USO providers by type of operator

In Albania, under the Law on electronic communications, the regulator can designate one or more universal service providers based on a public tender procedure, subject to the ministry approval. However, no designation mechanism has been established and no provider has been designated. In Kosovo, the designation procedures for universal service providers are expected to be carried out after the adoption of the new Law on electronic communications.

## 2. Minimum data rates within universal service scope

The scope of the universal service obligation (USO) was not addressed in the review preceding adoption of the EU 2009 regulatory framework. Article 4(2) of the amended Universal Service Directive still mentions that a connection to a public communications network provided under the USO should provide “*data rates that are sufficient to permit functional internet access, taking into account prevailing technologies used by the majority of subscribers and technological feasibility.*” However, the recital 8 in the revised Universal Service Directive on functional internet access has been amended to allow member states to set the minimum data rates for functional internet access beyond narrowband rates.

The Commission is currently assessing whether the concept of universal service as it is designed today is still in line with the evolution of the electronic communications market and is planning to issue a recommendation on the inclusion of broadband in the USO scope by the end of 2012.

So far, the Commission has not been supporting the extension of the USO scope to include broadband as it could have negative effects on competition and disrupt the market. For the purposes of the recommendation, the Commission considers an internet connection with a download speed higher than 144 kbps as a broadband connection. It also suggests several thresholds for the selection of specific broadband data rates, requiring a thorough analysis to be undertaken by member states.

The table below provides an overview of the minimum data rates that have been defined by the monitored countries as functional internet access within the US scope. In Turkey, Bosnia & Herzegovina and Kosovo, minimum data rates for functional internet access have not been defined. The highest minimum data rate in the monitored countries is defined in Montenegro, corresponding to the minimum broadband speed of 144 kbps. In Iceland the minimum data rate is 128 kbps corresponds to the level supported by ISDN services.



Figure I.2 – Minimum download speed rates within USO scope

## 3. Universal service funding

Article 12 of the Universal Service Directive 2002/22/EC requires NRAs to calculate the net cost of universal service provision where they consider that it may represent an unfair burden on the provider. According to article 13, NRAs may either introduce a public funding mechanism for compensation or share the net cost between operators.

In parallel with its ongoing review of the universal service concept, the European Commission is considering to address the financing aspects of USO as part of its non-binding recommendation expected in 2012. One of the Commission’s non-binding proposals is to introduce caps for the

contributions of operators to the universal service in cases where a cost-sharing mechanism is implemented. Any additional costs above the cap should be financed from public funds.

In particular, the Commission proposes that no contributions should be paid by operators with less than €5m in annual revenue, whereas for larger operators USO contributions should be capped at 0.40-0.65% of revenues and strictly proportionate to revenue-based market shares. The caps would also limit the burden on operators if member states decide to include broadband in the USO scope.

National legislation in all monitored countries foresees some form of net cost sharing between operators rather than a public funding mechanism.

| Country | Method of funding       | Contributions criteria   | Compensation in practice? |
|---------|-------------------------|--|---------------------------|
| HR      | Cost sharing            | Only by operators with market shares above 2%<br>No compensation if US provider's market share is above 70% (by revenue) | X                         |
| IS      | Cost sharing            | Set at 0.10% of revenue (2010)   | ✓                         |
| MK      | Cost sharing            | Only by operators with annual revenue of min €100,000  | X                         |
| ME      | Cost sharing            | Only by operators with market shares above 1%<br>Max 0.35% of revenue  | X                         |
| RS      | Cost sharing            | Not defined  | X                         |
| TR      | Cost sharing            | Transfers from the NRA budget  | X                         |
| AL      | Cost sharing            | Max 1% of revenue  | X                         |
| BA      | Cost sharing (proposed) | Not defined  | X                         |
| XK      | Not defined             | Not defined  | X                         |

Table I.1 – Universal service funding mechanisms

In practice, the funding mechanism has been only applied in Iceland, where two US providers have received payments from the fund. In 2009, Síminn received one-time payment of €757,117 (ISK 127m) as a compensation for net losses occurred in roll-out of ISDN services in 2000-2005. Neyðarlínan, the provider of 112 emergency response services, received compensation over the past three years: €189,000 (ISK 30.10m) in 2008, €209,000 (ISK 33.37m) in 2009 and €240,000 (ISK 38.23m) in 2010. In 2009, the contributions amounted to 0.65% of the operators' accounting revenue, whereas in 2010 this percentage was reduced to 0.10%. The largest contributors to the universal service fund were Síminn (43%), Vodafone (27%), Mila (13%), Nova (5%) and Tal (4%).

In Turkey, contributions to the universal service fund have been collected from several sources, including revenue-based contributions by telecommunications operators and transfers from the NRA budget. These contributions are allocated to the US fund kept by the Undersecretary of Treasury but no decision on compensation to the US providers has been made so far.

#### 4. Subscriber directories

According to article 5 of the Universal Service Directive, at least one comprehensive directory (in printed or in electronic form) and at least one comprehensive telephone directory enquiry service shall be available to end-users. NRAs may therefore select the provider of a comprehensive directory and directory enquiry service by means of designating a universal service provider after a public tender.

Directory enquiry services are offered by several providers on competitive basis. This requires that interested undertakings get access to the subscriber data under reasonable conditions. Often, NRA intervention is necessary, because operators are reluctant to provide the data or ask for unreasonably high charges. Another requirement for a competitive market of directory enquiry services is that no such service is provided below costs. In particular the incumbent may not cross-subsidise its own directory enquiry service. Again, this might need some intervention by the NRA or the competition authority.

Currently comprehensive directories and directory enquiry services are offered by the designated US providers in Croatia, Iceland, Macedonia and Montenegro. In Turkey, the service is available on

commercial basis. In other countries, distributed directories exist where operators offer access only to the data of the subscribers within their networks.

In Croatia, Iceland and Turkey the national legislation contains provisions enabling all providers of directory and directory enquiry services to request access to subscriber data of all providers of publicly available telecommunications services at cost based prices and under non-discriminatory conditions. In Kosovo all providers of directory and directory enquiry services are entitled to access to subscriber data at reasonable prices and under non-discriminatory conditions. In Montenegro, Macedonia and Albania, only designated US providers are entitled to access to subscriber data at cost-based prices and under non-discriminatory conditions.

## 5. 112 emergency number

Article 12 of the Universal Service Directive requires that all end-users of the electronic communications service for originating national calls to a number or numbers in a national telephone numbering plan, including users of public pay telephones, are able to call the emergency services free of charge and without having to use any means of payment, by using the single European emergency call number 112. Furthermore, caller location information must be made available free of charge to the authority handling emergency calls as soon as the call reaches that authority.

The amended EU 2009 regulatory framework ensures that European citizens gain better access to emergency services by extending the 112 access requirements from traditional telephony to new technologies (such as VoIP), strengthening operators' obligation to provide information about caller location to emergency authorities and improving access to 112 for people with disabilities.

The single European emergency number 112 has been implemented in Croatia, Iceland, Montenegro, Turkey and Kosovo. In all remaining countries, other national numbers are being used for access to emergency services that are free of charge for callers.

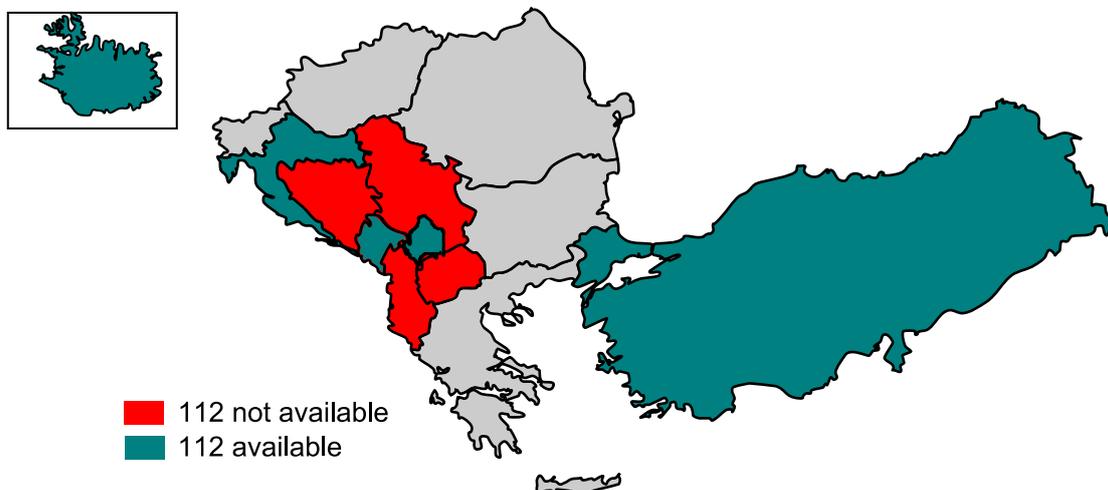


Figure I.3 – European emergency number (112) availability

## 6. Quality of service

Article 11 of the Universal Service Directive states that NRAs may set specific quality of service (QoS) targets for key performance indicators – e.g. repair time for line faults – for the designated universal service providers. The standards are set out in annex III to the directive, specifying ETSI EG 202 057-1 version 1.3.1 of July 2008.

QoS obligations exist in most of the monitored countries and the ETSI standards are followed for the method of measurements. In Croatia, Iceland, Macedonia and Serbia the results of QoS measurements for fixed and mobile network operators and the designated US providers are published annually by the NRA and the operators themselves. In Montenegro, the QoS obligations only apply to the designated US providers and will be published both by the operators and the NRA.

In Bosnia & Herzegovina, a regulation on QoS measurements for fixed network operators has been adopted in 2011 and the QoS reports will be published by operators and the NRAs every six months

starting from 2012. Mobile operators have an obligation to measure QoS and to report to the NRA but the publication procedures are still to be defined in a separate regulation.

There are no specific regulations concerning the publication of QoS indicators in Turkey and in Kosovo.

## 7. Contract regulation

The ease with which an end user can switch between telecommunications service providers (churn) is an important factor for competition. Operators have an incentive to lock end users to their network in order to recuperate their investments by proposing fixed-term contracts with penalties for cancellation before the end of the fixed term.

Article 30(5) of the revised Universal Service Directive provides that contracts between consumers and service providers should not mandate an initial commitment period that exceeds 24 months. The users shall also have a possibility to subscribe to a contract with a maximum duration of 12 months.

Article 20(2) of the Universal Service Directive entitles subscribers to withdrawal from their contract without penalty upon notice of modification to the contractual conditions. Such a notice may not be shorter than one month.

This study assessed the following aspects related to end-user contracts: (i) limits to the initial commitment period, (ii) contractual penalties for early cancellation, (iii) notice period for contract termination, (iv) automatic renewal of the contract and (v) cancellation without penalty upon changes to service conditions.

The shortest initial commitment period of six months is foreseen in Iceland. In Croatia, the July 2011 amendments to the Law on Electronic Communications envisage the maximum initial commitment period of 24 months. Also, in line with the requirements of the article 30(5) of the amended Universal Service Directive, the service providers are required to offer a possibility to subscribe to a 12-month contract. In other countries, the maximum initial commitment period is not regulated, but in practice it is usually limited to 24 months. In Montenegro, the regulator has been considering a proposal to introduce a possibility of contract duration of 12 months.

Cancellation penalties are typically limited to the amount of subscription fees owed until the end of the agreed fixed contractual term. In Croatia, according to the July 2011 amendments to the Electronic communications act, the subscriber may terminate the contract at any time. The amount of the penalties in the case of early cancellation is to be calculated either as the monthly fees owed for the remainder of the period of mandatory contract duration or the fee corresponding to the received benefits (e.g. discounts, terminal equipment subsidies, etc.) – whichever is more advantageous to the consumer at the time of contract termination.

The minimum notice period for consumers for contract termination is not regulated and varies from immediate termination at any time (Croatia, Iceland) to 15 days in Macedonia, 30 days in Turkey, Albania, Bosnia & Herzegovina and up to three months in Montenegro.

Automatic contract renewal typically is not regulated and it is a common practice of the service providers in the monitored countries to extend automatically expiring contracts on the same terms and conditions for an undetermined period.

In all monitored countries end users are entitled to terminate contracts without penalties upon changes to general terms and conditions and service providers are required to inform end users of any such changes with a minimum notice period of 30 days.

## 8. Resolution of disputes between service providers and end users

Dispute resolution mechanism between service providers and end users is an essential part of the consumer rights provisions in the amended EU 2009 regulatory framework. Article 34 of the Universal Service Directive requires that transparent, non-discriminatory, simple and inexpensive out-of-court procedures should be established for dealing with unresolved disputes between consumers and undertakings providing electronic communications networks and/or services related to the contractual conditions. Such procedures should enable disputes to be settled fairly and promptly and where warranted, allow reimbursement and/or compensation scheme and should not deprive the consumer of the legal protection afforded by national law.

In all monitored countries, except Albania, out-of-court resolution mechanisms for disputes between end users and providers of electronic communications services have been established by the NRAs. In

Albania, the NRA can address consumer complaints through adopting non-binding recommendations and regulations but it has no power to resolve individual disputes between end users and service providers.

In Iceland, consumer disputes can be also addressed to the National Consumer Protection Agency. In Turkey, there are separate consumer courts organised for handling disputes between consumers and service providers.

In most of the monitored countries no compensation mechanism is foreseen for out-of court dispute resolution procedures. The exceptions are Croatia and Montenegro, where NRAs may impose the level of compensation. In most of the other monitored countries the compensation is set by the competent courts.

Average time for resolving end-user disputes varies among the monitored countries from 20 days to three months.

| Country | NRA | Other                      | Duration (number of disputes) |
|---------|-----|----------------------------|-------------------------------|
| HR      | ✓   | ✗                          | 2-3 months (1082 in 2011)     |
| IS      | ✓   | Consumer Agency            | (95 in 2010)                  |
| MK      | ✓   | ✗                          | 36 days (687 in 2011)         |
| ME      | ✓   | Ministry (second instance) | 30 days (176 in 2011)         |
| RS      | ✓   | ✗                          | 1.5 months (700 in 2011)      |
| TR      | ✓   | Consumer Courts            | 20 days (6,911 in 2010)       |
| AL      | ✗   | ✗                          | -                             |
| BA      | ✓   | ✗                          | 30 days (15 in 2011)          |
| XK      | ✓   | ✗                          | 30 days                       |

Table I.2 – Consumer dispute resolution

## J. Regulation of retail tariffs

Under article 17 of the Universal Service Directive, NRAs should apply regulatory controls on retail services only if obligations imposed at the wholesale level failed to ensure effective competition.

In all monitored countries, except for Iceland, retail fixed telephony tariffs of the incumbent operators are subject to different forms of price control.

In Croatia, retail price controls apply to the retail tariffs of the fixed incumbent operator Hrvatski Telekom and its subsidiary Iskon Internet for access to the public telephone network at fixed location, fixed national calls and retail broadband access services (including multiple play offers involving pay TV packages). Both operators are required to present their retail tariffs for advance approval by the regulator based on a price squeeze test.

In Macedonia and Montenegro, fixed telephony tariffs for access and call services of the incumbent operators are also subject to advance approval by the regulators: in Macedonia based on a margin squeeze test and in Montenegro based on international benchmarking.

In Serbia, cost orientation obligation applies to retail tariffs for fixed access and call services of the incumbent operator, Telekom Srbija and cable TV subscriptions of SBB, both subject to advance approval by the regulator.

In Turkey, Albania and Bosnia & Herzegovina different forms of price caps apply to the regulated tariffs in addition to advance notification requirements of any tariff changes to the regulators.

In Turkey, price caps apply to retail tariffs for national call services of all mobile operators and the fixed incumbent, Turk Telekom. In addition, the largest mobile operator Turkcell is also subject to a price

control of its on-net calls: the weighted average call price in each of Turkcell's retail on-net tariff packages must not be lower than the average MTR charged by Turkcell to other operators.

In Albania, following SMP designation in retail fixed markets, Albtelecom's retail tariffs for residential and business customers are regulated, and AKEP imposed maximum tariffs to be applied by Albtelecom, starting from September 1, 2010. The decision allows Albtelecom to increase tariffs for off-net calls (including international calls), when the termination rate in other networks increases. In these cases Albtelecom should notify proposed tariff changes to AKEP.

In Bosnia & Herzegovina, retail price controls to the full range of retail tariffs of the three incumbent operators for fixed, mobile and leased line services. In addition, price caps apply to fixed connection and monthly subscription fees, fixed national and international calls and mobile to fixed national calls.

In Kosovo, retail fixed telephony tariffs of the fixed incumbent operator PTK are subject to cost-orientation based on an FDC methodology.

In countries where there is a formal advance notification requirement for any changes of regulated retail prices, the notification period typically ranges from 15 to 45 days.

## K. Fixed retail telephony tariffs

### 1. Retail tariff rebalancing

In this section, EU-27 average statistics on tariffs and prices are based on the latest EC report in which these data are available: the Digital Agenda Scoreboard (DAS) of 2011. Although the 2012 DAS has been published at the time of finalising this report, no recent EU statistics on retail tariffs have been published yet. Therefore, in this report average EU prices refer to end 2010; prices for the enlargement countries refer to March 2012.

Most of the monitored countries are still in the process of implementing the overall rebalancing of fixed telephony tariffs.

The ending of monopolies in all countries has meant that the incumbent fixed line operators are bringing their tariffs more into balance with the underlying costs of providing their services. Where monopoly providers keep monthly rental and local call charges low in order to make basic service more affordable, this move is traditionally subsidised by excessive prices on national and international calls.

NRAs have typically enforced a tariff rebalancing process, where retail tariffs are allowed to adjust within a defined basket of services with the overall changes in the customers' bills being kept within an applied "price cap". After a period of adjustment the dual process of competition and tariff rebalancing should bring benefits to consumers in the form of lower overall bills. Those customers that stay with the incumbent may have to pay more in line rental than before, but any increases are generally offset by reduced call charges in a more competitive market.

With retail tariff rebalancing, the market should benefit significantly because, when relative tariffs more in balance with the underlying relative costs, the investment decisions for the incumbent and new operators are not distorted by loss-making services and the need for cross-subsidy.

For comparison, the EU experience on fixed retail tariffs according to the Digital Agenda Scoreboard shows the following trends<sup>4</sup>:

- *Rentals and local tariffs rise:*  
In the EU member states, over the period from 2000 to 2010, the EU-27 weighted average residential monthly rental per month has risen by 38%, from €11.15 per month (including VAT) to €15.36 per month. At the same time, the EU-27 weighted average charges for a 10 minutes local call have risen by 10.4%.
- *While national and international call tariffs fall:*  
Over the same period, from 2000 to 2010, international call baskets for residential customers

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<sup>4</sup> DAS 2011, reporting average EU prices until Dec. 2010. See [http://ec.europa.eu/information\\_society/digital-agenda/scoreboard/docs/pillar/studies/voice\\_tariff\\_1998\\_2010.pdf](http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/pillar/studies/voice_tariff_1998_2010.pdf)

have fallen in price by over 55%, and the EU-27 weighted average charges for a 10 minutes national long distance call have fallen by 45%.

With the only exception of Iceland, and more recently Macedonia and Montenegro, rebalancing of the incumbent operator’s retail tariffs is ongoing in all monitored countries. Three countries, Croatia, Macedonia and Turkey appear to have made the most significant progress in terms of implementing tariff rebalancing since 2006.

The graph below shows that only Iceland, Croatia, Kosovo and Turkey have approached the cost oriented charges for monthly line rentals, coming close to the EU-27 average of €15.00 per month. Other countries, including Macedonia, Bosnia & Herzegovina, and Montenegro, have made some progress to increase monthly rentals over the last five years. In Serbia and Albania residential monthly rental prices more than doubled from 2006, but are still approximately one-third of the average EU price.

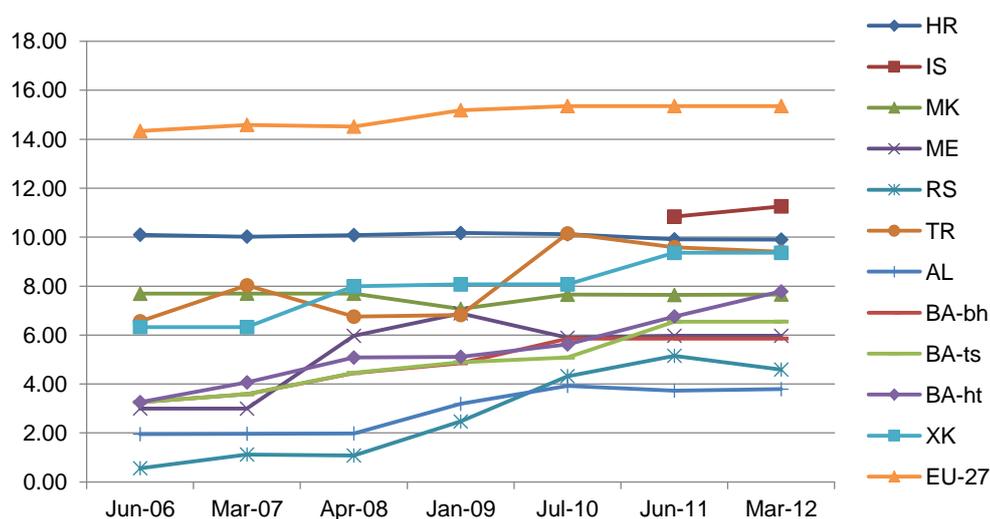


Figure K.1 – Residential line rentals by incumbent in euro, including VAT

Incumbents’ local call tariffs in most of the monitored countries have increased since 2006. In Turkey local call prices are now approximately 60% higher than the EU-27 weighted average. Prices in Croatia and Iceland are close to the EU average. Serbia, traditionally showing the lowest local call prices in the SEE region showed a 130% price increase in 2011, with prices now aligned with the remaining group of the countries. In Iceland, local calls increased by 15% from 2011.

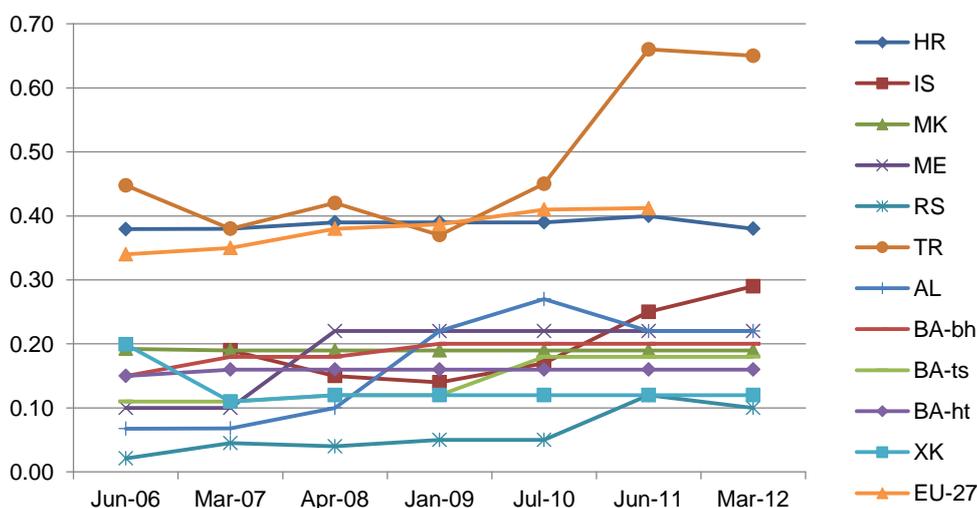


Figure K.2 – Residential charges for a 10-minute local call by incumbent in euro, including VAT

Meanwhile, as the figure below shows, the cost of making a 10-minute national long distance call on the incumbent's network has decreased remarkably since 2006 in Turkey, Albania and Kosovo. Both in Albania and in Turkey long distance prices were at levels considerably above the EU average, and, along with Croatia are now aligned with the EU average prices. Most of the monitored countries show long distance prices which are well below the EU average. In Iceland and Kosovo the whole country is one local tariff zone. In Bosnia and Herzegovina prices show a continued decrease since 2006, falling an additional 18.6% from 2011.

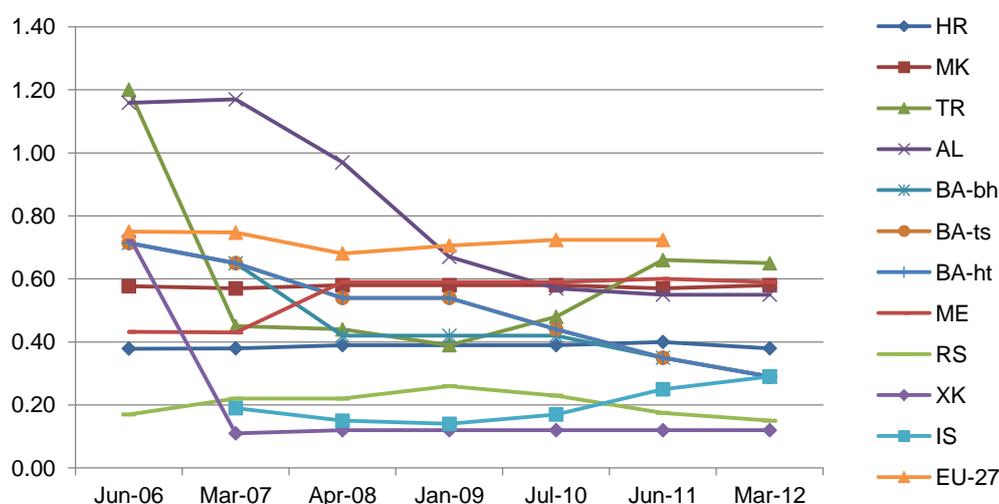


Figure K.3 – Residential charges for a 10-minute long distance call by incumbent in euro, including VAT

The level of charges for fixed to mobile calls shows decreasing trends since 2006. Turkey has now the lowest rate, changing from being only a few years ago one of the countries with the highest fixed to mobile rates. Albania, which until 2007 had the highest fixed to mobile call charges, has also seen sharp reductions and currently presents fixed to mobile call prices aligned with the other monitored countries' average.

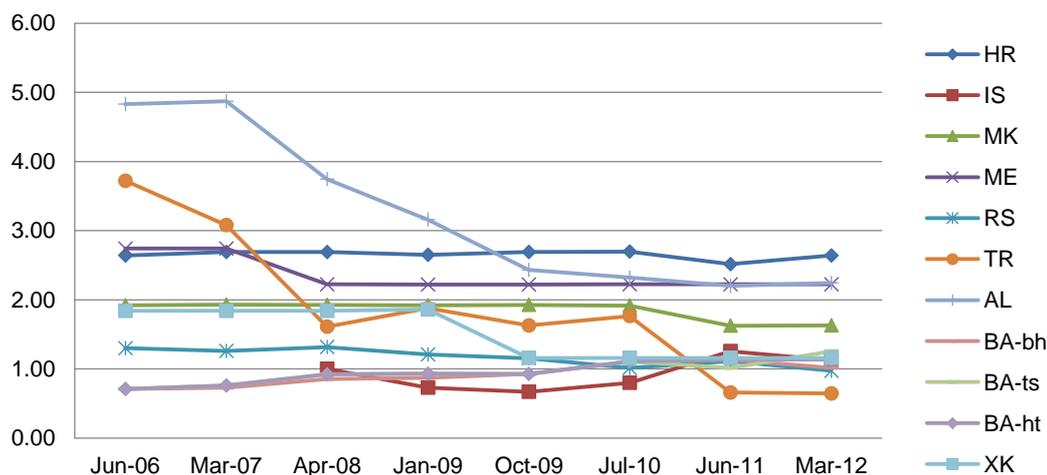


Figure K.4 – Residential charges for a 10-minute fixed to mobile call by incumbent in euro, including VAT

For international calls, all incumbents appear to be responding to competitive conditions. Tariffs have shown a decreasing trend since 2006, as illustrated by the call charges to the UK. In Bosnia and Herzegovina prices were considerably higher, if compared to the rest of the monitored countries until 2009, but have approaching to the region's average more recently. In Iceland, Macedonia, Albania, Turkey and Serbia international call prices are aligned or even slightly below the average EU rate.

