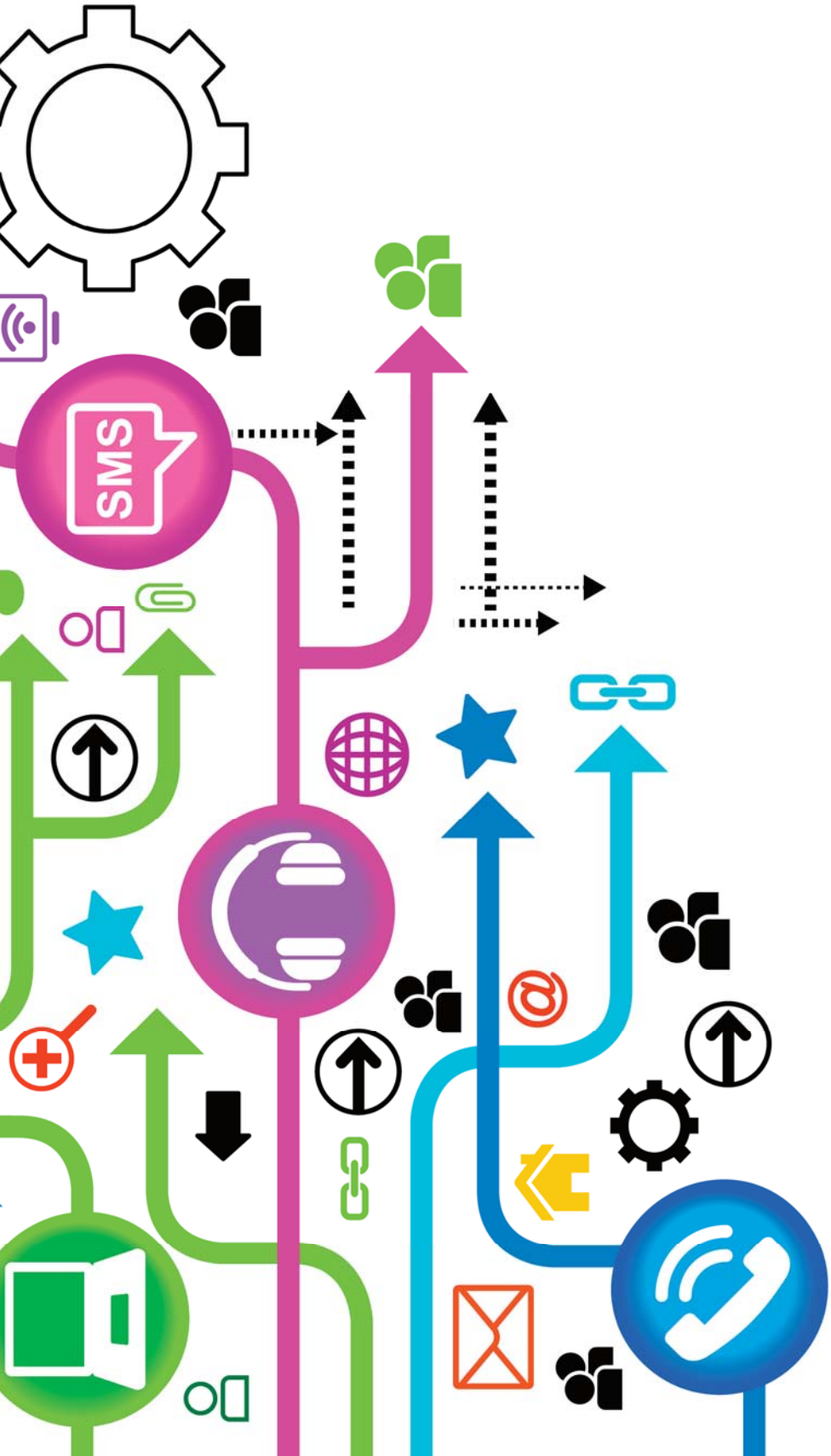
2012
Electronic Communication Sector Comparative Assessment

Central and Eastern Europe, Central Asia and Southern and Eastern Mediterranean



European Bank
for Reconstruction and Development

European Bank for Reconstruction and Development (EBRD)

2012 Electronic Communications Sector Comparative Assessment

Full report

0: EXECUTIVE SUMMARY

This report presents the results of an assessment of the legal and regulatory frameworks for the electronic communications markets in 31 current and prospective countries of operation of the European Bank for Reconstruction and Development (EBRD). The results indicate that the legal and regulatory risk associated in investing in the sector varies considerably from country to country. This investment risk is higher in some countries than others largely because they have not yet implemented many of the components of legal and regulatory best practice for the electronic communications sector that are now common features in lower risk countries.

The information society model used in the European Union (EU) already embraces proven best practices for the electronic communications sector. Clear policy objectives for high speed broadband for all EU citizens are implemented in fully competitive markets in all EU member states. The EU framework encourages investment and provides effective consumer and investor safeguards. Competitively neutral state subsidies are also available as part of the overall EU best practice framework in order to help private sector investment build networks into the more remote areas.

In this assessment countries with the highest legal and regulatory risk are those where the most important aspects of best practice are absent. Those aspects include:

- Slow progress in fulsome implementation of market liberalisation, characterised by policy and state-ownership conditions that still favour incumbent operators over new market entrants.
- Slow progress in the implementation by national regulators of effective competitive market safeguards. The necessary steps here range from the relatively simple introduction of number portability and the removal of tariff subsidies, to the more complex regulatory mechanism of obliging dominant incumbent operators to give new market entrants access to existing telecommunications infrastructures in order to provide a competitive choice of modern services to consumers.
- The lack of adoption by policy makers and regulators of modern spectrum management methods to ensure that sufficient spectrum is available to satisfy market needs. The lack of available spectrum in some countries is likely to become a major concern, given the very high market demand for modern high speed internet and data services (mobile and fixed broadband services).

The main recommendation of this report on assessment is for the countries which are lagging behind to accelerate the adoption of legal and regulatory best practice. Existing market players and new entrants will benefit from better laws and regulations that are now common features in low-risk countries. Modern digital technologies can free up the previously monopolistic networks and give better consumer choice, quality and value for money, as well as driving innovation. More specific recommendations are to:

- Improve the speed and effectiveness of high-level decision making in the electronic communications sector by ensuring that sector policy is precise, more clearly stated and relevant to a broadband-enabled society.
- Improve the independence of regulation in the sector so that the decisions of the regulatory agencies are taken on the merits in a manner which fairly balances the interests of sector stakeholders, principally the consumers and investors. This often involves use of a transition to a “lighter touch” in regulation, leaving the decisions to the market, via consumer and investor choice (though the timing of such a transition will depend upon the maturity of the market in question).
- Remove unnecessary market entry barriers, such as lack of available spectrum and the requirement to obtain a licence even when scarce resources are not used, to better support market growth.
- Implement the normally expected competitive market safeguards so that consumers have more market choices and also that operators have greater and fairer wholesale access to existing infrastructures.
- Support "broadband for all" policies, bringing the benefits of the information society to all citizens, including, where necessary, appropriate, non-distortionary, state subsidies to encourage private investors to expand high speed infrastructures into the more remote areas.

1: BACKGROUND AND OBJECTIVES

1.1 Background

Under the Legal Transition Programme of the European Bank for Reconstruction and Development (the "EBRD" or the "Bank"), the Bank's Legal Transition Team has focused part of its work on the development of detailed analytical assessments of the state of legal transition in a number of commercial and financial sectors of its countries of operation. These assessments benchmark the developments in these sectors in each country against recognised international best practices, providing analysis of the existing legislative framework, comparison of that framework with best practice and the identification of gaps and legal and regulatory reform needs.

During 2012, as part of this programme of assessments, the EBRD undertook an evaluation and comparative analysis of the electronic communications sector of 31 current and prospective countries of operation (the "Assessment")[1]. The electronic communications sector in this context refers to the market for the supply of electronic communications services, principally across fixed or mobile platforms, or a combination of both. The countries which are the subject of Assessment are: Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Egypt, Estonia, FYR Macedonia, Georgia, Hungary, Jordan, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Morocco, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Tunisia, Turkey, Turkmenistan and Ukraine.

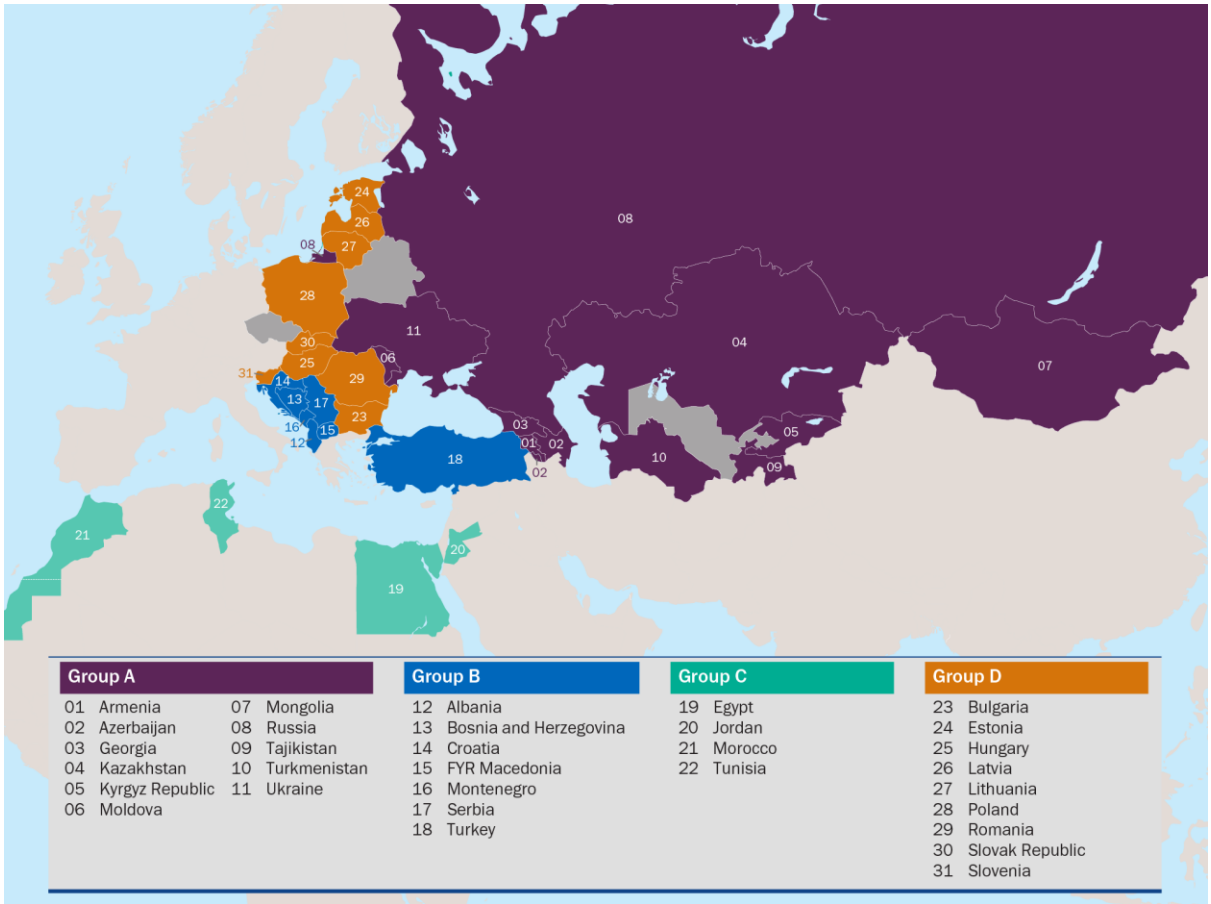
To prepare this Assessment report, EBRD contracted international consultants Premiere Dynamics Limited[2] and Great Village International Consultants Inc.[3] (the "Consultant"), with contributing assistance from Cullen International[4] and other sector specialists[5].

The results from the Assessment are available in this report and on the EBRD web site (www.ebrd.com/law).

1 This Assessment project was led for the EBRD by Paul Moffatt, Senior Counsel, (moffattp@ebrd.com)
2 Premiere Dynamics Limited is an independent consultancy specialising in information and communications technology. Contact peter.lundy@btopenworld.com
3 Great Village International Consulting Inc. (www.greatvillage.com – contact wburnfield@greatvillage.com) provided legal analysis for Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Croatia, Egypt, FYR Macedonia, Georgia, Jordan, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Montenegro, Morocco, Russian Federation, Serbia, Tajikistan, Tunisia, Turkey, Turkmenistan and Ukraine.
4 Cullen International SA (www.cullen-international.com) provided data and analysis on Albania, Bosnia and Herzegovina, Croatia, Egypt, FYR Macedonia, Jordan, Morocco, Montenegro, Serbia, Tunisia and Turkey. Contact Philippe.Defraigne@cullen-international.com
5 The Consultant also acknowledges the contributions made by the independent lawyers Ms Marina Gudtseva and Mr Dieter Kronegger, also Mr Djuro Otaseviof Law firm Nikolic Kolanovic Otasevic, Mr Steven Rawson of ICTLawyers and Mr Armen Ghalumyan.

1.2 Participant countries

The 31 countries participating in the 2012 Assessment are divided into four geographical groupings:



1.3 Objectives of the Assessment

The primary focus of the Assessment is to examine the conditions in place in the countries assessed that influence the decisions of investors in the electronic communications sector as to whether they will invest, or continue to invest, in the sector. The methodology of the Assessment is therefore and examination of whether the legal and regulatory frameworks for electronic communications in the Bank's countries of operation are sufficiently effective to secure fundamental sector transition and reform objectives. It therefore measures the state of play in the sector (such as level of approximation of local laws/regulations to recognised international standards, the level of implementation of regulatory reforms, etc.).

Through the Assessment, the EBRD also wishes to be in a position to assess the effectiveness of its technical cooperation efforts (in those countries where it has been active in this respect) as well as identifying new or additional technical cooperation that could be provided in furtherance of the Bank's mandate.

The specific objectives of the Assessment are:

- To define a best practice legal and regulatory framework that applies to a modern, competitive market for electronic communications.
- To compare the legal framework that exists in each participant country with defined best practice.
- To compare the implementation of the regulatory framework in each participant country with defined best practice.
- To produce a measure of legal/regulatory risk faced by investors in each country.
- To make recommendations that will move countries closer to a best practice legal and regulatory framework for the electronic communications sector.

1.4 The electronic communications sector

The focus of this report is the market for electronic communications, which includes fixed-line telephony and mobile communications services. The market also now includes broadband services, which provide consumers with digital capacity that enables voice, internet and broadcast services to be delivered to fixed connections (fixed broadband) and mobile users (mobile broadband).

The legal and regulatory frameworks which relate to the market that supplies and uses these services have undergone significant changes since the latter part of the 20th century. These changes have been driven by the rapid development of digital technologies and the internet. The traditional telecommunications and broadcast media services markets are being transformed by the influences of these technological developments. In particular, the traditional model of state-owned monopoly telecommunications and broadcasting supply has been largely replaced by the more sophisticated competitive supply of fixed and mobile services to meet the more sophisticated consumer demands for better quality services, mobility and higher speed of internet access.

The speed at which the electronic communications markets have been transformed has varied from country to country. One of the significant determinants of the speed of transition from monopolistic to competitive markets has been the progress made by each country's policy makers in adopting the enabling legal and regulatory frameworks. To put in place modern digital network infrastructures and competitive service delivery, the legal and regulatory frameworks need to be enablers, not barriers to investment. Investors, whether existing operators or new market entrants, require confidence in the legal and regulatory framework to induce them to invest. Since the wave of privatisations across the electronic communications sector in the 1990's and 2000's, the majority of investments in the sector are now private sector investments.

This Assessment takes an investor's perspective in examining the legal and regulatory framework for the electronic communications sector in each of the 31 participant countries. Where a country has a framework that is close to best practice, investors can be confident in the legal and regulatory conditions. With respect to these conditions, an investor can consider the electronic communications market to be low risk. Where the regulatory framework differs significantly from best practice, investors will be less confident and the risk will be higher, so the resulting investment is likely to be lower.

The results of the Assessment apply only to the electronic communications markets and in the context of the perceived investment risk in the legal and regulatory conditions applying to those markets.

2: ASSESSMENT METHODOLOGY

2.1 Taking an investor's view

The Assessment has studied the legal and regulatory conditions applying to the electronic communications sector in a wide variety of national markets. Investors take into account many factors before they decide whether to invest or not. This Assessment looks only at those factors which could influence their view on the legal and regulatory risk evident in the electronic communications sector in each country.

To conduct the Assessment, the legal and regulatory conditions have been examined in comparison with what investors would generally consider to be legal and regulatory best practice applying to the electronic communications sector. This approach attempts to put a value on how much legal and regulatory risk they face in each country, compared to a country where a best practice legal and regulatory framework is applied.

The countries with the highest implementation of best practice in the electronic communications sector present the lowest legal/regulatory risk to investors in that sector. The countries where best practice is not generally evident present the highest legal/regulatory risk to investors.

This section of the Assessment report provides a definition of legal and regulatory best practice in the electronic communications sector. It also describes the methodology for assessing the evidence of implementation in each country. In total there were eight components of legal evidence that were sought and five components of regulatory evidence, which together were used in the overall legal/regulatory risk Assessment.

This section also describes how numerical values have been placed on the degree of compliance of the country with the various benchmarks of legal and regulatory best practice, taking account of the eight legal components and five regulatory components. Lastly, the methodology describes how the various components have been weighted and combined to produce the overall legal/regulatory risk result.

2.2 What is legal and regulatory best practice in today's electronic communications sector?

The starting point for the legal and regulatory benchmarks used in the Assessment is the World Trade Organisation (WTO) 1997 reference paper[6], which was used by WTO members to open their markets for telecommunications services. In addition to the WTO principles, the next descriptor of legal/regulatory best practice is the found in the European Union (EU), whose member states have implemented a harmonised and effective legal and regulatory framework since 1998 based on the 1997 WTO open market principles. Competitive markets now exist within each of the EU's current 27 member states.

The EU's legal and regulatory framework (or *"acquis communautaire"*- the accumulated legislation, legal acts and court decisions that constitute the body of European Union law) has been adopted in the legal acts in each EU member state.

Many non-EU countries have also decided to implement the EU framework. Croatia has already fully adopted the framework in full preparation for its anticipated entry into the EU in 2013. Another six countries included in the Assessment are either EU candidate or potential EU candidate countries (Albania, Bosnia and Herzegovina, FYR Macedonia, Montenegro, Serbia and Turkey). Their progress towards full implementation is monitored regularly by the EU's executive arm, the European Commission. The latest progress report "Supply of services in monitoring regulatory and market developments for electronic communications and information society services in Enlargement Countries[7]" has been used extensively in this Assessment because it describes all the detailed evidence of implementation across a range of legal and regulatory developments in all the EU candidate and potential candidate countries.

In some other countries, notably Armenia, Azerbaijan, Egypt, Georgia, Jordan, Moldova, Morocco, Tunisia and Ukraine, some progress towards the implementation of the EU legal and regulatory framework has

6 http://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_posturuguay_neg_e.htm
7 www.cullen-international.com/cullen/main.htm

been initiated including actions resulting from various bi-lateral/multi-lateral initiatives, namely the European Neighbourhood Policy[8] (ENP) and Eastern Partnership[9] (EaP).

In the remaining six countries of this Assessment (Kazakhstan, Kyrgyz Republic, Mongolia, Russia, Tajikistan, Turkmenistan) some features of legal and regulatory best practice have been adopted. For example, Russia has recently made significant amounts of spectrum available in order for competing operators to develop the market for high speed broadband services. In all countries, there are some features of best practice implementation, for example in ensuring that competing operators interconnect. However, many components of legal/regulatory best practice are not fully implemented in these countries. Notably absent are:

- A modern system of market definition and market analysis leading to proportionate market remedies for lack of competition.
- A modern cost basis for interconnection and infrastructure access charges.
- The removal of regulatory licensing barriers when there are no scarce resources involved.

The same evidence of progress towards legal/regulatory best practice for the electronic communications markets has been collected for all the countries of this Assessment.

2.3 Definition of best practice for legal/regulatory principles and implementation in the electronic communications sector

The Assessment considers key components of the electronic communications legal and regulatory framework of the countries studied as measured against the same key components of international best practice. The context of the Assessment is the overall legal and regulatory risk faced by investors in the sector. This focus means that the key components selected are related to the reliability of the legal and regulatory framework (in terms of legal and regulatory certainty and risk) as perceived by investors. In their eyes, the legal and regulatory framework needs to provide an enabling, not a restricting environment. The framework needs to provide ease of market entry, with no artificial legal/regulatory barriers. The framework also needs effective competitive safeguards to ensure that incumbent dominant players do not have more rights than new entrants and do not use their market position to limit consumer choice or to erect barriers to competitors.

Legal and regulatory best practice therefore supports investment and competition. The WTO Reference Paper provides the starting principles for a best practice legal framework. The WTO framework has been chosen because nearly all the countries in the Assessment are members (or candidate members) of WTO and are therefore committed to open and liberalised markets.

The EU electronic communications framework provides the key features of best practice for the legal and regulatory implementation of the WTO principles. The EU framework has been chosen because the significant majority of the countries assessed have already adopted, or are making progress towards adopting it.

8 http://ec.europa.eu/world/enp/index_en.htm
9 http://eeas.europa.eu/eastern/index_en.htm

The WTO principles relating to the electronic communications sector

In 1997 a total of 70 countries agreed to open their markets for basic telecommunications services in a multilateral agreement. Since then, more countries have become WTO Members and/or signatories to the agreement on basic telecommunications services[10]. The agreement itself is complex and allows each signatory to define its own set of commitments, for example, which services can be open for international competition, the categories of business models that would be allowed and whether to extend these commitments to other countries or not, through "most-favoured-nation" clauses.

The WTO agreement also includes provisions for how this international competition should be regulated. This is done through a "Reference Paper"[11], which defines a set of regulatory principles for the establishment of fair market conditions. In the context of the trade negotiations that took place, the countries were given the choice of making a formal commitment to accept the Reference Paper. Most WTO Members made this commitment. From a legal point of view, a commitment to the Reference Paper means that it is part of the international treaty and therefore binding on the WTO Members.

The WTO Reference Paper itself is a short document that sets out rather broad and general principles that have achieved a high degree of consensus. Its main points are:

Competitive safeguards

- Prevention of anti-competitive practices.
- Safeguards, including with respect to the use of consumer and technical information and the removal of anti-competitive cross subsidies.

Interconnection

- Interconnection to be ensured.
- Public availability of the procedures for interconnection negotiations.
- Transparency of interconnection arrangements.
- Interconnection dispute settlement.

Universal service

- Obligations that are transparent and not anti-competitive.

Public availability of licensing criteria

- Timely decisions and reasons for denial.
- Publicly available licence conditions.

Independent regulators

- Independence from operators.
- Impartial decisions and procedures.

Allocation and use of scarce resources

- Any procedures for the allocation and use of scarce resources, including frequencies numbers and rights of way, will be carried out in an objective, timely, transparent and non-discriminatory manner.
- Published spectrum allocations.

10 The full name of the agreement is Scheduled Commitments on basic telecommunications services annexed to the Fourth Protocol of the GATS (15 February 1997)
11 http://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm

The EU framework for electronic communications

Technology and market developments, particularly in the latter part of the 20th century in electronic communications, gave rise to the development of a new regulatory framework within the EU. Its main aim was to strengthen market competition by making market entry easier and by stimulating investment in the sector. In 1998 all EU member states brought into force European legislation to liberalise their electronic communications markets. Since 1998 a number of additions to the EU framework have been made to improve competition and investment and to encourage a single European market. These measures (which have the status of legal directives that have to be adopted by all member states) have collectively been referred to as the "EU 2003 regulatory framework for electronic communications" and the "EU 2009 regulatory framework for electronic communications".

The EU 2003 regulatory framework for electronic communications consists of five directives and provides the legal and regulatory basis for the development of competitive markets for telecommunications services. The five directives are:

Framework Directive 2002/21/EC contains the legal basis for independent regulatory authorities which regularly analyse the electronic communications markets, based on the principles of European competition law, and adopt necessary remedies when they identify market failures.

Access Directive 2002/19/EC describes in more detail the obligations that national regulatory authorities may impose on operators with significant market power (SMP) to ensure competition. In particular, SMP operators can be required to grant access to their networks and services under non-discriminatory, transparent and cost-oriented conditions.

Authorisation Directive 2002/20/EC ensures that everybody can provide electronic communications networks and services without requiring a licence and without paying inappropriate fees or taxes. This framework of general authorisation ensures easy market access and creates a competitive environment.

Universal Service Directive 2002/22/EC ensures that a basic set of electronic communications services is available in the whole country, even where it would not be provided in an open and competitive market. This directive also contains many consumer protection provisions.

Privacy and Electronic Communications (e-Privacy) Directive 2002/58/EC protects the personal data of users and subscribers of electronic communications networks and services.

In 2009 the European Union amended the above directives, without changing the main objectives (directives 2009/136/EC and 2009/140/EC). The amended directives are collectively called the EU 2009 regulatory framework for electronic communications and include the following main reforms:

- The right of European consumers to change, in one working day, their fixed or mobile operator while keeping their old phone number.
- Better consumer information.
- Protecting citizens' rights relating to internet access by a new internet freedom provision.
- New guarantees for an open and more "neutral" network.
- Consumer protection against personal data breaches and spam.
- Better access to emergency services and 112 emergency number.
- Greater independence for national telecoms regulators.
- A new European Telecoms Authority (called BEREC[12]) that will help ensure fair competition and more consistency of regulation.
- New European Commission opinion on the competition remedies for electronic communications markets.
- Functional separation of operators as a remedy to overcome competition problems.
- Accelerating broadband access for all Europeans.
- Encouraging competition and investment in next generation access networks.

12 The Body of European Regulators for Electronic Communications http://berec.europa.eu/

Components of EU 2003 and 2009 Regulatory Frameworks[13]

EU 2003 Regulatory Framework	EU 2009 Regulatory Framework
Framework Directive 2002/21/EC Access Directive 2002/19/EC Authorisation Directive 2002/20/EC	Amended by: Better Regulation Directive 2009/140/EC
Universal Service Directive 2002/22/EC Privacy and Electronic Communications (e-Privacy) Directive 2002/58/EC	Amended by: Citizen's Rights Directive2009/136/EC
Competition Directive 2002/77/EC	Not amended
Radio Spectrum Decision 676/2002/EC	Not amended
-	BEREC Regulation EC/1211/2009

2.4 Converting the best practice principles and frameworks into a set of assessment criteria.

The legal and regulatory principles and implementation frameworks of the WTO and EU have been referenced in this Assessment because they have been widely recognised as best practice. Nearly all the countries of the Assessment are WTO members or candidate countries and the majority have already adopted or taken steps toward the adoption of the EU regulatory framework.

Legislative benchmarks for best practice

The legislative benchmarks have been defined with reference to the WTO principles and the implementation experience of the EU regulatory framework.

There are eight key benchmarks used in the legal framework part of the Assessment, which are summarised in the table below. For each benchmark, the situation in each country is compared with legal best practice to provide a score. To make up the overall legal component of the Assessment, these individual scores are weighted by the percentage shown in the table.

These percentages have been chosen to reflect the importance attached to the benchmark by investors. For example, the legal requirement for a regulator to make independent decisions based on clear evidence-based market analysis is highly valued by investors, because it gives them confidence that the regulator is concerned only with the best interests of the market, not other political or bureaucratic interests. For this reason the components concerned with regulatory independence, market analysis and enforcement are given the highest ratings.