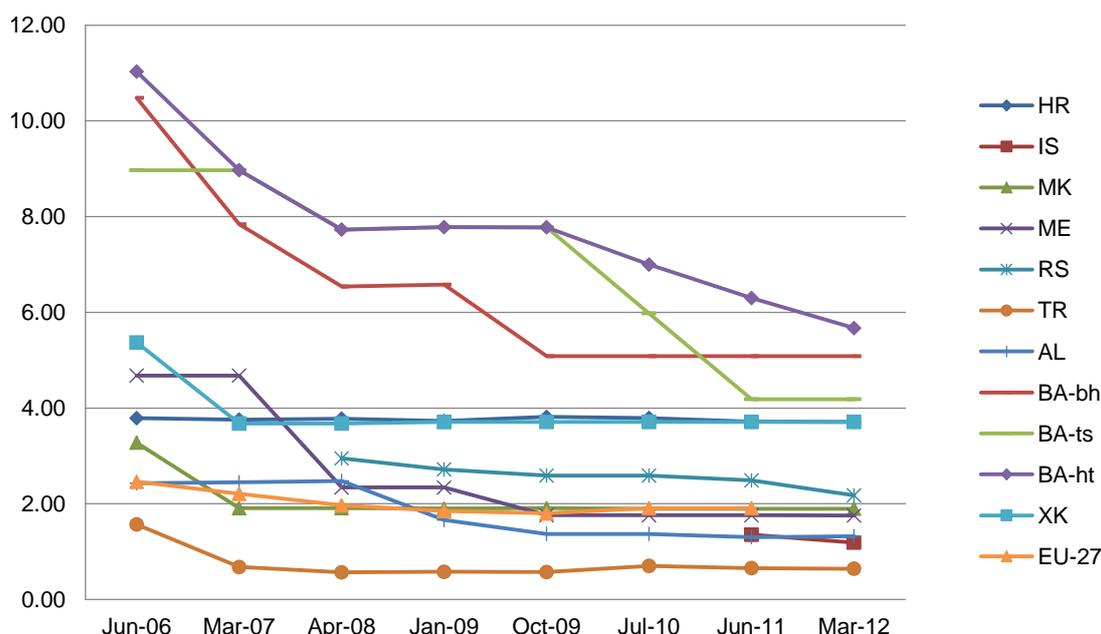


Figure K.5 – Residential charges for a 10-minute international call to UK by incumbent in euro, incl. VAT

## 2. Monthly subscription fees for residential and business users

This section reviews the monthly rental prices for PSTN fixed lines for residential subscribers in nominal euro with value added tax included and for business subscribers, without VAT. The table below provides a ranking of standard residential monthly rental, starting from the cheapest to the most expensive standard residential monthly rental. Two separate columns show low usage residential monthly rental and business monthly rental.

| Country | Standard residential monthly rental         | Low usage residential monthly rental   | Business monthly rental   |
|---------|---|--|---|
| AL      | €3.79                                       | -                                      | €11.43  |
| RS      | €4.59<br>(including €1.29 of calls)         | €2.29<br>(including €1.29 of calls)    | €3.89   |
| BA      | €5.8-€7.8<br>(including €1.9-€2.4 of calls) | €2.4<br>(including €1.6-€1.9 of calls) | €8.39<br>(including €1.7-€2 of calls)                                 |
| ME      | €5.97<br>(including €2.22 of calls)         | €3.04                                  | €5.10   |
| MK      | €7.66                                       | €2.07                                  | €11.38  |
| HR      | €9.90<br>(including €2.28 of calls)         | €4.96<br>(including €2.28 of calls)    | €9.24   |
| XK      | €9.36<br>(including €2.48 of calls)         | €4.99                                  | €17.99<br>(incl. unlimited on-net local and calls to mobile networks) |
| TR      | €9.40<br>(including €6.45 of calls)         | 5.20<br>(commercial offer)             | €8.50<br>(including €5.58 of calls)                                   |
| IS      | €11.52                                      | -                                      | €11.35  |

Table K.1 – Monthly subscription fees, March 2012

Residential subscribers pay less than business subscribers in most of the countries, particularly in Albania, and Kosovo. Most countries have the same charges for both subscriber categories after eliminating the difference caused by VAT, as is shown in the chart below. From 2011 the only significant change took place in Bosnia Herzegovina, where the residential monthly rate of HT Mostar increased by 15%, and in Iceland, where the residential rate increased by 5%. A similar increase was

observed for business rental rates. In Bosnia and Herzegovina the three incumbent operators also decreased the minutes of local calls included in the standard monthly package.

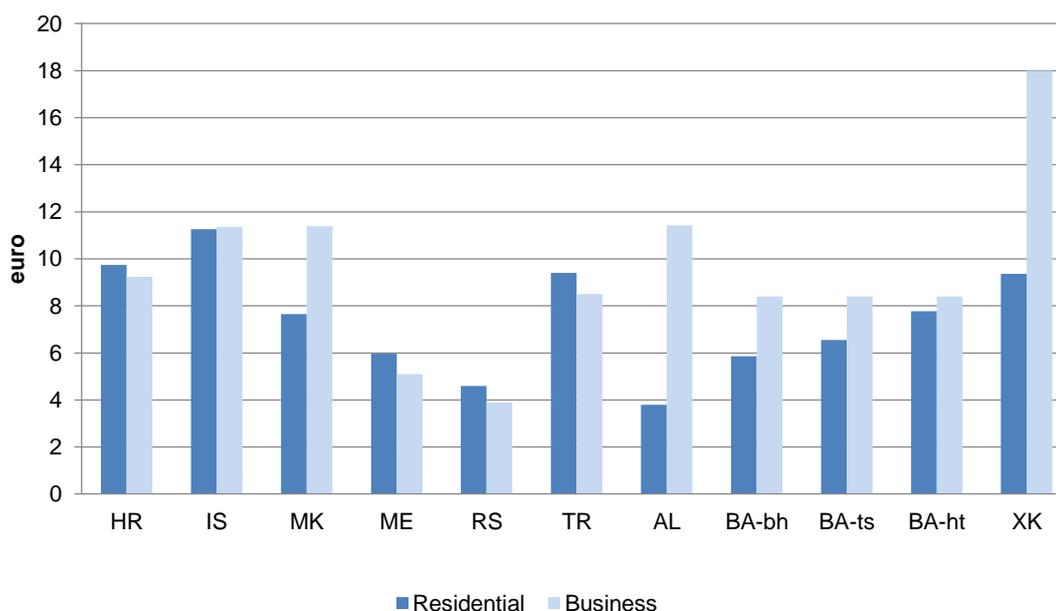


Figure K.6 – Residential and business monthly subscription fees, March 2012

### 3. One-off connection charges

This section analyses the initial charges for the new line connection and reconnection for residential and business subscriptions. The new line connection charge is the price of a new installation in a location that has not been connected before. The reconnection charge is the price for the connection of an existing subscriber line to a new subscriber, for example when a new family takes over an apartment where the previous occupant was already connected. The table below shows the applicable charges ranking from the cheapest to the most expensive reconnection charge.

| Country | Residential (including VAT) |                        | Business (excluding VAT)   |                         |
|---------|-----------------------------|------------------------|----------------------------|-------------------------|
|         | New line connection charge  | Reconnection charge    | New line connection charge | Reconnection charge     |
| XK      | €10.00                      | €2.02                  | Same as residential        | Same as residential     |
| TR      | €3.21                       | €3.21                  | Same as residential        | Same as residential     |
| RS      | €53.95                      | €3.97                  | €90.43                     | Same as residential     |
| BA      | €17.4 to €35.9              | €4.2 to €12            | Same as residential        | Same as residential     |
| MK      | €23.73                      | €7.76 (monthly rental) | Same as residential        | €11.35 (monthly rental) |
| IS      | €17.90                      | €9.76                  | Same as residential        | Same as residential     |
| HR      | €82.51                      | €9.90 (monthly rental) | Same as residential        | Same as residential     |
| ME      | €19.91                      | €12.50                 | Same as residential        | Same as residential     |
| AL      | €34.28                      | €34.28                 | Same as residential        | Same as residential     |

Table K.2 – Connection charges, March 2012

Contrary to monthly subscription fees, there are no differences between residential and business charges with the exception of Serbia where business customers pay almost twice the price for a new line connection.

In general, a reconnection charge is significantly cheaper than a new installation (as would be expected by the lower costs involved). The only exceptions are Albania, and Turkey where the prices are the same. In Bosnia and Herzegovina and Iceland new line connection and reconnection charges have been differentiated only from 2012. Bosnia and Herzegovina also shows a decrease of one off

connection charge from 2012, by 16% and 14% respectively at BH Telekom and HT Mostar, and by 50% at Telekom Srpske.

#### 4. Local fixed telephony tariffs

As a result of the progress achieved in tariff rebalancing and the introduction of improved market entry conditions, over the last few years competition in fixed voice call markets has progressed in most of the monitored countries. In all countries, except Albania, Montenegro and Kosovo, alternative service providers are quoting lower local call prices than the incumbents.<sup>5</sup> This applies even to the countries with relatively low local prices and tariff rebalancing far from being completed, such as Serbia or Bosnia & Herzegovina.

In Kosovo, a 10-minute local call on the fixed network of an alternative operator cost almost 70 eurocents, approximately twice as high as the price charged by a competitive operator in Croatia.

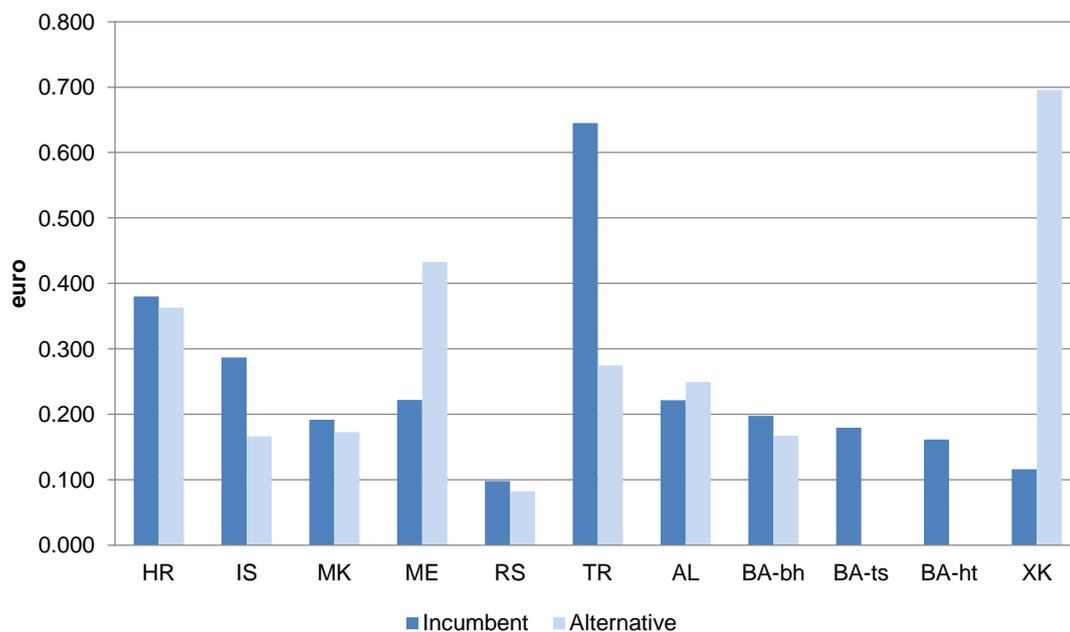


Figure K.7 – 10-minute local call charges for residential users in eurocents, including VAT, March 2012

#### 5. Long distance fixed telephony tariffs

In Macedonia, Turkey, Montenegro and Iceland it is considerably cheaper to use an alternative operator for a 10-minute long distance national call. Alternative operators' prices are also cheaper in Croatia and Albania. Conversely, incumbents' national long distance prices are lower in Serbia.

Croatia, Iceland and Kosovo do not differentiate between local and long distance prices, as the whole country is defined as one national zone.

<sup>5</sup> The list of alternative operators chosen for comparisons in this report is available in Table K.5 of the annex.

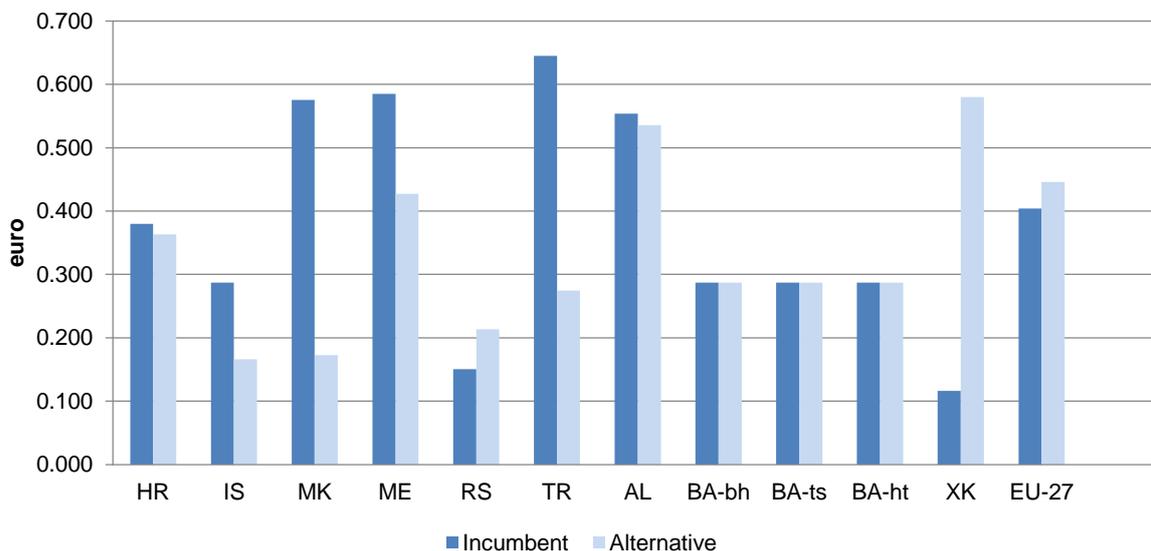


Figure K.8 – 10-minute national call charges for residential users in euro, including VAT, March 2012

### 6. Fixed to mobile tariffs

In all monitored countries the prices for fixed to mobile calls are considerably higher than for long distance calls. The only exception is Turkey where the incumbent's long distance and fixed to mobile prices are the same.

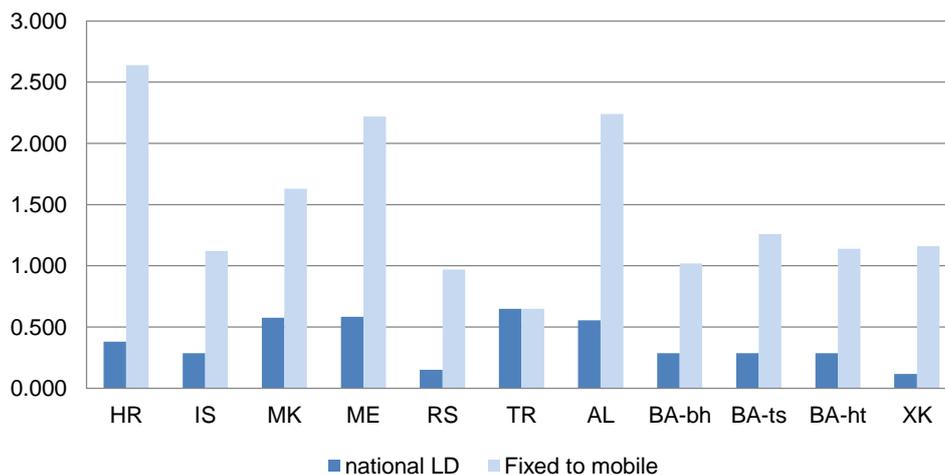


Figure K.9 – 10-minute fixed to mobile and national charges for residential users in euro, including VAT, March 2012

In Bosnia & Herzegovina, where the differences are the smallest, a 10-minute call from a residential fixed line to a mobile number is approximately 3 times more expensive than national calls to fixed lines. In Croatia and Serbia, fixed to mobile calls are 6 times more expensive, but the difference is the largest in Kosovo, where fixed to mobile calls are almost 10 times more expensive.

| Country               | 10-minute fixed national long distance call | 10- minute fixed to mobile call | Price Ratio |
|-----------------------|---|---------------------------------|-------------|
| Turkey                | €0.65                                       | €0.65                           | 1           |
| FYR Macedonia         | €0.58                                       | €1.63                           | 2.8         |
| Bosnia & Herzegovina  | €0.29                                       | €1.02-1.26                      | 3.5/4.3     |
| Montenegro            | €0.59                                       | €2.22                           | 3.8         |
| Iceland               | €0.29                                       | €1.12                           | 3.9         |
| Albania               | €0.55                                       | €2.24                           | 4.1         |
| Serbia                | €0.15                                       | €0.97                           | 6.5         |
| Croatia               | €0.38                                       | €2.64                           | 6.9         |
| Kosovo                | €0.12                                       | €1.16                           | 10          |
| <b>Simple Average</b> | <b>€0.40</b>                                | <b>€1.27</b>                    | <b>3.2</b>  |

Table K.3 – Incumbents' charges for residential fixed to mobile calls and charges for national fixed calls, March 2012

The simple average for the monitored countries is €1.45 for a 10-minute fixed to mobile call, which is 4.5 times the average for a fixed national call. This ratio has been quite stable since 2009, although in 2012 a 12% is observed from the previous monitoring period.

In Montenegro, Albania, Croatia, and Bosnia & Herzegovina, alternative operators offer calls to mobile networks at tariffs that are lower than the incumbent's. In Serbia, where competition introduced only recently, the competitor's price is only 1% cheaper than the incumbent's. In Iceland, Kosovo, Bosnia & Herzegovina and Turkey alternative operators' prices are higher than the incumbent's prices.

Turkey clearly stands out among the monitored countries, as alternative operators' charges are almost 2.5 times higher than the incumbent's, as shown in the next graph.

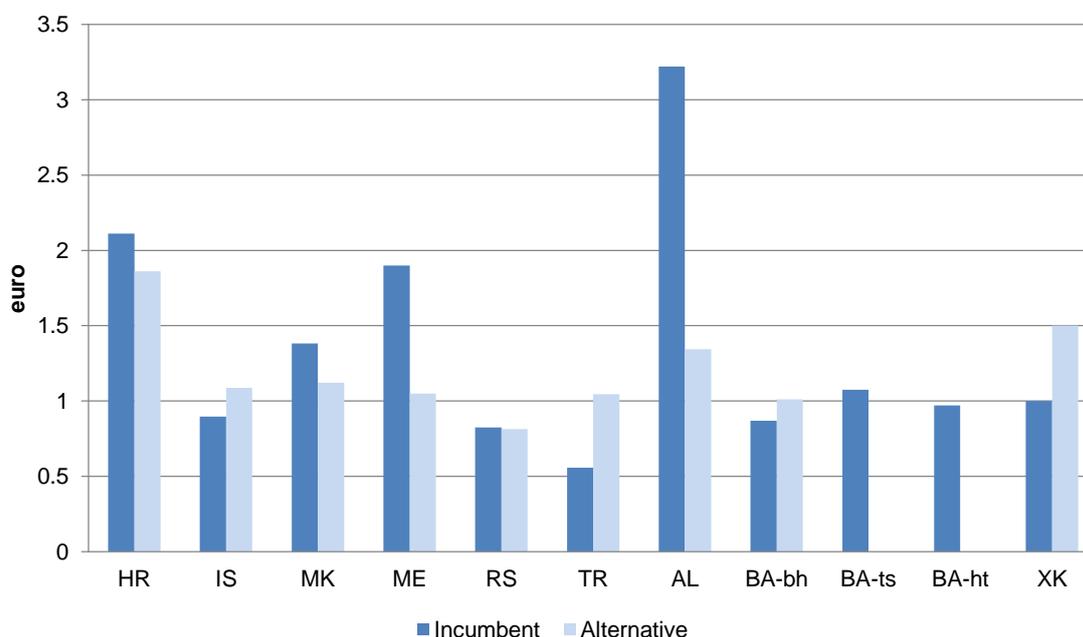


Figure K.10 – 10-minute fixed to mobile call charges for residential users in euro, including VAT, March 2012

## 7. International tariffs

The report compares the cost of a 10-minute call to the UK and to the USA for each monitored country. There is considerable variation in the prices, as the graphs below illustrate, with Bosnia & Herzegovina being the most expensive while Turkey the cheapest.

With the only exception of Montenegro and Iceland, where the incumbent is offering lower international call rates, alternative operators are generally offering significantly better prices than the incumbents for international calls. Calls to the UK are 80% and 70% cheaper if placed through an alternative operator in Serbia and Kosovo, and between 50% and 60% in Turkey, Macedonia and Albania.

Alternative operators tend to offer lower prices for calls to the USA, almost 90% lower than the incumbent in Serbia, and 74% in Kosovo. In Albania, alternative operators' charges are now approximately 56% cheaper than the incumbent's. This represents a considerable change from 2010, when the incumbent still controlled international interconnection, resulting in alternative operators charging significantly higher prices to customers for international calls.

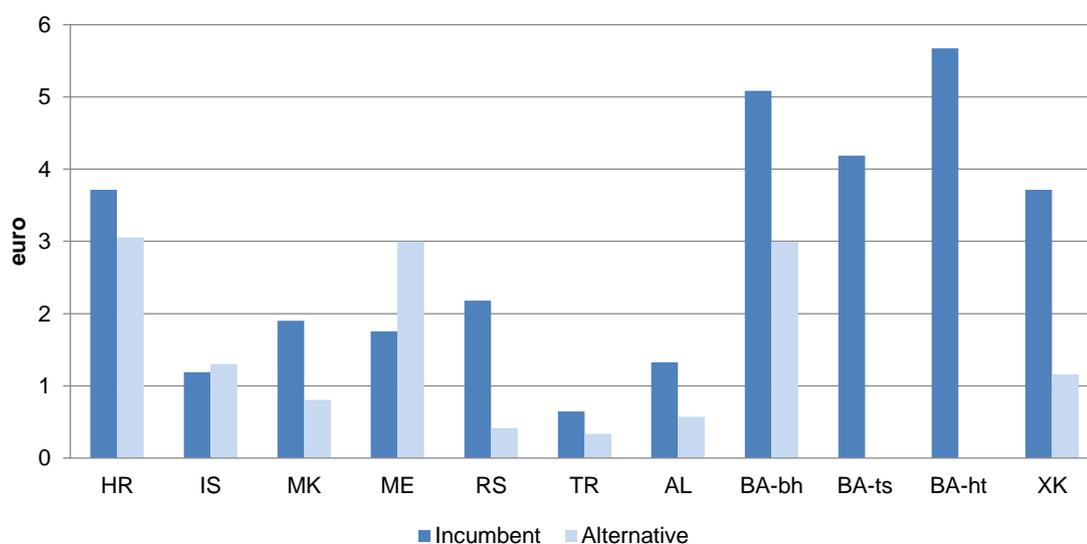


Figure K.11 – Residential charges for a 10-minute call to the UK in euro, including VAT, March 2012

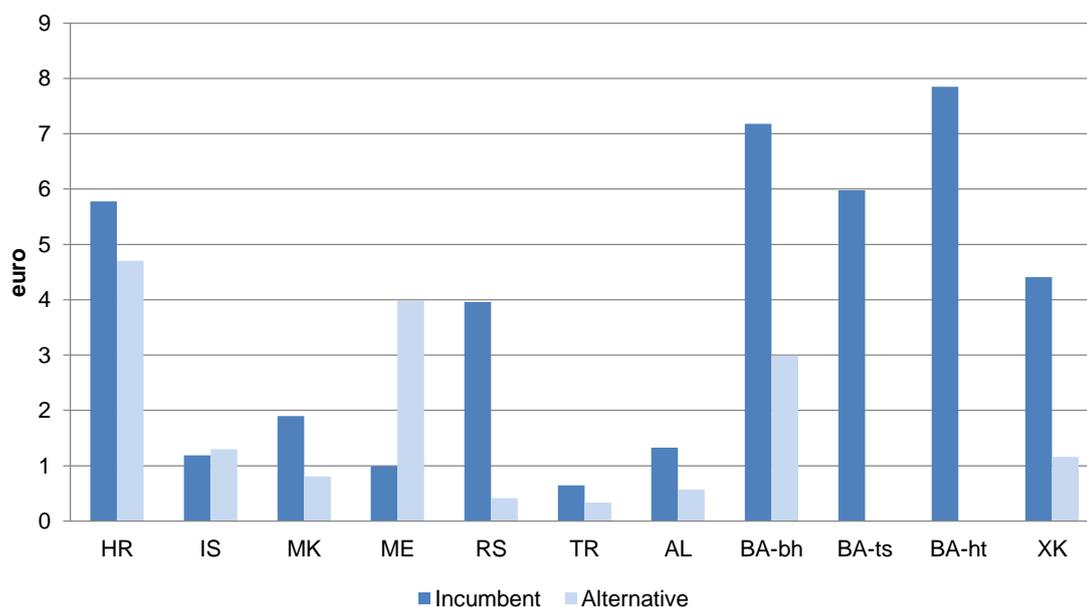


Figure K.12 – Residential charges for a 10-minute call to the USA in euro, including VAT, March 2012

As illustrated in the Figure O.13 below, international prices are still considerably higher than any other type of calls – including fixed to mobile – in Serbia, Bosnia & Herzegovina, Croatia and Kosovo, and to a lesser extent, in Iceland and Macedonia. The situation is more comparable with the EU-27 trends in the remaining countries.

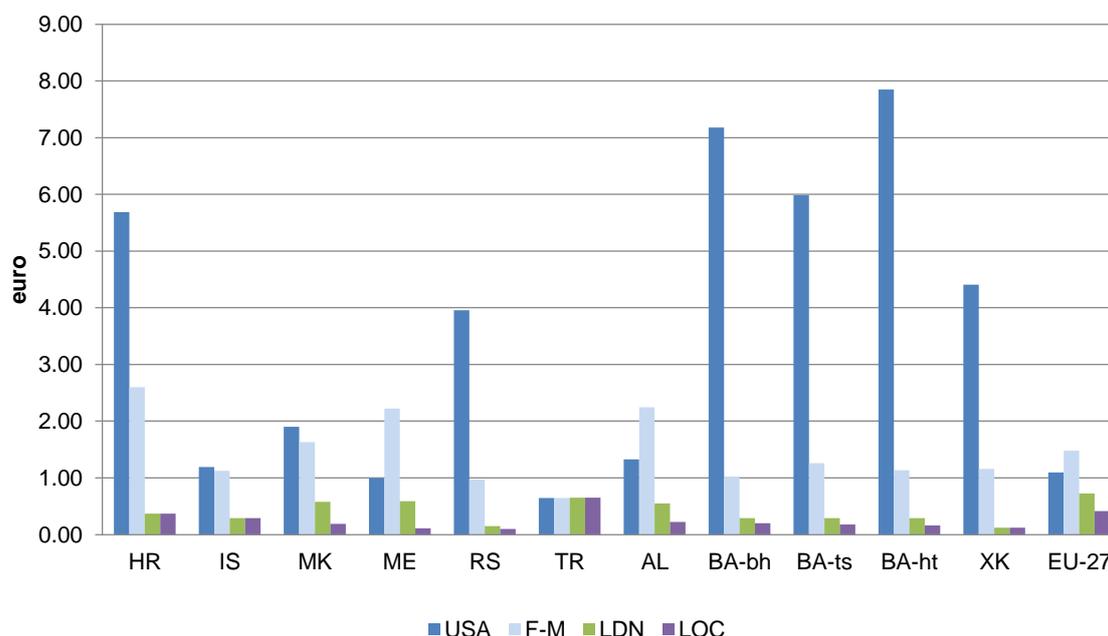


Figure K.13 – Summary of incumbent’s residential charges for a 10-minute in euro, including VAT, March 2012

## L. Mobile retail tariffs

Mobile network operators provide a range of tariff options that are rather complicated and difficult to compare. Consumers have to take into account a significant number of parameters, including the initial activation charge, monthly subscription charge, peak and off-peak tariffs, “free” calls and text messages included in the package, volume-dependent tariffs, SMS tariffs, tariffs for calls within the same network (on-net calls), tariffs for calls to other mobile networks (off-net), calls to fixed networks and, of course, cross-subsidies for the handset.

In order to be able to make comparisons between its member countries, the OECD constructed a set of mobile tariff “baskets” building on its work in fixed telephony baskets.<sup>6</sup> These baskets are updated to reflect changing usage patterns. The current basket is referred to as the 2006 version, while the previous basket is referred to as the 2002 version. This report uses the 2006 baskets that can be directly compared with the EU results which also use the same methodology.

The results for low usage mobile basket in the monitored countries show that most countries have offerings that are cheaper than the simple average of EU mobile operators €9.07 per month, according to the Digital Agenda Scoreboard 2011 report. The only exceptions are found in Turkey, in Bosnia & Herzegovina, and in Iceland. Compared with 2011 data, the most remarkable price decreases were observed in Macedonia, with the two larger operators decreasing prices by 35% and 40% respectively compared with VIP, which on the contrary increased its mobile rates.

<sup>6</sup> <http://www.oecd.org/dataoecd/56/23/41049579.pdf>

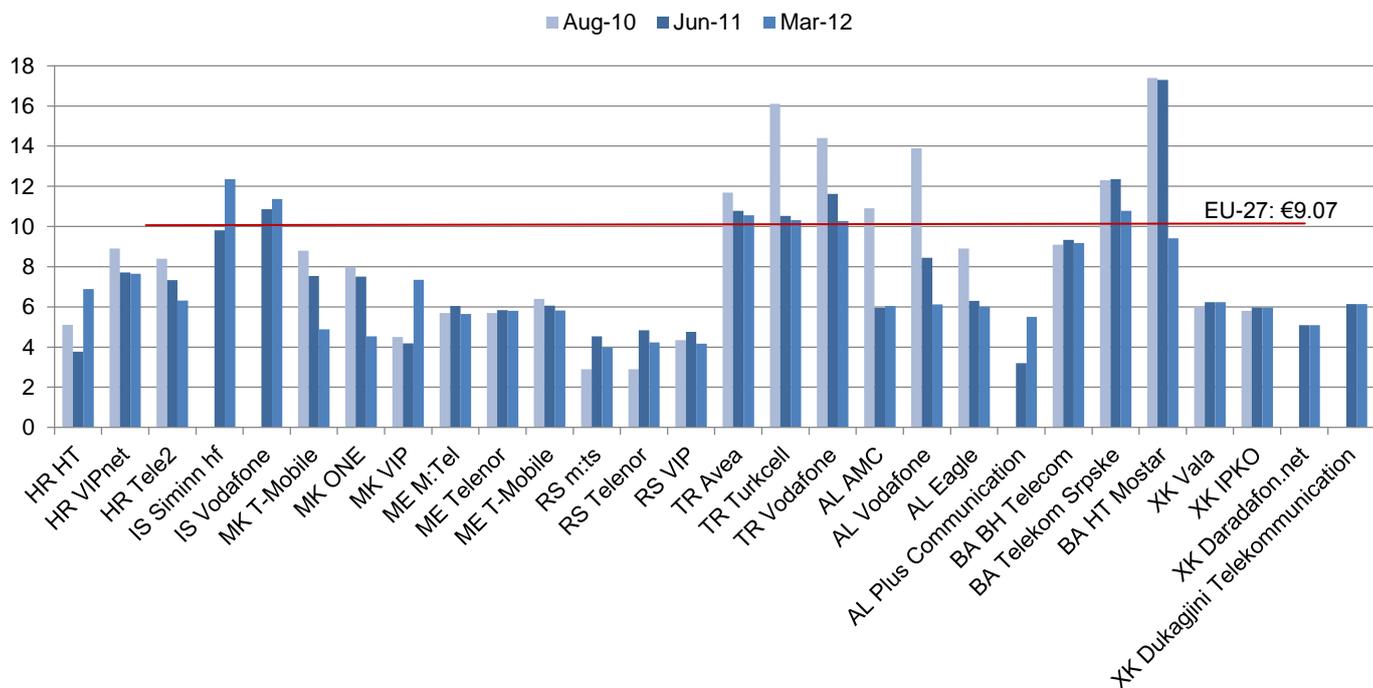


Figure L.1 – Low usage basket in euro per month, including VAT

For medium usage baskets, where the EU average price is €15.3, offerings in Turkey, in Bosnia & Herzegovina, and for one operator in Albania remain significantly higher, while Croatia, Iceland, Macedonia, Montenegro, Serbia and Kosovo have offerings below than, or aligned with the average EU-27 charges.

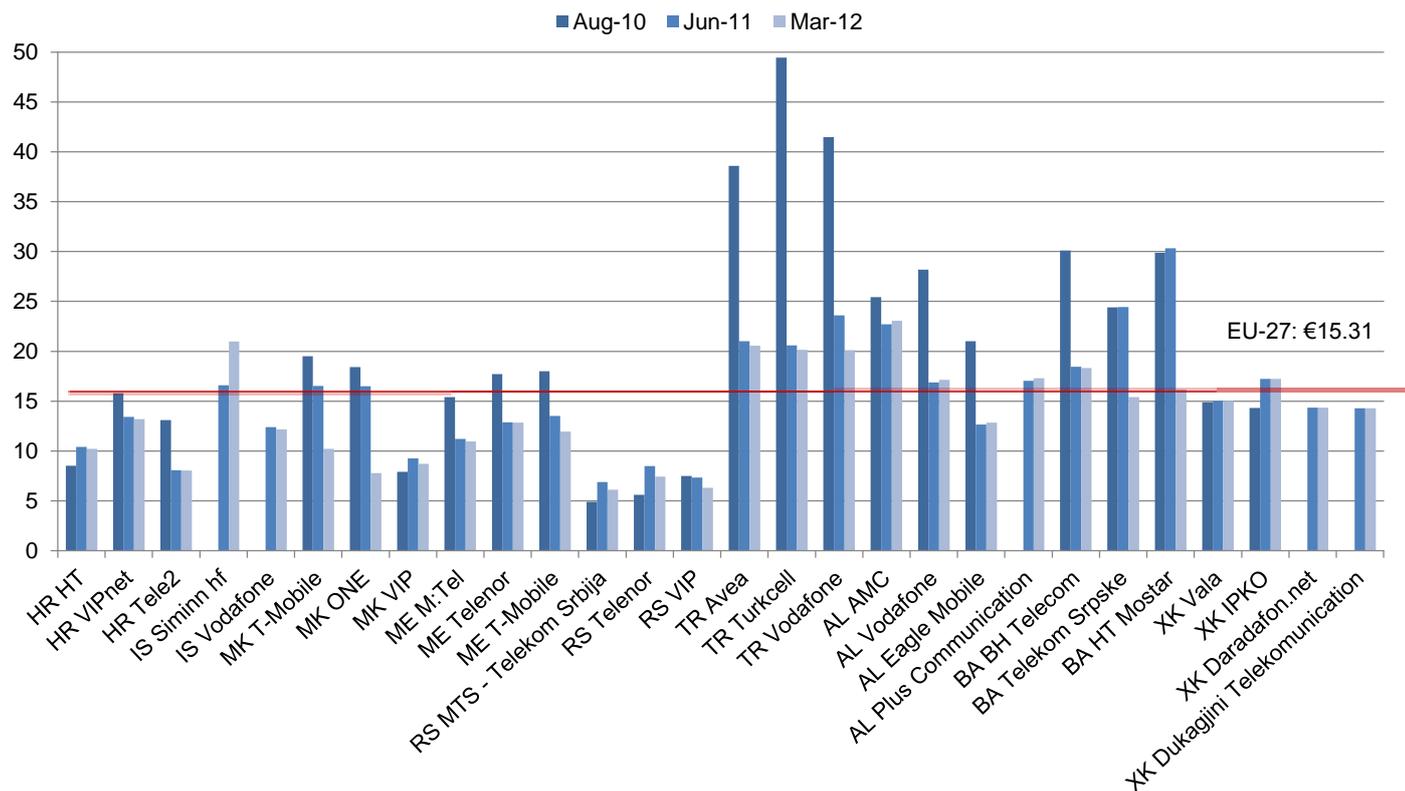


Figure L.2 – Medium usage basket in euro per month, including VAT

## Enlargement countries monitoring report 2 – July 2012

For high usage baskets Bosnia & Herzegovina are significantly above the EU average of €24.22, while offers in other countries, notably, Montenegro, Iceland, Albania and Kosovo are aligned with the EU average prices or, as in the case of Serbia and Macedonia, offer better deals.

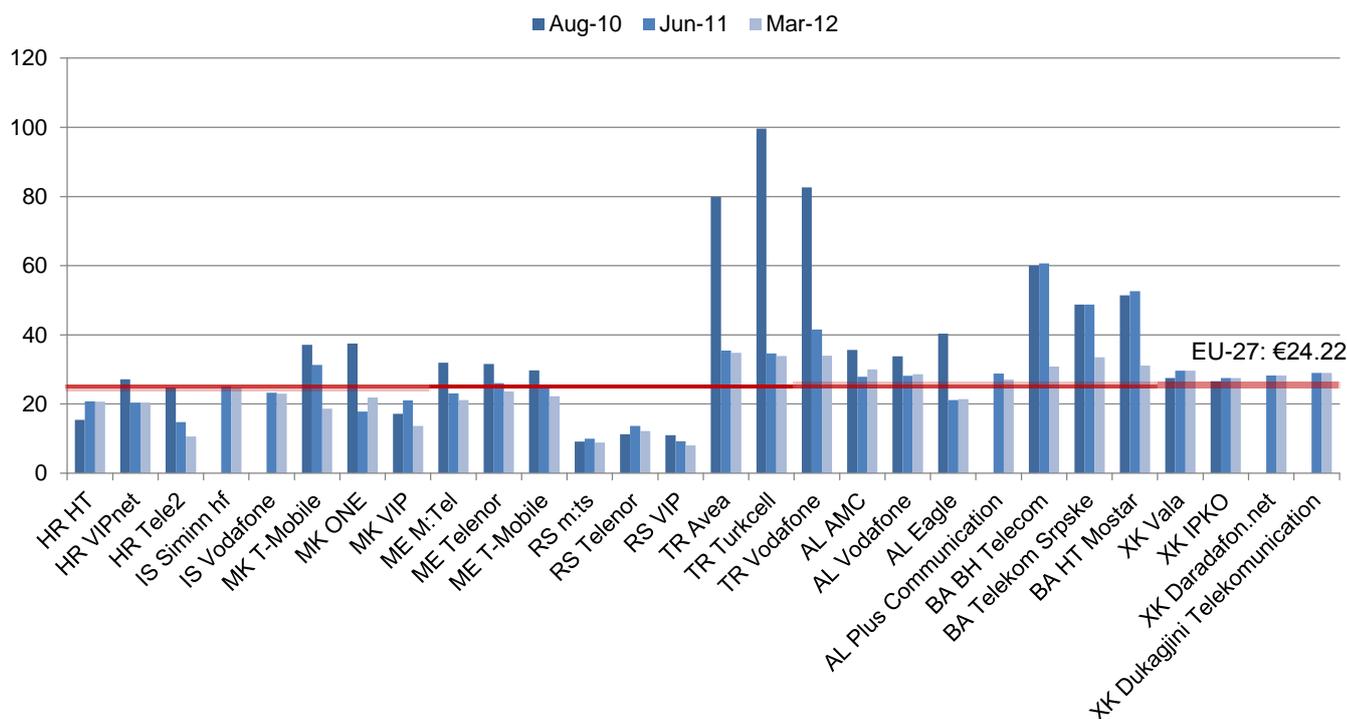


Figure L.3 – High usage basket in euro per month, including VAT

## M. Broadband retail prices

### 1. Fixed broadband Internet access retail prices

This report analyses broadband offerings of the incumbent and the major alternative operator in each of the monitored countries with the following download speeds: below 1 Mbps; between 1 and 2 Mbps; between 2 and 4 Mbps; between 4 and 8 Mbps; between 8 and 20 Mbps; and above 20 Mbps.

An assessment of the offerings available in the nine countries shows a situation similar to the one observed in the EU member states: the lower speed offerings are phased out by higher speeds (see Table M.1 below).

|    | <1 Mbps |     | 1-2 Mbps |     | 2-4 Mbps |     | 4-8 Mbps |     | 8-20 Mbps |     | >20 Mbps |     |
|----|---------|-----|----------|-----|----------|-----|----------|-----|-----------|-----|----------|-----|
|    | INC     | ANO | INC      | ANO | INC      | ANO | INC      | ANO | INC       | ANO | INC      | ANO |
| HR | ✗       | ✗   | ✗        | ✓   | ✓        | ✓   | ✗        | ✓   | ✓         | ✓   | ✗        | ✗   |
| IS | ✗       | ✗   | ✗        | ✗   | ✗        | ✗   | ✗        | ✗   | ✓         | ✓   | ✓        | ✓   |
| MK | ✗       | ✗   | ✗        | ✗   | ✗        | ✗   | ✓        | ✗   | ✓         | ✓   | ✓        | ✗   |
| ME | ✗       | ✗   | ✓        | ✓   | ✓        | ✓   | ✓        | ✓   | ✓         | ✓   | ✓        | ✗   |
| RS | ✗       | ✗   | ✓        | ✗   | ✓        | ✗   | ✓        | ✗   | ✓         | ✓   | ✗        | ✓   |
| TR | ✗       | ✗   | ✓        | ✓   | ✓        | ✓   | ✓        | ✓   | ✓         | ✓   | ✓        | ✓   |

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|    | <1 Mbps |     | 1-2 Mbps |     | 2-4 Mbps |     | 4-8 Mbps |     | 8-20 Mbps |     | >20 Mbps |     |
|----|---------|-----|----------|-----|----------|-----|----------|-----|-----------|-----|----------|-----|
|    | INC     | ANO | INC      | ANO | INC      | ANO | INC      | ANO | INC       | ANO | INC      | ANO |
| AL | ✗       | ✓   | ✗        | ✓   | ✓        | ✓   | ✓        | ✓   | ✓         | ✗   | ✗        | ✓   |
| BA | ✗       | ✗   | ✓        | ✗   | ✓        | ✗   | ✓        | ✓   | ✓         | ✓   | ✗        | ✓   |
| XK | ✓       | ✗   | ✓        | ✓   | ✓        | ✓   | ✓        | ✗   | ✓         | ✗   | ✗        | ✗   |

Table M.1 – Availability of broadband offers by incumbents and alternative operators at different speeds

Broadband lines with speeds below 1 Mbps are only offered by an alternative operator in Albania at approximately €11 per month. The offerings between 1 Mbps and 2 Mbps are not available only in Iceland and Macedonia. Monthly prices have decreased considerably from 2011, as they now range from €5 to €16.

The monthly charges for 2-4 Mbps connections show significant variations across countries. The lowest prices are offered in Croatia by an alternative operator at €9.20 per month. At the other end of the scale, Turk Telekom’s subsidiary, TTNNet has the most expensive offer at €29.61 per month.

In Macedonia and Montenegro only the incumbent operator is currently offering speeds above 20 Mbps; conversely higher speed broadband is currently offered only by alternative operators in Serbia, Albania and Bosnia and Herzegovina. No above 20 Mbps offers are available in Croatia and Kosovo.

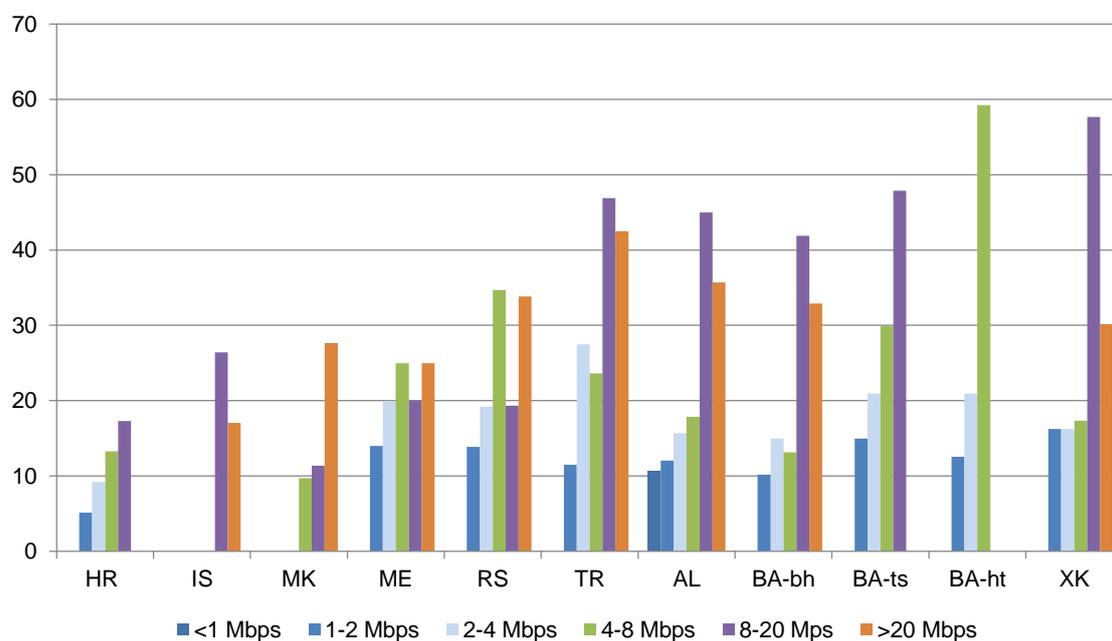


Figure M.1 – Broadband monthly subscription charges – cheapest offers available, in euro, including VAT, March 2012

The two figures below compare broadband monthly subscription charges for 4-8 Mbps and 8-20 Mbps offerings by the incumbent and alternative operator.

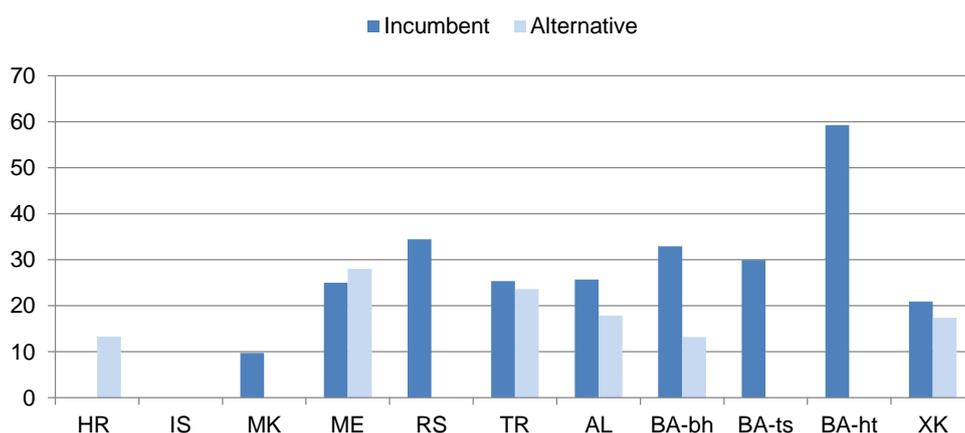


Figure M.2 – Monthly retail 4-8 Mbps broadband subscription prices in euro, including VAT, March 2012

Very competitive monthly prices for offers between 4 Mbps and 8 Mbps, ranging between €10 and €15, are available in Macedonia, Croatia, and Bosnia & Herzegovina. In Kosovo an alternative operator offers broadband access below €18. In other countries prices range from €20 to €35. The most expensive offers in this speed range are observed in Bosnia & Herzegovina (HT Mostar only) at a price slightly above €59.

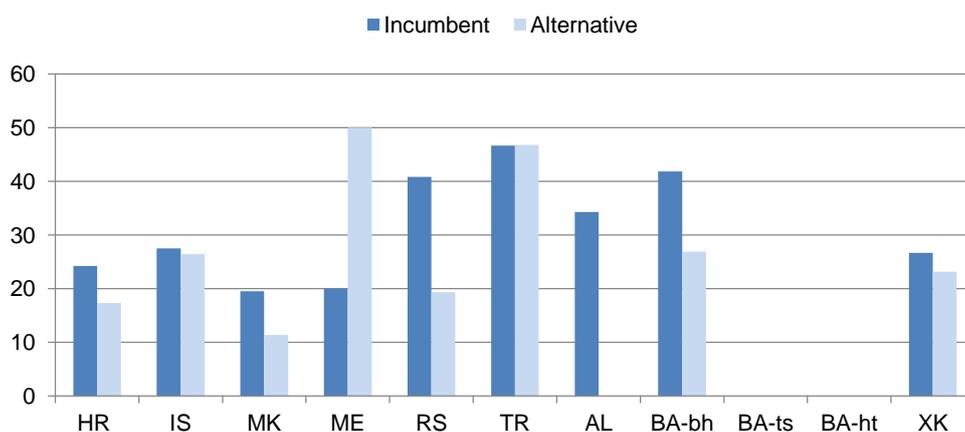


Figure M.3 – Monthly retail 8-20 Mbps broadband subscription prices in euro, including VAT, March 2012

Broadband offers between 8 up to 20 Mbps are available in all countries, with offers by the incumbent and the alternative operator. Offers above 20 Mbps by both the incumbent and alternative operators are only available in Iceland, Macedonia, Turkey and Kosovo. In Iceland the incumbent operator's offer is at €25, and the one by the main alternative operator is 32% cheaper. In Macedonia the incumbent and alternative operators have offers at €28 and €29 respectively. In Turkey the incumbent has an offer at €64, whereas an alternative operator's fibre-based offer is 34% cheaper.

In Montenegro only the incumbent operator has an offer at this speed, at a monthly price slightly below €25. At the other end of the scale, in Albania, Bosnia and Herzegovina, and in Serbia above 20 Mbps broadband access is offered only by an alternative operator at prices below €36.

## N. Leased lines retail prices

### 1. National leased lines

Assessment of leased lines retail prices in the monitored countries shows that in several countries regulation has not yet made a significant effect on leased lines pricing.

Leased lines are important telecommunications services for business customers. They are used to link their premises together nationally and internationally with dedicated private lines of fixed capacity.

Analysed in this report are retail prices for 2 km leased lines of 2 Mbps and 34 Mbps transmission capacity. All prices are annual, excluding VAT and without any one-off or connection charges.

The Digital Agenda Scoreboard report 2011 shows that the EU average prices for “basic circuits” leased lines now stand at €6,192 per year (excluding VAT) for 2 Mbps and € 33,756 per year for 34 Mbps<sup>7</sup>: However, there still remain large variations in leased lines pricing for offerings with the same functional characteristics in terms of capacity and distance across the EU member states.

In most of the monitored countries, prices for 2 km leased lines of 2 Mbps have remained substantially unchanged for several years, with slight differences shown in Figure N.1 below mostly due to exchange rates variations.

In Montenegro wholesale and retail prices of leased lines of Crnogorski Telekom have been reduced by 30-40%, following implementation of the new wholesale reference offer and new price methodology imposed by the NRA in its market analysis of leased lines markets. The new prices will apply from June 2012 (therefore not shown on the figure below)<sup>8</sup>.

The range of charges for the same functional offering is very wide across the region. Iceland has the lowest annual charges among the monitored countries for at €519 per year, immediately followed by Albania and Turkey, with prices at € 1,571 and € 2,248. The highest annual prices for these offerings are in Macedonia, the lowest in Iceland and Albania.

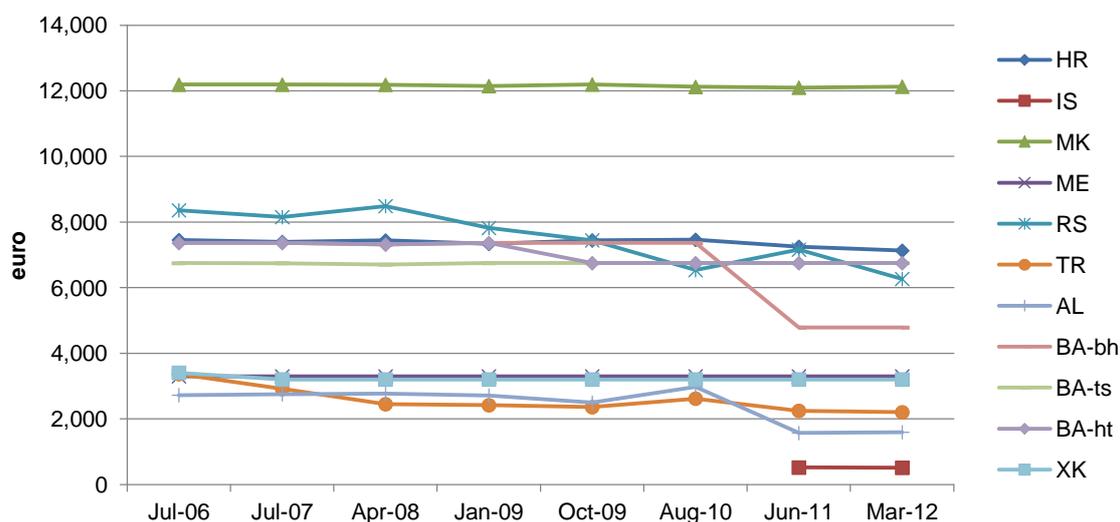


Figure N.1 – Annual retail prices for 2 km 2 Mbps leased lines

For 34 Mbps, the lowest retail prices are in Iceland at €2,175 per year, followed by Turkey and Kosovo respectively at €12,114 and €15,048 per year. The most expensive prices are in Serbia at €55,253 per year. In Albania, the prices for leased lines of 34 Mbps have been quoted for the first time in 2011 and are slightly below €30,000 per year. In Macedonia 34 Mbps leased lines are only available through radio links and prices are not shown in the figure.

<sup>7</sup> Simple average (no 2010 data available for France and Finland).

[http://ec.europa.eu/information\\_society/digital-agenda/scoreboard/docs/pillar/studies/voice\\_tariff\\_1998\\_2010.pdf](http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/pillar/studies/voice_tariff_1998_2010.pdf).

<sup>8</sup> [http://www.ekip.me/download/Saopstenje%20za%20LL\\_promjene.pdf](http://www.ekip.me/download/Saopstenje%20za%20LL_promjene.pdf)

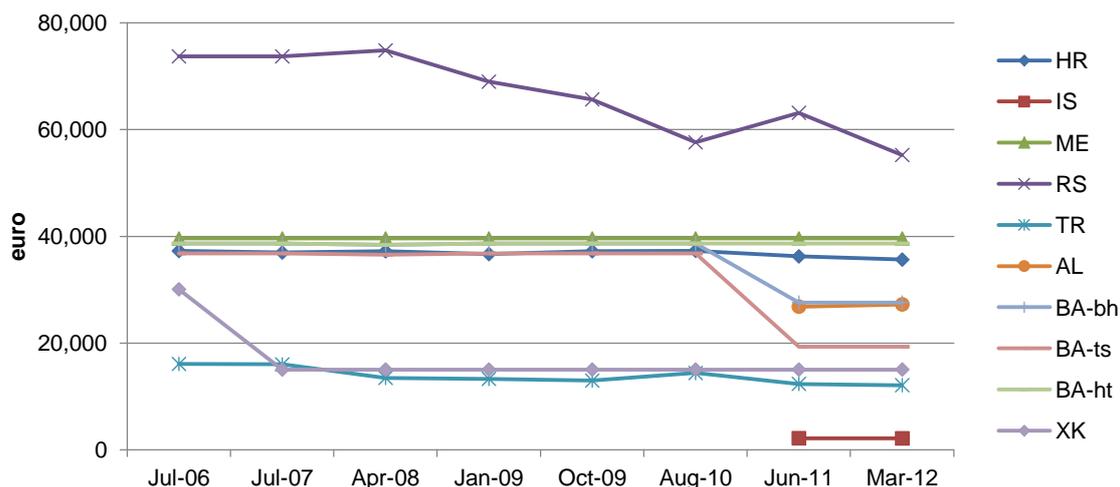


Figure N.2 – Annual retail prices for 2 km 34 Mbps leased lines

## 2. International leased lines

International leased lines have been traditionally provided in the form of two half-circuits: one national half-circuit being connected to another half-circuit or to a transit circuit near the border, with the corresponding arrangement in the destination country. International half-circuit prices are not presented for Iceland and, from 2012, for Croatia, as they are defined commercially and are confidential. This report analyses half circuit tariffs to a near country and also to a distant country (the UK).

For 2 Mbps half circuits to a near country, retail prices were reduced significantly since 2008. Albania and Turkey show the highest prices among the monitored countries by a significant margin, at levels close to €100,000. In Albania the price was reduced by almost 50% from the 2010 to 2011 and has remained stable since then. All other incumbents have reduced charges at levels below €50,000 per year. In Macedonia, prices were significantly reduced based on the bylaw adopted by the NRA in 2008, and were further reduced over the last year few years. Macedonia has now the lowest prices along with Kosovo.

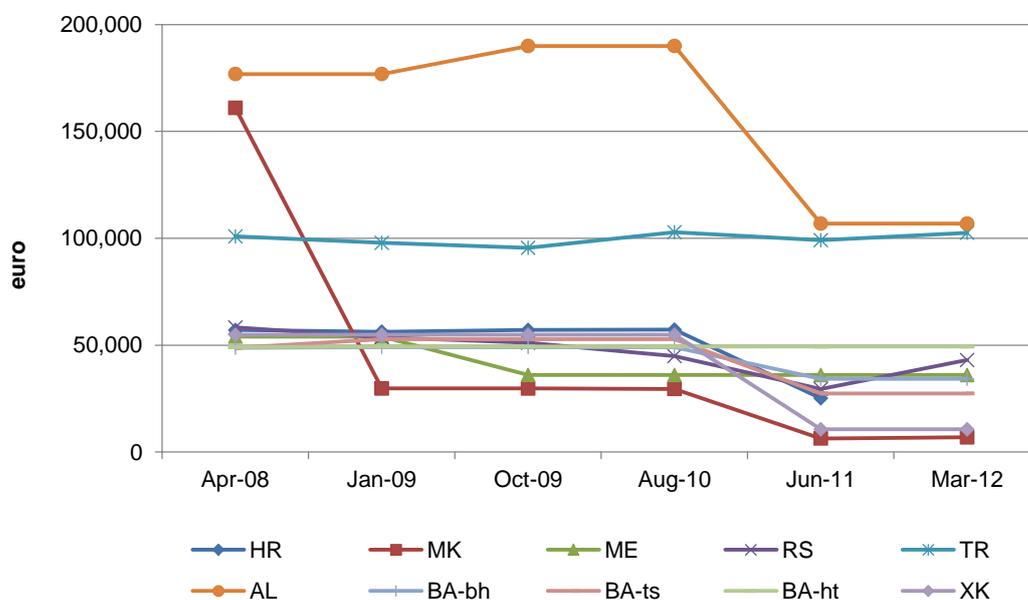


Figure N.3 – Annual prices for international half circuits 2 Mbps to near country

In the case of 2 Mbps half circuits to the UK, charges have fallen significantly from 2010 in Albania, Serbia, Kosovo and Macedonia. Again, the Albanian and Turkish incumbents' charges are significantly higher than in the rest of the region at above € 150,000 per year. All other incumbents are keeping charges at below € 50,000 per year. Although charging the highest prices until 2008, Macedonia has now the lowest ones. From 2011 to 2012 prices remained stable in all monitored countries.