13 http://europa.eu/legislation_summaries/information_society/legislative_framework/l24216a_en.htm

Legal benchmarks, weightings and components

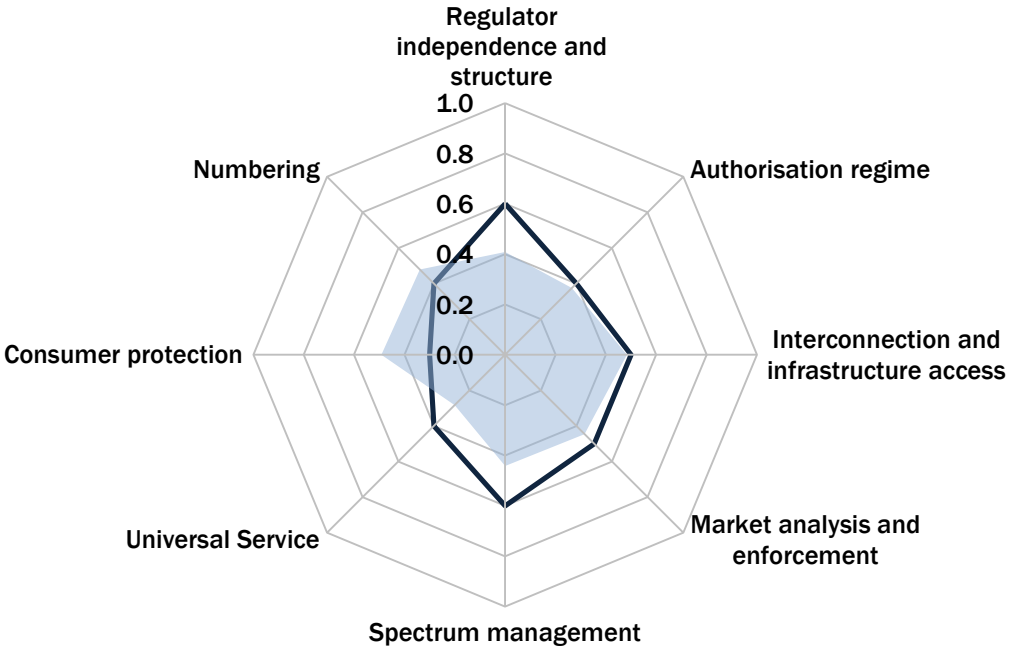
Weightings	Benchmarks	Components
20%	Regulator independence and structure	Separation of policy, regulatory and operational functions Structure and operation of the regulator
10%	Authorisation regime	Effective authorisation and licensing powers Where relevant, includes interim provisions transitioning from old to new legislative (particularly licensing) framework
10%	Interconnection and infrastructure access	Well defined interconnect, access, facilities sharing, and unbundling rights and obligations
20%	Market analysis and enforcement	Appropriate market analysis and other processes for designation of significant market power/dominance. Effective powers to impose and enforce additional obligations on dominant operators to prevent discrimination and abuse of dominance, including appropriate tariff regulation and other remedies. Effective dispute resolution powers and procedures Sufficient powers for the regulatory authority to enforce the law, impose fines or other effective penalties
10%	Spectrum management	Fully defined and effective spectrum management regime
10%	Universal service	Effective universal access/universal service powers and enabling framework Avoidance of competitive market distortions
10%	Consumer protection	Effective consumer protection provisions
10%	Numbering	Effective numbering administration
100%	Total weighting	The legal benchmarks together contribute 30% of the overall legal/regulatory risk assessment.

The legislative part of the Assessment is also intended to highlight situations where (as in many countries) the legislative regime lags behind the implemented regulatory environment in terms of alignment with international best practice. This typically occurs when national regulatory authorities or ministries have taken the lead in interpreting existing legislation (which can often be difficult and slow to amend) in a way that supports competition and market liberalisation and to promote higher investment in the sector.

The legal part of the Assessment is intended to provide a readable analysis that may be easily absorbed by investors, operators, international financial institutions, ministries, regulators and other key stakeholders.

Example of chart showing legal framework assessment results

Legal framework



Key: Extremities of the chart = International best practice
Subject country = Solid line
Regional average = Shaded area

Regulatory benchmarks for best practice

The regulatory benchmarks have been defined with reference to the WTO principles and the implementation experience of the EU regulatory framework. Firstly, it has been assumed in the Assessment that in every country the markets for electronic communications have already been legally liberalised. This assumption means that the in the legal framework of the country there is already provision for the entry of competitors into the market for all electronic communications services, including the provision of a fixed-lines and local calls, national and international calls, mobile calls, leased lines, internet, broadband and broadcast services, all provided individually or in service bundles.

In some countries there are still some restrictions to what competitors can legally do, for example in some countries interconnection has to take place via a certain network operator. In other countries, international calls, or international internet links have to be routed via a single gateway or single operator, which negotiates the international arrangements. Where such examples of retained monopolies are still allowed in the law, the country can only achieve a low score on conformity to international best practice.

It is important to note that the regulatory part of the assessment is concerned only with the situation as it is found in practice. If there is a legal requirement that is not implemented by the authorities in a particular country, or not enforced properly, then the regulatory assessment is likely to be low.

A particularly important part of regulatory best practice is the implementation of ex-ante (anticipatory) measures to improve market competitiveness (for the benefit of consumers and suppliers in the future). This means that the regulator uses modern procedures to define and analyse relevant markets, based on evidence from the market. If this evidence leads to a finding that a particular operator or operators have significant market power, then the regulator should decide and implement proportionate market remedies (in the form of legal obligations on operators with significant market power) to ensure that this power is not used anti-competitively.

The EU regulatory framework includes best practices in the area of ex-ante regulation when applied specifically to relevant electronic communications markets. Best practice includes the enforcement of the market remedies expected by investors (in particular the competitive safeguards that ensure number portability plus wholesale infrastructure access, wholesale broadband access and local loop unbundling plus the cost-orientation of the charges for these wholesale services). These factors are included in the regulatory part of the assessment in the components concerned with market conditions for wired and wireless services.

The five key benchmarks used in the regulatory part of the Assessment are summarised below. For each benchmark, the situation in each country is compared with the components of the benchmark to provide a score. To make up the overall regulatory assessment, these scores are weighted by the percentage shown. These percentages have been chosen to reflect the importance attached to the benchmark by investors. For example, a very significant part of investment is currently occurring in services requiring frequency spectrum (including mobile services and fixed wireless services). This component ("market conditions for wireless networks and services") is therefore given the highest weighting.

Regulatory benchmarks, weightings and components

Weightings	Benchmarks	Components
15%	Sector organisation and governance The structure of the electronic communications sector, including ownership, regulation funding and procedures.	Is there any state ownership in any fixed or mobile operator? What is the percentage of state ownership and the details of the shareholding ministry/agency? Do any operators retain any exclusive/monopoly rights to provide any service? Are the procedures for appointment/dismissal of National Regulatory Authority (NRA) director and board members prescribed and well defined in the law/regulations? Are there published and well-functioning procedures for dispute resolution between operators? Are there published and well-functioning procedures for parties to appeal NRA decisions at an independent appeal body (for example, to a court)? Does the NRA always conduct public consultations before making its key decisions? Are NRA decisions always published, for example, on the NRA web site or in national press/official bulletin? Is there a clear legal basis for full competition in the electronic communications market, including mechanisms for enforcement (for example, competition law or competitive provisions in the electronic communications law)? Is there well-functioning cooperation between the NRA and the competition authority? Does the NRA have its own budget independent from state funds? Does the NRA have sufficient human resources/regulatory experts? (For example, the NRA does not have sufficient resources if there are unfilled vacancies for regulatory experts or if a request has been made to increase regulatory staff count.) Is the country a member of any regional or international agreements (such as WTO) which have specific obligations related to the electronic communications sector? If so, please state in the comments what these obligations are and by what date they will be fulfilled. Does the country have a policy and date to adopt the EU regulatory framework for electronic communications? Is there a clear division of responsibilities between the NRA and the Ministry? (In other words, NRA decisions do not require government approval.)
30%	Market entry for wired networks and services (including licensing). Ease of market entry by operators and service providers who base their services on metallic, as opposed to wireless (spectrum) based methods. The competitive conditions in the market - what the	Is there a general authorisation regime fully implemented? (The aim for general authorisation is to reduce the barriers for the market entry by eliminating any requirements for explicit decision by the NRA and by limiting the procedural requirements to notifications only.) Are licenses technologically neutral? (Meaning that different fixed technologies do not require separate licences) Are there reasonable timeframes specified in the law or implemented in practice for obtaining rights-of-way permits from private or public property owners?

Weightings	Benchmarks	Components
	new entrant is and is not allowed to do.	Is passive infrastructure sharing mandated (ducts, poles, towers, masts, buildings and other facilities)? In other words, can an alternative operator have access to passive network elements owned by an existing operator at fair, cost-related charges?
		Is fixed-line tariff rebalancing completed? (Are fixed-line rental charges and call tariffs evenly related to costs?)
		Is fixed number portability implemented? (Can fixed-line subscribers change their service providers without changing their numbers?)
		Are carrier selection (CS) and carrier pre-selection (CPS) available?
		Has the fixed incumbent published a reference interconnection offer (RIO)?
		Are interconnection charges regulated (fixed call termination, call transit and call origination)?
		Has the fixed incumbent published a reference unbundling offer (RUO)?
		Is there a significant number of the incumbent's fixed-lines unbundled (>5% of the incumbent's total fixed-lines)?
		Are local loop unbundling (LLU) charges regulated?
		Is regulated wholesale broadband access (WBA) available?
		Is there a significant number of the incumbent's WBA lines being used by the alternative operators (>5% of the incumbent's total broadband lines)?
		Does the fixed incumbent offer wholesale line rental (WLR) service to the alternative operators?
		Is access to the fixed incumbent's international gateways included in the standard interconnection offer for use by the alternative operators?
		Are triple-play services allowed and being used by customers?
35%	Market entry for wireless networks and services (including licensing/ authorisations).	Are mobile licences technologically neutral? (Do different mobile technologies require separate licenses?)
		Do the interconnection regulations allow for entry into the market of mobile virtual network operators (MVNOs)?
	Ease of market entry by operators and service providers who base their services on wireless (spectrum) methods. This includes mobile services and fixed wireless services. The competitive conditions in the market - what the new entrant is and is not allowed to do.	Are there any MVNOs in existence?
		Is there a programme to re-farm frequencies in the 900 and 1,800 MHz bands?
		Is spectrum always granted to applicants on a first-come-first-serve basis or, if spectrum in particular bands is scarce, by a transparent public contest (for example, public auction or beauty contest)?
		Is secondary spectrum trading allowed? (Can holders trade their spectrum without first handing it back to the regulator?)
		Are interconnection charges regulated (mobile call termination)?
		Have mobile operators published their reference interconnection offers (RIO)?

Weightings	Benchmarks	Components
		Is national roaming required by the NRA (for mobile operators that do not have their own full geographical coverage)?
10%	Fees and taxation on electronic communications services. The types of payments required from operators/ service providers to the NRA or ministry in order to start and continue providing their services.	Are there administrative fees to be paid to the NRA (or ministry) based on the NRA/ministry administrative costs? Do operators/service providers have to pay into a universal services fund? Has the country imposed any special tax for telecommunications, besides the normal corporate or VAT taxes? Is the full system of payments required from operators/service providers clear, predictable and transparent?
5%	Progress towards implementation of Information Society. The country's environment for conducting business and providing services electronically.	Are providers of information society services exempt from obtaining any prior authorisation/licensing? For example, can a person open an on-line business and sell things over the internet without prior authorisation? Another example: can a person start an Internet Service Provider (ISP) business without prior authorisation? Does the country have a legal framework that recognises electronic contracts and signatures (or at least a certain form of them) as equivalent to hard copy contracts and handwritten signatures? Is domain registration liberalised (not limited to a single domain registrar)? Does the country have a liberalised approach to the freedom of expression and information (in other words, the country does not filter or block the internet)? Is there a functioning legal framework for protection of personal data? Has the country adopted any internationally recognised convention on cybercrime, or transposed any international best practices into the national legislation? (For example, has the Council of Europe convention on cybercrime been transposed into the national legislation?)
100%	Total weighting	The regulatory benchmarks together contribute 70% of the overall legal/ regulatory risk assessment

2.5 Putting the legal and regulatory scores into an overall risk assessment

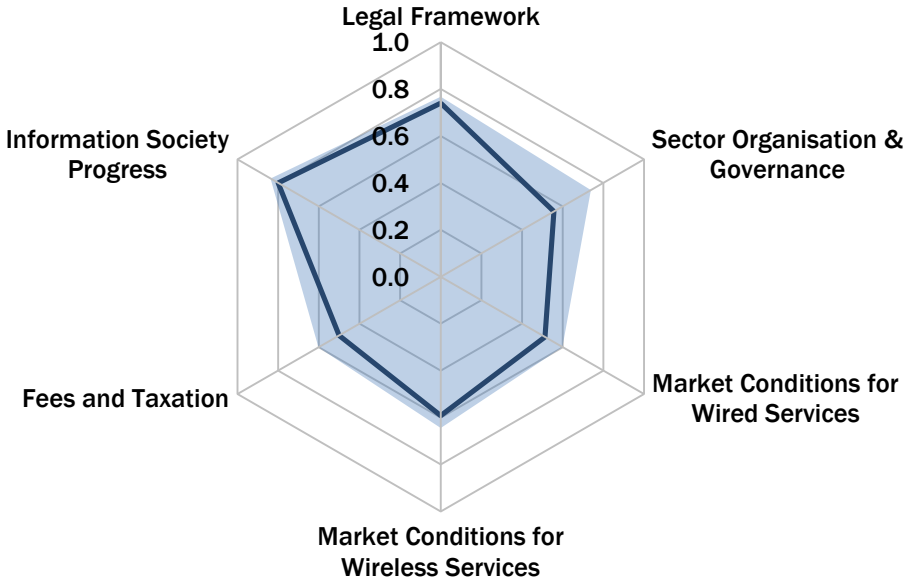
The eight components of the legal part of the assessment and five components of the regulatory part of the assessment are combined to form an overall legal/regulatory risk assessment. This produces an overall score, which aims to reflect the relative legal/regulatory risk faced by investors in the electronic communications markets in each country.

Calculation of the overall legal/ regulatory risk index

Weighting	Score used	Key Components
30%	Legal assessment score	Legal framework
10%	Regulatory assessment score 1	Sector organisation and governance
20%	Regulatory assessment score 2	Market conditions for wired services
25%	Regulatory assessment score 3	Market conditions for wireless services
10%	Regulatory assessment score 4	Fees and taxation
5%	Regulatory assessment score 5	Information society progress
Total 100 %	Combined legal/ regulatory risk	8 legal components and 5 regulatory components

Example of chart showing overall legal/ regulatory risk scores

Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Subject country = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 66 (0 is the highest risk, 100 is the lowest)

2.6 Information sources

The Consultant has drawn upon a variety of sector data and information, both inside and outside each country. Some background information was readily available and easily accessible for desk research. These sources included:

- The European Commission
- The International Telecommunications Union
- EBRD.

Together with the web sites of:

- National regulatory authorities
- National governments and their constituent ministries
- Official national data sources
- Local technical and general news and industry web sites
- Published operating company reports
- Other international organisations and consultancies.

For the Group A countries (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan, Ukraine, Georgia and Mongolia) and Group C countries (Egypt, Jordan, Morocco and Tunisia), we have relied on questionnaires sent to the national regulatory agencies in each country, backed up by discussions with ministries, national regulatory agencies and market participants.

For the Group B countries (Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey) the required data was collected alongside the parallel European Commission project "Supply of Services in Monitoring Regulatory and Market Developments for Electronic Communications and Information Society Services in Enlargement Countries" This project was awarded to Cullen International in 2010. The latest monitoring report was published in July 2012 on Cullen International's web site[14].

For the Group D countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia) we have relied on the various reports issued by the Body of European Regulators for Electronic Communications (BEREC) and The Communications Committee (COCOM), plus the official web sites of the national regulatory agencies in each country.

Where possible, face-to-face meetings were arranged with the national regulatory agencies in each country to add clarity to the understanding of the legal and regulatory frameworks and the status of implementation of key legal/regulatory features (such as number portability, access to infrastructure, interconnection arrangements, market analysis progress, availability of spectrum for sector development and status of information society implementation). Wherever possible, existing service providers were consulted to gauge their confidence in the applied legal and regulatory frameworks, and to assess the current investment priorities in the sector.

The specific information used in the assessment (for all countries) was as follows:

- The existing primary legislation current and published at the end of 2011, with amendments, where available[15].
- The internet usage data from the 2010 ITU World Telecommunication/ICT Indicators database.
- Any secondary legislation relevant to the sector and published on the national regulatory agencies' web sites, or made available directly from the sector regulator.
- The responses to the regulatory questionnaire (where returned) and/or the answers given during discussions with the regulator during face-to-face meetings or by email and/or telephone conversation.

14 www.cullen-international.com/other-services/studies.htm?lng=en (see Enlargement countries telecommunications monitoring – 3, 2011-2013.)

15 Efforts were made to obtain relevant amendments to national legislation impacting the sector, however in some cases all such amendments were not available or it was not possible to confirm that amendments obtained were comprehensive. In some cases official translations of legislation and regulations were not available so unofficial translations were used.

A draft summary report for each country was provided to the relevant national regulator for review and comment. Where comments were received from the national regulator on the draft report for their country, these comments were taken into consideration in finalising this report.

2.7 The regulatory assessment questionnaire

A questionnaire was designed by the Consultant, for completion by the national regulatory agencies in those countries where the required information on the implementation of the regulatory framework was not available directly from the national regulatory agency web sites, or from up-to-date reports produced by BEREC, the European Commission or Cullen International. This regulatory questionnaire contained a total of 65 questions seeking two types of data:

- Simple yes/no responses (so that the absence or presence of a particular condition could be determined, for example number portability).
- Descriptive data about the market and its regulation (for example, the level of regulated interconnection charges).

2.8 Data consistency

The data used in this assessment can assume to be (unless otherwise stated):

- For items of quantitative data (for example market penetration figures) the data are correct at the end of December 2011.
- For descriptive data about the implementation of a key regulatory measure, for existence of number portability) the data are correct up to the end of June 2012.

Special note on mobile broadband penetration

At present there is no consistent measurement method applied to mobile broadband penetration across all the participant countries. The standard definition used in the EU is the number of active users with data subscriptions separate from the voice subscription (or part of a bundle containing paid voice and data usage). In some Group A countries, the reported number of mobile broadband users is simply the number of subscribers who are served by broadband enabled technology (for example 3G), regardless of whether the subscribers have separate or bundled data subscriptions. Typically, when changing networks from GSM to 3G service capability, the service providers report that around 25 to 35 per cent of their existing voice subscribers take up a separate or bundled data subscription.

To ensure comparative data for mobile broadband subscribers, where the EU definition is not used by a country when reporting its mobile broadband subscribers, it has been assumed that the number of mobile broadband subscribers is 25 per cent of the total number of mobile subscribers being served by 3G networks.

2.9 Glossary of terms used in the Assessment

TERM	EXPLANATION
Active infrastructure	The telecommunications equipment that is part of the electrical means that is required to provide electronic communications services, for example switching and transmission equipment (see also passive infrastructure).
acquis	The *acquis communautaire*, meaning the body of EU law, applying, among other areas, to telecommunications.
Administrative fees	The fees paid by operators and service providers to the NRA in order to cover the NRA's administrative costs These are normally separated from any licence fees or fees payable for spectrum usage.
Authorisation (of spectrum)	A permission granted by an NRA or ministry to allow an operator or service provider to use specified parts of the frequency spectrum in order to provide electronic communications networks and services.
Broadband	A service to customers that provides always-on (in other words, not dial-up) access to higher bandwidth (above 144 Kbits) so that customers can use a range of services (for example voice, internet and TV) flexibly with a single connection.
Call origination	Wholesale service provided by an operator to another operator for originating calls on its own network, for which a call origination charge is made. (This wholesale service forms the basis for Carrier Selection and Carrier Pre-Selection retail services to consumers.)
Call termination	Wholesale service provided by an operator to another operator for terminating calls on its own network, for which a call termination charge is made.
Call transit	Wholesale service provided by an operator to another operator for crossing its network, for which a call transit charge is made. When combined with a call termination (or call origination) service, the combined wholesale service is often called "single transit termination/origination" or "double transit termination/origination". The transit service is "single transit" or "double transit" depending on how many switching levels are involved in the transit part.
Competition Authority	The organisation with powers to promote competitive markets and to take action against companies that act in an anti-competitive manner.
Competitive safeguards	Conditions that are imposed on operator(s) in order to avoid abuse of significant market power or to avoid other forms of anti-competitive behaviour.
CPS	Carrier pre-selection – a regulatory concept whereby a subscriber is enabled to make a permanent arrangement with its main operator so that a different operator is selected for certain calls (without having to dial an extra prefix).
CS	Carrier selection – a regulatory concept whereby a subscriber is able to choose an operator different from their access line provider for certain calls (for example international calls) by dialling a certain prefix.
Cybercrime	Criminal activity done using computers and the internet. This includes anything from downloading illegal content to stealing money from online bank accounts and other computer fraud. Cybercrime also includes non-monetary offences such as creating and distributing viruses, posting confidential information, illegal access, system interference, or stealing personal data.
Domain name and	An identification label that defines a realm of administrative autonomy, authority or control in the internet. Domain names are formed by the rules and

TERM	EXPLANATION
DNS	procedures of the Domain Name System (DNS).
DSL, ADSL, xDSL	Digital Subscriber Loop, Asymmetric Digital Subscriber Loop, High Capacity Digital Subscriber Loop, – technologies that provide higher capacity (normally for a broadband service) on metallic local loops.
Electronic signature	A personal signature that appears electronically and is recognised in the same way as a written signature.
Fixed telephony line, fixed service	Telecommunications network that provides service to customers at a fixed location (to a residential or business address). A fixed telephone line (previously called main telephone line in operation) is an active line (the one that has registered an activity in the past three months) connecting the subscriber's terminal equipment to the public switched telephone network (PSTN) and which has a dedicated port in the telephone exchange equipment. The fixed-line service can be provided by metallic connection or by wireless means and should include the active number of analogue fixed telephone lines, ISDN channels, fixed wireless (WLL), public payphones and VoIP subscriptions.
Fixed broadband service subscriptions	Refer to subscriptions to paid high-speed access to the public internet at downstream speeds equal to or greater than 144 kbit/s. This can include for example cable modem, DSL, fibre, and other fixed wired or fixed wireless (Wireless Local Loop, WLL) broadband technologies. It should exclude subscriptions providing access to data communications (including the internet) via mobile-cellular networks.
General authorisation	An authorisation to enter the market after notification to the authorities, but without being required to obtain an approval. The aim for general authorisation is to reduce the barriers for the market entry by eliminating any requirements for explicit decision by the NRA and by limiting the procedural requirements to notifications only.
Incumbent operator	The traditional operator(s) in a country. This is typically an operator that has established its position under monopoly conditions and is therefore often found to have significant market power.
Information society	A society (also called eSociety) in which the creation, distribution, diffusion, use, integration and manipulation of information is a significant economic, political and cultural activity. The aim of an information society is to gain competitive national advantage internationally through using IT in a creative and productive way. The services that are used to create and grow an Information society are sometimes called eCommerce (eBusiness), eGovernment, eLearning, and so on.
Interconnection	The connection of one telecommunications operator to another so that the customers of each operator can call the customers of the other.
Leased lines	A service where the operator agrees to provide the customer (wholesale or retail) a fixed capacity symmetric line connecting two or more agreed points. The service normally requires an initial connection fee plus monthly rental payments to the provider. Other names used are “Private Circuit”, “Private Wire” and “Data Line”. Typically, these lines are used by business customers to connect their main geographical sites, carrying their dedicated voice (including inter-PBX) and data traffic (private networks). New telecommunications operators and internet service providers typically chose to use leased lines from the incumbent operators (wholesale leased lines) in order to reach geographical locations more quickly without the need to invest initially in a separate network of their own. International leased lines carry the majority of voice and data traffic between operators and internet service providers.
Licence	A permission granted by an NRA or ministry to allow an operator or service provider to commence and maintain electronic communications networks and services.
Licence fees	The fees paid by operators and service providers to the NRA (or government) in order to obtain and keep a licence to provide electronic communications

TERM	EXPLANATION
	networks and services.
Licensing procedure	A procedure whereby a new operator or service provider has to obtain permission (a licence) to establish an electronic communications network or service. Licensing procedures have been replaced by simple notification procedures in many countries.
LLU	Local loop unbundling. This is a regulatory concept whereby a network owner must make its local loops available to competitive operators on a rental basis. This can be in the form of: ▪ Fully unbundled local loop, whereby the competitive operator takes full control of the local loop from the subscriber premises to the main distribution frame at the local exchange. ▪ Shared unbundled local loop, whereby the local loop is frequency divided into two sub-loops through xDSL technology. ▪ Voice path, which is typically retained by the incumbent operator. ▪ Broadband path, which is typically operated by the new entrant.
Local Loop	The "last mile" connection between the telecommunications operator and the customer. It can be a physical connection of fibre or metallic pair, or a wireless local loop (WLL).
Mobile service subscriptions	Refer to the number of subscriptions to a public mobile telephone service and provide access to Public Switched Telephone Network (PSTN) using cellular technology. It includes both post-paid subscriptions and pre-paid SIM cards that have been active during the past three months. This includes both analogue and digital cellular systems (IMT-2000, Third Generation, 3G and 4G subscriptions), but excludes mobile broadband subscriptions via data cards or USB modems. Subscriptions to public mobile data services, private trunked mobile radio, telepoint or radio paging, and telemetry services should also be excluded. This should include all mobile cellular subscriptions that offer voice communications.
Mobile broadband service subscriptions	Refer to the sum of standard mobile broadband subscriptions (mobile subscriptions with use of data communications at speeds of 144 kbit/s or greater) and dedicated mobile broadband data subscriptions (those for dedicated data services over a mobile network purchased separately from voice services either as a standalone service (for example, using a data card such as a USB modem/ dongle) or as an add-on data package to voice services which requires an additional subscription).
Multiple Play (double, triple and quadruple play)	A package of services, normally offered to broadband services customers that can include, for example, voice calls, internet access, TV channels and mobile service within the same bill.
MVNO	Mobile Virtual Network Operator – an operator that provides mobile telephony services without a radio based network. An MVNO has an arrangement with a mobile network operator to use its radio facilities and can also subcontract other services with this operator. Such arrangements can be voluntary commercial arrangements or there can be a regulatory requirement for mobile network operator(s) to provide access to its radio facilities.
National roaming	See Roaming.
New entrant	A new entrant is an operator that has been established after the market has been liberalised. The operator that was already established at that time, typically operating under monopoly conditions, is normally referred to as the incumbent operator.

TERM	EXPLANATION
NGA and NGN	Next generation Access (NGA) and Next Generation Networks (NGN) – the new generation of telecommunications network technologies that embrace the latest available techniques, including optical fibre and wireless fixed-lines and IP networking.
NRA	National Regulatory Authority – used as a general term in this document to identify the national authority responsible for the telecommunications (electronic communications) sector.
Number portability (fixed or mobile)	A regulatory concept whereby a subscriber is enabled to change operator without changing number.
Notification procedure	A procedure whereby a new operator or service provider simply notifies the NRA or ministry that it intends to establish an electronic communications network or service. Under this procedure no permission is required (no licence) before the network or service is started. The notification procedure normally replaces the more complex licensing procedure previously used.
Operator	A telecommunications organisation, which provides telecommunications services at a retail and/or wholesale level in the market.
Passive infrastructure	The telecommunications equipment that is not part of the electrical means that is required to provide electronic communications services. For example buildings and associated facilities, ducts, poles, masts, cabinets, unactivated fibres and metallic paths (see also Active Infrastructure).
Public consultation	The process of involving stakeholders in the sector during the analysis and decision making stages of any proposed changes in legislation, regulations, market or operating conditions, complaints or disputes.. The stakeholders normally include government departments and agencies, investors, operators and service providers as well as consumers. The involvement normally requires the open publication of draft papers and draft decisions, then inviting relevant comments from stakeholders who are likely to be directly or indirectly affected.
Qualified certificate	A term from the Electronic Signatures Directive, meaning a certificate with a certain minimum content and issued by a provider fulfilling certain criteria and being under some supervision scheme. Authorised providers issue qualified certificates for electronic signatures which are considered as equivalent to hand-written signatures.
Re-farming	A process in spectrum management where frequencies currently in use are taken out of use and reallocated to the market in order to provide a fairer overall spectrum usage.
Retail services	Services provided by telecommunications operators to end-users.
Rights of Way	Permissions granted by property owners in order for operators and service providers to use and install equipment. This can apply in public or private property, including roads and buildings.
RIO	Reference interconnection offer – a set of interconnection conditions, which includes technical specifications as well as commercial arrangements and a price list for different interconnection services.
Roaming	The process whereby different mobile operators can utilise other mobile operator's networks in the same country ("national roaming") or in other countries ("international roaming"). Roaming ensures that the subscribers of one network operator can have mobile service outside their operator's geographical footprint.

TERM	EXPLANATION
RUO	Reference unbundling offer – a set of unbundling conditions published by an incumbent fixed-line operator to enable an alternative operator to use the incumbent's local metallic loop (Local Loop Unbundling). The RUO includes technical specifications as well as commercial arrangements and a price list for different unbundling services. (See also LLU).
Spectrum	The radio frequency spectrum used by telecommunications operators to provide services without physical cabling.
Spectrum fees	The fees paid by operators and service providers to the NRA (or government) in order to obtain and keep frequencies to provide electronic communications networks and services.
Spectrum trading	A market process that allows service providers that hold spectrum to sell or lease that spectrum directly to other service providers, without needing to involve the regulator/ spectrum management agency.
Tariff Rebalancing	The process required under competitive market conditions where the incumbent fixed-line operator is required to align its basic retail tariffs with the underlying costs of providing the services. This normally means that the monopoly era legacy of low monthly line rentals and high national and international call tariffs is replaced by higher line rental charges and lower call charges. The overall affect on the average consumer's bill is small while the efficiency of the competitive market is significantly improved.
Technological neutrality	Decision making that does not specify which technologies are involved. This normally applies to licensing and spectrum authorisations where the conditions of the use of the licence or the frequencies mean that any technology can be used (see also "service neutrality").
Transparency	Transparency is an important principle of good governance – it is widely accepted that there should be the maximum possibility, clarity and openness in the operations of government and public administration. It guards against special interests gaining undue influence in markets and generates greater trust on the part of consumers. It assures and satisfies investors that there is a level playing field, and encourages new entrants to sectors. In terms of the quality of public services, the principle of transparency underpins the need for regulations to be as clear, straightforward, and accessible as possible in their drafting, promulgation, codification and dissemination.
Triple-play	A bundled service package that includes voice, TV channels and internet services all on the same bill (see also Multiple Play).
Universal access	A special case of universal service that normally refers to a service provided at community access points, for example, public payphones, internet cafés.
Universal service	In a telecommunications context, this refers to policies that try to make basic telecommunications services in a country available nationally at an affordable price to any consumer that wants them. Universal service policy can take a number of forms, from providing basic access to communities (for example, public payphones) to providing a line to anyone that demands it at a national (sometimes very cheap) tariff, to providing more advanced services, for example, internet access for schools.
Universal Service Fund (USF)	A special purpose fund set-up to subsidise a country's universal service policy. Contributions to the fund can come from the telecommunications sector, or from state funds.
Universal Service Obligation (USO)	A set of obligations imposed on one or more operators in order to implement the universal service policy. Such obligations may be accompanied by arrangements for compensation of the extra costs occurred.

TERM	EXPLANATION
WBA	Wholesale Broadband Access. A wholesale service provided by an operator to another operator in order for the other operator to provide a retail service to its customers using the network of the WBA provider. The "bitsteam" service is a version of WBA where the incumbent operator provides xDSL equipment at two points in its network to enable the alternative operator to provide its own broadband services using the incumbent's network.
WLR	Wholesale Line Rental. Under this arrangement, one operator takes over the retail responsibility for the end-user whilst the physical local access network is retained by the wholesale provider.
Wholesale services	Services provided by one telecommunications operator to another.
Wireless	Telecommunications service using the radio frequency spectrum.
Wireline (or wired)	Telecommunications service provided using physical wires, for example. optical fibre or copper cables
WTO	World Trade Organisation (WTO) – an organisation that facilitates multi-lateral trade agreements for its members and to which members can launch complaints in case of infringements.

3: ASSESSMENT RESULTS

Following the collation and analysis of collected data, the results were assembled into two comparator sets: firstly, sub-regional comparison, dividing the 31 countries into 4 sub-regional groupings; and secondly, full cross country comparison, comparing all 31 countries individually against international best practice and against each other. The results of the sub-regional comparison can be found immediately below, while the full cross country comparison can be found towards the end of the Assessment.

The four sub-regional groupings used for regional comparison immediately below are:

- Group A countries comprise Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.
- Group B countries comprise Albania, Bosnia-Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.
- Group C countries comprise Egypt, Jordan, Morocco and Tunisia.
- Group D countries comprise Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

3.1 Group A countries

Regional overview

The 11 countries studied (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine) have a total population of around 280 million (2010), with Russia the largest (142 million) and Mongolia the smallest (2.7 million).

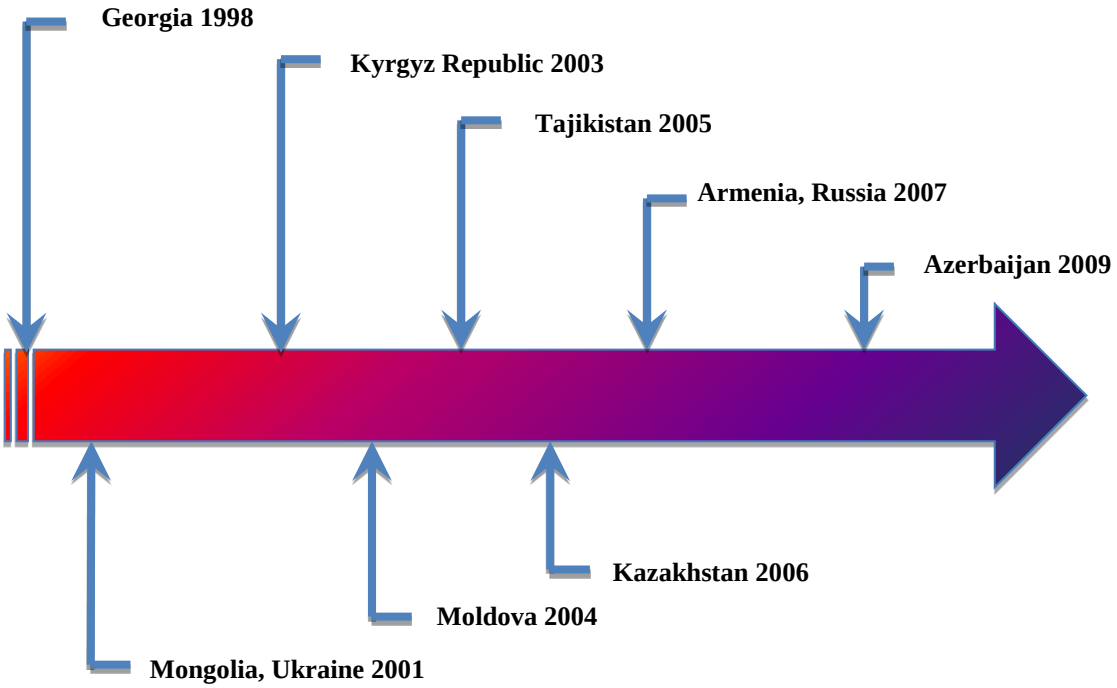
The electronic communications market in Russia generates over 70 per cent of the total market revenues of the group, which were around €39 billion in 2011. The region's markets differ by size, maturity, availability and quality of services. The conditions for investors are influenced not only by the geographical conditions and economic development, but also by the relatively slow pace of liberalisation and regulatory development, compared with the EU. Penetration of telecommunications services is low by EU standards, and in the cases of Kyrgyz Republic, Mongolia, Tajikistan and Turkmenistan, very low.

Mobile services play a far greater role in the region's markets than in the EU. In the Group A region, there are now 5.4 mobile phone subscriptions for every one fixed-line, compared with 3.2 in the EU. In Mongolia, Tajikistan and Kyrgyz Republic, where fixed networks are the least developed, there are around 10 mobile phones for every fixed-line.

- Fixed-line penetration averages 25 per 100 population for the region, compared to an average EU penetration of 40/100 population. All countries are below the EU average, with Kyrgyz Republic and Turkmenistan having around one quarter of the EU average and Tajikistan and Mongolia less than one fifth.
- Mobile subscriber penetration in the region is 135/100 and exceeds the EU rate of 127. Russia maintains the highest rates at around 181/100 population and Kazakhstan (151/100 population) also has higher levels than the EU. The remaining countries are below the EU average, with Tajikistan and Turkmenistan the lowest at less than half the average for the EU[16].
- Broadband services are still at a relatively early stage, with an average penetration of total broadband subscriptions (fixed plus mobile) below 20/100 population compared with the EU level of 71/100 population. Armenia, Azerbaijan, Georgia and Russia have led the way, with total broadband penetration levels above 20/100 population. In Kyrgyz Republic and Turkmenistan, broadband penetration remains below 1/100 population.

16 The main mobile operators in the region generally charge very low retail on-net call tariffs, using high off-net call tariffs to compensate. This leads most customers to subscribe to two or three networks, which greatly increases the quoted penetration figures.

Legalisative dates of market liberalisation in Group A countries



All countries now have legally liberalised markets. Armenia, Azerbaijan, Georgia, Moldova and Ukraine are now actively working towards alignment with the EU regulatory framework. In all countries of the region fixed-line services are still dominated by incumbents, while mobile services are fiercely competitive, with at least three mobile operators in each country (except Turkmenistan).

Broadband communications are showing the greatest growth potential in those markets that are becoming generally more competitive. All countries now have 3G mobile services. Commercial 4G/LTE services are reported to have been launched in Armenia, Kyrgyz Republic, Moldova and Russia[17].

17 See www.gsacom.com/news/gsa_351.php (updated 8 May 2012.)

Overall market summary – Group A Countries

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Moldova	Mongolia	Russia	Tajikistan	Turkmenistan	Ukraine
Population	3.1m	9.0m	4.5m	16.3m	5.4m	5.4m	2.8m	142m	6.9m	5.0m	45.9m
Remaining state ownership in main fixed operator	0%	100%	0%	51%	80%	100%	100%/ 65% (note 1)	75%	95%	100%	0%
Date of full sector liberalisation	2007	2009	1998	2005	2003	2004	2001	2007	2005	No	2001
Market share of fixed incumbent (by revenue)	>90%	>90%	>90%	>90%	>90%	96%	>90%	66%	100%	100%	74%
No. of mobile network operators	3	3	3	3	5	3	4	72 (note 2)	4	1	3
Penetration of fixed-lines per 100 population	19.5	16.7	31.3	26.2	9.4	33.1	7.0	31.2	5.3	9.7	26.5
Penetration of mobile subscribers per 100 population	104	95	99.5	151	101	104	74.6	181	52.3	62.5 (note 3)	121
Penetration of fixed broadband per 100 population	5.3	5.1	8.6	11.4	0.3	4.1	1.7	12.3	0.6	0.1	4.8
Penetration of mobile broadband per 100 population	18.6	19.9	27.7	8.6	0.5	4.1	5.6	12.2	0.8	0.1	4.8

Group A countries

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Moldova	Mongolia	Russia	Tajikistan	Turkmenistan	Ukraine
Internet usage per 100 population	47	44	28	35	39	62	11	44	10	2.2	34
Overall legal/ regulatory risk index as measured by the assessment (100 =lowest risk)	60	47	78	47	32	66	54	54	42	11	55

[Source: EBRD analysis]

Notes:
1) In Mongolia, the state owns 100 per cent of the national (wholesale) infrastructure provider and 65 per cent of the national (retail) service provider.
2) There are three national mobile networks and four regional players.
3) The mobile penetration figure for Turkmenistan is December 2010, prior to the closure of MTS, (which had 80 per cent market share). After discussions with government, MTS re-launched service in early September 2012 after having been granted new GSM and 3G licences.

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1.00 is the lowest risk, zero is the highest

[Source: EBRD analysis]

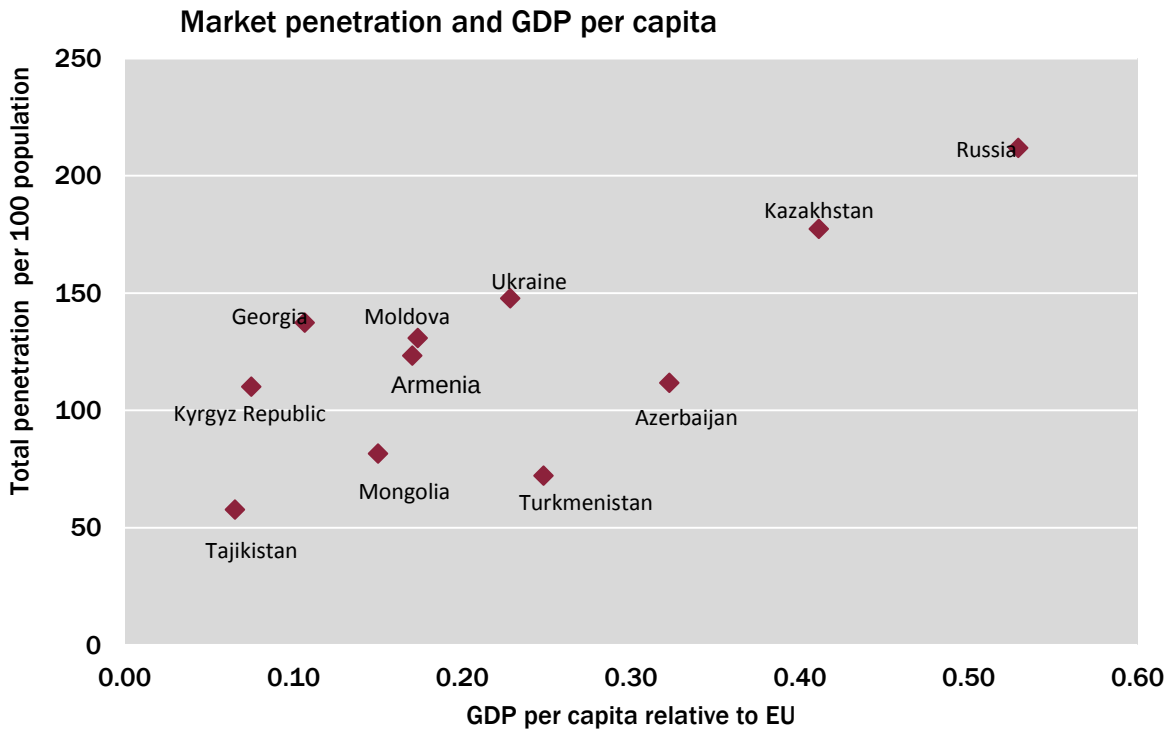
The Overall Legal/Regulatory Risk Index is a summation of a number of components, as defined in section 2 of this report:

1) **Legal Framework**. This component assesses if the degree of conformity with a modern legislative framework for an efficient competitive market for electronic communications. (Weighting = 30 per cent.)
2) **Sector organisation and governance**. This relates to the structure of the electronic communications sector including ownership, regulation and the main regulatory procedures. (Weighting = 10 per cent.)
3) **Market conditions for wired networks and services**. This relates to the market entry conditions faced by operators and service providers who base their services on metallic, as opposed to wireless (spectrum) based methods. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 20 per cent.)
4) **Market conditions for wireless networks and services**. These relate to market entry by operators and service providers who base their services on wireless (spectrum) methods. This includes mobile services and fixed wireless services. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 25 per cent.)
5) **Fees and taxation on electronic communications services**. This relates to the types of payments required from operators/service providers to the state and/or regulatory agency in order to start and continue providing services. (Weighting = 10 per cent)
6) **Progress towards implementation of Information Society**. This relates to the country's environment for conducting business and providing services electronically. (Weighting = 5 per cent.)

Market commentary

The markets in the Group A countries vary considerably in their development, from the very low penetration countries of Mongolia, Tajikistan and Turkmenistan, where overall (fixed plus mobile) penetration remains under 100/100 population, to the relatively well-developed markets in Kazakhstan and Russia, where total penetration is over 150/100 population.

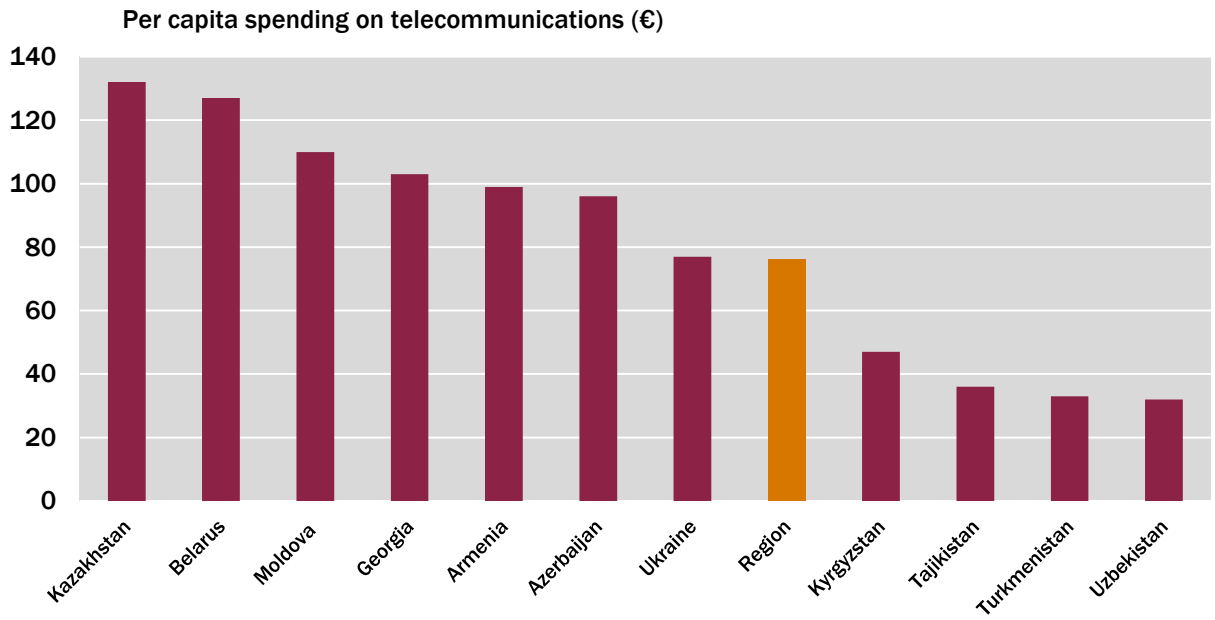
There appears to be a stronger relationship than in other regions between the gross domestic product (GDP) per capita and the overall market penetration, as illustrated below.



Note: EU data (not shown on diagram): Total penetration = 167/100, GDP per capita relative to EU = 1.0

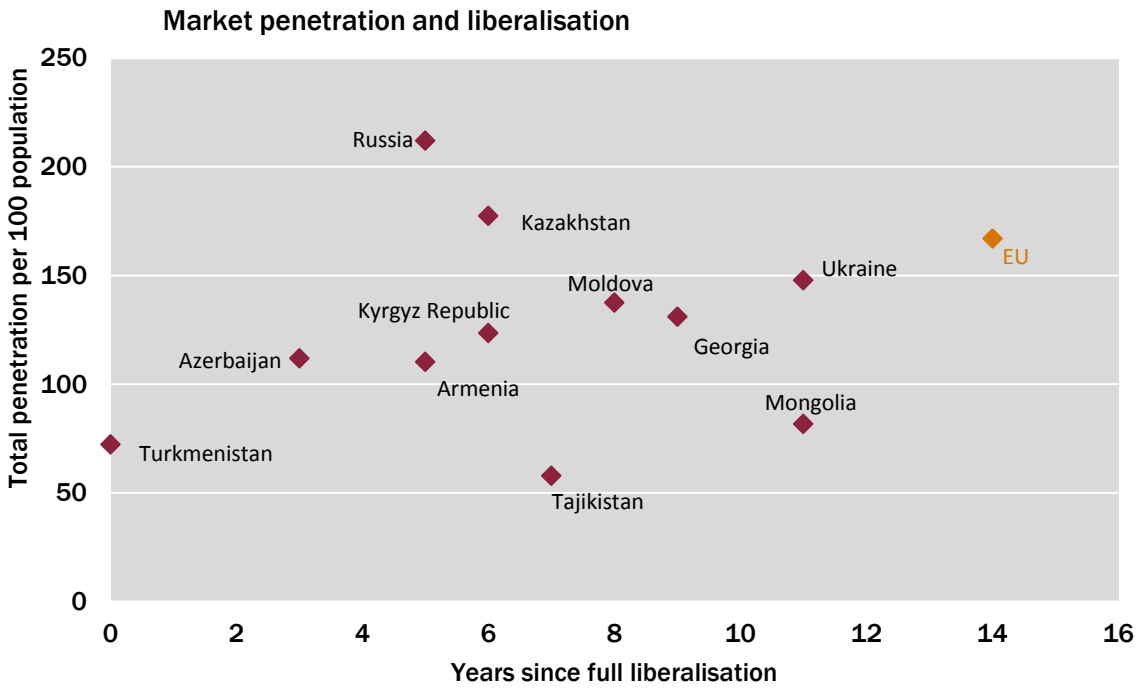
[Source: EBRD analysis]

The differences in GDP per capita appear to influence the per capita spending on telecommunications services, as illustrated below. The per capita spending of the highest spending countries is around four times that of the lowest spending countries.



[Source: PMR Publications 2011]

Compared to other regions, there appears to be less correlation between market penetration and the length of time since markets were fully liberalised. Georgia, Moldova and Russia had relatively high (greater than 30/100 population) fixed-line penetration even before liberalisation. Kazakhstan, Russia and Ukraine have benefited from relatively high levels of mobile penetration since liberalisation. Mongolia and Tajikistan have not reached good levels of penetration despite liberalising their markets



[Source: EBRD analysis]

Ease of market entry varies considerably over the region. Georgia and Moldova have adopted a general authorisation scheme, as used in European Union member states and some candidate countries, making market entry simple. The other countries still operate a stricter licensing procedure. Technology neutrality for mobile licences only occurs in Armenia, Mongolia and Tajikistan. In Kazakhstan, Kyrgyz Republic, Russia, Tajikistan and Turkmenistan the more difficult conditions for obtaining access to the incumbent's

infrastructure virtually force alternative operators to install their own networks in all locations. In Turkmenistan all operators have to use the incumbent's international gateway. For access to rights of way over public and private property only Azerbaijan and Ukraine have procedures that offer reasonable timeframes. Secondary spectrum trading is only allowed in Georgia. None of the fixed incumbent operators (except in Armenia) have completed retail tariff rebalancing, thus deterring fixed-line telephony competitors.

The implementation of the normally expected competitive market safeguards has been generally slow across the region. In many countries there are few provisions for consumers to have a real choice, especially in their provider of fixed telephony and fixed broadband services. Number portability has only been fully implemented in Georgia, so that even where there is choice, consumers face the added disincentive of having to change their number if they want to change their service provider. The competitive telephony market enablers of carrier selection/pre-selection and wholesale line rental have only been fully introduced in Georgia.

The basic fixed broadband market enablers of local loop unbundling and wholesale broadband access have been implemented only in Georgia, Mongolia and Moldova. Mobile national roaming has only been introduced in Azerbaijan and Russia. Although the entry of virtual mobile operators is permitted in some countries, they have only so far appeared in Russia.

Conditions for market access – Group A Countries

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Moldova	Mongolia	Russia	Tajikistan	Turkmenistan	Ukraine
General authorisation procedure	✘	✘	✔	✘	✘	✔	✘	✘	✘	✘	✘
Technology neutrality for fixed licences	✔	✔	✔	✔	✘	✔	✔	✘	✘	✘	✔
Technology neutrality for mobile licences	✔	✘	✘	✘	✘	✘	✔	✘	✔	✘	✘
Reasonable access to rights of way	✘	✔	✘	✘	✘	✘	✘	✘	✘	✘	✔
Infrastructure sharing mandated	Duct only	✔	✔	✘	✘	✔	✔	✘	✘	✘	Duct only
Regulated interconnection charges	✔	✔	✔	✔	✘	✔	✔	Fixed only	✘	✘	✔
Access to international gateways	✔	✔	✔	✔	✔	✔	✔	✔	✔	✘	✔
Spectrum granted on fair, transparent basis	✔	✘	✔	✔	✔	✔	✔	✔	✔	✘	✔
Spectrum secondary trading allowed	✘	✘	✔	✘	✘	✘	✘	✘	✘	✘	✘
Fixed-line retail tariff rebalancing completed?	✔	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘

[Source: EBRD analysis]

Implementation of competitive safeguards – Group A Countries

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Moldova	Mongolia	Russia	Tajikistan	Turkmenistan	Ukraine
Fixed number portability	✘	✘	✔	✘	✘	✘	✘	✘	✘	✘	✘
Mobile number portability	✘	✘	✔	✘	✘	✘	✘	✘	✘	✘	✘
Reference Interconnection Offer (Fixed)	✔	✘	✔	✔	✘	✔	✔	✔	✔	✘	✔
Reference Interconnection Offer (Mobile)	✔	✘	✔	✔	✘	✔	✔	✔	✔	✘	✘
Local loop unbundling	✘	✘	✔	✘	✘	✔	✔	✘	✘	✘	✘
Wholesale broadband access	✘	✔	✔	✘	✘	✔	✔	✘	✘	✘	✘
Carrier selection/ pre-selection	✘	CPS only	✔	✘	✘	CS only	✘	✘	✘	✘	✘
Wholesale line rental	✘	✔	✔	✘	✘	✘	✘	✘	✘	✘	✘
National mobile roaming	✘	✔	✘	✘	✘	✘	✘	✔	✘	✘	✔
Mobile Virtual Network Operators allowed	✘	✔	✔	✘	✘	✔	✘	✔	✔	✘	✔

[Source: EBRD analysis]

Implementation of information society safeguards – Group A Countries

	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Moldova	Mongolia	Russia	Tajikistan	Turkmenistan	Ukraine
Basic internet freedom of expression	✔	✔	✔	✔	✔	✔	✔	✔	✔	✘	✔
Ease of setting up internet business	✘	✔	✔	✘	✘	✔	✘	✘	✘	✘	✔
Legal basis for electronic documents and signatures	✔	✔	✔	✔	✔	✔	✘	✔	✔	✘	✔
Legal basis for data protection	✔	✔	✔	✔	✔	✔	✔	✔	✔	✘	✔
Safeguards against cybercrime	✔	✔	✔	✘	✘	✔	✘	✘	✔	✘	✔

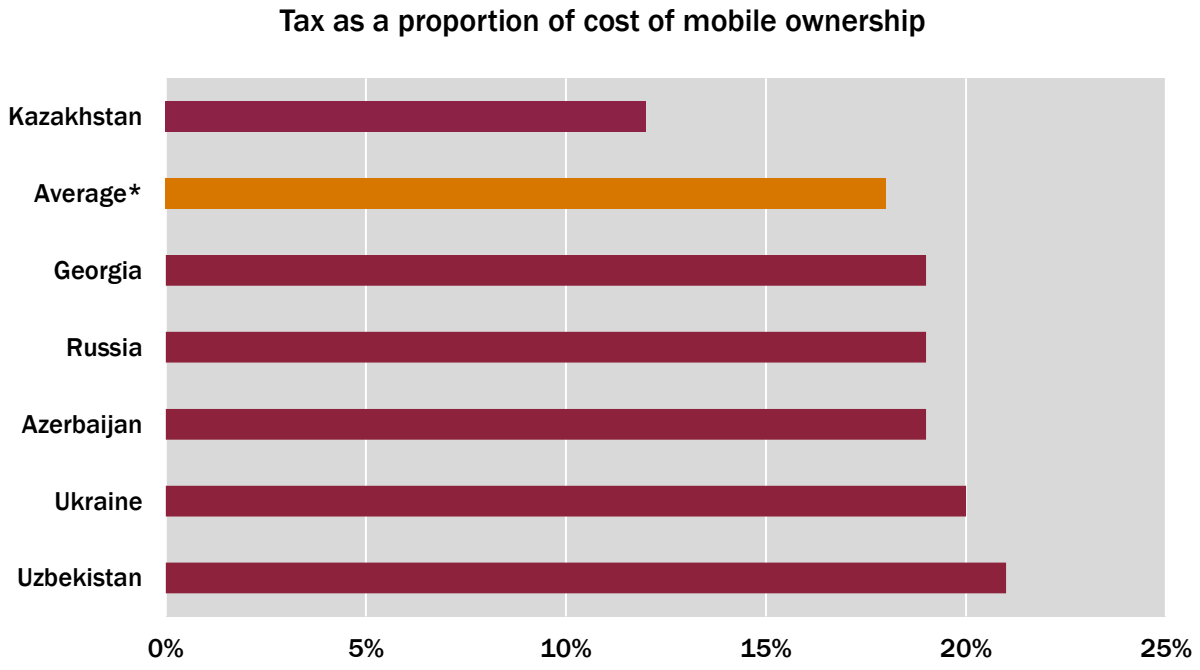
[Source: EBRD analysis]

Licences are still required to establish internet businesses in some countries. The legal basis for data protection and electronic documents and signatures exists in most countries, but around half the countries do not have recognised safeguards against cybercrime.

Internet freedom in Central Asia, particularly in Turkmenistan is among the lowest in the world.

Some countries of the region apply special taxes on mobile telephony services. In Georgia there is a special excise tax on mobile operators at 10 per cent of revenues. The bill for the customer does not itemise this amount, the overall call charge is stated and then 18 per cent VAT is added. In January 2012 there was a new government decision to add €0.10 to all monthly call bills to pay for "free" emergency calls. Moldova has a tax on all mobile operators at 2.5 per cent of revenues. In Tajikistan there is a special tax of 3 per cent on mobile revenues and in addition, VAT has recently been imposed on incoming international revenue settlements. In Ukraine all mobile operators have to apply an additional retail charge of 7.5 per cent to subscribers' bills, which is paid to the State Pension Fund.

The impact of these special taxes on mobile services puts several countries above the average for taxes as a proportion of the total cost of mobile ownership, as indicated by the 2011 survey for the GSM association[18].



*Average of 111 countries surveyed

[Source: Deloitte Global Mobile Tax Review 2011]

Regional summary and outlook

The past restrictions in market conditions for fixed telephony have resulted in substantial growth in mobile services, with the average mobile penetration at 135/100 population exceeding the EU27 average of 127/100. The restrictions in the fixed market remain in all countries except Georgia, Moldova and Mongolia such that access to the incumbent's infrastructure is very restricted for competitors. This has given rise to significant investment in separate infrastructures, effectively by-passing the existing legacy networks. Mobile operators have also largely relied on their own separate infrastructures, adding to the overall cost of mobile services in the market.