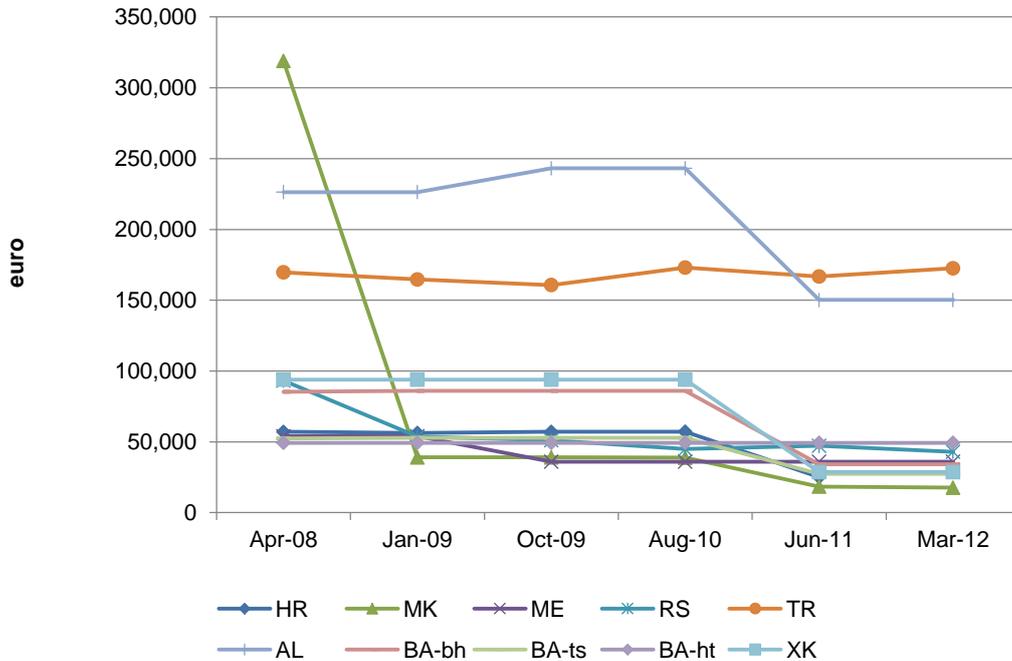


Figure N.4 – Annual prices for international half circuits 2 Mbps to the UK

In the case of 34 Mbps half circuits, the lowest prices are offered in Macedonia, at approximately €28,000 per year to a near country and slightly above €55,000 to the UK. Prices are significantly higher in Turkey and Albania, where annual prices for an international half circuit to the UK are above €1m. International half circuit prices are not publicly listed for Iceland and Croatia, as they are defined commercially.

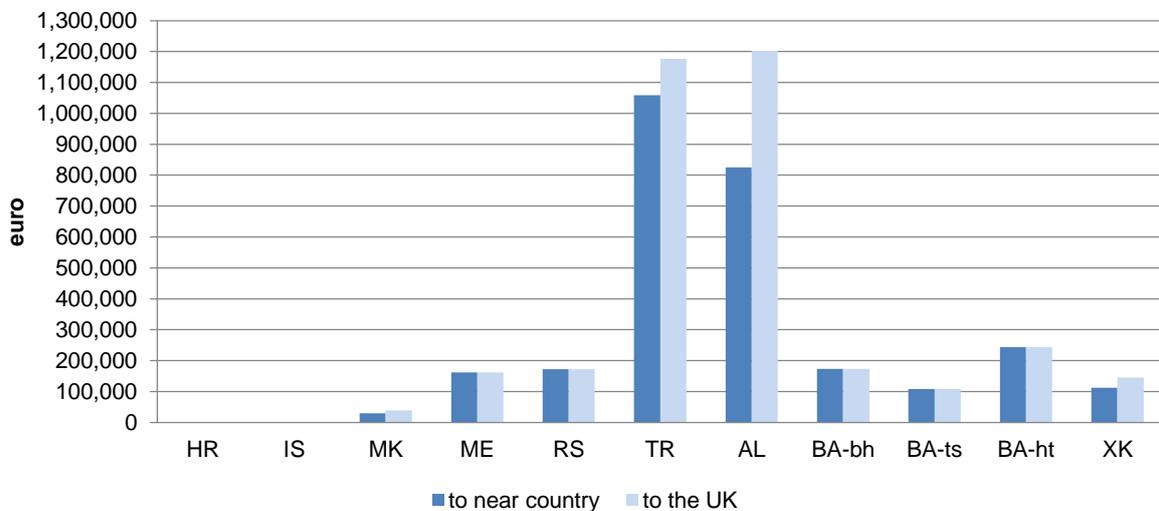


Figure N.5 – Annual prices for international 34 Mbps half circuits

O. Wholesale tariffs

1. Call termination on fixed networks

Assessment of call termination on fixed networks in the monitored countries shows that call termination charges are gradually converging towards the EU average level. In some countries this has been the result of regulatory intervention and price controls that in the absence of more complex regulatory mechanisms such as cost accounting models typically apply benchmarking against the level of charges in the EU member states.

According to the BEREC report on fixed and mobile termination rates in the EU as of January 2012, the weighted average EU-27 call termination charges on the incumbent’s fixed network were the following<sup>9</sup>:

- Local level 0.54 eurocents per minute
- Single transit level 0.66 eurocents per minute
- Double transit level 0.80 eurocents per minute

The figures below show call termination rates on the incumbent’s fixed network as of March 2012.

In all of the monitored countries, the fixed incumbent operators apply the same termination charges regardless of whether the call originates on national fixed or mobile networks. In Serbia, the same fixed termination rates for calls originating in fixed and mobile networks were introduced in June 2011. In Kosovo fixed termination only takes place at the single tandem level.

Iceland is the only country where call termination charges on the incumbent’s fixed network at the local level are set below the EU average. Croatia, Macedonia, Turkey (since 2009), Serbia and Bosnia & Herzegovina are setting prices which are at comparable levels with the EU, or at least below €1. In Montenegro, fixed termination prices were at levels considerably higher than in the other monitored countries, but have been considerably decreasing over the last two years.

In Albania, following the implementation on new BU-LRAIC cost model, from September 1, 2010 Abtelecom’s fixed termination rates have nearly doubled at all levels of interconnection.

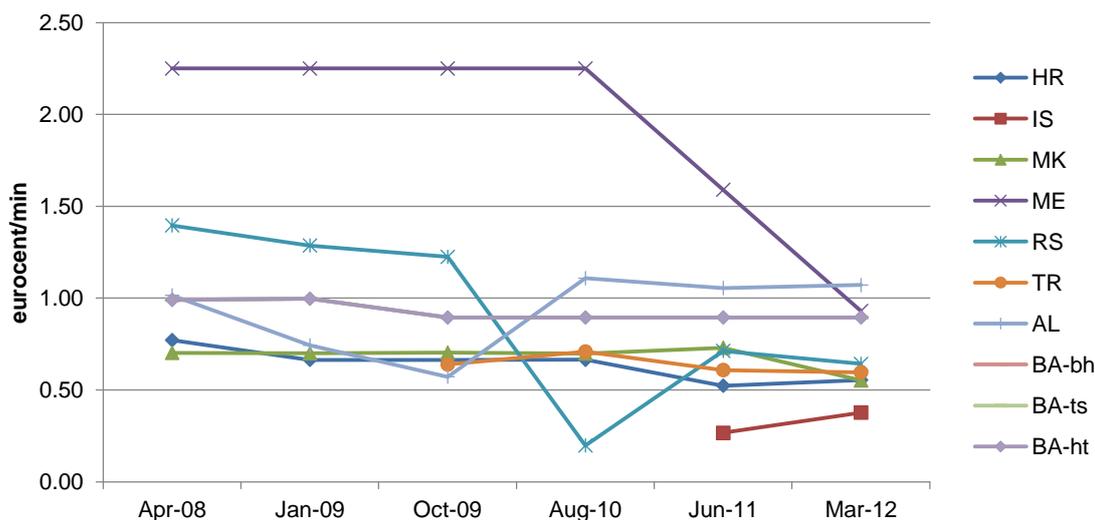


Figure O.1 – Local call termination charges on the incumbent’s fixed network, peak time

At the single transit level, call termination charges on the incumbent’s fixed network are close to the EU average of 0.66 €cents in Turkey, Croatia, Macedonia, and more recently in Serbia. The highest rates are in Kosovo, where fixed interconnection rates are at 4 eurocents per minute. In Montenegro, FTRs

<sup>9</sup> Body of European Regulators for Electronic Communications (BEREC) ‘Termination Rates Benchmark Snapshot (January 2012)’ [http://erg.eu.int/doc/bor\\_12\\_56\\_tr\\_integrated\\_snapshot\\_final.pdf](http://erg.eu.int/doc/bor_12_56_tr_integrated_snapshot_final.pdf)

have been traditionally high, but following a 30% decrease in 2011 and an additional 43% decrease in 2012 they are now slightly above 1 eurocent.

In Albania, the charges decreased by 23.5% during 2009 and increased by 104% in 2010. Single transit termination in Serbia decreased by 62% in 2009 and is now among the lowest in the region. In Iceland call termination is only offered at the local level.

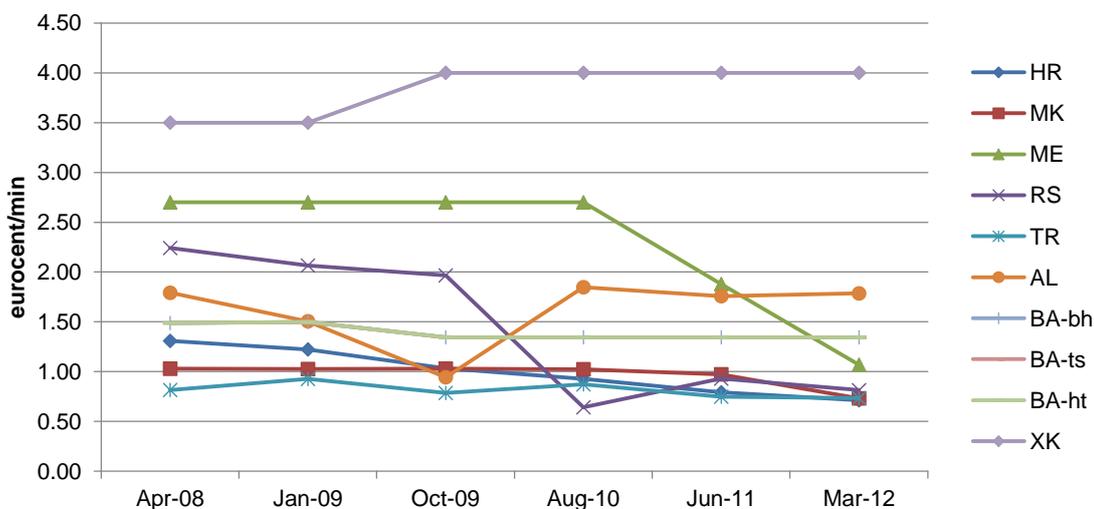


Figure O.2 – Single transit call termination charges on the incumbent’s fixed network, peak time

At the double transit level, Turkey, Macedonia and Serbia are the only countries with rates below 1 eurocent and close to the EU average of €0.80. Rates remain considerably higher than EU average in Albania, Bosnia and Herzegovina and in Croatia. In Serbia the incumbent’s double transit termination charge decreased by 70% from October 2009.

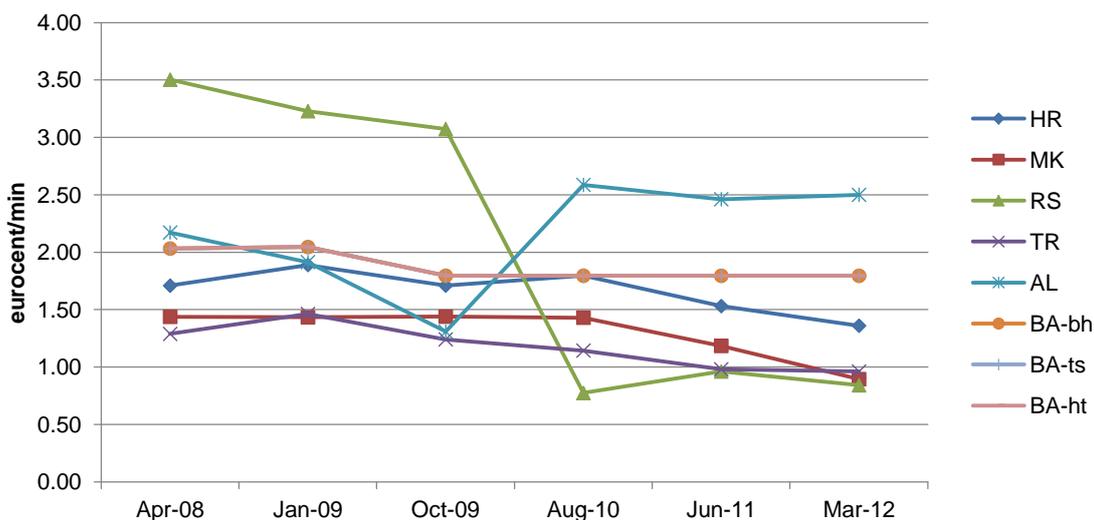


Figure O.3 – Double transit call termination charges on the incumbent’s fixed network, peak time

Figure O.4, Figure O.5 and Figure O.6 below show call termination charges on the fixed networks of the incumbent and the major alternative operator in the monitored countries, in comparison with the EU average values according to the BEREC report<sup>10</sup>.

<sup>10</sup> Body of European Regulators for Electronic Communications (BEREC) ‘Termination Rates Benchmark Snapshot (January 2012)’ [http://erg.eu.int/doc/bor\\_12\\_56\\_tr\\_integrated\\_snapshot\\_final.pdf](http://erg.eu.int/doc/bor_12_56_tr_integrated_snapshot_final.pdf)

In Iceland, the alternative operators' fixed termination rates are set at the level slightly above the incumbent's local call termination. Call termination is only offered at the local level. In Turkey and Albania asymmetries are more significant. In Croatia, Montenegro, and Kosovo alternative operators interconnect only at the single transit level. In Macedonia alternative operators interconnect at the double transit (national) level.

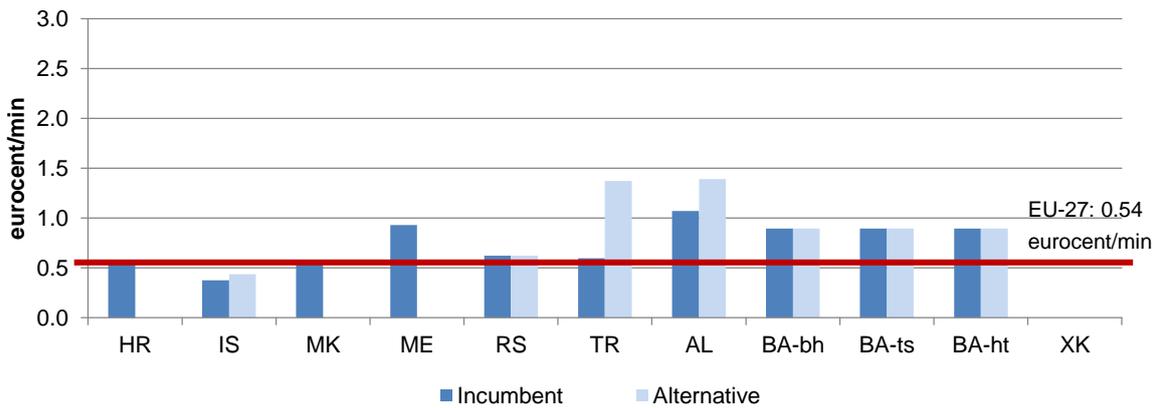


Figure O.4 – Local call termination on the fixed incumbent and alternative network, March 2012

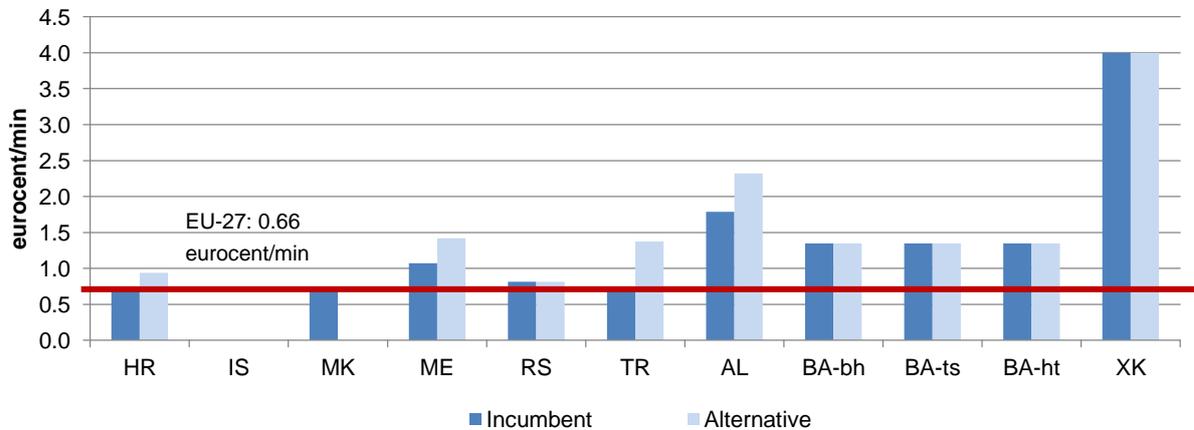


Figure O.5 – Single transit call termination on the fixed incumbent and alternative network, March 2012

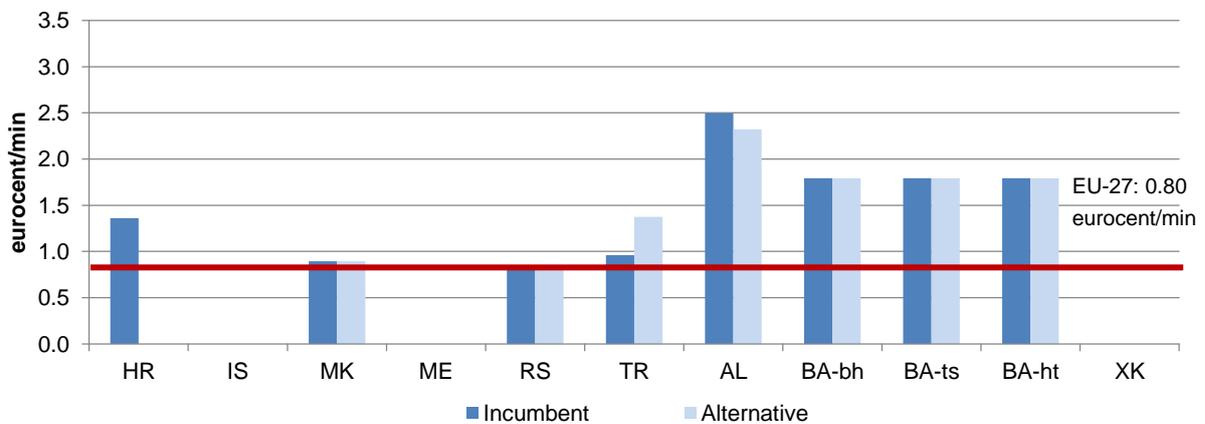


Figure O.6 – Double transit call termination on the fixed incumbent and alternative network, March 2012

## 2. Call termination on mobile networks

Call termination charges on mobile networks in the monitored countries remain significantly higher than fixed network termination charges. At the same time, similar to the EU, mobile termination rates in these countries have been subject to substantial reductions over the last few years.

BEREC report on fixed and mobile termination rates in the EU as of January 2012, the simple average for EU stands at 4.03 €cents per minute<sup>11</sup>.

Figure O.7 illustrates the developments in mobile termination rates in the monitored countries between 2008 and 2012. Where there are several mobile operators in a country with different termination rates, the lowest rate is presented that usually corresponds to the largest mobile operator. In most of the countries, mobile operators apply the same termination charges regardless of whether the terminated call originates on a national fixed or mobile network. In Bosnia & Herzegovina, it appears that there is no direct interconnection between the mobile networks and all calls are terminated through the fixed networks. The differences between fixed to mobile and mobile to fixed termination rates are further addressed in Figure O.8.

In all of the countries, mobile operators do not differentiate between peak and off-peak termination rates.

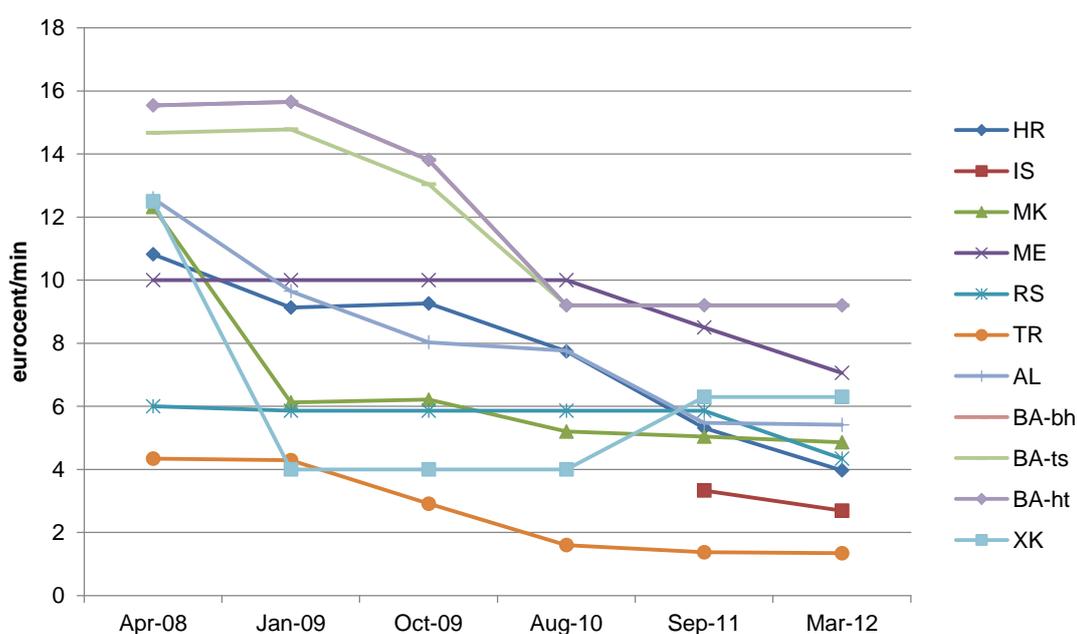


Figure O.7 – Fixed to mobile termination rates, peak time

Over the last few years, mobile termination rates have decreased in all countries. From September 2011, MTR reductions were implemented in Croatia (24%), Iceland (18.2%), Macedonia (depending on operator, from 3 to 15%), Montenegro (24.7%), Serbia (9.5%) and Albania (14.4%). Kosovo is the only country where MTRs increased, from €4 to €6.8 per minute (an increase of 57%).

The figure below shows the mobile termination rates of all mobile operators in the monitored countries as of March 2012. Mobile termination rates of all operators in Iceland and Turkey are set at the level below the EU average. In Croatia the rates of the biggest operators are slightly below the EU average, while for Tele2 MTRs are slightly above. At the same time, in Bosnia and Herzegovina, Macedonia, Kosovo and Montenegro fixed to mobile termination rates are significantly above the EU average level.

<sup>11</sup> Body of European Regulators for Electronic Communications (BEREC) 'Termination Rates Benchmark Snapshot (January 2012)' [http://erg.eu.int/doc/bor\\_12\\_56\\_tr\\_integrated\\_snapshot\\_final.pdf](http://erg.eu.int/doc/bor_12_56_tr_integrated_snapshot_final.pdf)

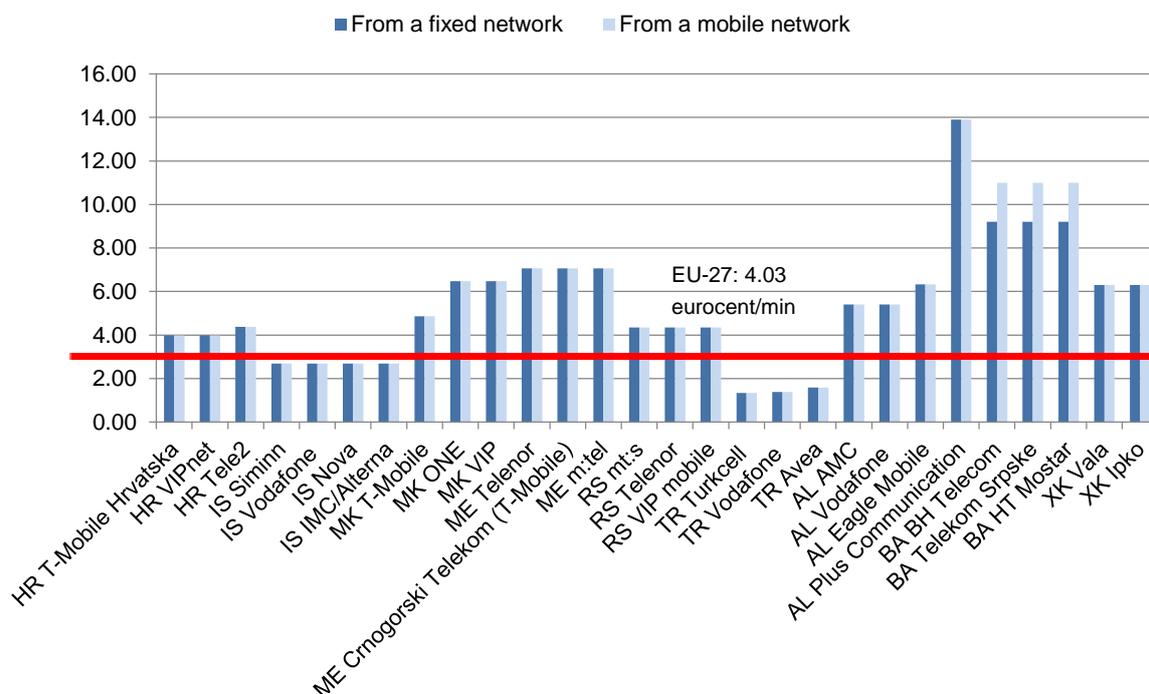


Figure O.8 – Mobile termination rates, peak time, March 2012

### 3. Local loop unbundling charges

Local loop unbundling prices have been set by regulators in most of the monitored countries, except Kosovo, although actual implementation of LLU is still limited to four countries: Croatia, Iceland, and, to a lesser extent Turkey and Macedonia.

Figure O.9 and Figure O.10 below compare the one-off connection charges and monthly rental prices for full and shared LLU access in the monitored countries and the EU-27 averages as of October 2011, according to the Digital Agenda Scoreboard report 2012.<sup>12</sup> The connection charges in Croatia, Iceland, Turkey, Macedonia and Albania are well below the EU average, while in Serbia, Montenegro and Bosnia & Herzegovina price levels are comparable to the EU level.

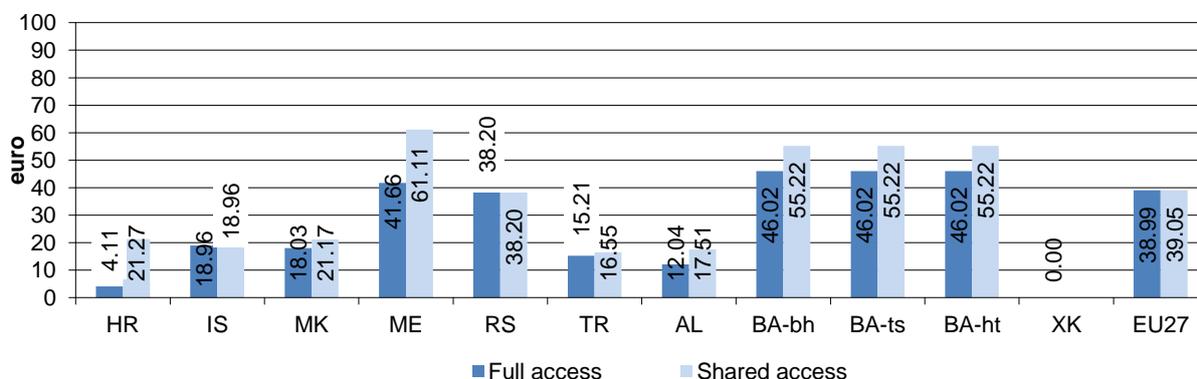
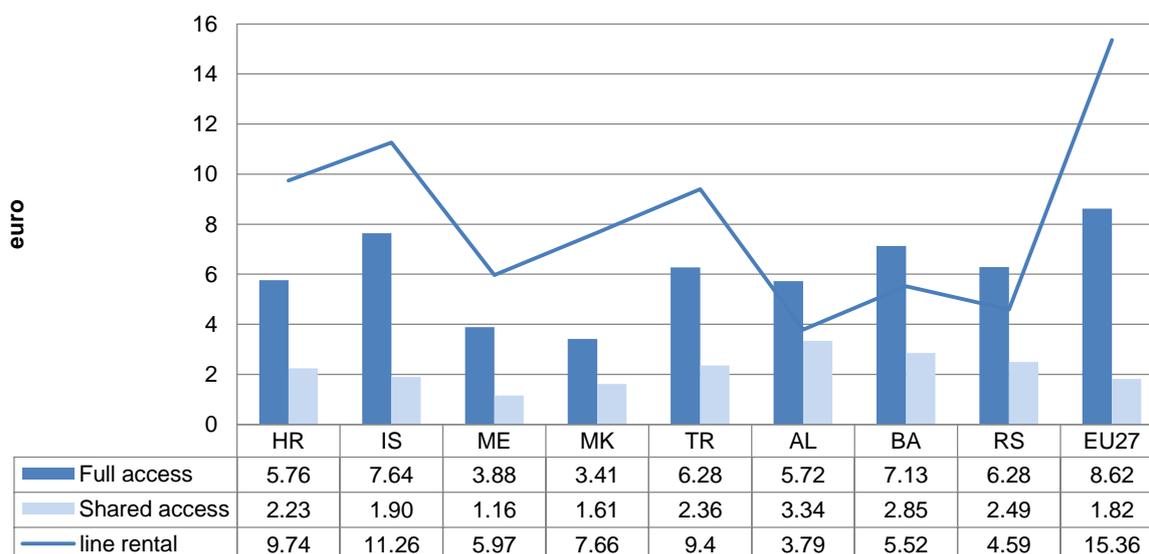


Figure O.9 – Connection prices for fully unbundled loop and shared access, March 2012

Monthly rental charges in all monitored countries, for both full and shared LLU access are set at the levels close to the EU average.