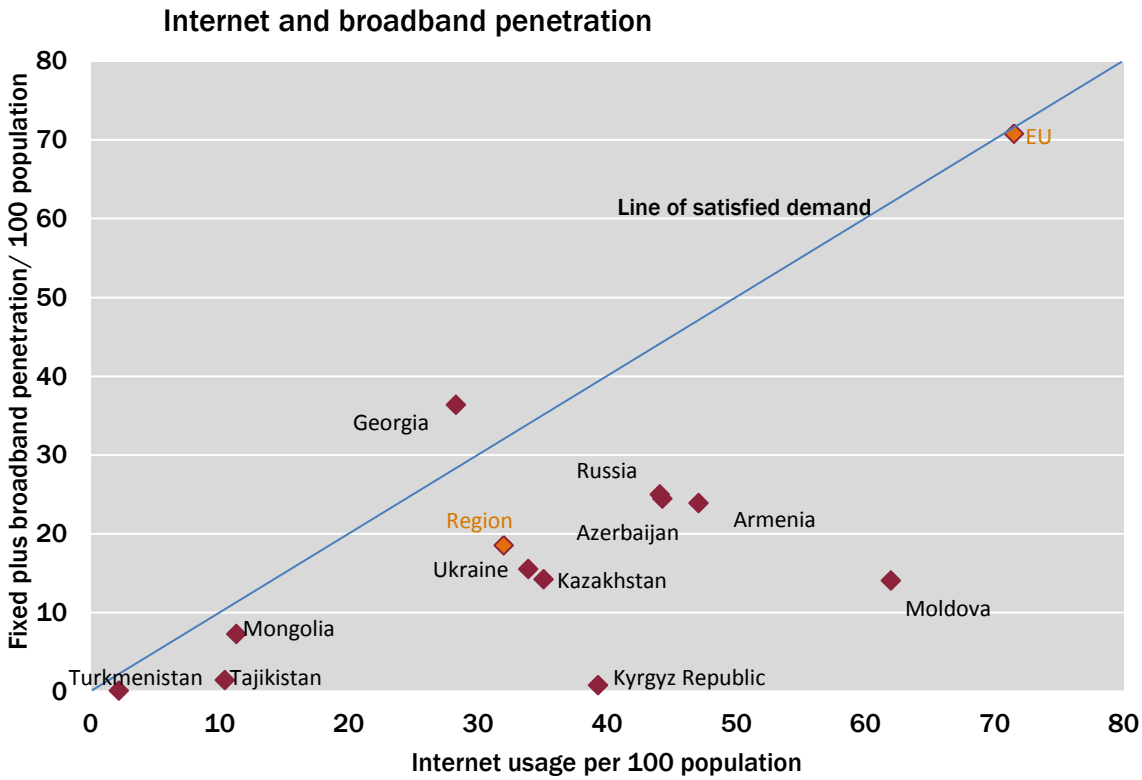
The continuing increase in internet usage over the last five years has created very significant new demand for broadband services. With mobile usage dominating the sector and fixed-line access infrastructure limited, the main developments have been in investing in new mobile technologies.

The speed of investment in mobile broadband has been impressive in most countries of the region. Moldova became the first country in Europe to launch 14.4Mbps 3G mobile data services nationwide in 2009. Mobile broadband has already reached a penetration of 10/100 population across the region, although this varies considerably between the highest countries (Armenia and Azerbaijan) at around 19/100 population and the lowest (Kyrgyz Republic, Tajikistan and Turkmenistan) at less than 1/100 population. The mobile companies

18 www.gsma.com/publicpolicy/wp-content/uploads/2012/03/gsmaglobaltaxreviewnovember2011.pdf

see broadband revenue growth as the replacement for declining voice revenues, as voice call tariffs reduce from the prevailing high levels that were a general feature of mobile services in the region for many years.

The following chart shows the internet usage (percentage of population who regularly use the internet) compared with the penetration of broadband services. The black line is where, in country average terms, the internet users' demand is fully met by broadband. All countries to the right of this line have latent demand for broadband services; that is where all internet users have not yet been supplied with broadband.



[Source: EBRD Analysis]

One way of estimating the potential for broadband growth and investment is by examining the extent of internet usage and comparing this with the penetration of broadband. In the chart above, the further towards the bottom right, the more potential there is for broadband growth. On this basis, Moldova has the most pent-up demand for broadband service with over 60 per cent of its population being internet users and with less than 15/100 population penetration of broadband. Similarly, there is significant broadband demand potential in Armenia, Azerbaijan, Russia and Kyrgyz Republic, which all have relatively high numbers of internet users, yet only low penetrations of broadband subscriptions. Only Georgia so far appears to have closed the gap. Given the right market conditions, the trend should follow the experience of the EU, where the gap between average broadband subscriptions (at 71/100 population) and internet usage (72 per cent of the population) has already been closed.

Significant barriers to broadband growth remain, especially in fixed broadband. Incumbents in most countries still tend to dominate in fixed broadband markets. By far the majority of fixed broadband connections are based on existing copper loops. Alternative infrastructures, such as cable TV and fixed wireless access networks are making inroads mostly in the urban areas. The mobile broadband market is now the most dynamic segment, with penetration rising fast and mobile operators reporting very significant increases in data traffic over their networks. This should stimulate investments in infrastructure, provided that the governments of the region can follow the recent Russian model of releasing significant new spectrum to meet the growing demand for fast broadband services[19].

19 See Russia Case Study "Spectrum for broadband expansion" in section 4 of this report.

ARMENIA

At a glance

Market penetration	
Population	3.1m
Fixed penetration*	19.5
Mobile penetration*	104
Broadband penetration*	24

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Transport and Communication
National regulatory authority	Public Services Regulatory Commission

Market access	
General authorisation	✘
Technological neutrality	✔
Rights of way	✘
Infrastructure sharing	✔*
Granting of spectrum	✔

*Duct only

Competitive safeguards	
Number portability	✘
Interconnection offers	✔
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	47
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

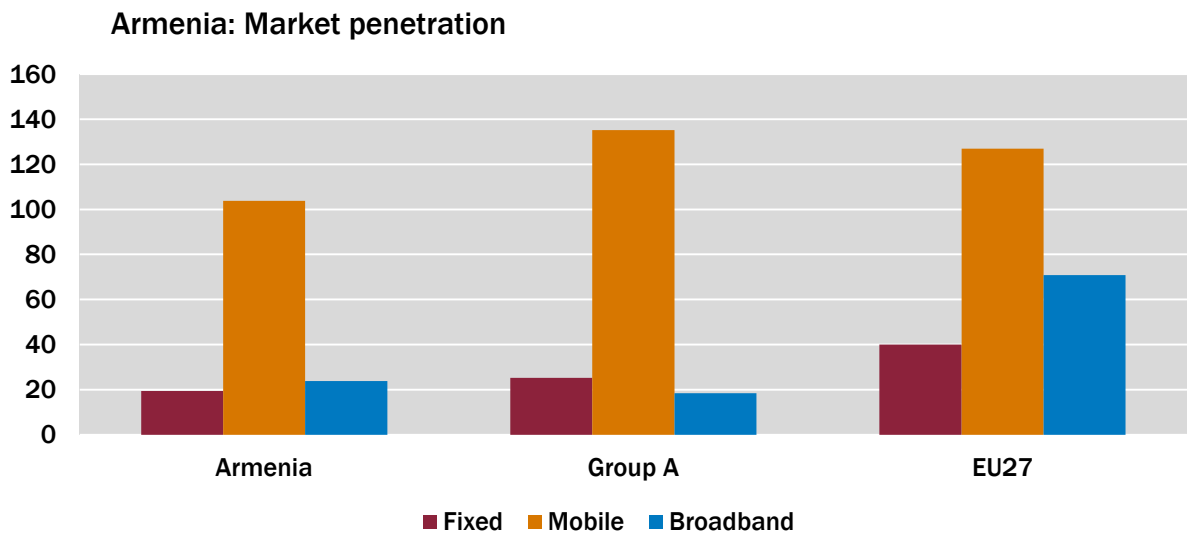
Armenia fully liberalised its market for electronic communications in 2007 after a prolonged period of monopoly and exclusive rights held by the national incumbent operator CJSC, "Armentel", wholly owned by Russia's Vimpelcom. Armentel offers fixed and mobile services in competition with two other mobile network operators, several fixed telephony operators and numerous internet service providers. However, with limited access to the incumbent's infrastructure and a desire to maintain control, the alternative operators have relied almost entirely on building their own physical networks. They in turn are reluctant to share passive or active infrastructure elements with any potential new entrants.

At the end of 2011 fixed-line penetration was 19.5/100 population, compared with a regional average rate of 25/100. There were 3.2 million active mobile subscriptions (104/100 population). In the broadband market, fixed broadband penetration is still relatively low at 5.3/100 population (the regional average is 10.9/100, whereas mobile broadband penetration, at 18.6/100 population, is twice as high as the regional average). The Armenian market has been particularly successful at exploiting the frequency spectrum for basic and broadband use, using a technologically-neutral approach.

There are three mobile network operators led by VivaCell (100 per cent owned by Russia's MTS) with 65 per cent market share, BeeLine (100 per cent owned by Russia's Vimpelcom) with 21 per cent market share, plus the more recent entrant Orange (subsidiary of France Telecom) with 14 per cent market share. BeeLine and VivaCell launched 3G services in 2008; Orange joined the market in 2009. VivaCell launched its commercial 4G/LTE service in the capital city Yerevan in December 2011.

Triple-play offerings are available in Yerevan, provided by the fibre network operator Ucom at prices starting around €29 per month. In addition, there are a number of Cable TV companies active in the market.

Chart 1: Market penetration of main services per 100 population in Armenia, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The legislative framework governing the telecommunications sector in Armenia complies with several aspects of the best practice for the sector; however, the framework differs from key components of the EU framework. The Law on Electronic Communications adopted in 2005 (the 2005 law) is the primary legislation governing the telecommunications sector. The 2005 law sets out the functions of the Ministry of Transport and Communications and the regulator, the Public Service Regulatory Commission (PSRC), which itself is a multi-sector regulator established by the Law on Public Services Regulation. Though the 2005

law provides for separation between policy and regulatory functions, PSRC's independence is impacted by the fact that PSRC's funding and budget mechanisms are not set out clearly in legislation. Its functions overlap to some extent with the Ministry, and appointment and removal mechanisms for PSRC commissioners are set out in the Law on Public Services Regulatory Commission.

Licensing is governed by the 2005 law and the Law on Licensing. While the 2005 law provides procedures for applying for licences and sets out powers of termination, revocation, suspension and renewal of licences, the Law on Licensing, which applies to many sectors (not only telecommunications) provides additional licensing procedures, principles and aims to be followed in licensing, as well as general terms for licences, types of activities subject to licensing. The law requires individual licenses for operators and service providers rather than a general authorisation regime, and there is no requirement that licence terms be "objectively justified, transparent, non-discriminatory and proportionate" as required in the EU framework. The Law on Licensing provides for two different types of procedures, one for "simple licenses" and the other for "compound licenses" – the latter procedures being more complex with longer time frames. There are three types of licences in the telecommunications sector; two are "simple licences" and one a "compound licence".

The interconnection and access regime is compliant with EU framework in many respects, but does not address certain important wholesale access issues – for example, it does not require facilities sharing (except for collocation) and local loop unbundling. Although the 2005 law establishes special obligations owed by dominant operators to provide access to "line facilities", these requirements do not amount to actual local loop unbundling. A 2011 PSRC resolution adopts a procedure on the mandatory shared use of the dominant fixed-line operator's duct infrastructure. The tariff regulation framework defined in the 2005 law largely meets EU requirements, although it does not provide a clear mechanism for the PSRC to forbear from tariff regulation in markets it determines to be sufficiently competitive.

The 2005 law includes a number of important provisions consistent with EU requirements for market analysis, designation of significant market power and imposition of appropriate remedies. However, the law relies on a concept of "dominance", which does not align closely with the EU concept of Significant Market Power (SMP). The criteria and procedure for determining dominance are not clearly defined in detail. PSRC has not yet issued guidance on market definitions or the procedures for determining significant market power in the electronic communications market. The 2005 law should identify more clearly the range of anti-competitive conduct that is prohibited and provide PSRC with additional specific powers to address anti-competitive conduct.

The law grants PSRC the power to intervene in and resolve interconnection disputes, as well as settle all disputes between any operator and end-users. PSRC is also empowered to settle disputes between dominant operators (not all service providers) and other operators, service providers and end-users, and between dominant service providers and end-users. PSRC may also intervene in disputes for the purposes of ensuring effective cooperation and maximum economic efficiency in the electronic communications sector and clarifying rates or conditions for interconnection agreements. However, the 2005 law does not require an effective and timely means of intervention by the regulator or clearly authorise PSCR to impose its solution. Existing fines specified in the law are unlikely to be a sufficient deterrent against large commercial enterprises or be proportionate in response to the most serious forms of misconduct. PSRC decisions may be suspended during appeal, as the law does not specifically require that PSRC decisions remain in effect pending conclusion of any judicial review, as required by the EU framework.

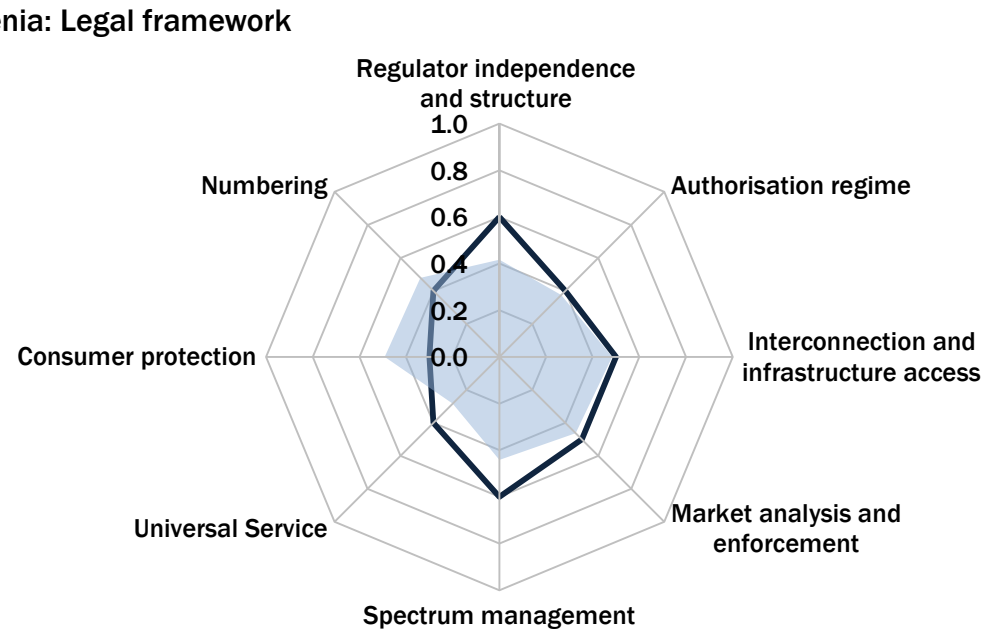
The framework for spectrum management and administration in the law has many features consistent with EU requirements, but does not address spectrum trading or the setting of spectrum fees.

The law sets out universal service provisions, authorising PSRC to specify by way of regulation a minimum set of services (in accordance with policy objectives and in consultation with all stakeholders). It also states that universal services are to be made available at an affordable price and with specified quality parameters, among other obligations. The law permits the PSRC to include specific universal service obligations licences and establish a universal service fund (although no universal service fund has yet been established). The law also imposes on the "incumbent operator" an obligation to provide all universal services. The universal service provisions do not include the EU requirement for competitive tendering processes for universal service projects. The EU framework also requires a more comprehensive package of universal services to be provided than defined in the Armenian law (which requires the supply basic voice telephone service "to the majority of users") and that compensation be payable only if the net cost of provision of universal service (after taking into account any benefits accruing to the operator) is found to be an unfair burden on a designated universal service operator.

The law sets out a consumer protection framework, though this lacks some provisions required to align fully with the high level of protection mandated for consumers by the EU framework. Number portability and service provider selection are not required in the law. There is no provision addressing numbering fees (which should be within the PSRC's fee levying powers, but limited to the reasonable costs of number administration).

The law does not include provisions regarding network operator rights to access private or public property.

Chart 2: Comparison of the legal framework for telecommunications in Armenia with international practice and regional performance



Key: Extremities of the chart = International best practice
Armenia = Solid line
Regional average = Shaded area

Sector organisation and governance

After selling its remaining 10 per cent stake in the national incumbent Armentel in 2007, the government of Armenia no longer holds any ownership in any of the operators of electronic communications networks and services.

The Ministry of Transport and Communication is the executive body responsible for national policies in the transport, communication and information technologies sectors. In addition, the State Commission for the Protection of Economic Competition (SCPEC) is the state body implementing competition policy across all sectors, including electronic communications.

The PSRC is a multi-sector regulator in charge of regulating energy, water and electronic communications fields. The Telecommunication Department within the PSRC's structure has 15 experts working closely with specialists from Finance and Tariff Policy Departments on the key decisions affecting the sector and its stakeholders. The PSRC's budget is derived from the obligatory payments made by regulated entities via the state budget.

To provide a framework for cooperation between the regulator and competition authority, a Memorandum of Cooperation between the PSRC and the SCPEC was signed in 2000.

The PSRC conducts public consultations before adopting its key resolutions, which are then published on the regulator's web site and in a national official bulletin. There are working procedures for addressing disputes and appeals.

Armenia is a member of the following regional and international organisations:

- Regional Commonwealth in the field of Communications (RCC) since 1991.
- International Telecommunication Union (ITU) since 1992.
- WTO since 2003.

An EU Partnership and Cooperation Agreement has been in place since 1999, including measures for gradual alignment of Armenia's legislation and procedures to the EU's main trade related laws and standards. To complete the process, in early 2012 Armenia started negotiations with the EU on "Deep and Comprehensive Free Trade Areas".

Regulatory conditions for wired networks

There is no general authorisation regime currently in place, so all interested entities must navigate a lengthy application procedure to obtain network operator and/or service provider licences. The issued licences follow the principle of technological neutrality. A common problem frequently voiced by the market players is the absence of well-defined procedures and timescales to obtain the necessary rights of way for the construction of critical infrastructure. Telecom companies find it difficult to negotiate reasonable rental charges with public or private property owners because reasonable charges are not stipulated in the applicable laws. As a result, this delays or prevents market entry and expansion.

Although a PSRC resolution in 2011 introduced mandatory shared use of the dominant fixed-line operator's duct infrastructure, it has yet to impact the market. Local loop unbundling is generally resisted and wholesale broadband access is not yet part of the incumbent's service offerings. As a result, alternative service providers have invested in their own physical infrastructures, which has slowed down the introduction of new services and resulted in higher prices in the market.

Further barriers to market development are the lack of number portability, carrier selection, pre-selection and wholesale line rental. There are ongoing discussions between PSRC and market stakeholders regarding the possible introduction of the above tools to promote competition in the fixed market segment, but no specific plans or timeframes have been announced.

Although an international leased line service is available from Armentel, it is not economic for alternative service providers to use it. This is because the aggregate cost of an international data line between Yerevan (the capital of Armenia) and for example, Tbilisi (the capital of neighbouring Georgia), plus the required capacity of cross-border internet traffic, is much higher than if that capacity is purchased directly from an international leased line service provider and the outgoing internet traffic settlements are negotiated directly with the foreign carriers.

Fixed-line retail tariff rebalancing is required because the incumbent Armentel still offers a low-tariff fixed-line rental at around €2 per month, bundled with 360 free call minutes. This acts as a price cap to other service providers, particularly in rural areas, discouraging investment in those regions.

Regulatory conditions for services requiring frequency spectrum

The procedure for issuing of authorisations for the use of radio frequencies is conducted on the basis of first-come, first-served, or in cases where there is a scarcity of frequency, using a transparent public contest. Secondary spectrum trading is not allowed; service providers holding spectrum resources cannot sell or lease it directly to other service providers without the involvement of the regulator. The mobile market is very competitive and there are no mobile virtual network operators (MVNOs) in existence.

The switchover to digital broadcasting, although originally planned to start in 2010, appears to have stalled. This may delay the availability of "digital dividend" spectrum, which will be needed to ensure that fast broadband services become available outside the main urban areas of Armenia.

Mobile interconnection charges, specifically mobile termination rates, are regulated and PSRC has already defined a schedule for reducing the rates between the three mobile operators, starting from 1 January 2010. Nevertheless, the retail tariffs for off-net calls are still viewed as high by most subscribers, causing many to hold two or three SIM cards from different mobile operators.

Mobile number portability is not yet available, but it is understood that the possibility of introducing the service is now being discussed. National roaming has yet to be provided for.

Payments required from operators

Regulated operators of electronic communications networks and services are obliged to pay administrative fees to the state budget, from which the sector regulator's operating costs are then covered.

No universal service fund currently exists, though possibilities for the establishment of one were surveyed at the end of 2009, with the assistance of external advisers. These recommended a universal services fund targeted on rural services, including a detailed description of the institutional roles for its governance. No decision has yet been made about the establishment, which would have the desirable objective of accelerating broadband infrastructure investment into rural areas.

No special taxes for telecommunications are imposed on operators/service providers.

Information society safeguards

A legal framework that recognises electronic contracts and signatures has been established by the Law on Electronic Document and Electronic Digital Signature, adopted in 2004. The E-Governance Infrastructure Implementation Unit CJSC (EKENG) is responsible for the technical implementation of e-Society in Armenia according to the Concept of e-Society development approved by the government. EKENG CJSC is the only company in Armenia authorised to issue certificates for digital signatures to individuals and legal entities.

Domain registration is fully liberalised, with more than 10 registrars.

The Republic of Armenia Law on Personal Data serves as a legal basis for the protection of personal data and was adopted in 2002. To reinforce the country's commitment to combat cybercrime, Armenia joined the Council of Europe Convention on cybercrime in 2006.

Summary and outlook

Since sector liberalisation, the Armenian market for electronic communications has been growing steadily. The mobile market is particularly active, growing at nearly 10 per cent during 2011, driven by the rapid take-up of mobile broadband services. The launch of VivaCell's commercial 4G/LTE service in the capital Yerevan is another indication of the substantial development potential of the sector.

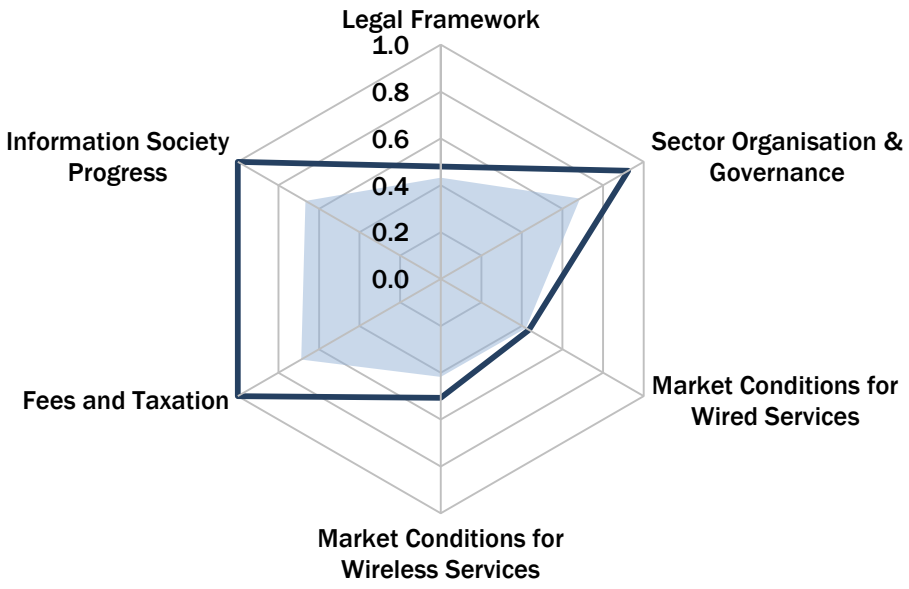
The situation is far less attractive in the wired networks and services segment. The incumbent fixed-line operator Armentel still maintains its monopolistic tendency by resisting access to and sharing of its network elements and other facilities. As a consequence, it poses substantial barriers to entry and limits the ability of potential alternative operators to emerge with competitive retail offerings. Consumer choice therefore remains limited; there is no number portability and there are insufficient wholesale offerings available to alternative providers (for example, carrier selection/ pre-selection, local loop unbundling or wholesale broadband access). To address this, corresponding regulations on access and infrastructure sharing should be introduced by the sector regulator. This may require an increase in PSRC's enforcement powers. The establishment of a general authorisation scheme instead of individual licensing will provide easier market entry for new players.

There is a substantial digital divide between the main cities and rural areas of the country in terms of accessibility of new generation networks and services. During 2011 the government considered a strategy to create an all-inclusive information society, accelerated by state assistance in a high-speed broadband access network reaching out the more remote regions. No decision was made, so there is the danger that private investors will continue to duplicate infrastructure (they have resisted infrastructure sharing so far), keeping the overall cost of telecoms services relatively high in Armenia.

Regardless of the investment strategy that is chosen, large-scale network construction is required to bring modern high-speed services to the rural areas. The conditions for such investment should be supported by the further development of policy and regulatory frameworks.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Armenia with international practice and regional performance

Armenia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Armenia = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 60 (100 is the lowest risk)

AZERBAIJAN

At a glance

Market penetration	
Population	9.0m
Fixed penetration*	17
Mobile penetration*	95
Broadband penetration*	25

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Communications and Information Technology (MCIT)
National regulatory authority	Regulatory Department within MCIT

Market access	
General authorisation	✘
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✘

Competitive safeguards	
Number portability	✘
Interconnection offers	✘
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔

Information society	
Internet penetration per 100 population	44
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

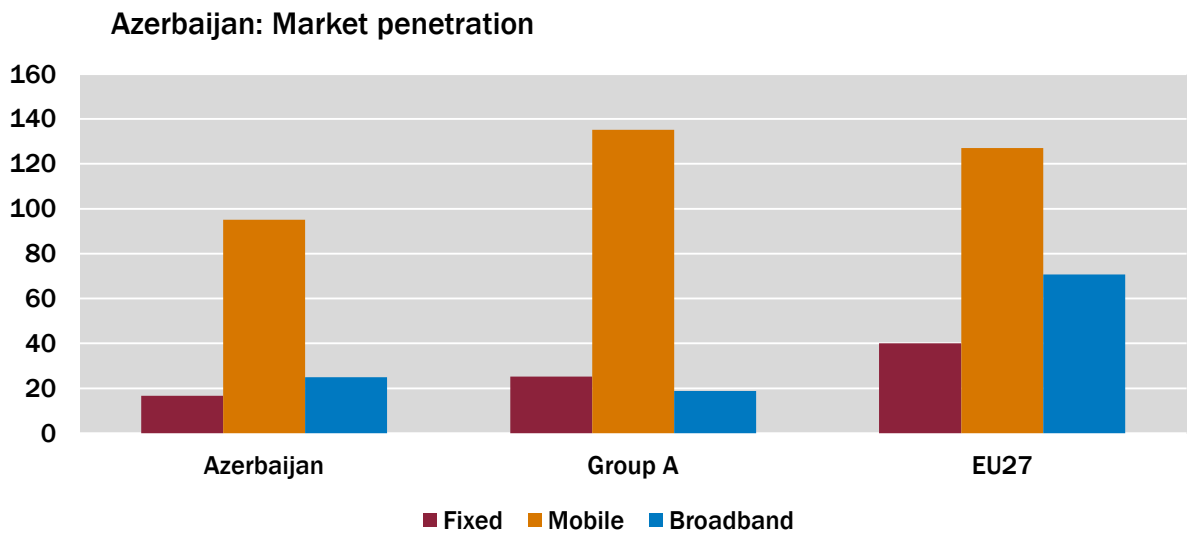
Market liberalisation

Liberalisation of the fixed market began in 2005 with a number of fixed-line providers emerging. Currently, licensed operators include: Baktelekom, Aztelekom, Ultel, Catel, Azeurotel, TransEuroCom, Delta Telekom, Azertelekom, Aztrunk and Nakhchivan. Some operate as local monopolies, even within the capital city Baku. It is claimed that all households can have access to basic fixed-line service, but in reality waiting times have proved lengthy, particularly in rural areas. International calls were liberalised in 2008 and national calls in 2009.

In the mobile market Bakcell was first licensed in 1993, Azercell followed in 1998 and Azerfon in 2005. Although Bakcell and Azercell had previously applied for 3G licences, it was not until 2009 that the first licence was awarded to Azerfon. Bakcell and Azercell were eventually awarded 3G licences in 2011.

There are currently 1.5 million fixed-lines, resulting in a penetration of 17/100 population, which is significantly below the regional average of 25/100. Mobile subscriptions at 8.6 million (penetration of 95/100 population) are also well below the regional average of 135/100. Fixed broadband penetration has only reached 5/100 population, but mobile broadband service has grown very fast since the launch of competitive 3G services to 1.8 million subscribers, a penetration of 20/100 population.