It should be noted, however, that in three of the monitored countries, including Serbia, Albania and Bosnia & Herzegovina, full LLU monthly prices tend to be higher than line rental charges, a situation which might affect take-up of LLU.

<sup>12</sup> [http://ec.europa.eu/information\\_society/digital-agenda/scoreboard/docs/pillar/electronic\\_communications.pdf](http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/pillar/electronic_communications.pdf)


 Figure O.10 – Monthly rental prices for fully unbundled loop and shared access, March 2012<sup>13</sup>

## P. Fundamental rights and freedoms

The adoption of the EU 2009 regulatory framework raised a new discussion on fundamental rights and freedoms in the information society. A controversy between European Parliament and the Council on amendment 138 (renumbered 46 in second reading) delayed adoption of the package. The text, which was finally agreed in the conciliation procedure, became law as new article 1 para. 3a of the Framework Directive: *“Measures taken by Member States regarding end-users’ access to, or use of, services and applications through electronic communications networks shall respect the fundamental rights and freedoms of natural persons as guaranteed by the European Convention for the Protection of Human Rights and Fundamental Freedoms and general principles of Community law.”* In particular, measures that would restrict end-users access to services and applications may only be imposed if they are *“appropriate, proportionate and necessary within a democratic society”* and duly respect *“the principle of the presumption of innocence and the right to privacy”*.

Issues which have been controversial in several EU member states include the following:

- Laws or proposed bills that would restrict certain end-users’ rights to access the internet, in particular end-users who repeatedly infringed copyright laws.

In this context it is being discussed whether such laws interfere with fundamental rights, in particular whether the law puts the burden of proof on the end-user and whether the applied procedure respects the rights of innocent end-users who might suffer the consequences of misconduct carried out by other users of the same account.

According to the new provision in the Framework Directive, the procedure before blocking a person is not necessarily to be taken by a judge, but it must be fair and impartial and must include the right to be heard of the persons concerned (except in urgent cases). After the decision, the right to effective and timely judicial review shall be guaranteed.

- Laws or proposed bills that would restrict end-users’ rights to access certain websites, in particular if these websites contain illegal content.

In this context it is discussed how the applied procedures differentiate between legitimate and illegal content, how to supervise the administration of the blacklist of blocked websites and how blocked users and content providers can appeal decisions. It is particularly problematic to deal with websites that contain a large amount of legitimate content and only singular illegal files (for example the popular video portals), because any decision to block access to the illegal content can interfere with many innocent users’ fundamental rights.

<sup>13</sup> EU-27 line rental charges as of Oct. 2010. LLU prices as of Oct. 2011

## 1. Constitutional rights

All monitored countries have constitutional guarantees for the freedom of expression and the right to respect for private and family life.

There is not much case law of the constitutional courts, but the constitutional courts in Macedonia and Serbia adopted interesting decisions on lawful interception and data retention issues. The Turkish Constitutional Court has adopted several judgments on freedom of expression.

On December 15, 2010 the Constitutional Court of Macedonia adopted a decision (case 139/2010) which repealed several provisions in the law on electronic communications that granted public authorities the right to intercept and to access retained data. However, the judgment did not repeal operators' obligation to retain traffic data for a period of 24 months (see chapter U.3 below).

The Constitutional Court of Serbia adopted two judgments which clarified that each form of surveillance of electronic communications needs court approval:

- In 2009 the court repealed a provision in the previous Law on telecommunications, which allowed interception not only under court orders but also under other (unspecified) laws (case IUz 149/2008).
- In 2012 the court repealed provisions in the Law on Military Security and Intelligence Agency, which granted the Military Security Agency access to retained traffic data without court order. The court did not repeal the provisions on data retention in the Law on electronic communications. These provisions had also been challenged, but the court found it sufficient to repeal the provisions in the other law. (Case IUz-1218/2010, April 19, 2012).

## 2. Freedom of expression and information on the internet

Turkish Law no. 5651<sup>14</sup>, which was enacted on May 4, 2007, is the only law in the monitored countries, which foresees a mechanism to block access to certain websites.

The law contains a catalogue of eight different crimes: provocation for committing suicide, sexual exploitation of children, facilitating the use of narcotics or psychotropic substances, procurement of hazardous material for health, prostitution, pornography, providing a place and possibilities for gambling and crimes against the Atatürk-Law no. 5816.

If there is a reasonable suspicion of content which constitutes one of the crimes listed in this catalogue, a decision to block access can be adopted by a judge during the prosecution or by a court during the trial. In urgent cases, a public prosecutor can also decide to block access for 24 hours, pending approval by a judge.

Separately, the Telecommunication Communications Presidency, which is part of the regulator ICTA, can ex officio block the access to a certain web site as an administrative precaution.

The law does not contain a mechanism that would ensure proportionality of the blocking orders and it is therefore possible that a large video portal is blocked because singular videos were found as infringing the law. In particular in 2010 Turkey was widely criticised for blocking popular video portals such as YouTube, Geocities, DailyMotion and Google.<sup>15</sup>

It seems that Turkey has stepped back from blocking widely popular websites. However, the number of blocked website seems to be still increasing at a very high level. The Telecommunication Communication Presidency is not publishing official numbers. The website [engelliweb.com](http://engelliweb.com) lists 18,912 blocked websites as of June 2012.

According to the European Commission's last progress<sup>16</sup> report, there "*are still frequent website bans of disproportionate scope and duration*". The Commission criticised in particular that the Telecommunication Communications Presidency is not publishing numbers, which it found against the

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<sup>14</sup> Law on the regulation of publications on internet and suppression of crimes committed by means of such publications, Law no. 5651, dated May 4, 2007

<sup>15</sup> Organization for Security and Co-operation in Europe, Report of the OSCE Representative on Freedom of the Media on Turkey and Internet Censorship, January 2010, <http://www.osce.org/fom/41091>, see also the press release of June 22, 2010, <http://www.osce.org/fom/69467>.

<sup>16</sup> Turkey 2011 Progress Report, SEC(2011)1201, page 27

Law on the right to information, also the court cases still going on against Youtube and other video portals.

A draft law<sup>17</sup> to transpose the Electronic Commerce Directive has been submitted to parliament in 2010, but has not been adopted yet. The law would however not change the liability of internet service providers significantly, and would not amend Law no. 5651.

In 2011 ICTA adopted Principles and procedures concerning the safe internet service<sup>18</sup>, which introduced an internet access filtering system based on a 'child profile' and a 'family profile'. The plan was criticised strongly. Taking account of the criticism, the finally adopted version is mandatory for internet service providers, but for subscribers it is voluntary on opt-in basis. Internet access remains unfiltered for subscribers that do not opt-in. Subscribers who have opted in may switch between the profiles and opt out at any time.

## Q. Information society statistics

A Council Resolution<sup>19</sup> of 2003 and a Regulation<sup>20</sup> of the European Parliament and the Council adopted in 2004 defined indicators and required member states to collect certain information in order to measure progress toward the objectives defined in Lisbon in March 2000 and later in the eEurope action plan of 2002. The collected data are published regularly by Eurostat.<sup>21</sup> The eEurope benchmarking is being further developed under the i2010 benchmarking framework<sup>22</sup>, currently as the i2010 benchmarking framework for 2011 to 2015. Commission Regulations adjust the legal framework annually.<sup>23</sup>

### 1. Status of information society statistics

In all of the monitored countries, the national statistics institutes are responsible for information society indicators. The quality of available data depends on whether the statistics institutes apply Eurostat methodology. This is now the case in six of the monitored countries, whereas for the other three almost no statistical data is available.

- Croatia, Iceland, Macedonia and Turkey collect data in comprehensive annual surveys and their statistics are integrated with Eurostat<sup>24</sup> data and publications. Table Q.1 of Annex 1 contains detailed information about the data available for the years 2009 to 2011.
- Serbia collects data with the same methodology and also on annual basis, but the statistics are not published by Eurostat. Table Q.1 of Annex 1 contains data from the Statistical Office of the Republic of Serbia, also for the years 2009 to 2011.
- Montenegro has started regular research based on Eurostat methodology in October 2011. Table Q.1 of Annex 1 contains data from the Statistical Office of Montenegro (MONSTAT) for 2011.
- Albania and Bosnia & Herzegovina have announced that their statistics institutes will gather data based on Eurostat methodology.
- Kosovo has not yet reported concrete plans to integrate its statistics with Eurostat methodology.

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<sup>17</sup> The draft law is published at <http://www.basbakanlik.gov.tr/Handlers/FileHandler.ashx?FileId=6593> (in Turkish).

<sup>18</sup> See [http://www.btk.gov.tr/mevzuat/kurul\\_kararlari/dosyalar/2011%20DK-14-461.pdf](http://www.btk.gov.tr/mevzuat/kurul_kararlari/dosyalar/2011%20DK-14-461.pdf) (in Turkish and English).

<sup>19</sup> Council Resolution of February 18, 2003 on the implementation of the eEurope 2005 Action Plan, 2003/C 48/02

<sup>20</sup> Regulation (EC) No 808/2004 of the European Parliament and the Council of April 21, 2004 concerning Community statistics on the information society; amended by Regulation (EC) No 1006/2009

<sup>21</sup> See the Information society statistics, a sub-category of the theme Industry, Trade and Services:

[http://epp.eurostat.ec.europa.eu/portal/page/portal/information\\_society/introduction](http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/introduction)

<sup>22</sup> [http://ec.europa.eu/information\\_society/eeurope/i2010/benchmarking/index\\_en.htm](http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm)

<sup>23</sup> See Commission Regulations (EC) No 1099/2005, 1031/2006, 847/2007, 960/2008, 1023/2009, 821/2010 and 937/2011.

<sup>24</sup> <http://epp.eurostat.ec.europa.eu/>

## 2. Selected statistical data

For many of the available statistical indicators, Croatia, Macedonia, Montenegro, Turkey and Serbia are below the EU-27 average but above Bulgaria and Romania. Iceland can be compared with Denmark and Sweden and is generally far above the EU-27 average.

The following figures show households and enterprises having access to broadband and individuals regularly using the internet. For comparison, the figures include Bulgaria, Romania, Greece, Denmark, Sweden and the EU-27 average.

Horizontal lines show the key performance targets of the Digital Agenda for Europe<sup>25</sup>.

With regard to internet usage the Digital Agenda sets the target to increase regular internet usage from 60% to 75% by 2015, and from 41% to 60% among disadvantaged people. In Croatia and Macedonia regular internet usage is above 50% and above neighbouring EU member states. In Montenegro, Serbia and Turkey the internet usage is comparable to that of Bulgaria and Romania.

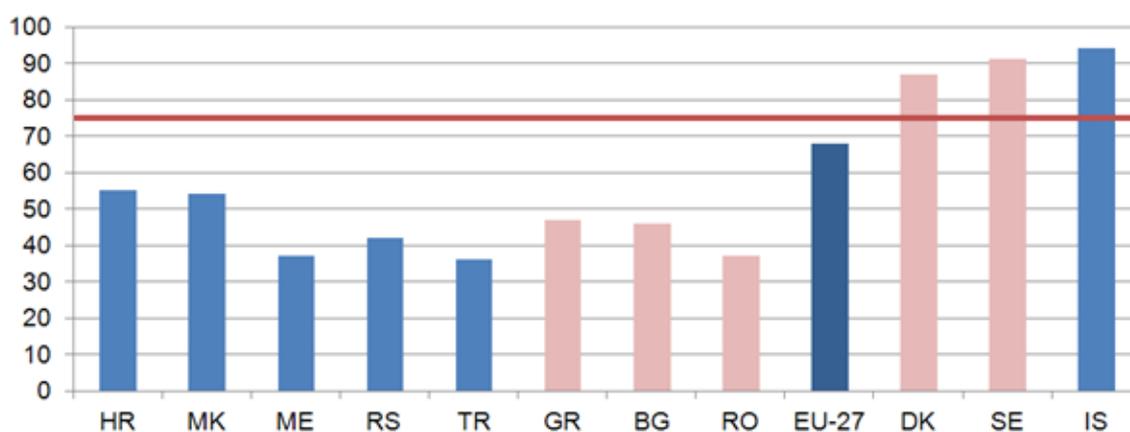


Figure Q.1 – Individuals regularly using the internet (Eurostat/statistical offices 2011)

The Digital Agenda envisages halving the proportion of population that has never used the internet from 30% to 15% by 2015. All monitored countries except Iceland are well above this target. In Iceland only 4% have never used the internet.

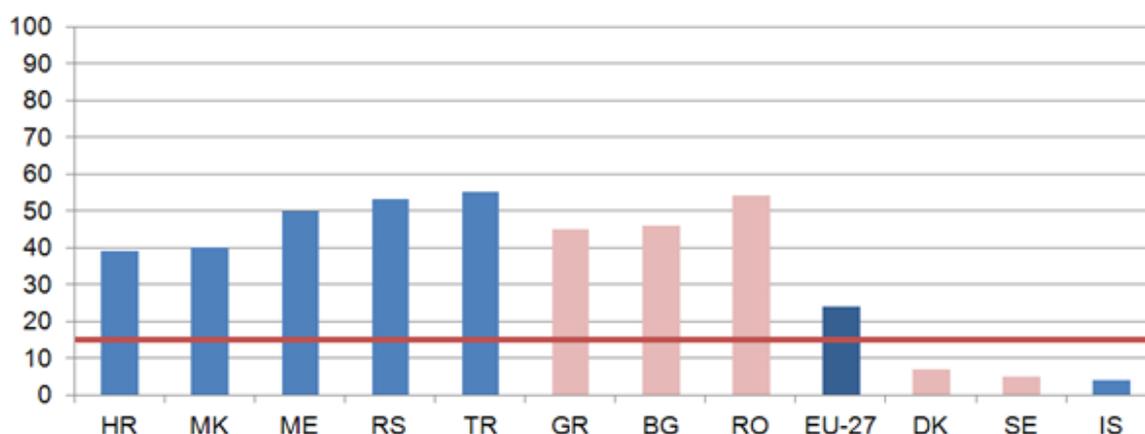


Figure Q.2 – Individuals never having used the internet (Eurostat/statistical offices 2011)

<sup>25</sup> See the Commission staff working paper on the Digital Agenda Scoreboard, May 2011, [http://ec.europa.eu/information\\_society/digital-agenda/scoreboard/docs/scoreboard.pdf](http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/scoreboard.pdf)

50% of EU citizens should use eGovernment by 2015, with more than half of them returning filled-in forms. The comparison with Greece and Bulgaria shows that there would be a higher potential for eGovernment usage even in countries with comparably low overall internet usage.

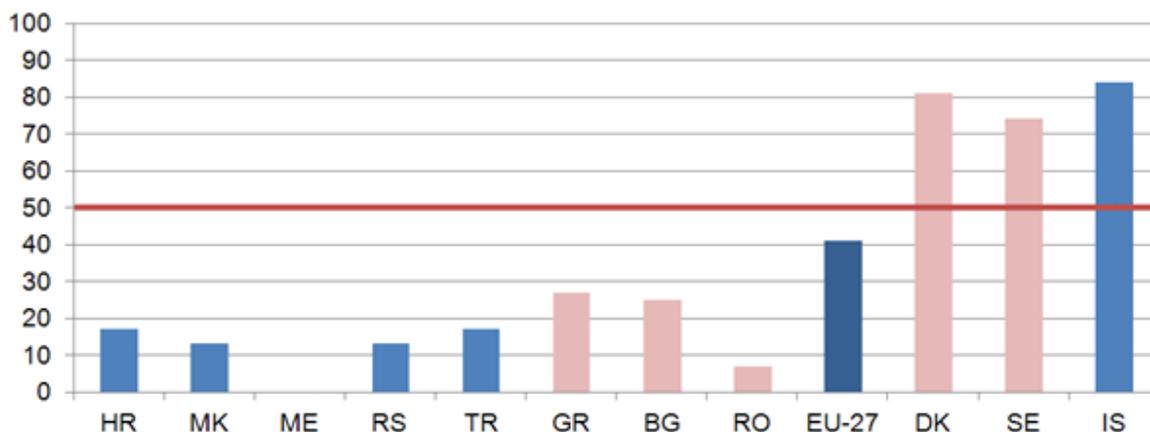


Figure Q.3 – Individuals using the internet for interaction with public authorities (Eurostat/statistical offices 2011)

Another Digital Agenda target is that 50% of the population should buy online by 2015, with 20% buying cross-border. This indicator is particularly low in all monitored countries, even in Iceland.

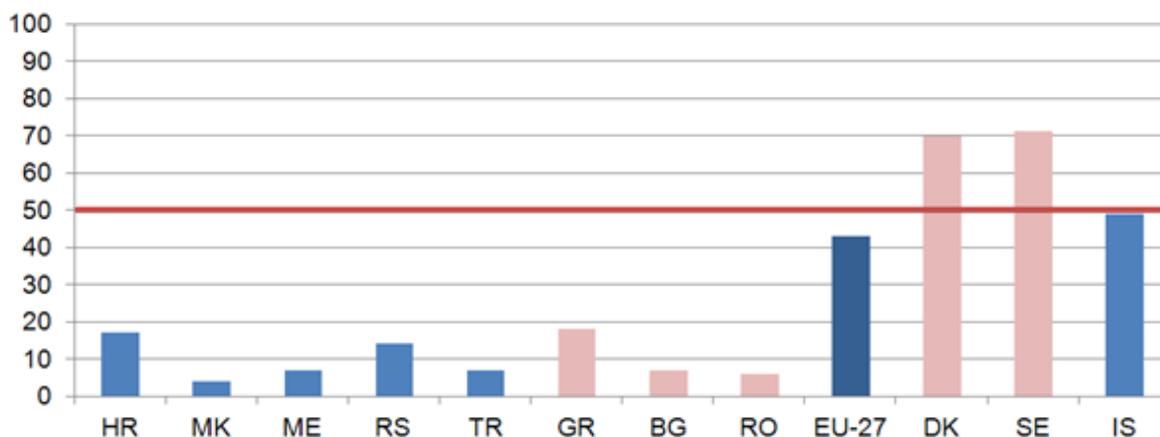


Figure Q.4 – Individuals using the internet for ordering goods or services (Eurostat/statistical offices 2011)

About 40% to 60% of households in the monitored SEE countries have internet access at home. This is comparable with the EU-27 average in the years 2004 (41%) to 2008 (60%). Iceland has a particularly high rate of households connected to the internet 93%. Only the Netherlands reported a higher rate in 2011 (94%).

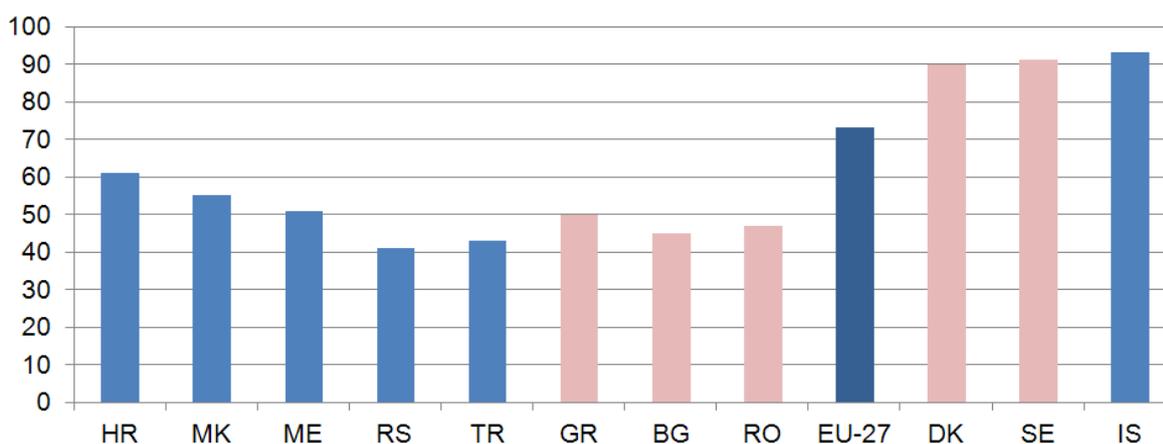


Figure Q.5 – Households with internet access at home (Eurostat/statistical offices 2011)

Looking at broadband access there is slightly different picture in Macedonia, Serbia and Romania, where a small part of households (between 5% and 10% of total internet users) access internet using a narrowband connection. In all other countries the number of households with the internet access is almost identical to the number of households with broadband access.

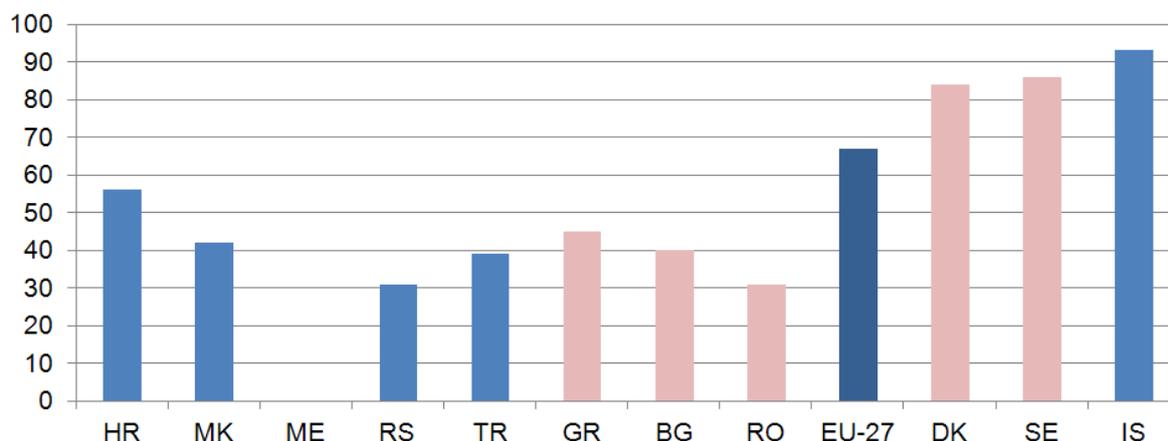


Figure Q.6 – Households with broadband access (Eurostat/statistical offices 2011)

In all monitored countries where data is available a broad majority of enterprises uses fixed broadband. Turkey reports a particularly high number (91%), above the EU-27 average.

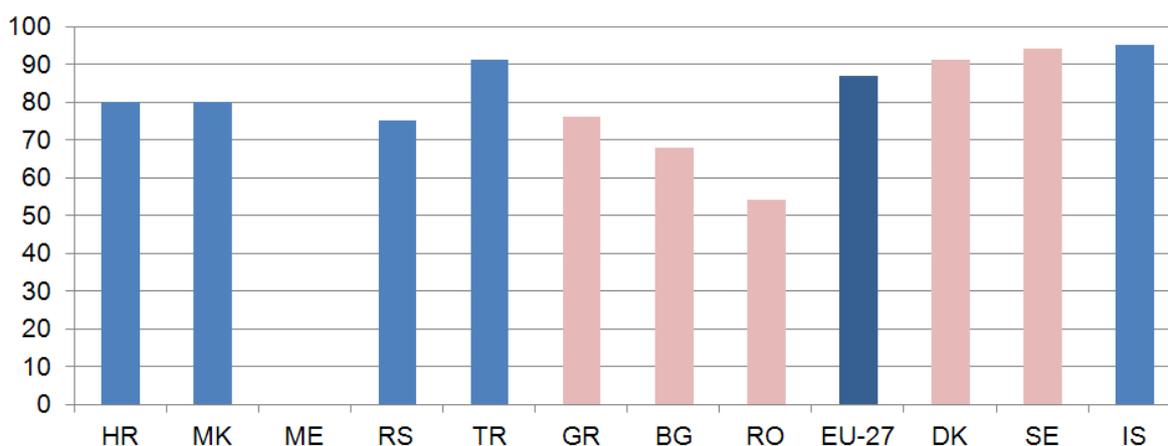


Figure Q.7 – Enterprises with fixed broadband access (Eurostat/statistical offices 2011)

## R. Network and information security

To address security challenges to the information society, the European Union institutions have developed several lines of action:

- The EU regulatory framework for electronic communications requires providers of public communications networks and services to safeguard network security (articles 13a and 13b Framework Directive) and the security of processing personal data (article 4 e-Privacy Directive). The e-Privacy Directive also deals with specific questions such as spam and cookies.
- Computer crime has been identified as an area of serious crime with a cross-border dimension that needs combat on a common basis (article 83 TFEU). The Council adopted a framework decision<sup>26</sup> which echoes the Council of Europe Convention on Cybercrime. The European

<sup>26</sup> Council Framework Decision [2005/222/JHA](#) of February 24, 2005 on attacks against information systems.

Parliament and the Council are currently debating to replace the framework decision by a directive.<sup>27</sup>

- The European Network and Information Security Agency (ENISA) is established<sup>28</sup> as an institutionalised means of cooperation between member states. Its tasks include the collection of information, the analysis of current and emerging network risks, the development of common methodologies and the promotion of exchanges of best practices as well as methods of alert.
- The Commission proposed<sup>29</sup> an action plan on Critical Information Infrastructure Protection (CIIP) to protect Europe from large scale cyber-attacks and disruptions and enhance preparedness, security and resilience. The action plan calls for establishing Computer Emergency Response Teams (CERTs) in all member states. Member states cooperate in an European Forum for Member States (EFMS, established in 2009) and cooperation between public and private sector is supported by the European Public-Private Partnership for Resilience (EP3R).

The EU 2009 regulatory framework significantly enhanced the competent national authorities' role in network security. The new articles 13a and 13b of the Framework Directive require operators to take appropriate measures to secure their networks and ensure the continuity of supply of service. Security breaches must be notified to the NRA, which has to report annually to ENISA. The NRA may submit operators to a security audit.<sup>30</sup>

Amendments to article 4 of the e-Privacy Directive enhance the protection of personal data and the role of the relevant national authorities (which are not necessarily identical with the NRAs). National authorities shall be able to audit the security measures taken by service providers. Providers will be obliged to notify the authority and affected subscribers or individuals in case of a personal data breach.

## 1. Network security obligations for providers of communications services

As explained above, the new articles 13a and 13b of the Framework Directive oblige operators to secure their networks and to ensure continuity of supply of service.

All participating countries have a provision in their primary laws, or in a secondary legislation – in Turkey, which require operators to undertake such network security measures.

However, all those provisions – except the newly amended Croatian law – have been drafted before the EU 2009 regulatory framework and are therefore less detailed.

Most countries use a wording that requires “*appropriate*” technical and organisational measures, sometimes also referring to the expected risks or allowing the operators to weigh the risks against the costs of security measures.

Turkey and Iceland have detailed rules in secondary legislation and oblige operators to implement information security management systems according to defined standards.

In Iceland, PTA adopted in 2007 a set of three rules on the protection of information in public communications networks<sup>31</sup>, the functionality of public communications networks<sup>32</sup> and the protection, functionality and quality of IP communications services<sup>33</sup>. The rules apply to all providers of public communications networks or services without regard of their size.

The rules are very detailed and require operators to conduct a risk assessment, to prepare business continuity plans and to publish their security policy. Information security management may be based on

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<sup>27</sup> On September 30, 2010 the Commission adopted a [Proposal](#) for a Directive of the European Parliament and of the Council on attacks against information systems and repealing Council Framework Decision 2005/222/JHA, COM(2010) 517 final. First reading in the plenary of the European Parliament is scheduled for July 2012.

<sup>28</sup> ENISA has been established by Regulation (EC) [460/2004](#) and its mandate has been extended by Regulation (EC) [1007/2008](#) and another time by Regulation (EC) [580/2011](#).

<sup>29</sup> Commission Communication of March 30, 2009, [COM\(2009\)149 final](#), followed by a Communication on March 31, 2011, [COM\(2011\) 163 final](#).