Chart 1: Market penetration of main services per 100 population in Azerbaijan, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The Law on Telecommunication (2005) is the primary legislation governing the electronic communications sector. The Ministry of Communications and Information Technology (Regulatory Department) is understood to be working with the Ministry of Economic Development to propose amendments to the 2005 law to create an independent national regulatory authority as part of broader programme to align Azeri legislation with EU framework. The programme guiding this work is outlined in the "Action Plan on Legal Approximation of the Legislation of the Republic of Azerbaijan with the EU Acquis 2010-2012" and prepared with the assistance of an EU funded consultancy.

There is currently very limited separation of policy, regulation and operations. The Ministry of Communications and Information Technology (MCIT) is responsible for policy development, while the Regulatory Department within MCIT regulates the sector. MCIT also has a role in sector operations. The fixed incumbent operators Aztelekom (national) and Baktelekom (serving the capital city Baku) are 100 per cent state-owned operators. Under the current framework, MCIT prepares draft rules and submits them to Cabinet of Ministers for ministerial consultation and approval.

The Decree "on Licensing" sets out an individual licensing regime, rather than the general authorisation and notification procedures envisaged by the EU framework. There are no limitations on issuance of

licences, and conditions of licences for the same service evidently do not differ significantly. Operators must provide interconnection and sign interconnection agreements. MCIT, together with operators, determined interconnection conditions that were then transposed into interconnection agreements signed by all operators. Operators may request that MCIT resolve interconnection and access disputes. If negotiations fail, or if a party does not agree with the result, it may appeal to courts. All appeals of MCIT decisions are to the Economic or Administrative Courts, though to date there appear to have been no such appeals. MCIT is included as a third party to court hearings involving operators.

The Administrative Penalties Code includes a separate section addressing violations in the telecommunications sector and rights of consumers, which defines MCIT as the administrative body for the sector and establishes fines that are generally viewed as too low to act as a deterrent. MCIT determines whether a violation has occurred, then a court must then be applied to in order to impose a fine. MCIT has developed a draft protocol based on the Administrative Penalties Code which, if adopted, would allow MCIT to impose fines directly without having to resort to courts.

The law provides that MCIT sets tariffs for interconnection, which are set based on international benchmarks rather than based on cost models. MCIT provides recommendations to the State Tariff Council regarding retail tariffs, taking into account a variety of factors, and the State Tariff Council makes the final tariff decision. MCIT does not have the authority to impose cost separation or cost accounting and there is no requirement for tariffs to be set based on costs.

The State Service for Anti-Monopoly Policy and Consumer Protection within the Ministry of Economic Development is responsible for competition and anti-monopoly issues. The Law on Anti-Monopoly Activities states that an entity with more than 35 per cent market share is dominant; however, no other criteria or guidance is provided to define whether an entity is dominant. Although the telecommunications law authorises MCIT to “set requirements on the activity of dominating operators”, no market analysis framework is included in either the Law on Anti-Monopoly Activities or the telecommunications law.

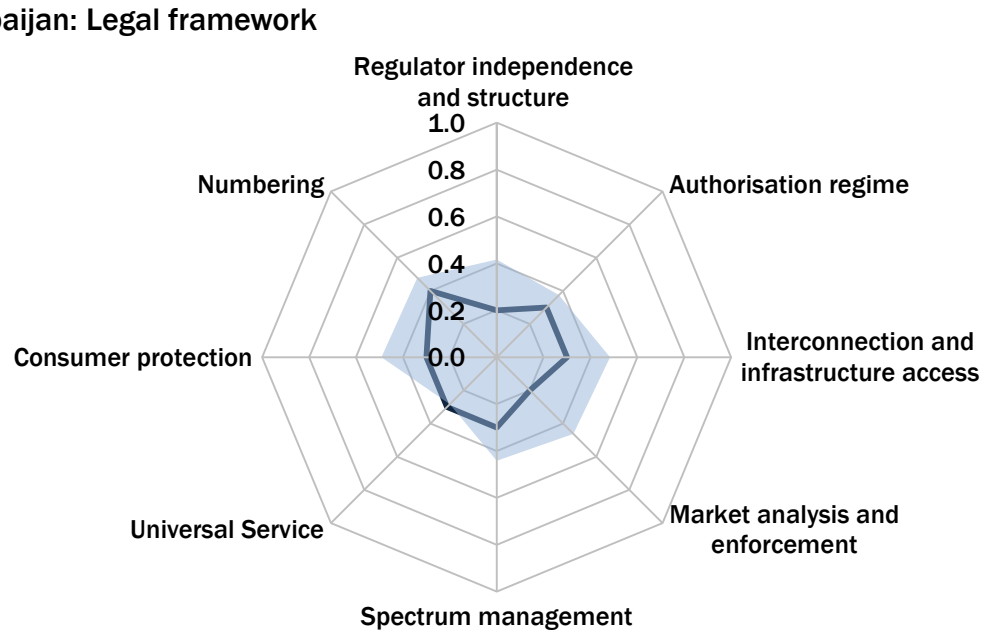
Management and regulation of radio frequency spectrum is dispersed across several different government organisations. The State Commission on Radio Frequency (SCRF - a collegial body under the Cabinet of Ministers which includes representatives of the relevant Ministries) approves the National Frequency Plan (published on the MCIT web site) and assigns frequencies to operators. MCIT registers assignments of frequency, collects frequency fees, monitors frequency usage and checks radio-frequency equipment. The National Council on Television and Radio Broadcasting allocates frequencies for broadcast services. Spectrum is not assigned on a competitive basis. The involvement of the Ministry of Defence in SCRF could delay spectrum decisions and impact availability of spectrum for new entrants and new technologies.

The telecommunications law recognises numbering as a national resource, and authorises MCIT to develop and approve the national numbering system, and plan and issue rules for allocation and use of numbering resources. MCIT may not discriminate in assigning numbers. The State Tariff Council sets fees for numbering. Numbering rules state that new numbers must be assigned within 30 days of request, however current practice is 15 to 30 days.

The state guarantees the provision of universal service, according to the telecommunications law. MCIT has adopted a special ministerial regulation on Universal Services implementation, though further guidance is needed from MCIT to detail the costing, implementation and administration of a universal service system. The universal services identified are not the same as those defined by the EU and there is no legislative requirement that universal services be affordable. MCIT advises that only one operator, Aztelecom, operates in the regions requiring universal service and therefore no operator participated in the competition conducted by the Ministry to select a universal service operator; as a result, Aztelecom was appointed by default. MCIT established a universal service fund financed from the state budget and numbering fees paid by operators. At the end of each year the universal service operator provides a loss calculation so that MCIT can reimburse losses associated with providing universal service.

The telecommunications law provides that MCIT reviews and approves the standard user contract provided by operators. Consumer complaints may be filed with the Ministry of Economic Development, MCIT, the President and courts.

Chart 2: Comparison of the legal framework for telecommunications in Azerbaijan with international practice and regional performance



Key: Extremities of the chart = International best practice
Azerbaijan = Solid line
Regional average = Shaded area

Sector organisation and governance

The incumbent fixed-line operators Baktelekom and Aztelekom are both 100 per cent state-owned and supervised by MCIT, which is also the policy-making and regulatory body for the sector. Although the state-owned operators do not have Ministry representatives on their boards of directors, they are accountable to the Ministry and the State Property Committee.

MCIT has forwarded to the Ministry of Economic Development some proposed amendments to the law to create an independent national regulatory authority as part of broader programme to align Azeri legislation with the EU framework - the "Action Plan on Legal Approximation of the Legislation of the Republic of Azerbaijan with the EU Acquis 2010-2012" was prepared with the assistance of external advisers.

Baktelekom operates a fixed-line monopoly in most of the capital city Baku, though other minor fixed operators serve small areas within the city. Aztelekom has a de-facto monopoly of fixed-lines outside Baku.

State-owned Aztelekom owns a 10 per cent share of mobile phone operator Azerfon, the other 90 per cent is owned by UK-Based operator Vodafone. The market leader AzerCell, with 55 per cent market share, is part of the TeliaSonera group. BakCell, the first licenced operator in 1993, has a 25 per cent market share. The newest market entrant, Azerfon was the first to launch 3G services in 2010, helping it to a 20 per cent market share.

"Azertelecom" LLC is a recently established (2008) wholesale telecommunication operator in Azerbaijan. It offers international transit and wholesale internet services, leased lines and mobile backhaul. The Azertelecom network connects Azerbaijan with Russia, Georgia and Iran. The shareholders of Azertelecom LLC are Azerfon (95%), Aztelekom (2,5%) and BTRIB (2,5%).

MCIT is responsible for the electronic communications sector as well as its regulation, which is carried out by the Regulatory Department in the ministry. Policy for the information society is promulgated by a national five-year plan which includes targets for access to internet and eGovernment services. A major part of the strategy is the launch of Azerbaijan's own geostationary satellite in 2012. It is claimed that operation of its own satellite will reduce Azerbaijan's expensive reliance on leasing capacity from foreign

satellites, which it has used to cover the rural and mountainous parts of the country. MCIT requires additional resources in order to carry out market analysis as part of effective regulation of the sector.

Market competition is regulated under the Anti-Monopoly Policy and Consumer Rights Protection State Service under the Ministry of Economic Development, which implements state policy on competition and consumer protection. The National Television and Radio Council (NTRC) regulates media content. Neither the Ministry of Economic Development, nor MCIT has carried out market analysis of specific telecommunications markets for purposes of determining significant market power and imposing market remedies. Based on the authority provided by the Telecommunications Law, however, the Regulatory Department within MCIT has developed draft market analysis rules. These have not yet been adopted and the Department has found it difficult to obtain market data from operators. MCIT has a working relationship with the Anti-Monopoly Agency. The State Tariff Council, a collegial body linked with the Ministry of Economic Development with representatives from all ministries, reviews and has the authority to set tariffs for all operators of a regulated telecommunications service, regardless of whether or not they have significant market power.

Azerbaijan has been a member of the Regional Commonwealth of Communications since 1991 and an ITU member since 1992. There is an Action Plan "On approximation of legislation of Azerbaijan to EU legislation", and some progress is being made to introduce best practice regulatory approaches and improve competitive market conditions.

Regulatory conditions for wired networks

There is no general authorisation framework and new entrants require specific licences for specific services. There have been new licences issued for local fixed access services, and these new operators provide their services in Baku. The existing providers, Baktelekom (in Baku) and Aztelekom (outside Baku) operate local access networks as virtual monopolies. Some new licences have been issued for national and international call services, but these utilise Aztelekom's national infrastructure and international gateways. Only Aztelekom has international settlements with foreign operators, and so the conditions for competitive fixed markets are very limited. Internet service providers do, however, have the options of using the independent companies Delta Telekom and Azertelecom for international leased capacity.

The government has requested that MCIT review the potential for simplifying licensing rules, and its Regulatory Department is preparing proposals to shorten the licensing process to 10 to 15 days. There are reasonable timescales for obtaining rights of way permits, normally one month, but this depends on the size of the project to be carried out. Access to the existing infrastructure is mandated, and typically, the first operators must provide sufficient capacity, for example in their base stations to enable other operators to install their equipment. Many operators share masts in rural areas, based on signed agreements. During recent discussions on planning for 4G services, operators have already agreed to share infrastructure.

Basic fixed-line retail rentals are very low (€2 a month for residential customers, €3 for state organisations and €7 for private businesses). Local calls are not generally charged. None of the normally expected competitive market safeguards have been introduced. The fixed incumbent operators have not published interconnection or unbundling offers (although fixed termination charges are regulated). There is no carrier selection but there is carrier pre-selection. The current call interconnection rates are €0.05 per min for termination and €0.01 per min for transit. These rates were set by MCIT, but appear high compared with EU average rates. There is no fixed number portability.

The alternative operators (where they exist) use wholesale line rental and wholesale broadband access agreements to provide retail voice and broadband services to their customers. There are three fixed operators (AzDataCom, Azertelecom and Delta Telecom) providing wholesale broadband access from any point. The other service providers use these wholesale services, including Aztelekom, Baktelekom, Ultel and AzEuroTel, which each offer competitive triple-play services to consumers.

Fixed number portability has not yet been implemented.

Regulatory conditions for services requiring frequency spectrum

All three mobile operators functioning in the mobile market provide GSM and 3G services. Azercell is already providing 4G services in Baku and BakCell has announced plans to launch 4G services during 2012. Azerfon has announced plans to offer 3G coverage on Baku's underground railway in 2013. The operator expects to partner with its rivals to build a single shared system covering the underground commuter system.

Spectrum is granted by the State Radio Frequencies Commission, but the two established mobile operators' requests for 3G spectrum were refused until 2011, with 3G being awarded only to the newest market entrant Azerfon in 2009. Since the competitive market for 3G services started in late 2011, demand has been very high, with mobile broadband overtaking fixed broadband connections very quickly. BakCell has reportedly received permission to use new frequencies for its planned launch of 4G services.

There are no published interconnection offers, although MCIT does regulate call termination on the mobile networks at €0.02 per minute for calls between mobile operators (which compares well with EU benchmarks) and €0.05 per minute (for fixed to mobile calls), which discriminates against fixed network customers.

Although MCIT regulations permit the entry of MVNOs into the market, none have yet sought licences. Number Portability is not provided yet, but MCIT state that they have prepared draft rules for its introduction, which have been approved by Ministry of Justice. The operators are currently preparing the necessary technical arrangements and number portability is expected to be in place by the end of 2012.

All three mobile operators have a mutual agreement on national roaming.

Among the three South Caucasus countries, Azerbaijan is leading in the switchover from analogue to digital broadcasting.

Payments required from operators

The state licence fees range from EUR 2,200 to EUR 11,000. Additionally, operators using spectrum resources are charged an additional fee. Operators are also charged for numbering resources and equipment certification, with these payments intended for a universal service fund. There has been no published statement about the usage of universal service funds.

There are no special taxes on telecommunications services.

Information society safeguards

Internet services do not require special licensing and there is an active triple-play market offering voice, internet and TV channels over wholesale capacity rented from telecoms operators.

There is a legal framework for electronic signatures, administered by MCIT, and signatures are recognised in practice. Domain name registration is liberalised, but fees of several hundred euros are typical.

Azerbaijan adopted the Council of Europe convention on cybercrime in 2011.

Summary and outlook

With the market for fixed services dominated by state-owned operators and a relatively low fixed penetration rate, the main growth in modern broadband services will come from the competitive mobile service providers.

Since the granting of 3G licences to all three mobile operators, the growth of mobile broadband has easily outstripped fixed broadband. BakCell has claimed that that 38 per cent of its 2.2 million active mobile subscribers will convert to high speed data subscriptions, providing substantial growth potential in 2012. The launching of LTE/4G networks has been announced, reportedly using joint frequencies and shared infrastructure between the mobile players Bakcell, Azerfon and Azercell.[20]

Around 40 per cent of the population are already internet users, so there are strong prospects for market growth, provided that MCIT can liberalise spectrum usage, driven by the market. The mobile networks already cover 99 per cent of the population, and even the most isolated mountain areas will be within the reach of Azerbaijan's own commercial satellite to be launched later in 2012.

MCIT's policy for the information society, coupled with its action plan to align electronic communications regulation with the EU framework should ensure that market conditions improve in the next few years. Number portability for mobile services should be introduced during 2013 and there is already some basis for wholesale broadband access and infrastructure sharing.

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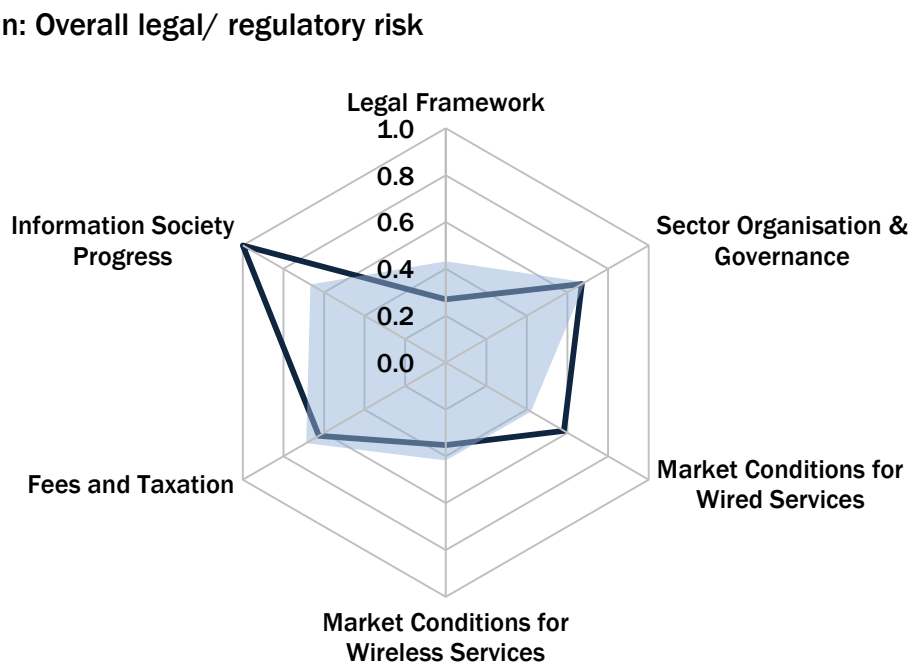
20 See www.itu.int/ITU-D/ict/newslog/Azerbaijan+Mobile+Operators+Sign+Protocol+On+LTE.aspx

Some legacy restrictions remain. The absence of alternative fixed access networks has meant over-reliance on legacy networks of the incumbent operators. Competing operators still have to rely on Aztelekom's international call settlements and only one alternative international internet connectivity provider has been licensed. The recent emergence of local WiMax providers and the stimulation of competitive 3G services should herald more liberalised conditions for investment in what should be a high growth market.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Azerbaijan with international practice and regional performance



Key: Extremities of the chart = International best practice
Azerbaijan = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 47 (100 is the lowest risk)

GEORGIA

At a glance

Market penetration	
Population	4.5m
Fixed penetration*	31.0
Mobile penetration*	100
Broadband penetration*	36

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Economy and Sustainable Development
National regulatory authority	Georgian National Communications Commission

Market access	
General authorisation	✔
Technological neutrality	✔*
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

*Fixed only

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	28
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Liberalisation of the market started in 1996, and by 1998, the remaining monopolies on international calls and internet services were removed. Leased lines were not liberalised until 2005 and this market is still not seen as very active.

Silknet, previously the incumbent fixed operator known as United Telecom, was privatised in 2005. It operates a national fixed network and internet services in a highly competitive market with over 50 service providers offering voice, internet and broadband services. The many internet providers offer services over their own networks or by renting capacity from the more established networks of Silknet and Caucasus Online.

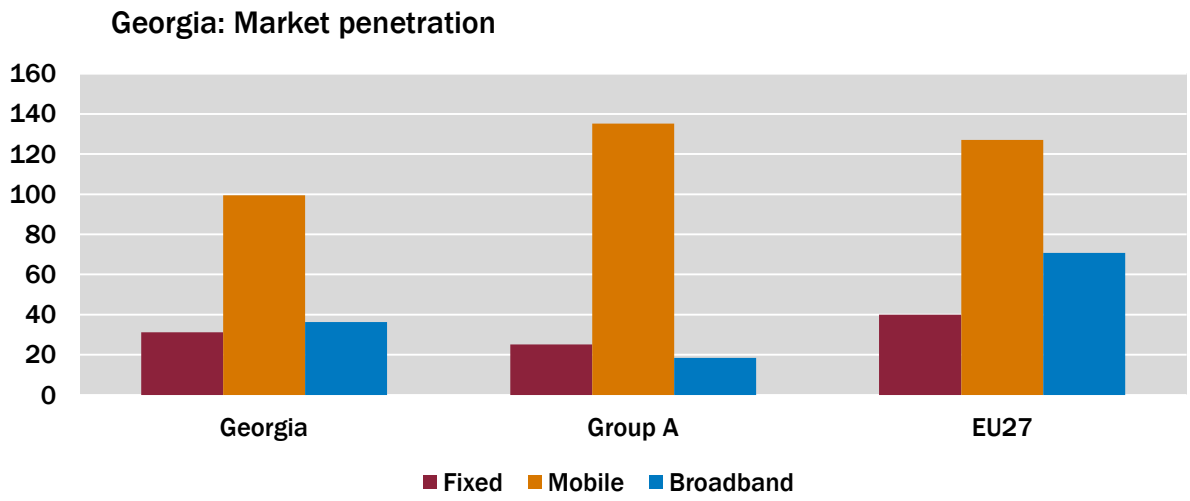
Georgian backbone infrastructure consists mainly of east to west fibre optic cables that connect Georgia internationally via Armenia, Azerbaijan, Turkey and Russia. The main providers are Delta-com, Popt-net, Silknet, Railway Telecom and the state-owned Georgian Railways. In addition Caucasus Online has its own international fibre optic backbone infrastructure connecting Georgia with Bulgaria.

Mobile services started in 1995 (Magticom), and a second licence was issued in 1996 (Geocell). A third operator (BeeLine) was not licensed until 2007 and, in addition to this late market entry, has an added disadvantage of a reduced spectrum holding. This arose because the first two mobile operators were initially awarded most of the available spectrum, leaving a smaller share for BeeLine when it was licensed 10 years later. Some competition has been achieved in the mobile voice market but until the spectrum imbalance is remedied, for example by re-farming under-utilised Magticom and Geocell spectrum or by making additional spectrum available for mobile broadband, the mobile market will continue to suffer a lack of full competitiveness.

There are currently 1.4 million fixed-lines, resulting in a penetration of 31/100 population, which is above the regional average of 25/100. Mobile subscriptions at 4.4 million (penetration of 100/100 population) are below the regional average of 135/100. Fixed broadband penetration has only reached 8.6/100 population, but mobile broadband service has grown very fast since the launch of competitive 3G services to 1.2 million subscribers, a penetration of 27.7/100 population.

Triple-play services are offered at around €20 per month. A number of fixed wireless operators are now challenging the established players Silknet and Caucasus Online. Both companies have recently announced the launch of their fibre access service, with package prices starting at only €10 per month and up to €50 per month for the full 100 Mbps service.

Chart 1: Market penetration of main services per 100 population in Georgia, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

Sector legislation is largely aligned with the 2003 EU framework, including the important areas of regulatory independence, general authorisation, market analysis, designation of operators with significant

market power, imposition of remedies, enforcement, interconnection, consumer protection and the management of scarce resources. Some aspects of the framework are still not yet fully aligned, including universal service and rights of way.

The key primary legislation is the Law on Electronic Communications of 2005 (amended up to 2011). To understand regulation of the sector, this law must be must read in conjunction with the Law on Broadcasting and other multi-sector legislation that impacts the sector. There appears to be an appropriate separation of functions between the Ministry for Economy and Sustainable Development (MESD) – sector policymaker - and the independent regulator, the Georgian National Communications Commission (GNCC). GNCC is the licensing body for the sector and has implemented a general authorisation scheme.

There is general alignment with the EU 2003 framework with respect to interconnection and access, giving sufficient authority to GNCC to regulate based on market analysis and enforcement of a set of defined remedies, including transparency, non-discrimination and cost-orientation of charges. GNCC also is empowered to set terms of interconnection and access where negotiation fails. GNCC has general authority to resolve disputes between operators and the specific power to intervene directly to resolve these disputes. If operators cannot obtain access they can also apply to civil courts.

The recent Law on Free Trade and Competition (2012) states that ex-ante regulation of the electronic communications sector is performed by GNCC as well as enforcement and monitoring the fulfilment of the obligations imposed by GNCC in accordance with the Law on Electronic Communications. This new law also states that disputes on access and interconnection must be resolved in accordance with sector specific laws and by the corresponding regulatory authorities. In addition there is a chapter in the new law addressing cooperation between competition and regulatory authorities.

The market analysis provisions of the Law on Electronic Communications are closely aligned with the EU framework and set out clear GNCC authority and procedures for market identification, market analysis, designation of operators with significant market power and the imposition of market remedies aligned with the EU framework. GNCC's market analysis decisions may be appealed to a court.

GNCC has two main enforcement powers, the imposition of fines and licence revocation. GNCC can impose meaningful penalties for breach of legal provisions of up to 0.5 per cent of an operator's last 12 months revenues for the first breach, up to 1 per cent for the second breach, and up to 3 per cent for third or further breaches. GNCC is not required to apply to a court to impose its fines. All GNCC fines and licence revocations may be appealed to court. GNCC decisions automatically remain in force during the period of an appeal by an operator.

MESD is responsible for establishing spectrum policy and GNCC acts as the spectrum regulator by approving the national frequency plan, allocating and assigning frequencies, including broadcasting. Spectrum licences are issued using competitive tender processes, with terms of 10 years, and may be renewed for another 10 years upon GNCC approval (licenses are generally understood to be renewed if no breach has occurred).

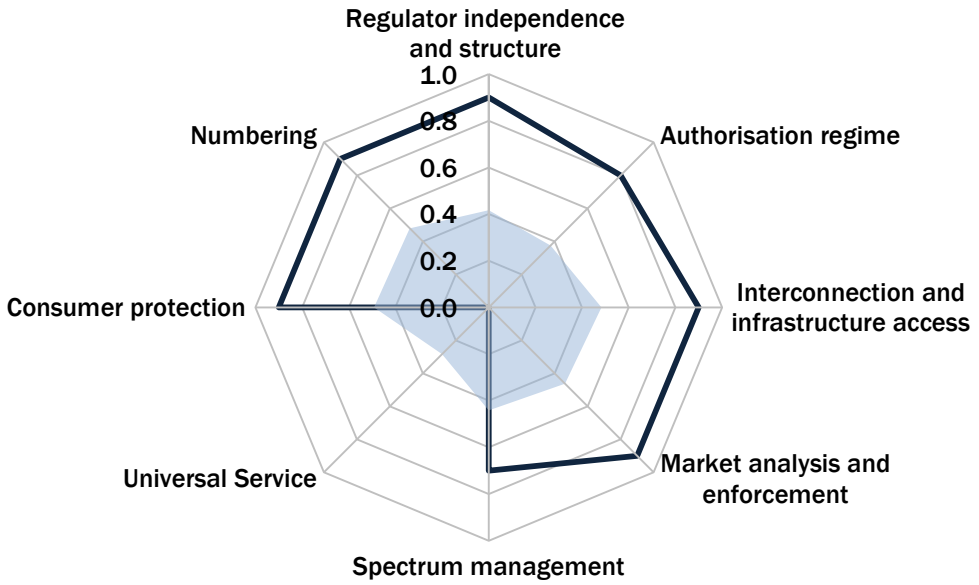
The Law on Licensing and Permits requires that licences be issued for scarce resources such as spectrum and that permits be issued for use of numbering resources.

Previous universal service provisions have been withdrawn. However, in recent negotiations with respect to Georgia's obligations in the EU Association Agreement, the Ministry of Foreign Affairs agreed that Georgia will implement the EU's Universal Service Directive within three years.

There is close alignment with the EU 2003 framework with respect to consumer protection, but not with some of the more stringent consumer protection requirements of the EU 2009 framework. The Regulation on Consumer's Rights (amended in 2011) states that operators cannot impose any penalty payments if the user terminates a standard contract or include any provision in standard contracts that can lock-in users. In practice, Georgian operators apply maximum one year user contracts.

Rights of way over public and private property are covered in the Law on Electronic Communications, combined with the Constitution, the Law on Expropriation in Cases of Public Need and the Civil Code.

Chart 2: Comparison of the legal framework for telecommunications in Georgia with international practice and regional performance



Key: Extremities of the chart = International best practice
Georgia = Solid line
Regional average = Shaded area

Sector organisation and governance

All network and service providers are privately owned, the government privatised its incumbent operator (then called United Telecom) in 2005. In 2010 United Telecom, Wanex Ltd. and Ajara Electrocommunication consolidated into new company "Silknet" to provide fixed, internet and digital TV services.

In the mobile sector, two companies dominate the market (Geocell and Magticom). The third entrant, BeeLine has gained market share since its launch in 2005, but is currently restricted by its spectrum holding. GNCC is considering a number of spectrum liberalisation measures, in line with international best practice. For example, the existing spectrum could be made technologically neutral and the underutilised spectrum holdings of Geocell and Magticom could be re-farmed and/or new frequencies could be made available to provide more competition in the rapidly growing mobile broadband market. MESD has responsibility for policy and legislation in the sector, but currently there is no published policy statement for the sector. GNCC regulates telecommunications, internet and broadcasting markets, including all spectrum management functions. GNCC is governed by a comprehensive set of rules on independence, transparency, consultation, and avoidance of conflict of interest. It is financed by administrative fees charged on the operators. GNCC appears well advanced in ex-ante regulation, with success in carrying out market analysis, designation of significant market power in relevant markets (using the same framework as the EU) and implementing competitive market remedies.

Until late 2011 there was no competition agency, this function was assumed by GNCC for the electronic communications sector. Ex-post competition regulation, including control on anti-competitive agreements and state-aid will now be carried out by the Competition Agency as provided for in the new Law on Free Trade and Competition.