<sup>30</sup> ENISA published in December 2011 a [Technical Guideline on Minimum Security Measures](#) and a [Technical Guideline on Reporting Incidents](#). Both are non binding and were developed in cooperation with NRAs.  
<http://www.enisa.europa.eu/activities/Resilience-and-CIIP/Incidents%20reporting>

<sup>31</sup> <http://www.pfs.is/file.aspx?id=1871>

<sup>32</sup> <http://www.pfs.is/file.aspx?id=1872>

<sup>33</sup> <http://www.pfs.is/file.aspx?id=1873>

the standard ISO/IEC 27001 and ISO/IEC 17799. The rules also contain several provisions which go into technical details, for example the configuration of mail servers.

The Turkish bylaw on security of electronic communications adopted in 2008 also obliges operators to implement information security management systems, according to the standard ISO/IEC 27001. Operators must be audited and certified annually on the basis of this standard. The bylaw also requires operators to conduct an annual risk assessment analysis and to report the results of this analysis to the regulator. However, in Turkey these rules apply only to equity companies which provide electronic communications networks or services.

The standard ISO/IEC 27001 is currently the most important standard on information security management. It replaced the former ISO/IEC 17799 standard, which was based on the widely used British Standard BS 7799. Such standards on information security management require organisations to implement a high level management committee with responsibility for information security issues. A written security policy should be accessible to all employees. The standards usually refrain from specifying certain technical measures, but contain long lists of topics that should be taken into account by the management and addressed by the security policy in order to achieve an appropriate level of protection.

Besides Croatia, Iceland, Serbia, Turkey and Kosovo also have provisions in their laws that allow the NRA to audit operators' security measures. In Macedonia, Montenegro, Albania and Bosnia & Herzegovina there is no explicit provision on such audits, although it might be possible that the NRA uses some general supervision powers from the law.

Article 13a of the Framework Directive requires operators to notify the NRA in case of significant security breaches. Such provisions can already be found in the laws of Croatia, Iceland, Montenegro, Serbia, Turkey and Bosnia & Herzegovina, as well as in the draft law that is about to be adopted in Kosovo.

The number of Computer Emergency Response Teams (CERTs) is increasing, although only in Croatia and Turkey, which have CERTs operating since several years, the CERTs are also operating websites with frequent updates, alerts and security advice.<sup>34</sup>

- In Iceland and Serbia, academic institutions operate CERTs and are connected with ENISA<sup>35</sup> and other international institutions<sup>36</sup>, but do not operate websites addressed to the general public.<sup>37</sup> The Icelandic regulator PTA has recently established a new CERT team based on amendments to the Electronic communications act in spring 2012.
- Montenegro and Bosnia & Herzegovina established CERTs in 2011 and Albania has recently established a National Cyber Security Agency (ALCIRT). All three are not yet included in ENISA's inventory.
- In Kosovo the new Law on electronic communications will give TRA the task to operate a CERT.
- Macedonia has not reported a plan to establish a CERT.

## 2. Security of processing personal data

According to article 4 of the amended e-Privacy Directive (2002/58/EC), all providers of publicly available electronic communications services must take "*appropriate technical and organisational measures*" to safeguard security of their services. This is a general provision which does not prescribe specific security measures, but refers to the "*state of the art*", the costs of implementation and a level of security "*appropriate to the risk presented*".

The EU 2009 regulatory framework introduced significant amendments. Providers are now obliged to notify personal data breaches to the competent national authority. If the personal data breach is likely to adversely affect the personal data or privacy of subscribers or individuals, the provider shall also inform the subscribers and individuals affected.

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<sup>34</sup> Croatia: CARNET [www.cert.hr](http://www.cert.hr) and Turkey: TR CERT: [www.tr-cert.gov.tr](http://www.tr-cert.gov.tr) and [www.bilgiguvenligi.gov.tr](http://www.bilgiguvenligi.gov.tr).

<sup>35</sup> ENISA maintains an inventory of CERTs all over Europe: <http://www.enisa.europa.eu/act/cert/background/inv>

<sup>36</sup> See in particular TERENA's trusted introducer mailing list, <http://www.terena.org/activities/tf-csirt/> and [https://www.trusted-introducer.org/teams/country\\_LICSA.html](https://www.trusted-introducer.org/teams/country_LICSA.html)

<sup>37</sup> Iceland: RHnet [www.rhnet.is](http://www.rhnet.is) and Serbia: AMRES-CSIRT [csirt.amres.ac.rs](http://csirt.amres.ac.rs).

All monitored countries have adopted the provisions of article 4 of the e-Privacy Directive (in its original version) into their national legislation, where it can typically be found in the law on electronic communications.

In Iceland, Turkey and Albania the body responsible for supervision is the NRA, rather than the data protection authority. In Macedonia, Montenegro, Bosnia & Herzegovina and Kosovo the data protection authority is responsible for supervision. In Croatia and Serbia, both authorities have supervisory powers. In Albania the two authorities have signed a memorandum of understanding.

Most countries have transposed the provision in the general form of the e-Privacy Directive, i.e. they require “appropriate” measures without specifying details. In Kosovo the Law on the protection of personal data is more specific and suggests encrypting personal data before transmitting them over telecommunications networks.

The amended directive contains detailed provisions on notifying the affected subscribers and/or the responsible authority in case of personal data breaches. No country except Croatia has already an exact transposition of the new provisions, but some have already similar rules:

- In Iceland, operators must inform the customers if confidentiality is seriously jeopardised. They also must report security incidents to Computer Security Incidents Response Teams (CSIRTs), which are coordinated by PTA.
- In Serbia, operators must notify personal data breaches to the data protection authority, and, under conditions, also to the subscribers and individuals affected by the breach.
- In Turkey operators must inform the affected subscribers, but there is no explicit obligation to notify personal data breaches to an authority.
- In Montenegro there is an obligation to inform the NRA and the users, but the provision refers to problems with the “security of communications” and not to personal data breaches.
- In Macedonia, Albania, Bosnia & Herzegovina and Kosovo there is no explicit obligation to notify, neither an authority nor affected subscribers.

The amended directive also requires member states to entitle competent authorities to audit operators’ security measures.

- In Croatia, Iceland, Macedonia, Serbia, Turkey and Kosovo the NRA or the data protection authority have powers to audit the security measures.
- In Montenegro, Albania and Bosnia & Herzegovina there is no explicit provision allowing a national authority to audit personal data security measures, although it might be possible that the NRA or the data protection authority can use some general inspection powers for that purpose.

### 3. Cybercrime

This report analysed, whether the participating countries have ratified and transposed into national legislation the Council of Europe Convention on Cybercrime.

Turkey signed the convention in 2010. It has not yet ratified the convention, but the Turkish legislation has been aligned with it. Kosovo has not ratified the convention, but adopted in 2010 a law to transpose it into national legislation. All other participating entities have ratified the convention.

All countries except Bosnia & Herzegovina have aligned their legislation with the convention. In Bosnia & Herzegovina there is no cyber crime legislation at state level, but at entity level the Republika Srpska has some cyber crime provisions in its criminal code.

In Montenegro and Serbia, the criminal code does not consider computer-related forgery as a crime. Iceland amended its General Penal Code before it ratified the convention, but it did not transpose all provisions. There is no provision that punishes system interference as criminal offences. The provision on illegal access protects private data like letters or diaries, but does not seem to protect the data of a company.

The table below shows whether specific acts are considered to be criminal offences, based on the list in the Convention on Cybercrime. Where the table shows a check mark, we could identify a certain provision in the criminal code or some other national law, which matches a provision in the Convention

on Cybercrime, although it might not exactly cover the same crimes. Where the table shows an X, we could not identify such a provision.

|   | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|---|----|----|----|----|----|----|----|----|----|
| Illegal access  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| Illegal interception  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| Data interference   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| System interference   | ✓  | ✗  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| Computer-related forgery  | ✓  | ✓  | ✓  | ✗  | ✗  | ✓  | ✓  | ✗  | ✓  |
| Computer-related fraud  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| Offences related to child pornography                             | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| Offences related to infringements of copyright and related rights | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| ✓ is a criminal offence, ✗ is not a criminal offence              |    |    |    |    |    |    |    |    |    |

Table R.1 – Computer related criminal offences

## S. Electronic commerce and electronic signatures

### 1. Market access and liability

The Electronic Commerce Directive 2000/31/EC established a general authorisation scheme for providers of information society services. It also supports such providers by limiting the providers' liability for actions of their customers.

- According to article 4 member states shall ensure that the taking up and pursuit of the activity of an information society service provider may not be made subject to prior authorisation or any other requirement having equivalent effect.
- Articles 12 to 14 exempt certain activities of internet service providers ('mere conduit', caching and hosting) from criminal and civil liability under certain conditions.
- According to article 15 member states shall neither impose on providers a general obligation to monitor the information they transmit or store nor a general obligation to actively seek facts or circumstances indicating illegal activity.

All monitored countries except Iceland and Turkey transposed these requirements into their national legislation.

Iceland adopted an Act on electronic commerce and other electronic services in 2002. Although the law is based on the directive, it is not a precise transposition. For example, the law does not explicitly state that providers of information society services are not obliged to monitor their subscribers or to seek for illegal activities. The law does not oblige providers to monitor, but it also does not protect providers from being obliged by other laws or court decisions.

In Turkey, a draft law has been sent to parliament in 2010, but has not been adopted yet. The new law would however not align the provisions on liability of ISPs. Whereas the Electronic Commerce Directive limits the liability of access providers ('mere conduit'), the Turkish Law no. 5651<sup>38</sup> obliges them to block access to websites if a court or the NRA has decided that the website constitutes a criminal offence (see chapter P on fundamental rights above).

The table below provides an overview of alignment with the mentioned provisions of the Electronic Commerce Directive:

<sup>38</sup> Law on the regulation of publications on internet and suppression of crimes committed by means of such publications, Law no. 5651, dated May 4, 2007

|  | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|--|----|----|----|----|----|----|----|----|----|
| No prior authorisation for information society services          | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  |
| Limited liability for 'mere conduit', caching and hosting        | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  |
| No obligation to actively monitor or seek for illegal activities | ✓  | ✗  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| ✓ transposed, ✗ not transposed                                   |    |    |    |    |    |    |    |    |    |

Table S.1 – Market access and liability of information society services

## 2. Market access and supervision of certification services

According to Article 3 of the Electronic Signatures Directive, member states

- shall not make the provision of certification services subject to prior authorisation;
- may introduce voluntary accreditation schemes aiming on enhanced levels of certification service provision; and
- shall ensure the establishment of a supervision scheme for certification service providers issuing qualified certificates.

The requirement not to make the provision of certification services subject to prior authorisation has been transposed in Croatia, Iceland, Montenegro, Albania and Kosovo. In Kosovo the directive has been transposed by the Law on the information society services of 2002, which has recently been replaced by a law with the same name that came into force in April 2012.

In the other countries, there are potential problems which might hinder market access:

- In Macedonia certification service providers must register their activity with the Ministry of Finance 30 days prior beginning of their operation. According to the registration process as it is currently defined in secondary legislation, providers must wait for finalisation of the registration procedure before being allowed to issue certificates.
- Serbia requires prior authorisation of providers of qualified electronic signatures. However, after adoption of new secondary legislation on the registration procedure, four providers issuing qualified certificates have entered the market.
- Although Turkey does not require prior authorisation, providers of qualified certificates must notify their services two months in advance, which is unusually long. In case of an incomplete notification the authority may suspend the activity of the provider for the duration of a month.
- In Bosnia & Herzegovina the law also does not require prior authorisation, but market access might be hindered by the fact that the law requires providers to notify their services to a supervision body which has not been established.

Croatia is the only monitored country with its own voluntary accreditation scheme; which has been established under the Croatian Accreditation Agency following a July 2008 amendment to the Electronic signature act. Establishing a voluntary accreditation scheme is, however, not required by the Electronic Signatures Directive and only about half of the EU member states have done so.

Supervision schemes have been established in Croatia (Ministry of Economy and State Inspectors' Office), Iceland (Consumer Agency), Macedonia (Ministry of Finance), Montenegro (Ministry for Information Society and Telecommunication), Serbia (Digital Agenda Administration), Turkey (Information and Communication Technologies Authority) and Albania (National Authority for Electronic Certification). In Bosnia & Herzegovina and in Kosovo no supervisory body has yet been established. However, the new law in Kosovo gives the Ministry of Economic Development the task to set up a supervisory body by secondary legislation.

### 3. Electronic signature market data

The available market data shows a picture similar to many other European countries: the legal framework for electronic contracts and electronic signatures exists, but there is little demand for certificates, at least for qualified certificates.

- In Croatia, the state-owned Financial Agency (Fina) is the only issuer of qualified certificates. As of end 2011 there have been 37,700 valid qualified certificates.
- In Iceland, one certification-service provider issues qualified certificates. About 100,000 certificates have been issued, and about half of this number is active (June 2011).
- In Macedonia, two certification-service providers issue qualified certificates, but no data on the number of certificates is available.
- In Montenegro, the Post of Montenegro has recently entered the market and is now the only provider issuing qualified certificates. 2,418 certificates have been issued so far (March 2012).
- Serbia has four providers issuing qualified certificates. The number of issued certificates is growing fast (from 3,200 to 10,000 in the last nine months), but still low.
- In Turkey, there are four certification-service providers that issue qualified certificates. The number of qualified certificates is also growing fast (from 315,000 to 452,000 in the course of 2011), but it is still a small number compared with the size of the country.
- The Albanian Post has started to issue qualified certificates, but no numbers are available yet.
- Bosnia & Herzegovina and Kosovo do not have a provider issuing qualified certificates.

Table S.2 below provides an overview of electronic signature regulations.

|   | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|---|----|----|----|----|----|----|----|----|----|
| <b>Legal recognition requirements on electronic contracts and electronic signatures transposed</b>  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| <b>Prior authorisation not required before market access</b>  | ✓  | ✓  | *  | ✓  | *  | *  | ✓  | *  | ✓  |
| <b>Supervision system established</b>   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✗  |
| <b>Voluntary accreditation scheme established</b>   | ✓  | –  | –  | –  | –  | –  | –  | –  | –  |
| <b>Number of certification-service providers issuing qualified certificates</b>   | 1  | 1  | 2  | 1  | 4  | 4  | 1  | –  | –  |
| ✓ = transposed/established, ✗ = not established although required by the Directive<br>– = not established, * = potential problems for market access |    |    |    |    |    |    |    |    |    |

Table S.2 – Electronic signature regulation and market data

## T. Data protection

### 1. Protection of confidentiality of communications

According to article 5 e-Privacy Directive 2002/58/EC, member states shall ensure the confidentiality of communications and the related traffic data through national legislation. In particular, they shall prohibit listening, tapping, storage or other kinds of interception or surveillance of communications and the related traffic data by persons other than users, without the consent of the users concerned, with the exception of lawful interception.

This requirement has usually been transposed in the electronic communications law, by a provision in the privacy chapter that prohibits interception, and a misdemeanour provision that defines the penalties for infringements. Sometimes the electronic communications law only prohibits operators or their staff from interception, but does not impose penalties on third parties who intercept a communication. Often,

a provision in the Criminal Code qualifies any form of illegal interception (whether it is the operator or somebody else) as a criminal offence.

Bosnia & Herzegovina is the only monitored country which does not have a provision against illegal interception. In Macedonia there are provisions in the Law on electronic communications and in the Criminal Code, though not all forms of illegal interception are covered. If somebody who is not an operator intercepts a communication that is not an audio conversation (for example, intercepting e-mails or SMS), this is not covered by either of the two provisions.

The table below shows whether the penalties are imposed on illegal interception by the operator and/or illegal interception by third parties.

|  | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|--|----|----|----|----|----|----|----|----|----|
| <b>Illegal interception by operators and their staff</b>   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| <b>Illegal interception by third parties</b>   | ✓  | ✓  | *  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| ✓ = legal provisions exist, * = legal provision does not cover all cases, ✗ = no legal provision |    |    |    |    |    |    |    |    |    |

Table T.1 – Protection of confidentiality of communications

## 2. Traffic and location data

According to article 6 of the e-Privacy Directive, traffic data relating to subscribers and users must be erased or made anonymous when it is no longer needed for the purpose of a communication, for billing and interconnection payments, or for lawful interception. All monitored countries except Bosnia & Herzegovina and Macedonia have transposed this provision. Most countries referred to the period during which the bill may be lawfully challenged or payment can be pursued (which is typically dependent on the contract between the operator and the subscriber).

In Macedonia, article 112 (1) of the Law on electronic communications originally said that traffic data must be erased as soon as possible. Amendments adopted in June 2010 removed this principle entirely and replaced it by the obligation to retain all raw traffic data for 24 months. Paragraph 2 of this article still says that operators may store data as long as needed for billing.

Article 6(3) of the e-Privacy Directive requires the subscriber's informed consent before providers can use traffic data for marketing their own services or for the provision of value added services.

This report also looks at the question whether international operators are prevented from cross-border transfer of traffic data, in particular for centralised billing solutions. Under EU data protection rules the national laws must not prevent cross-border data traffic into countries with an adequate level of protection, whereas data transfer to other countries needs additional safeguards. This issue of determining the adequate level of protection in other countries is usually addressed in the general data protection laws, which transpose directive 95/46/EC. All monitored countries except Turkey have such a law.

This report examined whether additional rules in the electronic communications laws prevent operators from transferring traffic data to EU countries, even where it would be allowed under the general rules of the data protection law. This is the case in Macedonia, where the amendments of 2010 introduced a provision according to which traffic data must be stored in Macedonia. Croatia had a similar provision in its draft amendments to the Electronic communications act in 2011, but did not adopt following criticism from the European Commission services.

Article 9 of the e-Privacy Directive contains provisions to protect location data. In particular, the use of location data needs informed consent by the user or subscriber and even where consent has been obtained, the user or subscriber must be able to temporarily refuse the processing of location data. This rule has been transposed in all countries except Iceland and Bosnia & Herzegovina. In Iceland, the law requires informed consent, before location data may be used, but the law does not give the user or subscriber the right to temporarily refuse processing.

As the following table shows, the EU rules on traffic and location data have been largely adopted in most monitored countries, with the exceptions of Bosnia & Herzegovina (which does not have any legislation on these issues), Macedonia (which has not resolved the problems arising from the June 2010 amendments) and a minor issue in Iceland. In Kosovo there is a short legislative gap, because

the rules on location data have been removed when the new Law on the information society services was adopted and will be moved into the new Law on electronic communications, which will be adopted in due course.

|  | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|--|----|----|----|----|----|----|----|----|----|
| Traffic data must be deleted as soon as possible, except if needed for billing, or for data retention?                           | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| Informed consent required before traffic data may be used for marketing?   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | ✓  |
| No regulatory burdens to transfer traffic data into the EU (e.g. for billing)  | ✓  | ✓  | ✗  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Informed consent required before location data may be used? Possibility to refuse temporarily, even if consent was given before? | ✓  | ✗  | ✓  | ✓  | ✓  | ✓  | ✓  | ✗  | –  |
| ✓ = transposed, ✗ = not transposed, – see comment above  |    |    |    |    |    |    |    |    |    |

Table T.2 – Traffic and location data

### 3. Unsolicited communications (spam)

Article 13 of the e-Privacy Directive requires unsolicited commercial communications by e-mail to be subject to the individual's prior consent (opt-in), except for the sending of direct marketing emails to by communications providers to their existing customers. For business users, EU member states are free to require an opt-in or an opt-out scheme.

In addition to other requirements, article 7 of the Electronic Commerce Directive states that if unsolicited commercial communications by e-mail is allowed, it must be clearly identifiable and service providers who send such communications must respect opt-out registers.

Most of the monitored countries prohibit spam, without making a distinction between unsolicited e-mail addressed to an individual or to a company. Only Bosnia & Herzegovina does not have explicit legislation on spam.

Kosovo joined the countries which explicitly forbid spam with the adoption of the new Law on the information society services. The draft law on electronic communications also has a provision forbidding unsolicited communications.

Macedonia adopted in January 2012 an amendment that obliges mobile network operators to send unsolicited text messages (SMS) to roaming customers on behalf of the tourism agency, free of charge.

Turkey's draft law on electronic commerce would introduce a distinction between individuals and companies and would allow spam sent to companies.

## U. Lawful interception and data retention

This report has addressed lawful interception in more detail than previous reports, separately for lawful interception for criminal proceedings and lawful interception for other purposes.

### 1. Lawful interception for criminal proceedings

All countries have a legal framework for lawful interception, usually with provisions both in the electronic communications law and the criminal procedure code.

In Macedonia the current legal situation is unclear. The Constitutional Court has repealed several provisions of the Law on electronic communications on December 15, 2010, in particular those provisions that granted public authorities access to operators' data. This has not been repaired by new legislation, although other parts of the law were amended in the meantime. Also, amendments have been proposed to a separate Law on interception of communications shortly before publication of this

report. The provisions of this law and the scope of the proposed amendments will be addressed in more detail in the next monitoring report.

In Turkey the main legal basis is Law no. 5397 on Amendments to Certain Laws and the Criminal procedure code. Albania has provisions in the Law on electronic communications and the Criminal procedure code, but also a separate Law no. 9157 on telecommunication interception. In Bosnia & Herzegovina relevant provisions were introduced by amendments to the Law on communications and in the Criminal procedure code as well as detailed provisions in decisions of the Council of Ministers.

The legal framework generally obliges all providers of public electronic communications networks and services to cooperate. In all countries, except Turkey, this includes the obligation to install interception equipment, usually without compensation from the state budget. In Iceland only dominant operators are obliged to install interception equipment.

Interception is usually initiated by the public prosecutor or in Iceland – by the police. In all countries it needs a decision by a judge or a court order. In several countries there is an exception for cases of urgency, but the court has to decide within 24 hours (Croatia, Kosovo) or within two working days (Albania) on the legitimacy of the interception.

All countries have some rules in their criminal procedure codes, which limit the interception to cases of serious crimes, either by an exhaustive list of crimes or by referring to the penalty that is foreseen for such crimes.

|   | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|---|----|----|----|----|----|----|----|----|----|
| <b>Legal framework exists</b>   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| <b>Court order required</b>   | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| <b>Interception is limited to serious crimes</b>                            | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| <b>✓ = foreseen in legal framework, ✗ = not foreseen in legal framework</b> |    |    |    |    |    |    |    |    |    |

Table U.1 – Lawful interception for criminal proceedings

## 2. Lawful interception for other purposes

With regard to lawful interception for national security, public security or defence/military purposes, the legal framework is less clear than for criminal proceedings.

Montenegro did not provide details on whether their national security agencies or the military are entitled to intercept electronic communications.

Croatia, Iceland, Macedonia, Serbia, Turkey, Albania, Bosnia & Herzegovina and Kosovo reported that the agencies for national or public security are entitled to lawful interception beyond criminal proceedings. Croatia, Macedonia, Serbia and Albania also reported on lawful interception for defence/military purposes.

In all above countries, except Albania, interception requires a prior approval by a court or a judge. In Albania a decision by the general prosecutor is needed, who has an independent role similar to a judge, but with a limited term of office. Some countries allow exceptions for urgent cases, but require ex post approval by a court.

Only Iceland, Bosnia & Herzegovina and Kosovo foresee that the intercepted persons must be informed after they have been intercepted. Only Serbia, Bosnia & Herzegovina and Kosovo reported a procedure under which intercepted persons can appeal the measure at court. In Turkey the legality of interceptions is supervised by a person or commission authorised by the Prime Minister, in Albania by the General Prosecutor.

The following table provides an overview on lawful interception for purposes other than criminal proceedings.

|   | HR | IS | MK | ME | RS | TR | AL | BA | XK |
|---|----|----|----|----|----|----|----|----|----|
| Legal framework for lawful interception for national security/public security   | ✓  | ✓  | ✓  | ?  | ✓  | ✓  | ✓  | ✓  | ✓  |
| Legal framework for lawful interception for defence/military purposes   | ✓  | –  | ✓  | ?  | ✓  | –  | ✓  | –  | –  |
| Court order required  | ✓  | ✓  | ✓  | ?  | ✓  | ✓  | ✓* | ✓  | ✓  |
| Intercepted persons must be informed  | ✗  | ✓  | ?  | ?  | ✗  | ✗  | ✗  | ✓  | ✓  |
| Intercepted persons can appeal  | ✗  | ✗  | ?  | ?  | ✓  | ✗  | ✗  | ✓  | ✓  |
| ✓ = foreseen in legal framework, ✗ = not foreseen in legal framework,<br>– = no such interception, ? = unclear legislation, * = General Prosecutor order required |    |    |    |    |    |    |    |    |    |

Table U.2 – Lawful interception for other purposes

### 3. Data retention

According to the e-Privacy Directive, providers have to erase traffic data as soon as they no longer need them for their legitimate purposes (in particular for billing, see Table T.2 above). However, article 15(1) of the e-Privacy Directive establishes an exception to that principle and allows member states to adopt legislation providing for the retention of data for a limited period where this constitutes a necessary, appropriate and proportionate measure in a democratic society to safeguard national security (state security), defence, public security, and the prevention, investigation, detection and prosecution of criminal offences or of unauthorised use of electronic communication systems.

Directive 2006/24/EC on Data Retention harmonises member states' laws on the retention of traffic, location and identification data to ensure the investigation, detection and prosecution of 'serious crimes'. All categories of data covered by the directive must be retained for a minimum of six months and for a maximum of two years.

Data retention has proved to be a controversial topic, with many member states having delayed its introduction, in particular with regard to retention of internet data. Constitutional courts in Romania and Germany repealed the national implementation of the directive.<sup>39</sup> On February 10, 2009 the European Court of Justice dismissed<sup>40</sup> an action for annulment of the directive brought by Ireland, but further lawsuits are pending.<sup>41</sup> The European Commission is currently reviewing the directive.

All participating countries except Turkey and Kosovo have addressed data retention in some form in their legislation. Turkey has draft secondary legislation and Kosovo will soon have a data retention provision in the new Law on electronic communications.

In Macedonia and Serbia the respective provisions were challenged at the constitutional courts (see chapter P.1 above):

- In Macedonia the constitutional court repealed in December 2010 the provisions which grant public authorities access to retained data. This led to the paradox result that operators must retain traffic data for a period of 24 months, but the public prosecutor and courts are not entitled by the Law on electronic communications to use the retained data for criminal proceedings. It is unclear to what extent the public prosecutor and courts may access retained data under the Law on interception of communications.
- In Serbia the constitutional court decided on April 19, 2012 that it was unconstitutional that the Law of the Military Security and Intelligence Agency gave the Military Security Agency access to retained data without court approval. The court repealed the relevant provisions in the Law of the Military Security and Intelligence Agency, but decided that there is no need to repeal provisions in the Law on electronic communications. In effect, the court clarified that any lawful interception or access to retained data needs a court approval.

<sup>39</sup> Romanian Constitutional Court, October 9, 2009, [decision no. 1258\(1\)](#) and German Federal Constitutional Court, March 2, 2010, [case 1 BvR 256/08](#)

<sup>40</sup> ECJ February 10, 2009, case C-301/06 Ireland v Parliament and Council

<sup>41</sup> The Irish High Court has asked the Court of Justice of the European Union for a preliminary ruling in the case Digital Rights Ireland, C-293/12.

None of the countries has a clear definition of the purposes for which the retained data may be used in its electronic communications law. According to article 1 of the Data Retention Directive, the data should be held available “for the purpose of the investigation, detection and prosecution of serious crime”:

- Most of the countries simply do not specify any purpose for which the retained data may be used. The laws oblige operators to retain data, but do not regulate which authority may access the data under which conditions. This is in some contradiction with the finding that all countries require court approval for lawful interception (see chapter U.1 above).
- Some countries define explicitly a wider context for using retained data. The Croatian law allows using retained data for the prosecution of criminal offences (without limiting to serious crimes), for defence and for national security. The Macedonian law contained a similar wording, which was however repealed by the constitutional court. Serbia allows the usage of retained data for criminal proceedings, for the security services and by the authorities in charge of internal affairs. In Bosnia & Herzegovina the relevant decisions of the Council of Ministers do not differentiate between criminal proceedings and the Intelligence-Security Agency.

In some countries the scope of the data to be retained or the duration is unclear:

- Macedonia and Serbia adopted data retention provisions in 2010 and oblige all operators to retain traffic data, but do not specify the details. In Serbia the law foresees that this would be regulated by a bylaw. In Macedonia operators must retain data although it is unclear to what extent public authorities are constitutionally entitled to use them.
- The Albanian law obliges all providers of public electronic communications networks to retain data, but the list of data to be retained only includes telephony data. There is no specific requirement to retain internet data.
- In Turkey, article 6 of Law no. 5651 obliges internet access providers to retain traffic data, but does not specify the duration. The law only says that the duration would be between six months and two years, and set by a bylaw that has not been adopted.
- The law in Montenegro also does not specify the exact duration, but refers to a period of six months to two years.
- Iceland has not transposed the Data Retention Directive, but has only a short provision which lists some categories of data that must be retained for six months.

In all countries which oblige operators to retain data, operators have to bear the costs and are not entitled to ask for a compensation.

Most countries oblige operators to retain traffic data for both telephony and internet access, except Turkey (internet only) and Albania (telephony only).

Some countries have additional requirements, for example the new provisions in Macedonia oblige operators to retain the data in the territory of the country. This seems not to be in line with the requirements of the Data Protection Directive 95/46/EC, which aims for a free flow of data within the internal market. Macedonia also requires operators to have their surveillance equipment approved.