There are 1.4 million fixed-lines giving a penetration rate of 31/100, which is higher than the regional average of 28/100. There are 4.2 million mobile subscribers, giving a penetration of 100/100 population,

which is significantly lower that the regional average of 150/100. Fixed broadband penetration has reached 8.6/100 population and mobile broadband 27.7/100.

Georgia has been a member of WTO since 2000. An EU Partnership and Cooperation Agreement has been in place since 1999, including measures for gradual alignment of Georgia's legislation and procedures to the EU's main trade related laws and standards. To complete the process, in early 2012 Georgia started negotiations with the EU on "Deep and Comprehensive Free Trade Areas".

Regulatory conditions for wired networks

A general authorisation procedure is in place, with online registration to GNCC. Applicants have to specify their proposed services (from a list of defined services) in their application. The resulting registrations allow a technologically neutral approach to service provision. The authorisation is issued free of charge and is not time limited.

Access to existing infrastructure is regulated, with the dominant operator (Silknet) being obliged to offer access to all active and passive infrastructure elements. Its 2011 reference interconnection offer includes access to ducts, buildings (co-location), leased lines, optical capacity and copper access lines. There are currently around 50,000 unbundled local loops. GNCC conducted a market analysis of the unbundled access market and set fees of €5.85 per month for shared access to a copper line for broadband services and €7.79 per month for full unbundling. Wholesale Broadband Access is allowed, but GNCC has not put sufficient safeguards in place to enable this to be effective. GNCC is currently analysing the wholesale markets for infrastructure and broadband access to find ways of improving competitive market conditions.

The procedures for obtaining rights of way onto public and private property are complex and still rely on local government and building owners' discretion. Timescales for obtaining permissions are variable.

For basic services, the incumbent (Silknet) has not fully rebalanced its retail tariffs, so that it offers a low-tariff line rental and call package at €3.50 per month (for the cheapest package) which includes the line rental (€1.75) and a limited number of on-net free calls.

GNCC has set fixed call termination charges for operators with significant market power at €0.01 per minute and requires fixed line operators to provide international carrier operators with access to their subscribers through carrier selection and carrier pre-selection. Call transit service charges are set by agreement between interconnecting operators.

Fixed number portability service was implemented in late 2011.

Regulatory conditions for services requiring frequency spectrum

Licenses issued by GNCC for spectrum state that they may only be used to provide a specific type of service or services/technologies determined by the National Frequency Allocation Plan. An operator (including affiliates) may be excluded from participating in a spectrum auction if it holds more than 25% of one specific spectrum frequency band or will become the holder of more than 25% of one specific spectrum frequency band after winning the auction. The government defines a national numbering plan in agreement with GNCC.

For a range of unlicensed services, frequencies are awarded on a first-come, first-served basis. Secondary spectrum trading is allowed, but the holding entity has first to get permission from GNCC.

There is no national mobile roaming mandated and although virtual mobile service providers are allowed under the regulatory regime, none have appeared due to the resistance of the existing mobile operators.

Mobile number portability was introduced in early 2011 and by the end of the year over 100,000 numbers had been ported.

Call termination rates on mobile networks are asymmetric in favour of the newest entrant, with no set timescale for convergence. However, GNCC recently commenced the convergence process, decreasing the interconnection tariff for the newest operator on February 1, 2012 from €0.074 to €0.055 per minute. The current rate for the two dominant operators is €0.04 per minute, which is below the average for EU countries.

The switch-over plan for analogue to digital broadcasting is not yet finalised. The 800 MHz band has already been reserved for mobile services and is currently free, so at least theoretically this band can be used for wireless broadband expansion without waiting for the analogue to digital broadcasting switchover. However, usage of this "digital dividend" frequency range in Georgia still requires substantial cross-border

coordination and negotiations. These have already been commenced with neighbouring countries to secure efficient use of 800 MHz band for mobile services in Georgia.

Payments required from operators

The full system of payments to be made by licensed operators of electronic communications networks and services is published by GNCC. All licensed operators have to pay an administrative fee to the sector regulator, at 0.75 per cent of revenues to cover its costs (0.5 per cent for broadcasters).

There are no licence fees payable to operate services that do not require spectrum. The fees for spectrum are a "once-off" licence payments with no further fees for the standard 10-year licence periods. On renewal, the spectrum licence holder has to pay a second fee based on the average published spectrum auction prices over the previous three years or the previous three auctions. Between 2005 and 2006 the three (3G) frequency licences were granted at prices of €9.6m to €10m. The standard conditions adopted were for 30 per cent of the fees to be paid initially the balance within 12 months, when the frequencies have to be utilised or returned. These spectrum fees are collected by GNCC and go straight to the state budget.

There is an annual fee for use of numbering ranges at €0.05 per one (fixed and mobile) subscriber number. Different annual fees apply for various numbering categories such as toll-free/premium rate numbers and carrier selection/pre-selection codes.

There is provision in the law for a universal service fund, but at present no fees are collected from operators and no payments are available for operator subsidies.

There is a special excise duty on mobile operators amounting to 10 per cent of yearly revenues. The total charge, including the 10 per cent, is stated on the customer's bill, then 18 per cent VAT is added. In January 2012 there was a government decision to add a further €0.10 to all monthly call bills to pay for the "free" emergency calls.

Information society safeguards

The requirement for licensing of internet services was dropped in 2007. There is a legal basis for electronic documents and signatures, but there is not yet any recognised certification of electronic signatures. Personal data are legally protected.

Domain name registration is not yet liberalised; the only issuer of .ge domain names is Caucasus Online, a leading internet services provider. There are plans for Georgian language domain names to be issued by the ITDC Group (a Georgian web design company) in the future.

Georgia has signed the Council of Europe Convention on Cybercrime in 2008. Based on the convention, the Law of Georgia on Information Security was enacted on 1st June 2012, which establishes cybercrime and related obligations/measures.

Summary and outlook

The conditions for full competition have been in place for over 10 years, with the independent converged regulator GNCC already using many best practices from the EU regulatory framework covering telecommunications, internet and broadcasting.

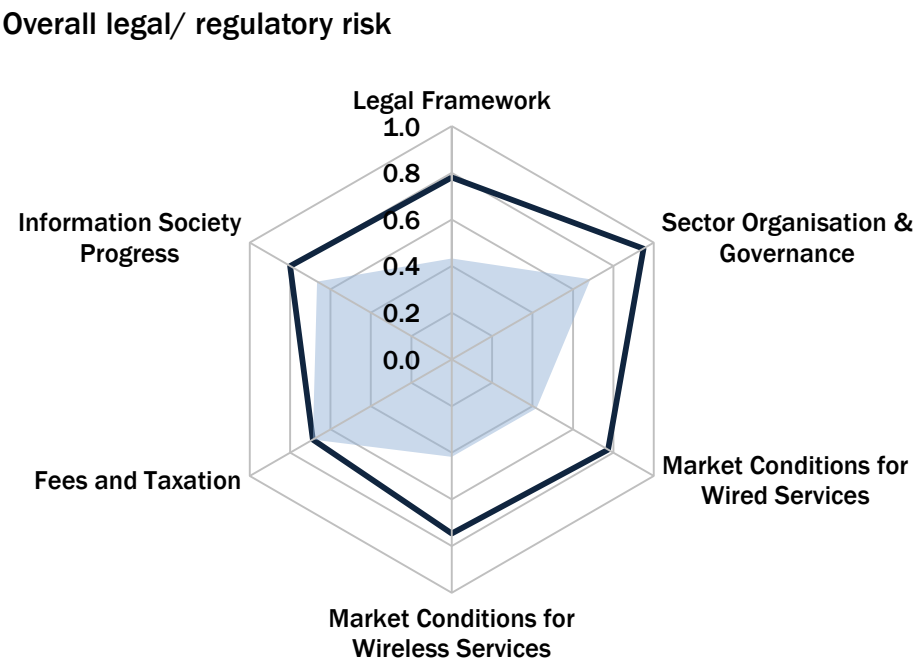
Market entry is straightforward and most of the normally expected competitive safeguards are already in place, although the incumbent fixed operator charges wholesale rates for infrastructure access, including local loop unbundling, are generally significantly above EU averages. This restricts the wholesale markets so that the larger alternative operators, including Caucasus Online, have tended to rely on their own infrastructures. Smaller competitors have now appeared, using fixed wireless technologies to expand broadband coverage out to smaller towns and villages.

Imbalances in the mobile spectrum allocations have contributed to the restricted development of fully competitive conditions in the mobile market. GNCC needs to liberalise the spectrum further to promote investment, especially to meet the significant increase in broadband data traffic being experienced by all market players. Spectrum needs to be made technologically neutral, and re-farming of the existing GSM spectrum bands is required to remove the current competitive restrictions. The introduction of better conditions for national roaming and for the entry of virtual mobile operators would also stimulate the market.

Significant new investment in infrastructure is required to meet the strong demand for fixed and mobile broadband services. The government still has to create a supportive policy framework to attract this investment, particularly in rural areas. GNCC needs to enforce better access and infrastructure sharing regulations to make future investments more efficient.

Georgia is already the regional leader in applying modern electronic communications regulation. By taking the necessary steps to promote strong policy leadership and to improve competitive market safeguards, Georgia will maintain its position of low legal and regulatory risk for the next significant wave of broadband-led investments.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Georgia with international practice and regional performance



Key: Extremities of the chart = International best practice
Georgia = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 78 (0 is highest, 100 is the lowest risk)

KAZAKHSTAN

At a glance

Market penetration	
Population	16.3
Fixed penetration*	26
Mobile penetration*	151
Broadband penetration*	15

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Transport and Communications
National regulatory authority	Committee of Electronic Communications and Informatisation within the Ministry of Transport and Communications

Market access	
General authorisation	✘
Technological neutrality	✔*
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

* Fixed only

Competitive safeguards	
Number portability	✘
Interconnection offers	✔
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	35
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✘

Market liberalisation

The development of the fixed telecommunications market in Kazakhstan started with the liberalisation of leased lines in 2000. The market for fixed-lines became legally liberalised in 2004, but only in 2006 were the remaining exclusive rights of the fixed incumbent removed, ending state-controlled KazakhTelekom's monopoly on national and international calls. Currently any operator can apply for national and international calls licences. At beginning of 2012, there were 21 licencees and currently only 12 operators have licences for national and/or international telephone calls since other licencees failed to meet their licensing requirements (and some of them surrendered their licenses on their own initiative).

KazakhTelekom remains 51 per cent state-owned with no clear plan apparent to reduce the level of state involvement. In addition to its shareholding in KazakhTelekom, the state previously held significant ownership of the mobile companies operating in the market. In recent times, however, this stake has reduced significantly with the disposal by KazakhTelekom of its stake in two mobile operators (KazakhTelekom's 51% in NEO being sold to Tele2 in 2009 and their remaining 49% of GSM Kazakhstan – Kcell - being sold to TeliaSonera). The level of competition has now intensified in the mobile sector, following the entry of Tele2 and full acquisition of Kcell, bringing price reductions on both mobile calls and mobile broadband services. KazakTelekom's remaining mobile holdings are represented by its 100% ownership of CDMA provider Altel.

Foreign ownership of telecoms companies providing long-distance or international communications remains restricted to 49 per cent.

Infrastructure competition has emerged in the cities (notably from Vimplecom), posing an increasingly significant competitive threat to KazakhTelekom. Although KazakhTelekom can still exploit its already invested copper network to offer a basic broadband package to existing customers, the effect of competition (both in terms of direct customer fixed connection and fixed/mobile substitution) is becoming increasingly apparent.

Since 2007 new players have entered the fast-growing fixed broadband market, using local fibre networks and fixed wireless technologies. These alternative networks are currently mainly active in the main cities. It is important to note however, that although new entrant operators are allowed in all markets, some restrictions still apply. For example, there are still restrictions on international communications, including special rules governing voice and internet traffic.

KazakhTelekom holds well over 90 per cent market share in the fixed market and enjoys an overwhelmingly dominant position in the market for basic services in rural areas, benefiting from state subsidies, designed to keep retail tariffs artificially low in those areas. This subsidy is paid from a state fund that is supported by contributions from all licensed operators in the sector. This subsidy mechanism as currently configured, would not appear to incentivise new investment into the sector in rural areas, though there are indications that the current subsidy structure may be phased out in or around 2014.

Although there are now several large internet access providers and many smaller ones, these provide competitive offerings mainly in urban areas. Mobile service coverage is not yet complete, with some smaller communities having no access to any communications services. The 3G coverage maps of the main mobile companies[21] show that broadband service is still geographically-focused on urban areas, leaving many rural areas with very limited, or no access to, modern communications.

Throughout the period since the first liberalisation steps, the development of the competitive market has depended on a complex set of rules coming from different state agencies, based on a pre-existing model. For example, to limit "monopolistic activity", two separate governing agencies have applied regulations, one for the protection of competition and the other on "natural monopolies". The development of wholesale markets (which international experience has shown are essential to the effective development of a fully competitive market) has been particularly slow, with Kazakhstan having significantly higher interconnection charges than other CIS countries and an incumbent fixed operator that does not appear to willingly allow access to its national or local infrastructure. Few of the typical wholesale enabling regulatory mechanisms have been introduced into the market in Kazakhstan.

The government is understood to be taking a renewed look at these issues in an effort to improve the climate for investment into the sector. So, while the key competitive enabler of number portability has yet

21 See www.europa.uk.com/cgi-bin/ni_map_jpkd.pl?cust=jpkd_&cc=kz&net=kz&opts=4 and www.europa.uk.com/cgi-bin/ni_map_jpkd.pl?cust=jpkd_&cc=kz&net=kt&opts=4

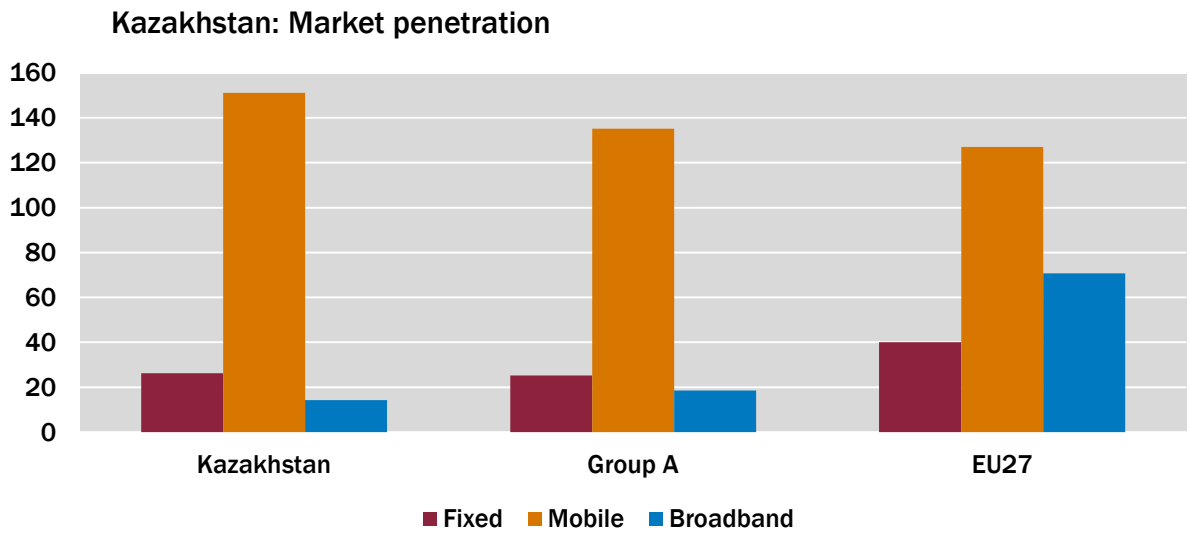
to be introduced, plans are understood to be under preparation for its introduction within the short term. With respect to infrastructure access, a regulation providing for access to existing communications network ducts has been introduced, which should give lower entry barriers to alternative service providers wishing to expand their networks. Progress in implementing this regulation is reportedly slow, but it is hoped that the government's renewed look at regulation will improve its effectiveness.

Kazakhstan has a reasonable fixed-line penetration at 26/100 population (compared with the regional average of 25/100) with six operators providing fixed-line telephone services to around 4.3 million subscribers. Unfortunately however, there have been long waiting lists for fixed-line telephone services over the years. Despite the formal opening of the market, the bulk of the country's fixed services are still provided by KazakhTelekom, whose market share is virtually 100 per cent in rural areas where its services are still subsidised by the state. The system of universal service subsidy appears unnecessarily complicated and relies on KazakhTelekom itself to calculate the level of compensation it receives (though this calculation needs to be approved by the regulator). The system does not currently offer incentives for investment outside the urban areas, so market penetration remains very low in rural areas (at around 6/100 population).

By the end of 2011 mobile penetration had reached 151/100 population, above the regional average of 135/100. It is likely however, that a not insignificant proportion of that figure results from multiple sim-card subscriptions necessitated by the high cost of off-net calls caused by higher than average mobile termination rates.

Of special note is the recent healthy growth in internet activity in Kazakhstan, with the move to broadband based access in particular taking place at a rapid rate. Fixed broadband penetration has reached 8/100 population, with the market likely to continue its rapid expansion. Mobile broadband penetration numbers are uncertain, but a penetration of around 7/100 population appears to have been achieved.

Chart 1: Market penetration of main services per 100 population in Kazakhstan, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The Law on Communications 2004 (amended in January 2012) is the primary legislation for the electronic communications sector. Other legislation impacting the sector includes the Statute of the Ministry of Transport and Communications (amended by Government Decree no.314 in March 2012), Statute of the Committee of Electronic Communications and Informatisation (amended in April 2012), the Law on Licensing (2007, amended in 2012), the Law on Natural Monopolies and Regulated Markets, the Law on Competition, plus relevant secondary legislation.

The sector is regulated and supervised by the Ministry of Transport and Communications. The main regulatory and control functions are carried out by the Committee of Electronic Communications and Informatisation ("the Committee"), a body structurally and functionally part of the Ministry of Transport and

Communications. The Committee's responsibilities include implementation of state policy, regulation of prices (including the approval of KazakhTelekom's universal service retail tariff rebalancing plan), allocation and use of radio frequency spectrum, state control of activities in telecommunications and informatisation (including regulation of the activities of national monopoly entities and dominant operators in telecommunications), allocation of numbering resources and assignment of numbers.

Kazakhstan has an individual licensing regime for specific telecommunications services, rather than the general authorisation framework associated with best practice. However, recent amendments were made to the multi-sector Law on Licensing in 2012 significantly reducing services for which a licence is necessary. As a result of these amendments, only four services remain subject to licensing in the electronic communications sector. These are national telephone calls, international telephone calls, satellite mobile communication and cellular communication, for which a specific standard/technology must be indicated.

According to the rules on interconnection of telecommunication networks, all operators of telecommunications have the right of interconnection to public switched telecommunication networks. For dominant network operators, interconnection is regulated by a standard interconnection agreement approved by a Government resolution.

There are no provisions in the law for clear rights and obligations to provide/obtain co-location, including ancillary services on all operators. Provision of duct infrastructure is regulated by the Law "On Natural Monopolies and Regulated Markets" so that monopoly holders are obliged to ensure equal and non-discriminatory access to their duct infrastructures. Operators found to be dominant in the provision of other passive infrastructure may be obliged to offer equal access and have tariffs applied under the Law "On Competition".

A Committee Statute provides that it conducts analyses of product markets to ensure non-discriminatory access to services and infrastructure. The Committee prepares and submits its proposals on telecommunications market analysis, including the designations of operators with significant market power or monopoly entities, to the Agency for the Protection of Competition (APK), otherwise known as the Anti-Monopoly Agency. APK decides on designation of dominant operators, keeps a register of dominant entities and monopolies and imposes remedies such tariff levels on specific operators. In addition, the Agency for Regulation of Natural Monopolies (AREM) maintains a list of "natural monopoly entities" for which special pricing control is exercised. It is understood that proposals are being considered to streamline this process by transferring the power to designate dominance from APK to the Committee.

The Committee is required to comply with and enforce the Law on Natural Monopolies and regulated markets with regard to the telecommunications sector. The Law on Competition describes the analysis of competition in product markets to be conducted in order to define the level of competition development of competition, to designate operators with dominant or monopolistic position and to ensure measures on protection and promotion of competition and the prevention, restriction and suppression of monopolistic activities. The law also provides for forced structural separation of an operator in the case of abuse of a dominant or monopolistic position.

The Committee has the authority to set tariffs on universal telecommunications services and regulate tariffs for services provided by natural monopoly entities and dominant operators, based on costs including an element of profit. Tariffs for telecommunication services provided by entities not included in the register of natural monopolies or the register of dominant entities are not regulated by the Committee. The "Rules of Pricing in Regulated Markets" (2009) provide that tariffs of dominant operators in regulated markets must be justified, based on accounting separation (or cost appraisal if separation is not possible), taking account of underlying costs including return on capital employed.

The law does not appear to provide authority to the Committee to resolve disputes at the request of operators/service providers. Disputes must instead be resolved in accordance with the Code of Civil Procedures, the Law on International Commercial Arbitration and Law on Arbitration Courts. Provisions on review of appeals of undertakings and individuals related to violated rights, liberties and interests are specified in a separate Law on Procedure for Handling Appeals of Individuals and Undertakings. State authorities make decisions on reviewed appeals, which can be appealed in higher state bodies or court. The Law on Communications and a statute authorise the Committee to issue binding orders to remedy licence violations, to impose administrative penalties under the Administrative Violations Code (which can include fines, confiscation, withdrawal or suspension of licence), to decide on violations in the telecommunications sector of the Law on Natural Monopolies and Regulated markets, to prevent violations and impose remedies on monopolies (including administrative orders to restructure) and apply to court in cases of violation of the natural monopoly and electronic communications legislation.

The government is responsible for development and implementation of state policy on allocation of radio frequency spectrum and effective use of radio frequencies, as well as approval of the Statute and

Membership of Interagency Commission of Radio Frequencies, approval of the Radio Frequency Allocation Table, approval of rules of re-farming of radio frequency spectrum and approval of procedure for assignment of frequencies. The Ministry of Transport and Communications is responsible for spectrum planning, international compliance and issuing authorisations to use radio frequencies. The Committee assigns radio frequencies and is responsible for implementation of the state spectrum policy and maintains the register of authorisations. The law sets out principles for transparent and open procedures for allocation and granting of spectrum rights. The law does not state a specific term for allocation and use of radio frequency spectrum. Decisions on rights of use for spectrum must be taken pursuant to the law within two months.

The Committee is responsible for allocation, assignment and withdrawal of numbering resources. Procedures for allocation of numbering resources and assignment of numbers are provided by the Rules of Numbering Resources Allocation, Assignment and Withdrawal approved by a 2011 Government Decree. The Committee decisions on allocation or withdrawal of numbering resources must be taken within 30 working days from receipt of application. The Numbering Plan and information on scarcity of numbers must be published.

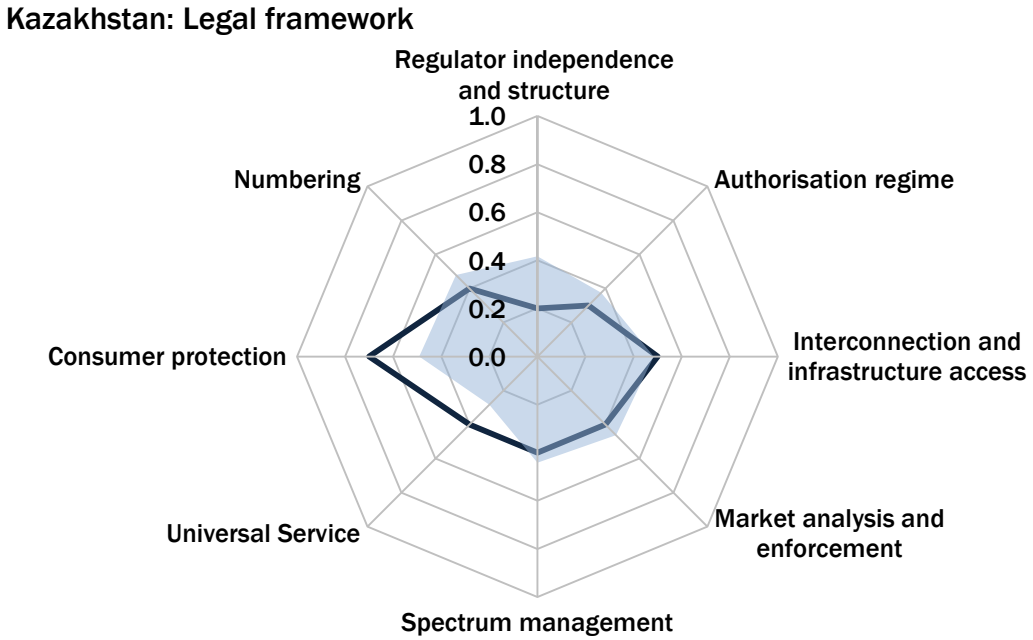
The legal framework on consumer protection can be seen as broadly aligned with EU requirements. General protection of consumer rights is regulated by the Law on Protection of Consumer Rights (2010) while the rights of telecommunication service consumers and data protection are provided in the Law on Electronic Communications and the Rules of Provision of Telephone Communication Services. A draft law on protection of personal data is being considered by parliament.

Tariffs for universal telecommunication services are state regulated and approved by the Committee, with universal service operators selected on a competitive tender basis, or if that fails, imposed on the dominant telecommunication network operator. Losses incurred by a designated operator are subsidised, except for losses in urban areas. To calculate the subsidy, the operator must maintain accounting separation of costs and revenues.

Land owners and users must provide rights of way to operators, who also have the right to lay communication networks on bridges, tunnels, streets, highways and railways, buildings, prohibited zones, woods and waters in accordance with legislation. Rights to use land for communication facilities require the agreement of owners and approval of local authorities. There appears to be no provision to impose fees for the rights of use for rights of way, or that the fees must be objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose, as required by best practice.

The equipment inspection and monitoring regime focuses on radio communications devices, with regional branches of the Committee carrying out the inspections. State bodies have the right of priority use and suspension of networks and facilities in emergencies, while the government defines procedures for compensation of operator losses caused. Owners of electronic communication networks and facilities must provide absolute priority to all reports concerning human safety in land, water, air, space, as well as to reports on disasters, severe accident, epidemics, natural disasters, in order to take all immediate measures.

Chart 2: Comparison of the legal framework for telecommunications in Kazakhstan with international practice and regional performance



Key: Extremities of the chart = International best practice
Kazakhstan = Solid line
Regional average = Shaded area

Sector organisation and governance

Through the Sovereign Wealth Fund "Samruk-Kazyna" JSC, the state owns stakes in the following fixed and mobile communications operators:

- KazakhTelekom JSC (fixed telephony operator – universal operator) – 51 per cent share in equity capital.
- Transtelecom JSC (fixed telephony operator) – 100 per cent.

KazakhTelekom JSC in turn owns:

- 100 per cent interest in equity capital of "Altel" JSC (mobile communications operator).
- 71 per cent stakes in equity capital of "Nursat" JSC and 100 per cent in the equity of "Vostoktelecom" LLP (fixed telephony operators).

The sale of KazakhTelekom's stake in GSM Kazakhstan (Kcell) to Fintur Holdings (TeliaSonera/Turkcell joint venture) was completed in February 2012.

There are indications that, as part of the negotiation process on membership of WTO, Kazakhstan may lift or amend the current restriction on foreign ownership in the sector above 49%.

Four main companies hold licences for fixed services, in competition with the state-owned incumbent KazakhTelekom. The four entrants were TransTelecom (a subsidiary of Kazakhstan Temir Zholy, the state railway company), KazTransCom (partly owned by the state oil company, KazMunaiGaz), plus private enterprises Ducat and Astel. In addition to KazakhTelekom, there are many hundreds of smaller operators providing local services over new fibre or fixed wireless local networks.

Kazakhstan's mobile market was, until recently, dominated by two main participants: KCell and BeeLine (controlled by Russia's VimpelCom), both with over 40 per cent market share each. In the past mobile phone services in Kazakhstan were among the most expensive in the CIS region. However, upon the entry into the market of Tele2, the Swedish mobile operator, the former domination of KCell and Beeline subsequently receded somewhat and retail tariffs are understood to have fallen sharply.

In addition to fixed operator KazakhTelekom, there are many hundreds of smaller operators providing local services over new fibre or fixed wireless local networks.

The sector regulatory function (the Committee) is now part of the Ministry of Transport and Communications. Some regulatory functions are formalised by the Ministry and do not require additional approval by the Government, while others are within the Government's mandate and in this case a decision or a regulatory document is formalised by a corresponding order of the Prime Minister or by a government decree. The Committee is also authorised to make its own decisions or orders to regulate the sector in accordance with the Statute of the Committee and Law on Electronic Communications.

Market analysis carried out by the Committee has to be submitted to APK, whose responsibilities are to implement control over compliance with anti-monopoly legislation. APK does this by considering the recommendations of the Committee in the case of electronic communications and taking measures on the basis of these recommendations, for example imposing fixed prices on market entities that has committed a violation of the anti-monopoly legislation.

The Agency for Regulation of Natural Monopolies (ARNM) forms and maintains the State Registry of Natural Monopoly Entities. In the electronic communications sector, the list includes the wholesale main infrastructure. In particular, obligations to grant access to the duct infrastructure can be established according to the Law "On Natural Monopolies and Regulated Markets" and the "Rules of Ensuring Equal Access to Regulated Services".

In accordance with the provisions of the Law "On natural monopolies and regulated markets," draft resolutions regarding the approval of tariffs on services of natural monopoly holders are considered during public hearings with participation of representatives from public associations and consumers. Although the concept of "public consultations" is absent from the existing sectoral legislation, before adoption of any important decisions for the sector, the Ministry of Transport and Communications is understood to hold different types of meetings, discussions, and panel sessions of working groups specially formed for solving the particular problem in the sector. The main communications operators and representatives of the "National Telecommunications Association of Kazakhstan" take part in these activities.

Talks on Kazakhstan's accession to the WTO are expected to be concluded in 2012, with the conclusion potentially impacting aspects of governance issue set out above.

Regulatory conditions for wired networks

Market entry for fixed-line services still requires licences for national and international calls services. Earlier in 2012, the requirement for licences was removed for local telephony, data, internet and IP telephony, replacing the licensing procedure with a simpler notification procedure, which can be done on-line. Qualifying requirements have been developed for obtaining these licences, based on detailed submission of company details and service plans. Fixed network licences are technologically neutral.

Under the regulatory rules, a dominant operator can be mandated to provide open access to its infrastructure for an alternative operator. Duct infrastructure is specially defined under natural monopoly provisions. In practice though, achieving access to infrastructure does not appear to be easy with KazakhTelekom reportedly often refusing to provide technical conditions for laying cables in its duct-work, reportedly justifing its refusal by the absence of technical capacity or by citing the law "On Electronic Communications". Compounding this difficulty, access to public and private rights of way is unclear, and there do not appear to be any formal procedures or timescales.

Fixed number portability is understood to be currently under consideration for implementation.

Few of the normally expected competitive mechanisms for introducing or maintaining a competitive environment have been introduced. For basic fixed services, carrier selection/pre-selection or wholesale line rental have yet to be made available to alternative operators. For fixed broadband, local loop unbundling or wholesale broadband access is similarly unavailable, except it is understood, in cases where the retail broadband provider is a subsidiary of the network owner.

Fixed termination charges are understood to currently be equivalent to between two and a half and four times the EU averages. Other rates apply for transit to and from fixed and mobile operators, some of which are understood to be declining under competitive pressure.

Regulatory conditions for services requiring frequency spectrum

Under the main legislation, spectrum frequencies for telecommunications are awarded on a first-come, first-served basis, except for broadcasting. Mobile spectrum has been awarded in stages to existing operators, with corresponding amendments to their licences. The decision to hold a contest (or an auction) is taken by the Ministry of Transport and Communications, taking into account the recommendation of the State Interagency Committee of Radio Frequencies (SICRF). The procedure for conducting a contest

appears transparent. There is also a second option for spectrum licensing whereby the spectrum agency makes a decision on distribution of scarce frequency bands to all mobile operators in equal portions without passing through the bidding procedures. In this case it is possible to amend an operator's licence with certain obligations (for example, the need to provide coverage in certain categories of populated areas).

In 2008 the regulatory authority distributed among the four GSM operators frequency bands in equal portions. In 2010 mobile communications operators were allocated frequency bands for 3G services. Announcements have been made regarding the allocation of frequency to KazakhTelekom for trial of LTE/4G services in 2012, though provision for allocation of more permanent allocation of 4G frequency for commercial launch remains unclear, with the situation that will apply to future spectrum awards similarly unclear.

One of the mandatory functions of the Ministry of Transport and Communications is the monitoring of the radiofrequency spectrum usage, and there is provision of spectrum re-farming under the law, allowing compensation payments to operators when frequencies are taken back. Such spectrum re-farming, however has yet to be applied.

There are currently no virtual mobile operators, and no provision exists in current regulations for their introduction. Spectrum trading is currently prohibited.

Although the average mobile call termination rate has reduced by over 25 per cent since 2010, it remains significantly above the average for EU countries.

There have been discussions for several years regarding the possibility of implementation of mobile number portability. At the end of 2011, it is understood the Ministry of Transport and Communications again raised the issue of implementing number portability and stressed the necessity to amend the sector legislation with corresponding regulations, but concrete plans in this respect has yet to become apparent. However, on a positive note, in mid-2012 the Ministry of Transport and Communications announced that it planned to hire an international consulting company to help the government to develop a plan for the introduction of mobile number portability.

In 2011 the two largest GSM operators were included in the state register of market entities holding dominant positions in call termination and therefore, subject to regulation. Such regulation has yet to begin however, as the mobile operators believe that the decision was taken in a non-transparent and unfounded manner and they are currently challenging the decision in court.

There is no provision for national roaming and all licences issued for the provision of mobile communications services oblige operators to serve the whole country. All mobile operators operate in each of the 14 provinces of the country, but full coverage of all communities has yet to be achieved. Each operator has a different percentage of coverage in different regions. All operators are present in big cities, whereas only the dominant operators (Kcell and BeeLine) serve small towns and rural communities. As indicated above, there is still a category of communities with small populations that remain unserved.

Payments required from operators

The Ministry of Transport and Communications and the other regulatory bodies that oversee the electronic communications market are state-funded and there are no administrative charges imposed on operators. A one-time fee has to be paid for the right to use particular frequencies allocated on the basis of competitive bidding, with relatively high reserve prices calculated by the Ministry of Transport and Communications.

There is no universal services fund in Kazakhstan as such. Instead the licensed operators are required to pay a fee for the right to provide national, international and mobile service. The size of the fee depends on the amount that must be paid to the universal services operator (KazakhTelekom) in the form of subsidies. At the end of a year the Ministry of Transport and Communications defines (on the basis of a figure calculated by KazakhTelekom) the amount of subsidies required for the next year, then makes an enquiry from the operators of national/international and mobile communications regarding their estimated income for the next year. The Ministry of Transport and Communications then divides the necessary sum proportionately on the number of all payers (depending on the level of income) and finally arrives at the required percentage to be taken from each operator's revenues.

Provision of universal services is carried out by communications operators on the basis of competitive bidding or is imposed by the authorised agency on the dominant communications operator. By this means, a large state subsidy is currently paid to KazakhTelekom to compensate for its calculated losses of its universal service provision.

Information society safeguards

Internet commerce is regulated by rules applying to retail trade through network marketing, e-commerce and mail-box shopping. The authorised agency for regulation of trade, including electronic commerce, is the Ministry of Economic Development and Trade. Under the 2010-2014 trade development programme approved by the government in 2010, there is provision for the creation of an electronic system of non-cash payments through the internet, similar to Webmoney and Paypal.

Electronic documents and signatures are covered by a 2003 law such that an electronic signature is equivalent to a handwritten signature and implies the same legal consequences. At present, electronic digital signatures are widely used in state authorities; in the fields of taxation and banking and the provision of eGovernment services. Several certification authorities for electronic signatures are functioning, including the National Certification Centre, the Certification Centre of State Agencies and a number of banking and commercial certification centres. Any citizen or business can obtain state services by means of "eGovernment" on the basis of a request in the form of an electronic document certified by an electronic digital signature.

Internet domain registration in the Republic of Kazakhstan is liberalised, with a competitive market for domain registrars. A recent decree has required that all internet domains ending with the Kazakhstan suffix, must be domestically-based. This means that traffic from all .kz domain will have to be routed through servers within the country instead of the system of automatically handling requests the fastest way possible, regardless of geography, which is currently in place.

For electronic information resources containing personal data, confidentiality compliance is obligatory starting from the moment when the data are submitted by the individual.

Kazakhstan is not a signatory to the Council of Europe Convention on Cybercrime. At present, cybercrime is defined in a Presidential Decree: "On the concept of information security of the Republic of Kazakhstan until 2016" according to which, cybercrime will be considered as the type of crime implying criminally punishable acts with the use of information technologies.

Summary and outlook

State control of the main market players and the use of multiple regulatory agencies has not provided the most conducive environment for the development of an effective competitive market in electronic communications. Though there are moves underway to centralise most authority for regulation of the sector in the Ministry for Transport and Communications, these reforms have yet to be finalised and fully implemented. Further improvement of the legal and regulatory framework will be a critical ingredient to ensure effective future development of the market.

KazakhTelekom currently dominates the landscape in fixed services, facilitated by under-priced basic retail tariffs and state subsidies. This position should change with the completion of tariff rebalancing, which has been under gradual implementation since 2008, and the reported plan to eliminate the current state subsidy for fixed lines. KazakhTelekom also notably overprices its main call interconnection charges, although it is understood the regulator is currently examining action on this matter. Overall, an active wholesale market has been slow to emerge, which has the consequence of depriving consumers of real choice in basic retail services, especially outside the main urban areas.

Infrastructure competition has emerged in the cities, posing an increasingly significant competitive threat to KazakhTelekom. Although KazakhTelekom can still exploit its already invested copper network to offer a basic broadband package to existing customers, the effect of competition (both in terms of direct customer fixed connection and fixed/mobile substitution) is becoming increasingly apparent.

Outside the urban areas, KazakhTelekom is investing in infrastructure and gradually increasing broadband service availability to the 50 per cent of the population that live in rural areas. This will serve to strengthen KazakhTelekom's monopoly, unless it allows (or is forced to allow) meaningful access to the infrastructure by its competitors. A plan for the roll-out of telephone and Internet services in rural localities (based on the CDMA-450 wireless technology) has been approved. At present, inhabitants of Kostanay, Zhambyl, South Kazakhstan, Pavlodar, Almaty and Aktyubinsk regions already have wireless internet access. By the end of 2012, it is understood this service will also be available in Karaganda, West Kazakhstan, Kyzylorda, Atyrau, Mangistau, East Kazakhstan, North Kazakhstan and Akmoly regions.

Systemic reform is required to bring a modern system of competition law-backed regulation. The priority is for the sector regulator to create an effective wholesale market, placing dominant operator's existing and new infrastructure investment at the service of competing retail service providers. This avoids the need to

invest in separate infrastructure where it is not economic. The resulting retail competition will stimulate the market, with better product innovation, choice, quality and price.

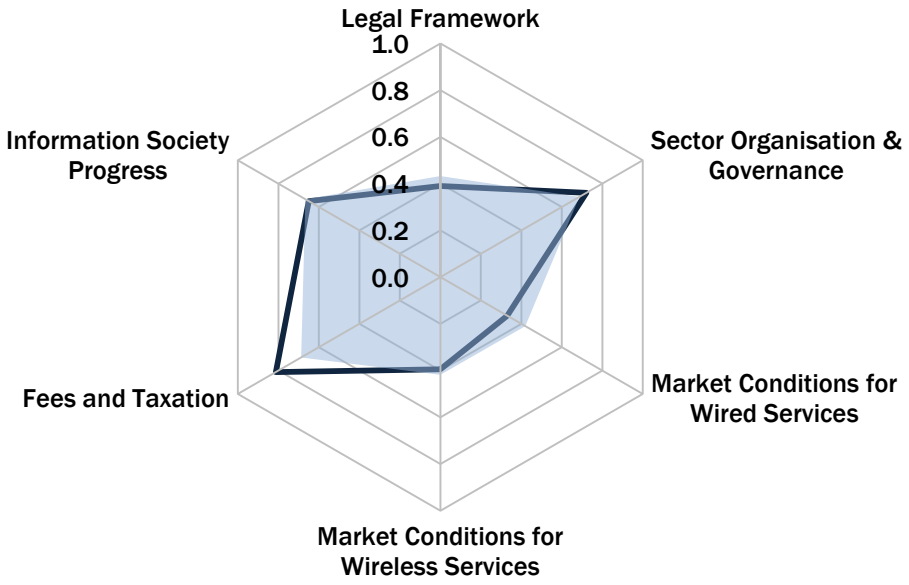
The above notwithstanding however, in enforcing such an access regime the government should be mindful of the need to balance effective competition and the price, choice and quality that such competition brings, with the significant cost of extending such infrastructure throughout a country as vast and relatively sparsely populated as Kazakhstan, and the corresponding need to cover costs, including a return on investment adequate enough to incentivise such investment.

KazakhTelekom has investment plans to expand its national infrastructure and to deploy large-scale fibre-to-the-home, fixed wireless and satellite access networks. The country's challenging geography will continue to act as an additional cost, limiting the spread of high speed broadband services. KazakhTelekom is expected to face healthy competition in the broadband sector, with major operators such as VimpleCom continuing to step up the deployment of fibre-optic services and target business and residential subscribers. Competition in the fixed sector is intensifying with significant expansion of wireless broadband by Arna, AsiaBell and Alam. Ducat's WiMAX licence covers 36 major Kazakh population areas. Using multiple-play bundles, these Kazakh operators will drive broadband growth, with the help of services such as IPTV.

Fixed wireless and mobile broadband will be the major growth area in an already highly competitive market. When significant new "digital dividend" spectrum is released, Kazakh operators will be ideally placed to deploy 4G services. To do so efficiently, however, they may have to form cooperative ventures (against their current instincts) to be able to offer full national coverage. Such cooperation should follow the lead of the European markets and the Russian market during the last two years (see Russia Case Study "Is cooperation on network infrastructure the way forward for the next wave of investment?") where the major players are entering infrastructure sharing deals for new investments and using new retail options (such as virtual mobile service providers) to optimise their business models. The regulatory body should assist this process by promoting effective wholesale markets and introducing a more modern system of competitive safeguards for alternative operators (such as number portability, virtual mobile operators and example infrastructure sharing obligations).

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Kazakhstan with international practice and regional performance

Kazakhstan: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Kazakhstan = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 47 (100 is the lowest risk)

KYRGYZ REPUBLIC

At a glance

Market penetration	
Population	5.4m
Fixed penetration*	9.4
Mobile penetration*	101
Broadband penetration*	0.8

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Transport and Communications
National regulatory authority	State Communications Agency

Market access	
General authorisation	✘
Technological neutrality	✘
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✘
Interconnection offers	✘
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	39
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✘

Market liberalisation

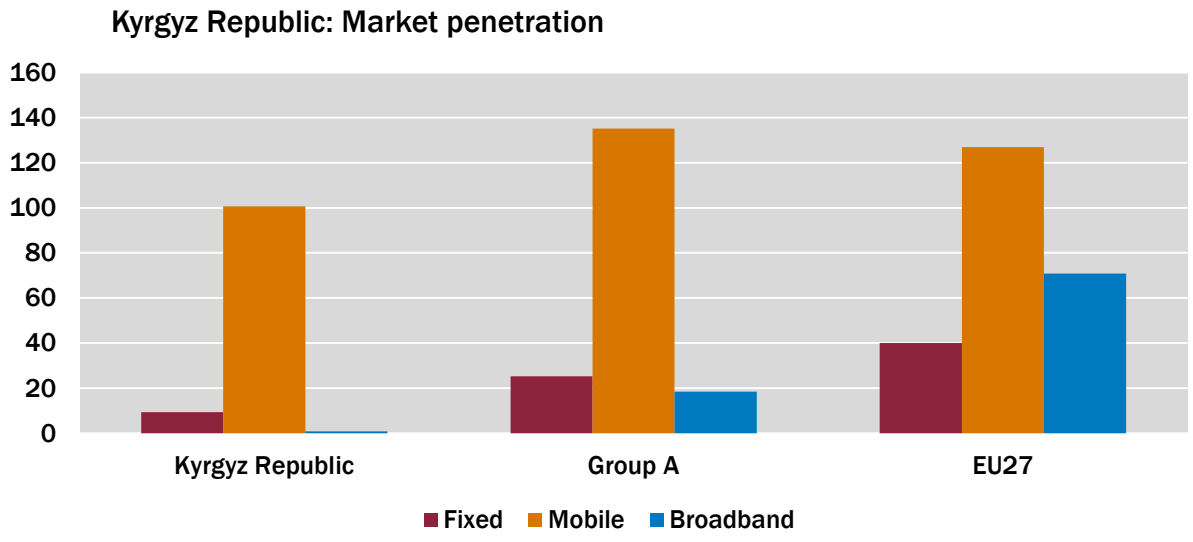
The market for provision of fixed-lines in Kyrgyz Republic was formally liberalised in 1998, although the market for international calls was not opened to competition until 2003. There are two large fixed-line network operators, both of which have licences for local and national telephony. In addition, 13 other local telephony operators exist, providing services through the two main network operators, though some also own their own small networks. A separate licence is required to provide national telephony services, for which an operator must pay a high fee. The fixed market remains largely uncompetitive and many rural areas remain unserved. The overall fixed penetration rate is very low at 9/100 population, compared to the regional average of 25/100.

Mobile penetration has reached 101/100 population, well below the regional average of 135/100. There are seven mobile operators currently operating in the market, covering about 90 per cent of the Kyrgyz population. MegaCom (in partnership with Russian mobile operator MegaFon) continues to be the mobile market leader, with a market share of 45 per cent[22]. Sky Mobile (backed by Russian VimpelCom) under the BeeLine brand, has a market share of about 40 per cent. Three smaller operators, Aktel, NurTelekom and Nurtel make up the remaining 15 per cent of the market. Sky Mobile also has launched a mobile broadband (3G) service in 2011, currently available in 4 out of 7 regions, as well as in the capital city Bishkek, which reportedly had 25,900 subscribers at the end of September 2011.

Although internet penetration has reportedly reached 39 per cent of the population, the overall penetration of broadband subscriptions is still less than 2/100 population.

More than five operators provide leased line services; these are the operators holding licences for local and international telephony and data transfer (internet).

Chart 1: Market penetration of main services per 100 population in Kyrgyz Republic, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The 1998 Law on Telecommunications and Posts of Kyrgyz Republic has some features of best practice. Although the 1998 law provides for separation of the policy function carried out by the Ministry for Transport and Communications (MTC) and regulatory function conducted by the State Communications Agency (SCA), a number of deficiencies impede SCA's ability to regulate the sector. There is no clearly established sector policy. In addition, although the 1998 law provides nominal independence and

22 Consultant estimate. NCA does not collect this data

substantial authority to SCA, other government agencies interfere with its decision making. Recent attempts to update the 1998 law to take into account advances in technology and regulation have not been successful.

The 1998 law does not establish a clear structure for the national regulator. The recent adoption of the new Constitution of the Kyrgyz Republic led to a threat to liquidate the regulator or transfer it to a common administrative agency. Despite the clear provisions of the 1998 law, the regulator lost its status as a "national" agency, so that it is now a "state" communications agency, understood to be of a lower status within the government structure. In addition, the Law on Normative Legal Acts deprived SCA of the authority to adopt its own regulations so that SCA now requires approval by the government of its regulations. That act also requires that a regulatory impact analysis be completed by a separate ministry for each new regulation proposed by SCA that impacts business interests. This regulatory impact analysis must be reviewed by the Ministry of Economy and Antitrust Policy (MEAP) and then by a commission approved by the government. Only after this approval process does a draft regulation undergo a further process to obtain agreement with various ministries and agencies, after which the regulation is approved by the government. This process makes it extremely difficult for SCA to adopt effective regulations.

The Licensing Law establishes an individual licensing regime, rather than a best practice general authorisation scheme. The licensing regime does not define specific types of services subject to licensing; instead the law identifies types of activities for which licences are issued. There are four such activities (telecommunications, postal communications, data transmission, and construction). The Kyrgyz individual licensing framework provides discretion to SCA to set licence conditions and obligations for each public telecommunications operator. In practice, the regulator issues licences based on different types of services within the list of activities defined by the law.

The 1998 law requires that SCA, jointly with the state anti-monopoly authority, take measures to prevent anti-competitive activity. In practice this means that tariffs must be established in consultation with the anti-monopoly authority. This appears to contradict other provisions of the 1998 law, which authorise SCA to establish tariffs and price regulation. Also, the provisions addressing market analysis in the 1998 law contradict the tariff provisions of the Law on Natural and Authorised Monopolies. MEAP and the State Agency for Anti-Monopoly Regulation have challenged the functions of SCA from time-to-time with respect to important decisions, making SCA's decisions difficult to enforce. SCA lacks clear legislative authority to enforce its powers or impose effective penalties. Decisions made by SCA may be appealed in the government or the parliament, which may cancel or suspend SCA decisions.

Interconnection provisions in the 1998 law are generally aligned with best practice and grant clear authority for SCA to regulate joint use of infrastructure. However, these provisions are very general and secondary legislation is absent. In addition, there are problems in consideration of disputes that reduce the authority of the telecommunications regulator and cause significant problems for market entrants.

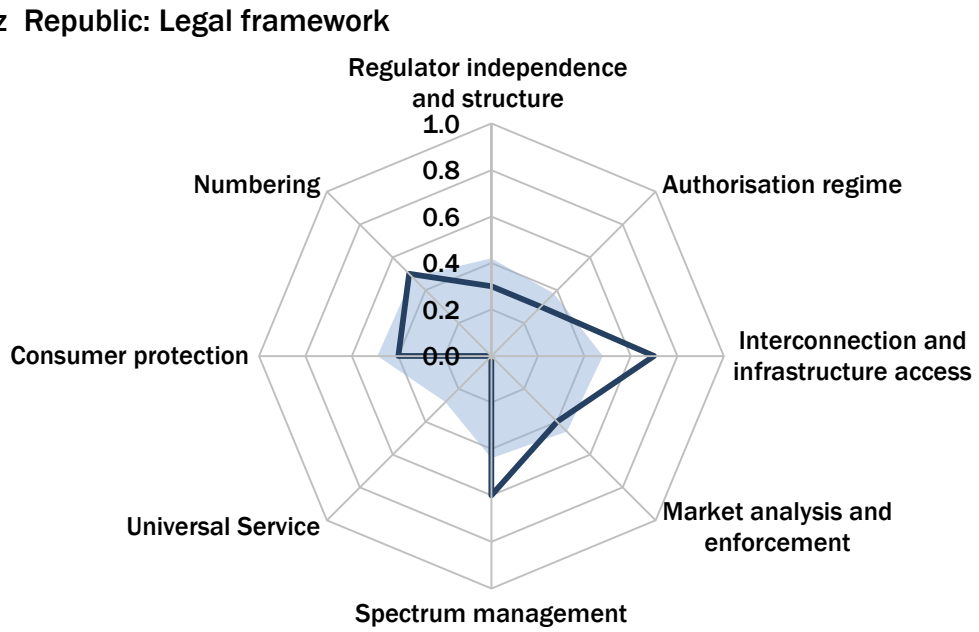
Management of scarce resources, including spectrum, is not closely aligned with best practice. The functions of the State Commission on Radio Frequency (SCRF) and SCA on frequency management and administration of spectrum are not clearly defined and frequencies are not clearly separated into military and civil uses, resulting in non-transparency in allocation of frequency. However, in practice, spectrum management is effective and SCA now independently assigns frequency and resolves all issues with respect to spectrum allocation.

There are no provisions in Kyrgyz legislation with respect to universal service, causing deficiencies in the provision of communications services in remote mountainous areas of the country.

The law on telecommunications and posts does not include specific requirements for consumer protection. However, there is a separate law on consumer protection which applies to all sectors. The SCA has prepared rules for local telephone communication and mobile communication operators, requiring that specific provisions and conditions must be included in user contracts. However, there appears to be some resistance, since civil legislation guarantees the freedom to set agreements.

Regulation of broadcasting content is hampered by contradictions between the Law on Mass Media and the Law on Television and Radio Broadcasting. The Law on Mass Media states that violations of that law must be considered in courts, while the Law on Television and Radio Broadcasting stipulates that broadcasting is a licensed type of activity and non-performance of license conditions is cause for revocation of the licence.

Chart 2: Comparison of the legal framework for telecommunications in Kyrgyz Republic with international practice and regional performance



Key: Extremities of the chart = International best practice
Kyrgyz Republic = Solid line
Regional average = Shaded area

Sector organisation and governance

Kyrgyztelecom JSC is the fixed communications incumbent, with about 80 per cent of its shares belonging to the state through the state property fund. Some shares are also held by the State Pension/ Social Fund. Kyrgyztelecom is included in the register of natural monopoly holders, with monopolistic services of local and national telephony and network interconnection. The state also owns 49 per cent of the mobile operator "MegaCom". The other main mobile operator, SkyMobile (BeeLine) has been fighting an ownership battle, with Russia's MTS taking further action in the international courts.

The government has attempted to privatise Kyrgyztelecom at least four times since the late 1990s. In early 2010 the interim government of Kyrgyz Republic reversed a number of decisions made by the previous government, including a 2009 privatisation of Kyrgyztelecom. That government claimed that the state's holding in the company had been sold to a consortium of four investors with close ties to the former President at "unreasonably low prices".

MTC is responsible for policy within the sector, and SCA is the regulator responsible for implementation of sector policy. The State Commission for Radio Frequencies (SCRF) is a management body coordinating activities of ministries and agencies with respect to spectrum use. MTC and SCA are understood not to have subordinate legislative powers, with all regulations requiring approval by the government.

SCA is under the government of the Kyrgyz Republic and implements regulation in the electronic and postal communications sector, including the use of radiofrequency spectrum. However, SCA must regularly defend its authority and decisions from interference from other government agencies. It has recent lost responsibilities to the Competition Protection Agency (see below) and has faced potential liquidation or merger with other government agencies. SCA has been merged twice in the past seven years, though in both cases de-merged shortly thereafter. In the recent reorganisation of the government, substantial efforts were required to preserve the regulatory agency with its staff and functions. SCA staff members are considered civil servants, with salaries limited by civil service requirements, despite the fact that SCA is financed by fees paid by the licensed operators in the sector. At present, in connection with the

reorganisation of bodies of executive power in Kyrgyz Republic, staff counts in all ministries and authorities are being cut. It is unclear whether SCA will suffer such cuts.

All decisions of SCA concerning operators and consumers are published on the Agency's web site. The Administrative Code of Kyrgyz Republic specifies levels of penalties for non-compliance with SCA decisions. However, these penalties are so low that they are meaningless to operators. Decisions of the regulatory agency can be appealed to court, as well as to government, the Prosecutor's Office, or parliament, giving operators many avenues to challenge the regulator's decisions. Appeals to court are based on procedures specified in the Civil Code and the Code of Civil Procedure. Decisions adopted by SCA may be suspended or cancelled with insufficient grounds. Moreover, corresponding procedures for dispute resolution between operators are underdeveloped, and in practice public consultations are not conducted before making regulatory decisions.

Before November 2011 SCA had also acted as the competition agency for electronic communications market. However, after adoption in 2011 of a new Law on Natural and Permitted Monopolies, market analysis and tariff approval powers were transferred to a separate Competition Protection Agency. The definition of markets in Kyrgyz Republic, for market analysis purposes, has not yet been determined. Tariffs now have to be established in consultation with the Competition Agency. This move considerably weakens the regulator. The cooperation between these two bodies has not yet been established.

Kyrgyz Republic was formerly viewed as somewhat of a leader in Central Asia in aligning its telecommunications sector legislation and regulation with international best practice and SCA was respected for its regulatory expertise. However, over the past decade the independence of the regulator has been eroded and continually threatened, which has impacted its ability to regulate the sector, and the framework established by the 1998 law has been negatively impacted by provisions of other more recent legislation.

Kyrgyz Republic has been a member of the WTO since 1998.

Regulatory conditions for wired networks

The legislation does not provide for a regime of general authorisations and notification. All authorisations are issued through licensing after the submission by the applicant of defined documents.

Any operator can use passive infrastructure elements upon negotiation of an agreement with a network owner. Legislation provides that refusal to share infrastructure is possible only if there is no available technical capacity. This means that in practice obtaining access to the infrastructure of other operators such as the incumbent Kyrgyztelecom is difficult. Rights of way over public and private property are only possible on the basis of contracts.

Although it is recognised generally that the basic fixed-line retail tariffs of Kyrgyztelecom (as a designated "natural monopolist") must be increased, the process of fixed-line tariff rebalancing has not been implemented. The basic line rental service is under € 2 per month.

Kyrgyztelecom has network interconnection agreements, which are agreed with the regulator. But it is not a reference agreement or a standard offer, and there is no obligation that it be published. The basic competitive safeguards of number portability, carrier selection/pre-selection and wholesale line rental are not available and are not envisaged by legislation currently in place.

In the fixed broadband market, there is no local loop unbundling or wholesale broadband available to alternative operators. There are currently no triple-play services in the Kyrgyz market. If several services are provided simultaneously, then separate prices are charged for each service.

Regulatory conditions for services requiring frequency spectrum

The law does not envisage technology neutrality and in practice mobile licences are issued for different technologies separately. Spectrum allocation currently operates on a "first come, first served" basis, with the first applicant for a frequency obtaining the assignment. However, requests for radiofrequency spectrum may be refused on the grounds of scarce resources. Secondary spectrum trading is not envisaged by legislation. Only if an issued licence is revoked may frequencies then be made available via an auction or a contest.