## V. Management of internet domains

The management of internet domains is (with the exception of the .eu domain) not regulated by EU legislation. Nevertheless, availability of domain names, easy registration processes and low prices are important for the creative industries of a country. If it is difficult to register or if there are high prices, users will choose a domain name under a generic top-level domain or under the country code top-level domain of another country.

We can distinguish at least three different functions that might be regulated by law (but are often unregulated, in particular if the traditionally established system works satisfactorily):

- drafting and adopting the national domain name policy, in particular the rules on who can register a domain name, rules on accrediting registrars and dispute settlement provisions;

- the function of the registry, that is the body which manages the central database and the domain name servers; and
- the function of registering the individual domain names, maintaining the customer contact and billing (registrar function).

## 1. National domain name registry and policy

In five of the monitored countries, an academic institution has the task of the national registry, in particular a university data centre (Croatia, Macedonia, Turkey and Bosnia & Herzegovina) or an association of university institutions and ISPs (Serbia).

In these countries there was traditionally no explicit legislation on domain name management. The typical legal basis of the national registry is a ministry or government decision which was the basis of the contract with IANA or ICANN. The national domain name policy was usually decided by the registry itself, for example in the form of the registry's statute or general business conditions. Some countries have adopted, or are preparing explicit legislation on domain names:

- In Croatia an ordinance based on the Electronic communications act introduced in 2010 a new legal basis for domain name administration and liberalised the market for registrars. Whereas CARNet was previously the only registrar, CARNet is now the registry and has accredited 14 registrars.
- In Albania the telecommunications regulator is the national registry and has, since June 2008, an explicit legal basis in the Law on electronic communications.
- Turkey has adopted a bylaw on internet domain names and will re-delegate the .tr top level domain on this new legal basis. In Macedonia a new law on the Macedonian Academic Research Network (MARNet) was adopted in 2010 and confirmed MARNet's role as the national registry. Iceland plans to adopt an Act on the top level domain, which would move the responsibility for domain name policy from the registry to the Ministry of Interior. A licence issued by PTA would in future become the legal basis of the registry. However, adoption of this law has been delayed.
- In Bosnia & Herzegovina and in Serbia there is no explicit legislation on domain name management. In Bosnia & Herzegovina, the Ministry of Communications and Transport intends to adopt a policy on the .ba top-level domain.
- Kosovo does not yet have a top level domain.

The most noteworthy example in the region is Montenegro, which is in the lucky situation to have a country code (ME) that is also a frequently used English word. This makes Montenegrin domain names attractive for English speaking users. Montenegro was the first country in the region to choose a fully market based approach in its domain name policy and to clearly separate the policy function and the registry function:

- On the basis of the Law on the property of the Republic of Montenegro, the government adopted a decision establishing the Council for the ".me" domain. This council decides on the domain name policy.
- The council announced a public invitation for selecting the agent for the registry function. In this international tender, a joint venture of GoDaddy (one of the largest players in the domain name business) and a Montenegrin company won the tender.

## 2. Registrars of domain names

By separating the function of the national registry and the registrars, a state can introduce competition on the domain name market. This makes access to domain names easier and cheaper. Normally, domain name owners do not operate their own name servers and have to use the services of an ISP for this purpose. If this ISP also may act as registrar and has direct electronic access to the national domain name registry, the process of registering the domain name is significantly simplified.

The monitored countries can be clustered in two groups, as shown in the following table. Kosovo belongs to neither of the groups, because it does not have a top level domain yet.

There is a clear trend towards competition. Croatia allows competition between registrars since 2010. In Albania, AKEP is upgrading its technical systems and will in future be able to support competition between registrars. In Turkey, competition is low, as the registry itself has registered about 90% of the domains and only 11 registrars are currently accredited. ICTA aims to enhance competition in the process of re-delegating the .tr top level domain name.

|  | Competition model   | “Registry is only registrar” model                           |
|--|---|--|
| <b>Competition between registrars exists</b> | Yes   | No   |
| <b>Countries</b>                             | HR, IS, ME, RS, TR, BA  | MK, AL   |
| <b>Who accredits registrars</b>              | The registry  | –  |
| <b>Electronic interface exists</b>           | Yes   | No   |
| <b>Number of registrars</b>                  | HR: 14, IS: 61, ME: 155, RS: 35, TR: 11, BA: 19   | 1 (the registry)   |
| <b>Price per domain and year</b>             | HR: €0 to €50 (80% of domains: €0)<br>IS: €39<br>ME: €10<br>RS: €2.5 to €13.5<br>TR: €2 to €11<br>BA: €15.3 (first year: €40.8)<br>Does not include registrar functions | MK: €4.29 to €8.58<br>AL: €7<br>Includes registrar functions |

Table V.1 – Registrars of domain names

Iceland has the highest annual charge of €39. Bosnia & Herzegovina has a similarly high charge of €40.8 in the first year, but €15.3 in following years.

In all other countries the prices are similar. Even the two countries where the registry also has to charge the registrar functions, Macedonia and Albania, have relatively low charges. Several registries offer discounts for certain types of domains. In Croatia, about 80% of the registered domains are free of charge. For legal persons and persons that offer registered services, the first domain is free if it corresponds to the registrant’s name.

Iceland, Montenegro and Serbia are the only countries where foreign undertakings may become accredited registrars (in Iceland and Serbia, however, it is required that the undertaking has a local presence). This and the attractiveness of the domain name .me for English speaking domain name users explain the large number of accredited registrars.

### 3. Cyber squatting and dispute resolution

All eight monitored countries that have their own top level domain have included policies against cyber squatting in their regulations or into the general business conditions of the registry.

Also, all eight countries introduced an out-of-court dispute resolution mechanism in the form of arbitration before a dispute goes to court. In Croatia, Bosnia & Herzegovina and Montenegro, dispute resolution is based on ICANN’s Uniform Domain Dispute Resolution Policy.

Turkey is setting its rules on cyber squatting and dispute resolution on a new legal basis. The new rules will apply after the re-delegation of “.tr”.

### 4. Domain market data

It is difficult to compare the numbers of registered domain names because the situation in the monitored countries is too different. However, the following figure shows the number of the registered sub domains of the relevant ccTLD, based on data from January to April 2012. The figure shows the absolute number of domain names (left axis, columns) and the number of domain names per 1000 inhabitants (right axis, dots).

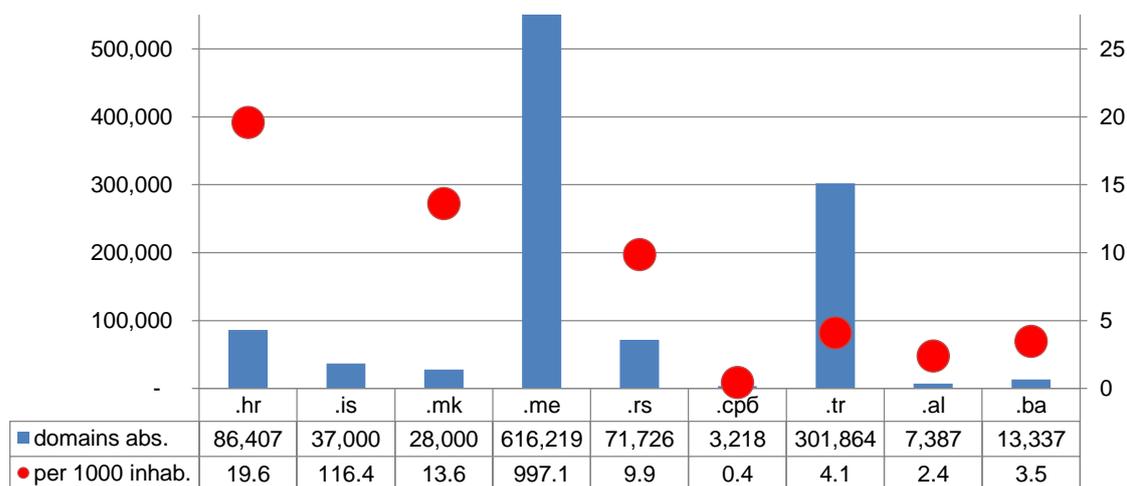


Figure V.1 – Domain names, absolute and per 1000 inhabitants

The .me top level domain is highly attractive for foreigners. Montenegro reported 616,219 domain names by March 2012, twice as much as in Turkey. The number continues to grow by about 10,000 new domain names per month. Almost all of this interest in Montenegrin domain names comes from other countries. There is now about one .me domain name per inhabitant, two orders of magnitude more than in other countries of the SEE region.

Iceland has also a very high number of domain names per inhabitants, more than five times higher than in Croatia. The high figures of Montenegro and Iceland are not visible in the figure above.

Serbia launched an additional top level domain in Cyrillic letters, .cpб, on January 27, 2012. During a sunrise period of six months only the users of an .rs domain name can register the transliterated domain name in Cyrillic letters. About 3,200 cpб domains were registered by April 2012.

In comparison with the size of the population, usage of the .al, .ba and .tr top level domains is relatively low. Albania stands out with a particularly low figure, which might be related to the fact that Albania does not have competition between registrars. The large absolute number of .tr domains in Turkey is explained by the size of country.

## VI. COUNTRY PROFILES

### A. Croatia

#### 1. Legislative framework

Croatia is the first and so far the only of the monitored countries that has implemented the EU 2009 regulatory framework.

| EU 2003 regulatory framework | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| 2008                         | 2011                         | 2003                    | 2002                     | ✓                      | 2005                     |

#### 2. Institutional framework

The national regulatory authority was established in 2003 as the Croatian Telecommunications Agency (HAT). In 2008 HAT was merged with the Postal Services Council into the current Croatian Post and Electronic Communications Agency (HAKOM). The administrative capacities of HAKOM have been significantly enhanced over the last years. Also the appeal proceedings at the court have significantly improved.

| NRA  | NRA appeals  | Government   | Other  | State ownership  |
|--|--|--|--|--|
| <a href="#">Croatian Post and Electronic Communications Agency (HAKOM)</a> | Appeals against regulatory decisions are decided by the High Administrative Court. | Ministry of Maritime Affairs, Transport and Infrastructure (MPPI) is responsible for policy making in the electronic communications sector.<br><a href="#">Ministry of Administration</a> is responsible for ICT policy in public sector | <a href="#">Croatian Competition Agency</a> (since 1997)<br><a href="#">Agency for Electronic Media</a> (since 2007) | The state sold 51% of its stakes in the fixed incumbent T-Hrvatski Telekom to Deutsche Telekom in 1999 and 2001.<br>By the end of 2010, state's shareholding was eliminated. |

#### 3. Market access conditions

Croatia implemented full liberalisation of electronic communications networks and services in 2003. General authorisation for all electronic communications networks and services was introduced in 2008.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks | General authorisation | Remaining restrictions |
|---|----------|---------------|---------------------------------|-----------------------|------------------------|
| local                                   | national | international |                                 |                       |                        |
| 2003                                    |          |               | 1999                            | 2008                  | none                   |

#### 4. Spectrum assignments

Croatia has three mobile network operators with spectrum authorisations in the 900 MHz, the 1800 MHz and the 2 GHz bands. Since 2009 the mobile licences are technology neutral and the frequency plan has been amended to allow UMTS and LTE services in the GSM bands.

Analogue switch-off in Croatia was completed in October 2010, earlier than in most EU member states, and HAKOM is currently preparing procedures for awarding the digital dividend spectrum for electronic communications services in the second half of 2012. Numerous regional licences for wireless broadband access have either expired or returned to the regulator and a single national licence was issued in late 2011.

| 900 MHz                        | 1800 MHz                       | 2 GHz              | 3.5 GHz            | 3G/4G in 900/1800? |
|--------------------------------|--------------------------------|--------------------|--------------------|--------------------|
| 3 licences<br>1995, 1998, 2007 | 3 licences<br>2004, 2007, 2011 | 3 licences<br>2004 | 1 national licence | 3G/4G allowed      |

## 5. Competitive safeguards

Croatia introduced most of the competitive safeguards during 2005 – 2006. National roaming is offered to the late entrant mobile operator on commercial basis. One of the major fixed alternative operators has recently announced plans to launch MVNO operations based on a commercial agreement with one of the mobile operators. Wholesale line rental was introduced in 2011. A remaining task is to develop LRIC cost models for fixed and mobile services.

|      | CS   | CPS  | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO  | WBA  | WLR | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|------|------|----------|-----------|-----------|------------|------|------|-----|------|--------------|------------|-------------|---------------|
| 2005 | x    | x    | x        | x         | ✓         | ✓          | x    | x    | x   | x    | ✓            | x          | x           | ✓             |
|      | 2005 | 2005 | 2006     | 2006      | 2005      | 2005       | 2005 | 2007 | -   | -    | -            | -          | -           | -             |
| 2012 | ✓    | ✓    | ✓        | ✓         | ✓         | ✓          | ✓    | ✓    | ✓   | ✓    | ✓            | x          | x           | ✓             |

## 6. Market structure

The incumbent HT is the main provider of fixed services, but alternative operators gained about 30% market share in provision of voice telephony and fixed broadband services. However, one of the major alternative operators Iskon Internet is 100% owned by the incumbent. The purchase by Telecom Austria's VIPnet of the largest cable company, B.net, has added fixed broadband and pay-TV to VIPnet's mobile portfolio, creating a strong bundled services player.

The three mobile network operators: HT (T-Mobile), VIPnet and Tele2, have respective market shares of 47%, 39% and 14%, by subscriptions.

|      | Fixed lines penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|-------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 38%                     | 64%                | 0.6%                        | -                            | 4.9%                                  |
| 2012 | 40%                     | 119%               | 19.5%                       | 6.5%                         | 3.9% (2010)                           |

## 7. Outlook

Croatia fulfilled the EU accession requirements for information society and media in terms of aligning its legislation with the EU *acquis*. The remaining task for HAKOM is the finalisation of cost accounting models for regulated wholesale products in fixed and mobile networks. HAKOM will also have to ensure sustainable competition in the fixed broadband market characterised by increasing consolidation and growing significance of multiple play offers.

The continued application of the special 6% revenue tax to the country's mobile operators, incompatible with the requirements of the Authorisation Directive, remains to be an area of concern. Some of the recent proposals presented by the government consider abolishing this tax from the second half of 2012, but at the same time effectively increasing by tenfold the amount of annual spectrum fees paid by mobile operators to the state budget.

## B. Iceland

### 1. Legislative framework

With the implementation of the agreement on the European Economic Area (EEA) in 1994, Iceland, adopted most of the relevant EU legislation on the internal market and the level of harmonisation of national legislation with the EU *acquis* is comparable to that of the EU member states.

A draft bill for transposing the EU 2009 regulatory framework is in the parliamentary procedure and adoption is expected in 4Q 2012.

| EU 2003 regulatory framework | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| 2003                         | Adoption expected 2012       | 2002                    | 2001                     | ✓                      | 2003                     |

### 2. Institutional framework

The national regulatory authority is the Post and Telecommunications Administration of Iceland (PTA) established in 1997 as “*an independent institution under the ultimate administration of the Minister of the Interior*”. Traditionally PTA has been funded through administrative fees, frequency fees and numbering fees that have been allocated to PTA operations with an authorisation in the national budget. Following the economic crisis of 2008, PTA has been subject to certain budgetary restrictions in allocation of its funds, which raises concerns about its financial independence.

| NRA  | NRA appeals  | Government  | Other   | State ownership   |
|--|--|---|---|---|
| <a href="#">Post and Telecom Administration of Iceland (PTA)</a> | Rulings Committee for electronic communications and postal affairs.<br>Three members are appointed by the Minister of the Interior and three members by the Supreme Court. | <a href="#">Ministry of the Interior</a> is responsible for policy making.<br>The Prime Minister's Office had a Department for Information Society, which has been moved into the Ministry of the Interior with January 2012. | <a href="#">Consumer Agency Competition Authority (ICA)</a> | State shareholding of 98.8% in the incumbent operator Síminn was fully privatised in 2005.<br>State retains 28% stake in the company Farice operating international submarine fibre optic cables. |

### 3. Market access conditions

Iceland was first among the monitored countries to introduce full liberalisation of telecommunications networks and services on January 1, 1998, in line with the requirements set out in the agreement on the European Economic Area (EEA) in accordance with the European Commission Directive 96/19/EC. General authorisation for all electronic communications networks and services was introduced in 2003.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks | General authorisation | Remaining restrictions |
|---|----------|---------------|---------------------------------|-----------------------|------------------------|
| local                                   | national | international |                                 |                       |                        |
|   | 1998     |               | 1997                            | 2003                  | none                   |

### 4. Spectrum assignments

There are three mobile network operators with spectrum assignments in the 900 MHz, 1800 MHz and the 2 GHz bands. The fourth operator is assigned only a smaller spectrum block in the 1800 MHz band. Since 2008, mobile operators are allowed to use UMTS technology in the 900 MHz and the 1800 MHz bands. In 2012 PTA has renewed the two expiring licences of the two largest operators and assigned some additional spectrum to smaller operators enabling 5 MHz channelling arrangements. Analogue switch-off has been completed in January 2012. PTA is currently planning a combined spectrum auction for 800 MHz digital dividend spectrum and still available spectrum in the 1800 MHz band.

There are seven regional licences to operate fixed wireless access networks in the 3.5 GHz band.

| 900 MHz                        | 1800 MHz                         | 2.1 GHz            | 3.5 GHz             | 3G/4G in 900/1800? |
|--------------------------------|----------------------------------|--------------------|---------------------|--------------------|
| 3 licences<br>1996, 1998, 2007 | 4 licences<br>2000 (3), 2009 (1) | 3 licences<br>2007 | 7 regional licenses | 3G allowed         |

## 5. Competitive safeguards

Iceland implemented most of the competitive safeguards during 1998 – 2005, long before other monitored countries. Wholesale line rental was one of the last competitive safeguards introduced in 2011. The work on cost analysis in fixed interconnection and access markets is ongoing.

|      | CS   | CPS  | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO  | WBA  | WLR  | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|------|------|----------|-----------|-----------|------------|------|------|------|------|--------------|------------|-------------|---------------|
| 2005 | ✓    | ✓    | ✓        | ✓         | ✓         | ✓          | ✓    | ✗    | ✗    | ✗    | ✗            | ✗          | ✗           | ✓             |
|      | 1998 | 2000 | 2000     | 2004      | 2002      | 2005       | 2003 | 2008 | 2011 | 2007 | 2007         | –          | 2010        | 2003          |
| 2012 | ✓    | ✓    | ✓        | ✓         | ✓         | ✓          | ✓    | ✓    | ✓    | ✓    | ✓            | ✗          | ✓           | ✓             |

## 6. Market structure

Over the past few years, the Icelandic telecommunications market has undergone important structural changes and became increasingly consolidated. In 2007, Síminn's fixed network infrastructure was structurally separated from the company's other operations, and a separate company, Míla ehf was established. Both companies are owned by Skipti hf.

In fixed telephony services, the market is split 74%, 18% and 8% (by subscriber lines) between Síminn, Fjarskipti and Tal. In the provision of fixed broadband services, the respective market shares of the same operators are 52%, 30% and 13%.

In mobile telephony services, the principal players are Síminn, Vodafone and Nova, with the respective market shares of 40%, 29% and 26%. A fourth company, Alterna (IMC) started to offer mobile telephony services in 2010.

|      | Fixed lines penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|-------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 45%                     | 101%               | 27%                         | -                            | 2.93%                                 |
| 2012 | 48%                     | 108%               | 35%                         | 13.1%                        | 1.49% (2010)                          |

## 7. Outlook

Iceland has achieved a high level of alignment with the EU *acquis*, but the transposition of the 2009 regulatory framework for electronic communications still has to be completed. The financial independence of the regulator and its enforcement powers needs to be strengthened.

Among the central priorities for PTA is the forthcoming auction of 800 MHz and 1800 MHz spectrum, and carrying out its second round market analyses.

## C. The former Yugoslav Republic of Macedonia

### 1. Legislative framework

Macedonia has largely aligned its legislation with the EU *acquis* and was second of the monitored countries (after Iceland) to adopt the EU 2003 regulatory framework. The work on amendments to transpose the EU 2009 regulatory framework is planned for 2012.

The Law on electronic communications has been amended frequently, including two smaller amendments in 2012. Some of the amendments have been rather controversial, such as the provisions on data retention and access to retained traffic data adopted in 2010, which were partly repealed by the Constitutional Court in December 2010 and have not been reassessed since then.

| EU 2003 regulatory framework | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| 2005                         | No draft yet                 | 2007                    | 2001                     | ✓                      | 2001, 2009               |

### 2. Institutional framework

The Agency for Electronic Communications was established in 2005 as an independent authority. Its initial activities were seriously hampered by the lack of administrative capacity. The situation only improved in 2009 following the recruitment of new qualified staff.

At government level, competencies for information society and electronic communications are now consolidated under the Ministry of Information Society and Administration. There is still little administrative capacity for drafting legislation and policy setting.

| NRA  | NRA appeals  | Government  | Other  | State ownership  |
|--|--|---|--|--|
| <a href="#">Agency for Electronic Communications (AEC)</a> | Appeals against regulatory decisions can be brought before the Administrative Court. | <a href="#">Ministry of Information Society and Administration</a> (since 2011) | <a href="#">Commission for Protection of Competition</a> (since 2005)<br><a href="#">Broadcasting Council</a> (since 1997) | In 2000 the state sold 51% of its shares in the fixed incumbent Makedonski Telekom. Currently, government controls 36.81% plus one golden share. |

### 3. Market access conditions

Fixed voice telephony was liberalised by introducing a general authorisation framework in 2005. The concession contracts of the fixed incumbent and the mobile operators were abolished and replaced by general authorisation in 2008.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks | General authorisation | Remaining restrictions |
|---|----------|---------------|---------------------------------|-----------------------|------------------------|
| local                                   | National | international |                                 |                       |                        |
|   | 2005     |               | 1998/2000                       | 2005                  | none                   |

### 4. Spectrum assignments

Macedonia has three mobile network operators. UMTS licences were awarded late, in 2008, and only to the two established operators. In 2009 the frequency plan was amended to allow UMTS in the 900 and 1800 MHz bands. A further amendment allowing LTE services in these bands is expected in 2012.

Most of the licences for fixed wireless access issued in 2007 have been returned to the regulator and currently there is only one active licensee operating in all six regions. Analogue switch-off is planned for 2013.

Following the May 2012 amendments to the Law on electronic communications that provide a legal basis for spectrum auctions, AEC plans to award digital dividend spectrum for electronic communications services in early 2013.

| 900 MHz                        | 1800 MHz                 | 2 GHz                          | 3.5 GHz                             | 3G/4G in 900/1800? |
|--------------------------------|--------------------------|--------------------------------|-------------------------------------|--------------------|
| 3 licences<br>2001, 2001, 2007 | 2 licences<br>2008, 2009 | 2 licences<br>Feb. & Dec. 2008 | 6 regional licences<br>(1 licensee) | 3G allowed         |

## 5. Competitive safeguards

In terms of implementing competitive safeguards, Macedonia is ahead of most of the monitored countries. As shown in the table, most safeguards were introduced in 2007 and 2008, although the practical implementation mainly took place in 2009. Macedonia was also the first among the monitored countries to implement LRIC cost accounting for fixed and mobile networks. Decisions on tariff rebalancing are planned for 2012.

|      | CS   | CPS  | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO  | WBA  | WLR  | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|------|------|----------|-----------|-----------|------------|------|------|------|------|--------------|------------|-------------|---------------|
| 2005 | X    | X    | X        | X         | X         | X          | X    | X    | X    | X    | X            | X          | X           | X             |
|      | 2007 | 2007 | 2008     | 2008      | 2006      | 2008       | 2006 | 2007 | 2009 | 2010 | 2007         | 2008       | 2010        | –             |
| 2012 | ✓    | ✓    | ✓        | ✓         | ✓         | ✓          | ✓    | ✓    | ✓    | ✓    | ✓            | ✓          | ✓           | X             |

## 6. Market structure

Makedonski Telekom is the incumbent provider of fixed voice telephony services. Alternative fixed operators have gained a market share of about 25%. In the provision of fixed broadband services where the incumbent faces a particularly strong competition from cable operators its market share has shrunk to below 50%.

There are three mobile network operators, but only two offering UMTS. Fixed broadband penetration is moderate and mobile broadband still in an early phase.

|      | Fixed lines penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|-------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 29%                     | 49%                | 0.1%                        | -                            | 7.8%                                  |
| 2012 | 21%                     | 108%               | 14%                         | 0.8%                         | 5.7% (2010)                           |

## 7. Outlook

AEC has been successful in completing its first round of market analyses and implementing a broad range of competitive safeguards. AEC has recently adopted an ambitious regulatory strategy for the years 2012–2016. Interest of operators in spectrum is low, which might be caused by high spectrum fees or coverage requirements.

Increased efforts are necessary to align the legislative framework fully with the *acquis* – in particular the EU 2009 regulatory framework – and to strengthen the administrative capacity of the ministry.

## D. Montenegro

### 1. Legislative framework

Montenegro has largely aligned its legislation with the *acquis* and was the first of the monitored countries to transpose the Audiovisual Media Services Directive in 2010.

In March 2012 the Ministry for Information Society and Telecommunications has started drafting amendments to the Law on Electronic Communications that would transpose the EU 2009 regulatory framework.

| EU 2003 regulatory framework | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| 2008                         | no draft yet                 | 2004                    | 2003                     | ✓                      | 2008                     |

### 2. Institutional framework

The Agency for Electronic Communications and Postal Services (EKIP) is the national regulatory authority. It was established in 2001, but its competencies and name were changed first in 2005, when it took over regulation of the postal sector, and then in 2008, when it became the sole authority responsible for spectrum assignments in telecom and broadcasting sectors.

The key functions of the government and the regulator were also redefined in the Law on electronic communications adopted in 2008. The ministry plays the key role in adopting the secondary acts foreseen under the primary legislation. However, certain authorities of the ministry and EKIP overlap to some extent, for example, the ministry is entitled to adopt regulations relating to electronic communications, as well as EKIP preparing some regulations on its own. In practice, where the law does not clearly regulate certain issues, uncertainty is created with regard to which authority is responsible and situations arise where similar issues are regulated by separate authorities.

The law also gives the ministry the powers of administrative review of the regulator's decisions as the first appeal instance, effectively undermining the regulator's independence.

| NRA  | NRA appeals  | Government  | Other  | State ownership  |
|--|--|---|--|--|
| <a href="#">Agency for Electronic Communications and Postal Services</a> (EKIP) is legally independent of operators. | Appeals against regulatory decisions may be filed to the ministry.<br>Decisions of the ministry can be appealed to the Supreme Administrative Court. | <a href="#">Ministry for Information Society and Telecommunications</a> | <a href="#">Directorate for Protection of Competition</a> (since 2007)<br><a href="#">Broadcasting Agency</a> (since 2003) | The state does not hold any shares of operators.<br>In 2005, government sold its 76.53% of fixed incumbent Crnogorski Telekom. |

### 3. Market access conditions

Montenegro formally liberalised its telecommunications markets at the beginning of 2004, but the high licensing fees created a barrier to entry until 2007. General authorisation for all electronic communications networks and services was introduced in 2008.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks | General authorisation | Remaining restrictions |
|---|----------|---------------|---------------------------------|-----------------------|------------------------|
| local                                   | national | international |                                 |                       |                        |
|   | 2004     |               | 2004                            | 2008                  | none                   |

### 4. Spectrum assignments

Montenegro has three mobile operators, with spectrum assignments in the 900 MHz, the 1800 MHz and the 2 GHz. In late 2011 additional spectrum available in these bands was distributed between two operators, Telenor and Crnogorski Telekom, whereas the third operator MTEL did not show any interest in additional spectrum.

Mobile operators are allowed to use the GSM bands for UMTS and LTE services. Montenegro has also awarded several licences for fixed wireless access. Analogue switch-off was initially planned for 2012, but according to a recent government proposal it is likely to be postponed until June 17, 2015.

| 900 MHz                      | 1800 MHz                     | 2 GHz              | 3.5 GHz                      | 3G/4G in 900/1800? |
|------------------------------|------------------------------|--------------------|------------------------------|--------------------|
| 3 licences<br>2002 (2), 2007 | 3 licences<br>2002 (2), 2007 | 3 licences<br>2007 | 5 licences<br>2007 (4), 2009 | 3G/4G allowed      |

## 5. Competitive safeguards

Montenegro has made major progress after the first round of market analyses was completed by EKIP. Reference offers were published by the incumbent operator for interconnection (including CS and CPS), wholesale broadband access, wholesale line rental and LLU. Number portability in fixed and mobile networks, regulatory obligations enabling MVNO access and national roaming on all three mobile networks were introduced in late 2011.

|      | CS   | CPS  | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO | WBA | WLR | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|------|------|----------|-----------|-----------|------------|-----|-----|-----|------|--------------|------------|-------------|---------------|
| 2005 | X    | X    | X        | X         | ✓         | X          | X   | X   | X   | X    | X            | X          | X           | X             |
|      | 2007 | 2011 | -        | -         | -         | -          | -   | -   | -   | -    | -            | -          | -           | -             |
| 2012 | ✓    | ✓    | ✓        | ✓         | ✓         | ✓          | ✓   | ✓   | ✓   | ✓    | ✓            | X          | X           | X             |

## 6. Market structure

The fixed telephony market is strongly dominated by Crnogorski Telekom, which has 96% market share in provision of fixed voice telephony and 81% in provision of fixed broadband. Competition has emerged in mobile networks with three operators having similar market shares. Mobile penetration is very high even compared with EU member states.

|      | Fixed lines penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|-------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 31%                     | 78%                | -                           | -                            | 11.7%                                 |
| 2012 | 28%                     | 187%               | 13.6%                       | 10.4%                        | 8.7% (2010)                           |

## 7. Outlook

Competition in fixed markets remains low, as most of the competitive safeguards introduced in 2011 are still at a very early implementation stage. EKIP made major progress in 2010 with its first market analyses and completed its review of further markets in 2011.

Administrative capacity of EKIP has been improved while the capacity of the ministry remains limited. The appeal system raises concerns over the NRA independence.

## E. Serbia

### 1. Legislative framework

With the adoption of the Law on Electronic Communications of 2010, Serbia has aligned its legislation with the EU 2003 regulatory framework and also introduced some elements of the EU 2009 framework.

| EU 2003 regulatory framework | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| 2010                         | no draft yet                 | 2009                    | 2004                     | ✓                      | 2009                     |

### 2. Institutional framework

The national regulatory authority, RATEL, was established in 2003 but became operational only in 2005. During its first years of operation, RATEL's independence had been challenged by the ministry's supervision powers and by the systematic delays in approval of its board members. The institutional capacity of RATEL has improved recently, but its expertise on implementation of the regulatory framework still needs to be strengthened.

The Ministry of Culture, Media and the Information Society has overall responsibility for policy in the sector, including spectrum and universal service. A unit "Administration for Digital Agenda" within the ministry is specifically responsible for information society issues. The key functions of the government and the electronic communications sector regulator were redefined in the laws adopted in 2010.

The new Law on Cinematography adopted in December 26, 2011 further undermines RATEL's financial independence. According to this new law, RATEL is required to transfer 10% of its gross annual revenue from the collected fees to the State Cinema Centre created in order to promote national film industry.

| NRA  | NRA appeals   | Government  | Other  | State ownership  |
|--|---|---|--|--|
| Republic Electronic Communications Agency (RATEL Agency) | Appeals against regulatory decisions can be brought before the Administrative Court and can be further appealed to the Supreme Court. | Ministry for Culture, Media and the information Society (took over the previous Ministry of Telecommunications and Information Society in 2011)<br>Administration for Digital Agenda within the Ministry is specifically responsible for information society issues | Commission for Protection of Competition (since 2005)<br>Republic Broadcasting Agency (since 2003) | Government controls 100% of the incumbent Telekom Srbija |

### 3. Market access conditions

Serbia has been the last among the monitored countries to liberalise fixed voice telephony in January 2012. Although the market was formally liberalised since June 2005, only two licences were issued to alternative operators: a fixed wireless access licence in 2009 and a fixed network licence in 2010.

From January 1, 2012 general authorisation regime applies to all types of electronic communications services.

| Liberalisation of fixed voice telephony                              |          |               | Liberalisation of data networks       | General authorisation                           | Remaining restrictions |
|--|----------|---------------|---------------------------------------|---|------------------------|
| local  | national | international |                                       |   |                        |
| Formal liberalisation: 2005<br>De facto liberalisation: January 2012 |          |               | 2005<br>International gateways – 2008 | 2010 (except fixed voice)<br>2012 (fixed voice) | none                   |

#### 4. Spectrum assignments

Serbia has three mobile network operators, each offering GSM and UMTS services. Two national licences for CDMA-based fixed wireless access in the 410 MHz band were issued in 2009. The 3.5 GHz band is only used at specific locations, mainly within Belgrade and Novi Sad. Analogue switch-off initially planned for April 2012

Mobile operators are not allowed to implement 3G services in the 900 MHz and the 1800 MHz bands and there has been little progress on refarming. Some part of the spectrum in the 900 MHz band (E-GSM spectrum) is currently reserved for the use by military services, which makes refarming process problematic.

| 900 MHz            | 1800 MHz           | 2 GHz              | 3.5 GHz               | 3G/4G in 900/1800? |
|--------------------|--------------------|--------------------|-----------------------|--------------------|
| 3 licences<br>2006 | 3 licences<br>2006 | 3 licences<br>2006 | several local permits | X                  |

#### 5. Competitive safeguards

Serbia has been lagging behind with implementation of competitive safeguards. However, following the adoption of the final market analysis decisions at the end of 2011, some progress has been reported with introducing key competitive safeguards in the first half of 2012.

|      | CS | CPS | NP<br>fixed | NP<br>mobile | RIO<br>fixed | RIO<br>mobile | RUO | WBA  | WLR | MVNO | nat.<br>roaming | LRIC<br>fixed | LRIC<br>mobile | tariff<br>rebal. |
|------|----|-----|-------------|--------------|--------------|---------------|-----|------|-----|------|-----------------|---------------|----------------|------------------|
| 2005 | X  | X   | X           | X            | X            | X             | X   | X    | X   | X    | X               | X             | X              | X                |
|      | -  | -   | -           | 2011         | 2008         | -             | -   | 2006 | -   | -    | 2006            | -             | -              | -                |
| 2012 | X  | X   | X           | ✓            | ✓            | ✓             | ✓   | ✓    | X   | X    | ✓               | X             | X              | X                |

#### 6. Market structure

Fixed lines penetration is one the highest amongst the monitored SEE countries, but Telekom Srbija remained the only licensed provider of fixed voice services until 2010. There is some competition in broadband access services, mainly from cable operators. In the xDSL market, alternative operators rely on the wholesale bitstream access offer and international connectivity from Telekom Srbija and their position has been weakening in competition with the incumbent's retail offers.

In mobile telephony services, the market is split 53%, 31% and 16% between Telekom Srbija, Telenor and VIP mobile (based on subscriber numbers). Mobile broadband is still at its early stage.

|      | Fixed lines<br>penetration | Mobile penetration | Fixed broadband<br>penetration | Mobile broadband<br>penetration | Electronic<br>communications<br>as % of GDP |
|------|----------------------------|--------------------|--------------------------------|---------------------------------|---|
| 2005 | 34%                        | 57%                | <0.1%                          | -                               | 4.5%  |
| 2012 | 40%                        | 143%               | 13.4%                          | 3.4%                            | 5.3% (2010)                                 |

#### 7. Outlook

Over the past two years, Serbia has been progressively aligning its legislation with the EU *acquis*, but implementation of the competitive safeguards has started only recently, following the first round of market analyses completed by RATEL.

Investment in electronic communications has been largely driven by mobile networks operators which contributed to almost 60% of total investment in the sector in 2011. Future market growth primarily depends on the promotion of mobile broadband which requires a more technology neutral and open spectrum policy fully aligned with the EU regulatory framework.

## F. Turkey

### 1. Legislative framework

Turkey's Electronic Communications Law of 2008 brought the Turkish regulatory framework closer to the EU 2003 framework. However, Turkey's legislation remains a complex hierarchy of laws, bylaws and regulations, with some key issues addressed only by secondary legislation.

Turkey has still to adopt a law transposing the Electronic Commerce Directive: although a [draft law](#) was prepared by the Ministry of Justice and submitted to the Grand National Assembly of Turkey on December 27, 2010, there has been no further progress towards its adoption.

| Electronic communications law | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|-------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| 2008                          | x                       | 2004                     | ✓                      | Secondary legislation    |

### 2. Institutional framework

Legislation adopted in 2008 introduced a clearer distinction between the competencies of the regulator, ICTA, and the ministry and stipulated ICTA's independence. However, the ministry remains responsible for the implementation of universal service and has the authority to launch tender procedures for spectrum authorisations.

| NRA   | NRA appeals  | Government  | Other   | State ownership  |
|---|--|---|---|--|
| The <a href="#">Information and Communication Technologies Authority</a> (ICTA, until 2008: Telecommunications Authority) | Appeals against regulatory decisions are decided by courts (Council of State or Administrative Court). | The <a href="#">Ministry of Transport Maritime Affairs and Communications</a> is responsible for policy making in the electronic communications sector. <a href="#">Ministry of Development</a> (taken over responsibilities of the State Planning Organization since June 2011) is responsible for long-term strategies. | <a href="#">Competition Authority</a> (since 1997)<br><a href="#">Radio and Television Supreme Council</a> (since 1994) | In 2005 the state sold 55% of its shares in the fixed incumbent Turk Telekom.<br>Currently, the state holds 30% and a golden share of Turk Telekom and controls the satellite and cable TV operator Turksat.<br>Indirectly, through Turk Telekom, the state also controls 24% of the mobile operator Avea. |

### 3. Market access conditions

Full liberalisation of fixed voice telephony has been a slow process. Although the new Electronic Communications law came into force in 2008, the general authorisation framework and liberalisation of local services became effective only in May 2009.

Older authorisation and concession agreements that were signed before the entry into force of the new law have not been aligned with the new legal framework and will remain in force until they expire, unless they are annulled or terminated. This includes the authorisation agreement for Turksat (satellite operator), the concession agreement for Turk Telekom valid until 2026 and the six concession agreements for the mobile operators (one each for GSM – valid until 2023 and one each for UMTS – valid until 2029).

A change in the authorisation ordinance introduced in September 2011 requires operators authorised under concession agreements to limit the provided services to the ones explicitly covered within the scope of concession agreements. In practice this implies that operators have to establish separate new business entities should they wish to provide additional services outside the scope of their concession agreements.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks | General authorisation | Remaining restrictions         |
|---|----------|---------------|---------------------------------|-----------------------|--------------------------------|
| local                                   | national | international |                                 |                       |                                |
| 2009                                    | 2004     | 2004          | 2006                            | 2009                  | Concession agreements in place |

#### 4. Spectrum liberalisation

Turkey has three mobile network operators, each offering GSM and UMTS services. Turkey has not awarded licences for fixed wireless access. Analogue switch-off is planned to be completed by March 2015.

In 3Q 2011 ICTA drafted a proposal to allow 3G services in the 900 and 1800 MHz bands, which it sent to the ministry as an input for consideration in policy making. It also proposed that before this change takes place, additional spectrum in the 900 MHz (E-GSM) and 1800 MHz bands may be auctioned to operators that do not have a certain amount of frequencies in these respective bands.

| 900 MHz                      | 1800 MHz          | 2.1 GHz            | 3.5 GHz    | 3G in 900/1800? |
|------------------------------|-------------------|--------------------|------------|-----------------|
| 3 licences<br>1998 (2), 2000 | 1 licence<br>2000 | 3 licences<br>2008 | no licence | X               |

#### 5. Competitive safeguards

Turkey has made significant progress with introducing competitive safeguards since 2005, as shown in the table below. Tariff rebalancing is also well advanced. Because liberalisation of local calls was late (2009), carrier (pre-)selection for local calls was implemented only in 2009. Turk Telekom's first reference offer for WLR was approved in July 2011, and Turk Telekom was required to be ready to provide the service by January 2012. ICTA also approved Turk Telekom's first reference offer for leased lines in December 2011.

Following the analysis of the wholesale market for access and call origination on mobile networks, Turkcell, as an operator with SMP, is required to provide national roaming and MVNO access on reasonable request.

|      | CS                   | CPS                  | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO  | WBA  | WLR  | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|----------------------|----------------------|----------|-----------|-----------|------------|------|------|------|------|--------------|------------|-------------|---------------|
| 2005 | X                    | X                    | X        | X         | ✓         | ✓          | X    | X    | X    | X    | X            | X          | X           | X             |
|      | 2006<br>(2009 local) | 2006<br>(2009 local) | 2009     | 2008      | -         | -          | 2006 | 2007 | 2011 | 2009 | 2009         | 2009       | 2009        | -             |
| 2012 | ✓                    | ✓                    | ✓        | ✓         | ✓         | ✓          | ✓    | ✓    | ✓    | ✓    | ✓            | ✓          | ✓           | ✓             |

#### 6. Market structure

Competition in the fixed networks sector started late, as Turk Telekom had exclusive rights to the provision of local networks and services until 2009. In the internet market, the retail and wholesale arms of Turk Telekom were separated in 2006, when retail subsidiary TNet was established. In 2Q 2012 the Council of State stopped the execution of an ICTA decision of August 2011 that had allowed Turk Telekom to provide retail bundled internet services from January 1, 2012 under its own brand.

The mobile sector is more competitive, as there are three mobile network operators, although Turkcell has more than a 50% market share of both subscriptions and revenues. While fixed broadband penetration is moderate, mobile broadband penetration has grown fast in 2011-2012, following a slow start due to the late launch of UMTS.

|      | Fixed line penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 29%                    | 49%                | 0.7%                        | -                            | 3.6%                                  |
| 2011 | 21%                    | 87%                | 10.3%                       | 6.7%                         | 1.8% (2010)                           |

## 7. Outlook

Turkey has made significant progress in aligning its legislation with the EU regulatory framework and implementing competitive safeguards. However, major inconsistencies still remain in the authorisation regime, provisions on access and interconnection, regulation of retail tariffs and spectrum management.

Legislative alignment in the field of information society issues is progressing slowly and there are some major discrepancies from the EU rules. The provisions on internet content that may potentially limit the freedom of expression present a particular area of concern.

## G. Albania

### 1. Legislative framework

Albania has implemented the EU *acquis* relatively late, between 2008 and 2010. The electronic communications law is based on the EU 2003 regulatory framework.

The legislative procedure is slow. Amendments for introducing the EU 2009 regulatory framework were prepared in 2010, but have not been submitted to Parliament yet. Draft laws on rights of way and audiovisual media are being discussed in Parliament since 2010.

| EU 2003 regulatory framework | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| 2008                         | drafted 2010                 | 2009                    | 2008                     | ✓                      | 2010                     |

### 2. Institutional framework

The national regulatory authority was established in 2000 as an independent legal entity. However, its independence has in practice been hampered as parliament repeatedly replaced the entire board upon government initiative. In particular spectrum management and tariff regulation are subject to strong political influence. The administrative capacity and resources of the regulator remain limited.

| NRA  | NRA appeals   | Government  | Other  | State ownership  |
|--|---|---|--|--|
| <a href="#">Electronic and Postal Communications Authority</a> (AKEP, until 2008: TRE) | Appeals against regulatory decisions can be brought before district civil courts. Appeal procedures are slow and inefficient. | Since 2009 the <a href="#">Ministry for Innovation and ICT</a> is responsible for all information society topics. | <a href="#">National Agency on Information Society</a> (since 2007)<br><a href="#">Competition Authority</a> (since 2004)<br><a href="#">National Council on Radio Television</a> (since 1999) | In 2007 the state reduced its stakes in the fixed incumbent Altelecom and mobile operator Eagle Mobile from 100% to 24%. |

### 3. Market access conditions

General authorisation for all electronic communications networks and services was introduced in 2008. An exception is that provisions in the law on broadcasting prevent cable network operators from providing other electronic communications services such as voice telephony or broadband access. However, cable operators can circumvent that restriction in practice by establishing a separate legal entity. The draft legislation currently waiting parliamentary approval removes this restriction.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks | General authorisation | Remaining restrictions |
|---|----------|---------------|---------------------------------|-----------------------|------------------------|
| local                                   | national | international |                                 |                       |                        |
| 1998 (rural)<br>2007 (urban)            | 2003     | 2005          | 1998                            | 2008                  | cable operators        |

### 4. Spectrum assignments

Liberalisation of access to spectrum is slow and hampered by political interventions. AKEP prepared issuing four UMTS licences in 2010, but the minister decided to award only one licence in 2010, then another in 2011. An attempt to issue a third licence failed in February 2012 as both bids offered by the two remaining mobile operators were below the reserve price.

Albania has not awarded licences for fixed wireless access. A new strategy for analogue switch-off adopted in May 2012 provides for completing switchover by June 17, 2015.

| 900 MHz                              | 1800 MHz                                | 2 GHz                    | 3.5 GHz    | 3G/4G in 900/1800? |
|--------------------------------------|---|--------------------------|------------|--------------------|
| 4 licences<br>1999, 2001, 2004, 2009 | 4 licences<br>1999, 2001, 2004,<br>2009 | 2 licences<br>2010, 2011 | No licence | ✗                  |

## 5. Competitive safeguards

Albania is lagging behind with implementation of competitive safeguards, but made progress with the introduction of mobile number portability in May 2011 and plans to implement fixed number portability in 2012. Carrier selection became available for international calls in 2011; for national calls it is about to be implemented. AKEP approved the first RUO of Albtelecom in May 2012.

|      | CS   | CPS  | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO  | WBA  | WLR | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|------|------|----------|-----------|-----------|------------|------|------|-----|------|--------------|------------|-------------|---------------|
| 2005 | x    | x    | x        | x         | x         | x          | x    | x    | x   | x    | x            | x          | x           | x             |
|      | 2012 | 2012 | 2012     | 2011      | 2009      | 2009       | 2012 | 2012 | -   | -    | -            | 2009       | 2009        | -             |
| 2012 | ✓    | ✓    | x        | ✓         | ✓         | ✓          | ✓    | x    | x   | x    | x            | ✓          | ✓           | x             |

## 6. Market structure

Fixed lines penetration and broadband penetration are amongst the lowest in the region. Albtelecom remains the dominant player. The mobile sector is still dominated by AMC and Vodafone, as the third and fourth operator became operational only in 2008 and 2010, respectively. Mobile broadband is at an early stage of development.

|      | Fixed lines penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|-------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 9%                      | 39%                | no DSL available            | -                            | 6.2%                                  |
| 2012 | 12%                     | 185%               | 4.9%                        | 1.2%                         | 4.7% (2010)                           |

## 7. Outlook

Regulation of electronic communications markets and information society services has developed slowly, but gained speed over the past three years.

New government policies and AKEP's work plans set ambitious goals to complete implementation of the EU *acquis* in due course. The legal basis should be approved by parliament in 2012, but it remains to be seen if government intervention will continue to delay, or at worst overturn the required liberalising reforms. Practical implementation has often been hampered by a lack of institutional stability as well as political interventions.

The NRA needs additional resources to introduce further competitive safeguards and to enforce its decisions.

## H. Bosnia and Herzegovina

### 1. Legislative framework

Bosnia and Herzegovina is lagging behind its neighbouring countries. The electronic communications law is mainly based on the EU 1998 regulatory framework and the country has not made progress with drafting a new electronic communications law or cybercrime legislation.

Against the background of continued discussions on division of powers between the entities and the state, separate electronic commerce and electronic signature laws have been adopted at state level and in the Republika Srpska and are not aligned with each other.

| EU 2003 regulatory framework | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| X                            | no draft yet                 | 2007                    | 2006                     | X                      | X                        |

### 2. Institutional framework

The Communications Regulatory Agency (RAK) was established in 2001 as a converged regulator for telecommunications and media. Implementation of the EU regulatory framework is hindered by a lack of administrative capacity and resources both at the regulator and in the ministry. The Council of Ministers has failed to appoint the Director General of RAK since 2007 and RAK council members since 2009.

| NRA   | NRA appeals   | Government   | Other   | State ownership   |
|---|---|--|---|---|
| <a href="#">Communications Regulatory Agency</a> (RAK, since 2001), converged regulator for electronic communications and media | Appeals against regulatory decisions are decided by the State Court. The appeal procedure can take several years. | Council of Ministers is responsible for adopting policies. <a href="#">Ministry of Communications and Transport</a> drafts policies and legislation. | <a href="#">Council of Competition</a> (since 2004)<br>Plans to establish an Agency for Development of the Information Society at state level have not been successful. | There are three incumbent operators. Telekom Srpske is fully privatised, but the other two (BH Telecom and HT Mostar) are still controlled by the Federation of Bosnia & Herzegovina. |

### 3. Market access conditions

Liberalisation of the telecommunications markets was completed at the beginning of 2006. The authorisation regime however remains based on individual licences. No decision has been taken on the introduction of general authorisation regime, although RAK has been consulting on a possibility to implement it for internet service providers. In 2011 and 2012 RAK reduced annual licensing fees for operators of public fixed telephony networks and for providers of public voice telephony services.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks | General authorisation | Remaining restrictions |
|---|----------|---------------|---------------------------------|-----------------------|------------------------|
| local                                   | national | international |                                 |                       |                        |
| 2002                                    | 2002     | 2006          | 2002                            | X                     | none                   |

### 4. Spectrum assignments

The three incumbent operators have equivalent spectrum blocks in the 900 MHz, 1800 MHz and 2 GHz bands. UMTS licences were awarded late, in 2009. Since 2010, the 900 and 1800 MHz bands are technology neutral and allow deployment of UMTS services.

The digital switchover initially scheduled for the end of 2011 has been postponed until December 2014. No licences for fixed wireless access have been awarded, but several operators offer wireless broadband services in the unlicensed 2.4 GHz and 5 GHz bands.

| 900 MHz         | 1800 MHz        | 2 GHz           | 3.5 GHz    | 3G/4G in 900/1800? |
|-----------------|-----------------|-----------------|------------|--------------------|
| 3 licences 2004 | 3 licences 2004 | 3 licences 2009 | no licence | 3G allowed         |

## 5. Competitive safeguards

Bosnia and Herzegovina has been slow with implementation of competitive safeguards. However, several important competitive safeguards have been introduced and implemented over the past two years. Carrier pre-selection introduced in 2007, finally became available in practice in 2009. First reference interconnection offers were published by mobile operators in April 2011 together with provisions enabling MVNO access. Number portability in fixed networks was introduced in September 2011, whereas in mobile networks it has been repeatedly delayed and is expected to be introduced in 2012.

|      | CS   | CPS  | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO  | WBA | WLR | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|------|------|----------|-----------|-----------|------------|------|-----|-----|------|--------------|------------|-------------|---------------|
| 2005 | x    | x    | x        | x         | x         | x          | x    | x   | x   | x    | ✓            | x          | x           | x             |
|      | 2007 | 2010 | 2011     | –         | 2006      | 2011       | 2010 | –   | –   | 2011 | –            | –          | –           | –             |
| 2012 | ✓    | ✓    | ✓        | x         | ✓         | ✓          | ✓    | x   | x   | ✓    | ✓            | x          | x           | x             |

## 6. Market structure

The specific aspect of Bosnia and Herzegovina is the existence of three regional incumbent operators. The incumbents face little competition with regard to fixed voice telephony services, but strong competition from alternative cable and wireless networks offering broadband access. Each of the incumbents also offers mobile services nation-wide. Mobile broadband is still at a very early phase.

|      | Fixed lines penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|-------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 25%                     | 34%                | 0.1%                        | -                            | 7.6%                                  |
| 2012 | 24%                     | 83%                | 11.2%                       | 2.5%                         | 5.2% (2010)                           |

## 7. Outlook

Bosnia and Herzegovina is impaired by the lack of coordination between different levels and institutions within its government, the struggle for competencies between the state and the entities and overall limited administrative capacity. The country went through a period of 15 months during October 2010 – January 2012 without a central government and without a budget, which has hampered policymaking. The new government was only formed in February 2012.

This has further delayed the alignment of legislation with the EU 2003 and 2009 regulatory frameworks and weakened the position of the NRA.

Nevertheless, RAK has made a progress in implementing competitive safeguards and adopting regulations on market analysis based on the EU regulatory framework. The key priorities for the regulator are carrying out market analysis and enforcement of regulatory obligations.

I. Kosovo\*

1. Legislative framework

Kosovo is in the process of renewing its entire information society legislation, which was mostly based on laws adopted in 2002. A new Law on the information society services (comprising electronic commerce, electronic signature and other topics) came into force in April 2012. Parliament is expected to adopt a new Law on electronic communications in mid 2012. This law will transpose the EU 2003 and 2009 regulatory frameworks.

| EU 2003 regulatory framework  | EU 2009 regulatory framework | Electronic commerce law | Electronic signature law | Cybercrime legislation | E-government legislation |
|-------------------------------|------------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| adoption expected in mid 2012 |                              | 2012                    | 2012                     | 2010                   | 2012                     |

2. Institutional framework

The Telecommunications Regulatory Authority was established in 2003 as an independent legal entity. However, its operations have been subject to political and administrative interference. Furthermore, TRA is lacking human resources and has difficulties attracting and retaining qualified staff. All funds collected by TRA are transferred to the state and TRA is fully dependent on the state budget for its financing.

The new Law on electronic communications will replace TRA by the Regulatory Authority of Electronic and Postal Communications (“the new Authority”). The new Authority will be the legal successor of the TRA and the Chairman and the members of the Board will continue to perform their functions until the expiry of their current terms. The new Authority will be an “autonomous public, independent, non-budgetary legal entity” which is independent in its work and decision-making. The rules on its structure and operation are generally aligned with the EU *acquis*. The new law also envisages that the Authority will have an independent budget financed through administrative fees and fees for the usage of limited resources by the industry actors.

In 2011 the competencies at government level were moved to the Ministry of Economic Development, which is also in charge for state ownership functions and privatisation of the incumbent PTK.

| NRA   | NRA appeals   | Government  | Other  | State ownership   |
|---|---|---|--|---|
| <a href="#">Telecommunications Regulatory Authority (TRA)</a> | Appeals against regulatory decisions can be brought before the Administrative Court. Appeal procedures take longer than one year. | <a href="#">Ministry of Economic Development</a> (since 2011) | <a href="#">Competition Commission</a> (since 2008)<br><a href="#">Independent Media Commission</a> (since 2005) | The incumbent operator PTK is still 100% state owned. A procedure to privatise 75% was stopped in October 2011, but government has initiated a new procedure. |

3. Market access conditions

Although telecommunications markets were formally liberalised in 2003, the practical implementation was delayed and PTK maintained exclusive rights for international gateways until the end of 2007. The new Law on electronic communications will replace the licensing framework by a general authorisation regime for all electronic communications networks and services.

| Liberalisation of fixed voice telephony |          |               | Liberalisation of data networks       | General authorisation | Remaining restrictions |
|---|----------|---------------|---------------------------------------|-----------------------|------------------------|
| local                                   | national | international |                                       |                       |                        |
| 2003                                    | 2003     | 2008          | 2003<br>International gateways – 2008 | 2012 (planned)        | none                   |

\*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence.

#### 4. Spectrum assignments

Kosovo has only two authorised mobile network operators and is the only country in the SEE region not having awarded any UMTS licence. Kosovo has neither awarded licences for fixed wireless access, nor made the 900 and 1800 MHz bands technology neutral. Neither has it decided on a strategy for analogue switch-off and use of the digital dividend.

| 900 MHz                  | 1800 MHz                 | 2 GHz      | 3.5 GHz    | 3G/4G in 900/1800? |
|--------------------------|--------------------------|------------|------------|--------------------|
| 2 licences<br>2004, 2007 | 2 licences<br>2007, 2011 | No licence | No licence | X                  |

#### 5. Competitive safeguards

Most of the competitive safeguards foreseen by the EU *acquis* have not been yet implemented in Kosovo, but TRA has finalised its first analysis of fixed telephony and access markets in February 2012 and is about to complete the first market analysis of the mobile call termination market.

The first RIO of the fixed incumbent operator was approved in 2007. A regulatory framework for MVNOs was introduced in 2008 and two MVNOs became operational. Number portability cannot be fully implemented in the absence of the country code.

|      | CS | CPS | NP fixed | NP mobile | RIO fixed | RIO mobile | RUO | WBA | WLR | MVNO | nat. roaming | LRIC fixed | LRIC mobile | tariff rebal. |
|------|----|-----|----------|-----------|-----------|------------|-----|-----|-----|------|--------------|------------|-------------|---------------|
| 2005 | X  | X   | X        | X         | X         | X          | X   | X   | X   | X    | X            | X          | X           | X             |
|      | -  | -   | -        | -         | 2007      | -          | -   | -   | -   | 2008 | -            | -          | -           | -             |
| 2012 | X  | X   | X        | X         | ✓         | X          | X   | X   | X   | ✓    | X            | X          | X           | X             |

#### 6. Market structure

Kosovo has the lowest fixed lines penetration in the region and fixed voice telephony is still dominated by the incumbent PTK. Internet and broadband access markets are more competitive, with about 75% of market share held by alternative cable operators. There are two mobile network operators and two MVNOs, but the mobile retail market continues to be dominated by the incumbent's mobile subsidiary Vala, with about 70% market share.

|      | Fixed lines penetration | Mobile penetration | Fixed broadband penetration | Mobile broadband penetration | Electronic communications as % of GDP |
|------|-------------------------|--------------------|-----------------------------|------------------------------|---------------------------------------|
| 2005 | 4%                      | 16%                | 0.1%                        | -                            | 6.8%                                  |
| 2012 | 5%                      | 85%                | 8.3%                        | -                            | 5.4% (2010)                           |

#### 7. Outlook

Over the last years Kosovo has undertaken significant efforts to align its legislation with the EU *acquis*.

Administrative capacities of TRA still need to be strengthened to ensure effective implementation and enforcement of the regulatory framework. TRA's budget and headcount are the smallest in the region. Most competitive safeguards have not yet been implemented.

The cancelled sale of the telecommunications part of PTK in late 2011, and the associated allegations of corruption, has unsettled the investment climate in the sector. It remains to be seen whether the re-launched privatisation of PTK will contribute to a more competitive outcome.