The three mobile operators were required to pay around €4.6 million in 2009 for the introduction of 3G services in addition to licence fees of 1% of revenue from licensed activity. Mobile number portability and national roaming are not envisaged by the legislation. Mobile operators are not required to publish reference interconnection offers. The regulator established the upper limit for the interconnection rate paid to Kyrgyztelecom at around €0.07 per minute. An agreement has been concluded between mobile

operators for their termination rates to be around €0.055. One company has not yet joined the agreement (Katel). No virtual mobile operators exist and there are currently no regulatory provisions that would facilitate such operations.

Payments required from operators

An annual fee is collected based on 1 per cent of each operator's revenues from licensed activities. Currently a draft government decree is being prepared on approval of methodologies on payment for SCA's supervisory functions over the use of frequency spectrum. Cost of frequency is currently very low.

There is a continuing threat that the source of SCA's funding will be changed to be the state budget, which carries the risk of reduced regulatory independence.

In addition to the annual fee, SCA currently charges fees for issuance of licences, certificates of compliance, authorisations for the use of radio frequencies.

No universal services fund is envisaged by the legislation. It is understood that there are plans to launch a universal service fund, but operators are not in favour. There are still rural areas in the country with no service. Kyrgyztelecom's obligations assigned by government decree for fulfilment (as the unofficial universal service operator) provide no specific compensation for this service.

Information society safeguards

There are no limitations for internet access, but an operator has to obtain a licence for data transfer. Licensees can provide their services through their own networks, or through networks leased from other operators. Legislation does not control internet content and the licence required for internet service providers is issued only for obligations of a technical nature. The European Union has recently expressed concern about the blockage by Kyrgyztelecom's internet platform of certain news sites, arguing that the resolution of the Kyrgyz Parliament (June 2011) on internet restrictions does not comply with Kyrgyz Republic's own legislation and international commitments with regard to freedom of the media[23].

A Law on Electronic Digital Signatures has been adopted, but such signatures are not used in practice, though the first steps are now being prepared. Internet domain registration is not liberalised, and .kg domain names are issued only by the state organisation "Kyrgyzpatent".

The provisions of the Law on Electronic and Postal Communication require ensuring of privacy of personal information. Kyrgyz Republic has not yet transposed into national legislation international best practice on cybercrime.

Summary and outlook

Although the market segments for electronic communications in Kyrgyz Republic have been liberalised, the state-majority-owned national incumbent Kyrgyztelecom remains dominant and there are minimal competitive safeguards for new entrants. Penetration levels for fixed-lines remain very low, despite Kyrgyztelecom's obligation to provide universal service. Broadband penetration is still at a very low level.

Although they have a choice of seven mobile network operators, consumers are deprived of mobile number portability and national roaming. 3G mobile services were only launched in 2011 and now are offered in most regions of Kyrgyzstan. Re-farming of frequencies in the 900 and 1800 MHz bands is not yet envisaged, and valuable spectrum will not be available to make broadband services more universal until digital broadcasting switchover.

Although 39 per cent of citizens in Kyrgyz Republic are reported as regularly using the internet (around the CIS average), the penetration of broadband is very low compared with the CIS average. Kyrgyz Republic has the highest latent demand for broadband services, giving very significant scope for broadband investment and growth.

To enhance competition in the fixed services market, basic measures are needed, including the mandatory sharing of passive infrastructure, number portability, carrier selection/pre-selection and wholesale line

23 Source: eeas.europa.eu/delegations/Vienna/documents/eu_osce/permanent_council/2012/20120301_903_media_freedom_in_kyrgyzstan_en.pdf

rental. Local loop unbundling and/or wholesale broadband access are required to stimulate the fixed broadband market. Triple-play service providers do not yet exist.

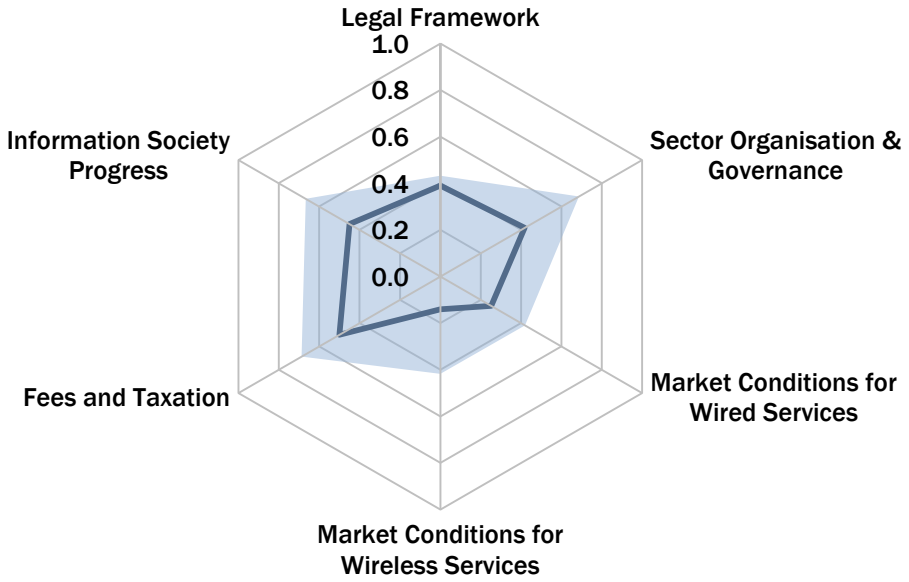
In general, the sector regulator's capacity is limited and the scope of its mandate and powers have recently been reduced, so that it has no responsibilities for market analysis and the setting of remedies to prevent anti-competitive actions. For example, there is no number portability and no requirement for fixed or mobile operators to publish reference wholesale offers, making interconnection and access to infrastructure difficult. A full modernisation of the legal and regulatory framework is required, focusing on the need to create simpler market entry and the normally expected competitive market safeguards.

A full examination is required of the infrastructure requirements to support national broadband access, with some investment supporting mechanism, for example a modern universal service fund. Otherwise, investors will continue to focus only on the main towns and cities.

Despite some progress in market liberalisation, investor confidence will remain low until a more open, transparent regulatory regime is put in place, with simpler procedures for market entry and to introduce the normally expected competitive safeguards. The long-running dispute over the ownership of one of the main mobile companies Sky Mobile continued into 2012, with Russia's MTS taking action in international courts.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Kyrgyz Republic with international practice and regional performance

Kyrgyz Republic: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Kyrgyz Republic = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 32 (100 is the lowest risk)

MOLDOVA

At a glance

Market penetration	
Population	3.6m
Fixed penetration*	33
Mobile penetration*	104
Broadband penetration*	14

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Information Technology and Communications
National regulatory authority	National Regulatory Agency for Electronic Communications and Information Technology (ANRCETI)

Market access	
General authorisation	✔
Technological neutrality	✔*
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

*Fixed only

Competitive safeguards	
Number portability	✘
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔

Information society	
Internet penetration per 100 population	62
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Moldova fully liberalised its markets for electronic communications in 2004. In total there are around 500 notified entities providing electronic networks or services. The implementation of a general authorisation procedure has ensured easier market entry, which is free of charge and requires a minimum set of documents. Although there are new entrants in the fixed-line market, Moldtelecom still dominates with around 96 per cent market share. Alternative operators include Moldova Railways, Riscom, Arax-Impex, Sicres and Orange Modova. Orange, already the leading mobile player, also entered the fixed market in 2009 after purchasing the Telemedia group.

There are over 50 registered internet service providers. Moldtelecom and Starnet dominate the internet market with 85 per cent market share between them, the remaining 15 per cent being shared between Orange Moldova, Sun Communications, Arax Communications, Moldcell and others.

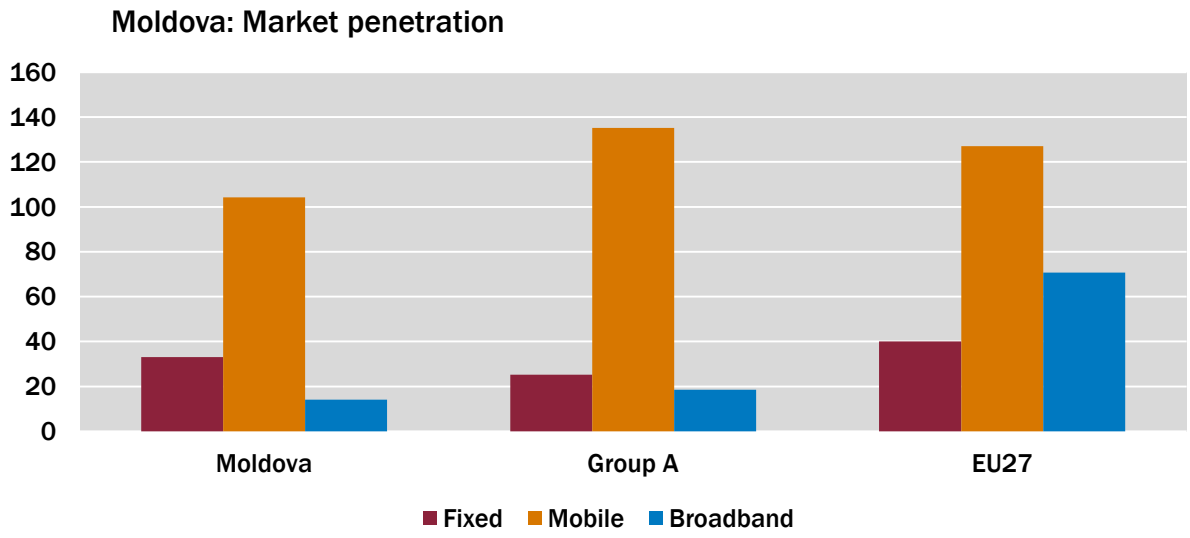
The mobile market is dominated by two players, market leader Orange Moldova (owned by France Telecom's Orange) with 70 per cent market share and Moldcell (owned by TeliaSonera) with 25 per cent. The state-owned Moldtelecom launched its mobile services in 2007 under its "Unite" subsidiary. A fourth entrant (Eventis) failed to gain ground and closed down in 2010 after only two years in the market.

In 2008 Moldcell launched the first 3G services, followed by Orange and Unite. In 2009 Moldova became the first country in the world to launch high-definition voice services and the first in Europe to launch 14.4Mbps mobile broadband at a national level. Orange and Moldcell are awaiting regulatory approval is for the launch of 4G/LTE services in 2012.

Cable TV subscriptions reach around 50 per cent of households and IPTV offerings are growing fast, including offerings from Moldtelecom and Starnet. The market for triple-play broadband offerings is becoming very competitive.

Fixed-line penetration is 33/100 population, well above the regional average rate of 25/100. There were 3.7 million active mobile subscriptions giving a penetration of 104/100 population, well below the regional average at 135/100. In the broadband market, fixed broadband penetration is around the regional average at 10/100 population, but mobile broadband penetration, at 4/100 population is less than half the regional average. The fixed broadband market has flourished, with good quality and relatively low prices, making it hard for mobile broadband services to compete, since their relative performance is low and prices significantly higher.

Chart 1: Market penetration of main services per 100 population in Moldova, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

Moldovan legislation for electronic communications is broadly aligned with the EU 2003 framework, with plans to adopt the 2009 framework. The key primary legislation impacting the sector is the Electronic

Communications Act of 2008. A range of relevant multi-sector laws including administrative procedures, licensing, consumer protection and criminal law also impact the sector.

In practice, the independence and authority of the regulator, the National Regulatory Agency for Electronic Communications and Information Technology (ANRCETI) is substantially reduced due to influence from other government agencies and ministries on its work. The law nominally provides for separation of the policy functions, carried out by of the Ministry of Information Technology and Communications (MITC) and regulatory functions (carried out by ANRCETI).

ANRCETI advises that the authorisation regime in Moldova is aligned with the EU framework and makes it simple for any undertaking entering the market to provide networks or services by notification to ANRCETI 7 days prior to start of service. No specific decision from ANRCETI is required in order to commence service. However, the Law on Regulation of Licensing Activity contains provisions that conflict with the Electronic Communications Act, including provisions with respect to automatic issuance of licences, breaches of licence conditions, licence withdrawal and penalties.

ANRCETI's authority is also limited by deficiencies in its enforcement powers, including its inability in the majority of cases to bring enforcement action in its own name and the lack of meaningful penalties (the maximum penalty is €500). The Court is disposed to intervene too early and there is no provision for ANRCETI's decisions to remain in force during an appeal, with the result that operators can use appeals to courts to delay implementation of ANRCETI's decisions. A new General Administrative Penalties Code is expected which is intended to provide for a separate specialised court (although not specific to the telecom sector) with specific procedures for such disputes.

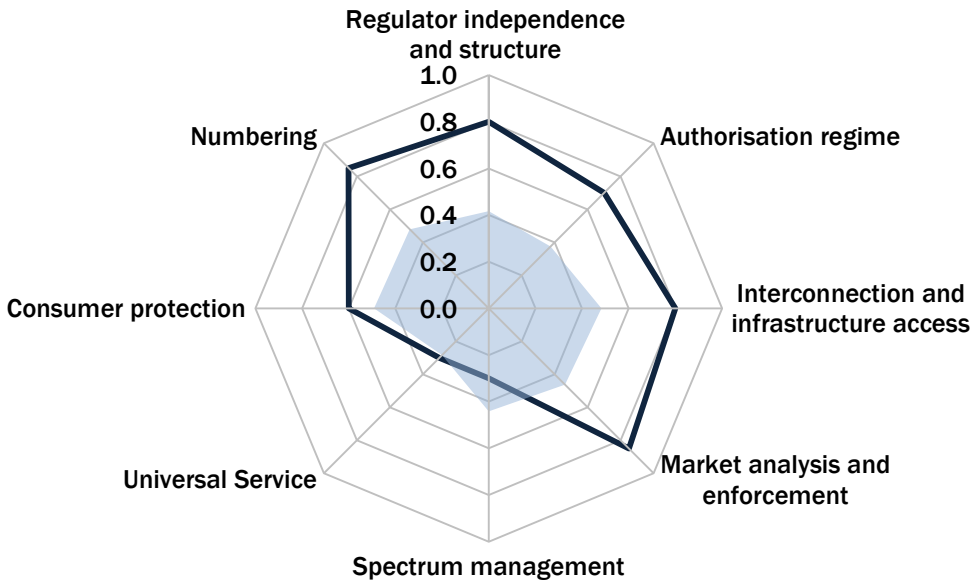
Lack of clarity in the roles of the MITC and ANRCETI in spectrum management and regulation, as well as limits to the technical capacity of the MITC, have resulted in lack of substantial progress on key spectrum priorities, including implementation of spectrum trading and re-farming resulting from switchover to digital broadcasting.

A national numbering plan is developed by ANRCETI for approval by MITC, which has limited technical capacity in numbering. ANRCETI advises that recently adopted changes to the National Numbering Plan have largely eliminated earlier bottlenecks and that additional (virtually unlimited) numbering resources have been allocated for fixed networks.

Universal service provisions generally align with 2003 EU framework; however, the MITC has not yet developed or adopted the required universal service programme for ANRCETI to implement.

Consumer protection provisions are aligned with 2003 EU framework, though not the substantially higher standards of the 2009 EU framework. For example, there is no limitation on long-term contracts and no strict requirements for consumer contracts by operators. Legislation on consumer protection is understood to currently be under amendment.

Chart 2: Comparison of the legal framework for telecommunications in Moldova with international practice and regional performance



Key: Extremities of the chart = International best practice
Moldova = Solid line
Regional average = Shaded area

Sector organisation and governance

The State Property Agency, under the Ministry of Economy, owns 100 per cent of the fixed incumbent operator Moldtelecom and also the state broadcasting service Radiocom. Repeated attempts to privatise Moldtelecom have failed since 1997.

Although the sector regulator ANRCETI is legally independent, it has limited regulatory enforcement powers with interference on retail tariffs (the government has at times given strong guidance to ANRCETI with respect to specific tariffs) and also a requirement to pass a regulatory impact assessment test from the Ministry of Economy's "Guillotine Commission". Spectrum management has to be coordinated between ANRCETI, MITC, the government and the Broadcasting Council.

ANRCETI has applied its market analysis function in an effective way to relevant markets, using European Commission guidelines. ANRCETI has designated operators with significant market power and is now applying proportionate market remedies.

ANRCETI publishes details of consumer issues and complaints. For example, in 2011, it handled over 362 requests for information and consideration of technical, economic and legal aspects of electronic communications services. ANRCETI also dealt with 170 complaints from end-users and service providers, of which 46 were found to be justified, resulting in remedial action being taken (see Moldova case study in section 4 of this report).

Moldova has been a member of the WTO since 2001.

Regulatory conditions for wired networks

A general authorisation scheme is in place, ensuring that operators can enter the market without licensing, except in the special case where a government IT service is being provided, in order to follow additional security requirements.

In 2011, following regulatory intervention, Moldtelecom agreed to provide other operators with access to its network infrastructure, including local loop unbundling and wholesale broadband access nationally. In 2011 ANRCETI also extended Moldtelecom's significant market power designation to the wholesale leased lines market and the interconnection (call origination and transit) markets. This has resulted in reduced wholesale rates for long-distance call termination by 20 per cent to bring them closer to average EU levels. Moldtelecom must publish its interconnection charges and is obliged to separate its accounts to ensure cost-orientation of wholesale services.

Fixed network termination charges still depend on originating network. From calls from mobile operators the rate is €0.0114 per minute (for local and single transit) and €0.0135 per min (for double transit). For calls from other fixed operators, the rates are €0.0042 and €0.0094 respectively. ANRCETI has obliged Moldtelecom to set its call termination charges on the basis of modern cost models and to end discrimination in applying these charges, by the year ending 2013.

There is a general procedure giving rights of way over public and private property, but there is no defined timeframe. Local authorities are typically involved and timescales can be long.

ANRCETI's programme for number portability was approved in 2011 and envisages implementation of fixed number portability by the end of 2013.

Regulatory conditions for services requiring frequency spectrum

Authorisations for spectrum usage are granted by contest where the band is classed as scarce and by a first-come, first-served basis where classified as unlimited. There is provision for technological neutrality, but existing licences are currently restricted to the originally awarded technology. There is a draft plan for GSM spectrum re-farming, but there is no indication of implementation timescales. At present, separate procedures are in place for broadcasting licences, and as Moldova implements the switchover from analogue to digital broadcasting, there will have to be closer coordination on spectrum management.

In 2010 ANRCETI paved the way for the entry of virtual mobile operators by commercial agreement, but so far none has appeared on the market.

Moldtelecom's mobile termination rates have been reduced to €0.0375 per minute, whereas other operators charge €0.0295 per minute. These are below the average for EU countries. ANRCETI intends to end this asymmetry at the start of 2013.

Since 2011 mobile operators are required to publish regular information on the quality of services they provide to end-users.

ANRCETI's programme for number portability was approved in 2011 and envisages implementation of mobile number portability by the end of 2012.

Payments required from operators

Entry to the main electronic markets is free of charge, but licences costing €150 are required for a special class of service concerned with information services for the state sector.

Operators pay a regulatory and monitoring fee to ANRCETI, currently calculated as 0.26 per cent of annual revenues from electronic communications services. Service providers also pay yearly fees for the use of numbering resources.

There are no known special taxes for telecommunications is imposed on operators/service providers.

Information society safeguards

Censorship is illegal in Moldova and citizens enjoy open access to the internet, despite the prevalence organised surveillance operated at national level and filtering applied at public internet cafés. Moldova has a comprehensive and centralised database of information on all its citizens, bringing together data from all state agencies. This system is reportedly being exported as a model for other countries in the CIS. However, it has been heavily criticised by human rights groups for being too comprehensive and lacking oversight[24].

There is a legal basis for electronic documents and signatures. Internet domain name registration has not yet been liberalised, all requests are processed by an official registry. There are around 21,000 .md names with charges currently around €30 a year.

There is a functioning framework for data protection and Moldova has signed the Council of Europe Convention on Cybercrime.

Summary and outlook

In a liberalised market with reasonably competitive conditions, overall revenues grew at 2 per cent in 2011 despite reductions in traditional call revenues. There is strong growth is in fixed and mobile broadband, with a very competitive market in triple-play offerings.

In its forecasts[25], ANRCETI predicts overall revenue growth of 2 per cent in 2012, with fixed broadband increasing by 40 per cent and mobile broadband subscriptions by 30 per cent.

Progress on market regulation has been significant in 2011. With ANRCETI applying best practice market analysis techniques, designating significant market power in a number of key markets and imposing obligations. This will ensure more effective wholesale markets to give all market players access to infrastructure and interconnection services at fair rates, using modern cost models.

ANRCETI has a very positive approach to consumer issues by publishing its responses to customer requests and complaints (see case study below). It also sets minimum quality parameters and insists that operators measure and publish their performance.

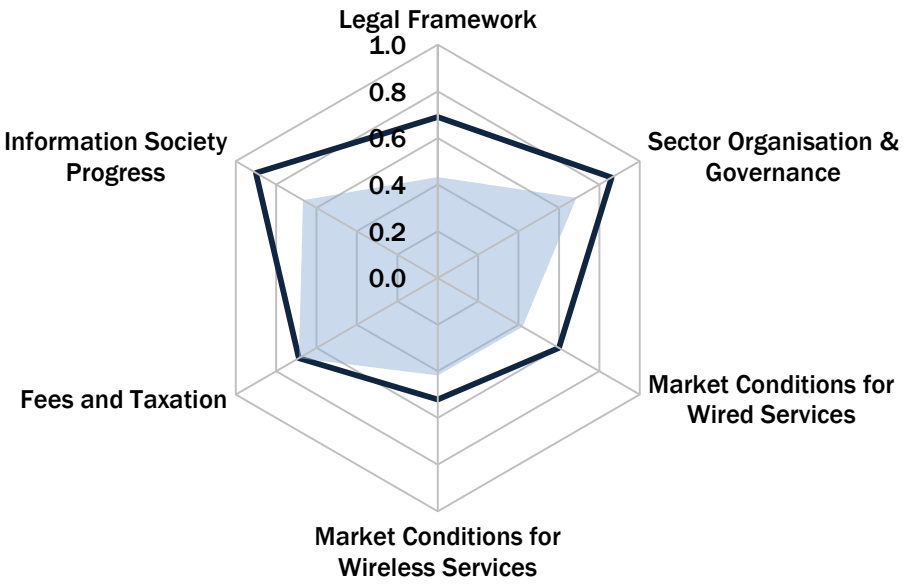
When the number portability is implemented for mobile services during 2012 and fixed services in 2013, and the regulations are implemented for the next phase of competitive growth (including spectrum re-farming and the award of “digital dividend” spectrum), then the market conditions will be on the same basis as the EU. This will bring Moldova up to the level of the best performing regulatory frameworks.

The planning of the switchover from analogue to digital broadcasting is proceeding, albeit slowly. The legal framework needs to be completed quickly if the timescale required by international agreement (by June 2015 at the latest) is to be achieved.

24 See opennet.net/research/profiles/moldova
25 ANRCETI Annual Report 2011 available on anrceti.md/files/filefield/Raport

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Moldova with international practice and regional performance

Moldova: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Moldova = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 66 (0 is the highest, 100 is the lowest risk)

MONGOLIA

At a glance

Market penetration	
Population	2.8m
Fixed penetration*	7.0
Mobile penetration*	75
Broadband penetration*	7.3

*Per 100 population

Key Institutions	
Policy and legislation	Information and Communications Technology and Post Authority
National regulatory authority	Communications Regulatory Commission

Market access	
General authorisation	✘
Technological neutrality	✔*
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

*Fixed only

Competitive safeguards	
Number portability	✘
Interconnection offers	✘
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	11
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✘
Safeguards against cybercrime	✘

Market liberalisation

Market liberalisation was formally introduced in 1995, although incumbent fixed-line operator Mongolia Telecom retained exclusive use of the country's fixed infrastructure until 2006 when the ownership of the network assets was transferred to a new network infrastructure entity called the "Information Communications Network Corporation" (ICNC), with all service providers supposed to be able to access it. The Mongolian National Railway Company has a fixed-line licence, with a national fibre backbone, but its local reach is limited to the areas around tracks and stations.

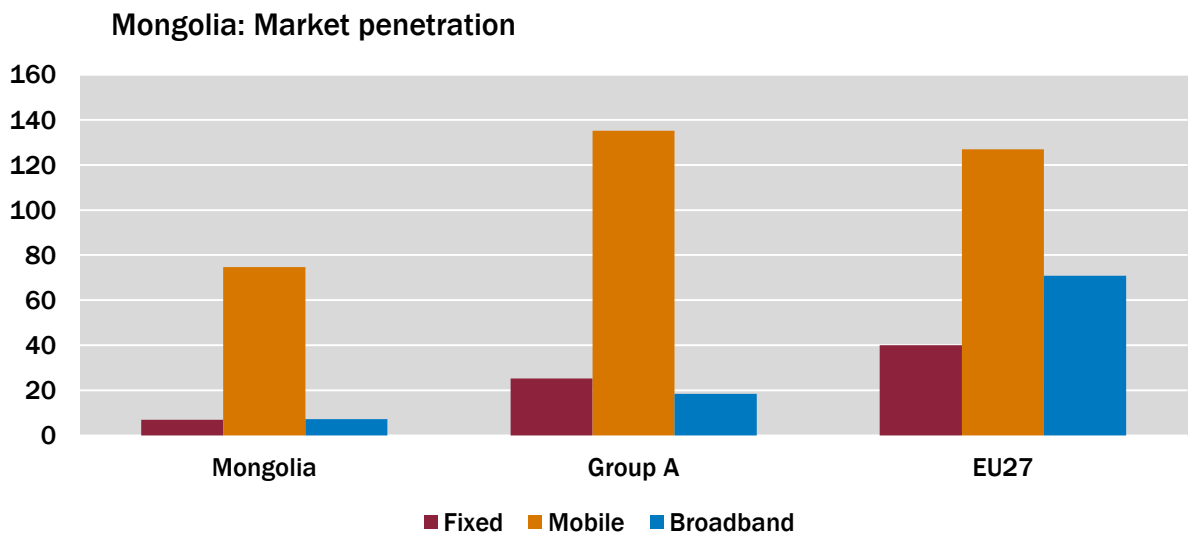
Mobile services started in 1995, with a second operator licensed in 1999. There are now four mobile network operators, all with 3G licences. Internet services started in 1995, and approximately 50 internet service providers and Cable TV networks have their own licences, some with localised fixed access networks. Since 2007 the market has grown, particularly in the area of VoIP services. Alternative Wimax networks now also serve the main urban areas supplying competitive broadband services. Mongolia has the lowest population density in the world and access to the remote communities and wandering herder populations has presented a considerable challenge. A progressive universal service policy has now brought basic services to the more remote regions, via mobile and satellite networks.

There are four wholesale providers of international connectivity with capacity through China and Russia. There are 10 active service providers for international traffic, including VoIP.

Fixed-line penetration is estimated to be 7/100 population, well below the regional average of 25/100. Mobile penetration has reached only 75/100 population, compared to a regional average of 135/100. Broadband is mainly limited to the urban centres, with estimated penetrations of less than 2/100 (fixed broadband) and 6/100 (mobile broadband).

Triple-play was first offered in 2010, with typical offerings including IPTV, 2MBit/s internet and VoIP from around €30 per month.

Chart 1: Market penetration of main services per 100 population in Mongolia, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The Law on Communications (1995, with amendments up to 2008) includes some features of best practice, and other recent regulations and regulatory decisions supplement this framework with additional features.

Policy and legislation are the responsibility of the Information and Communications Technology and Post Authority (ICTPA). The law now reflects an adequate separation of telecoms regulation from government. Recent amendments have created the Communications Regulatory Commission (CRC) as the "public administrative body in charge of communications" taking the place of the Minister in charge of

communications, with the powers previously assigned to a Minister now being exercised by the CRC and ICTPA.

The law does not provide a particularly clear structure and administrative process for CRC. For example, its powers do not clearly include the authority to issue regulations, directions, orders or decisions. There is also no provision regarding administrative or other appeals of CRC actions (with the exception of court appeals of licence revocations CRC decisions resolving disputes).

The law provides for an individual licensing regime, rather than the general authorisation framework used in best practice. CRC reports that interconnection and access rights and obligations work relatively well in practice. However, the law does not include a clear statement concerning interconnection and access agreements. The interconnect obligation is limited and does not address matters such as facilities sharing and unbundling, even though these exist in practice. CRC's power is limited to "approving general conditions" of interconnection agreements and the law does not require that interconnection and access charges be cost-based.

The market analysis provisions of the law do not provide clear powers to CRC to determine relevant markets requiring analysis, conduct market analysis to impose specific remedies or obligations on service providers found to have significant market power The tariff regulation provisions of the law are also unclear and do not limit tariff regulation to service providers with significant market power. In addition, there is no requirement in the law for tariffs to be cost-based or provisions for the use of price cap regulation in appropriate circumstances.

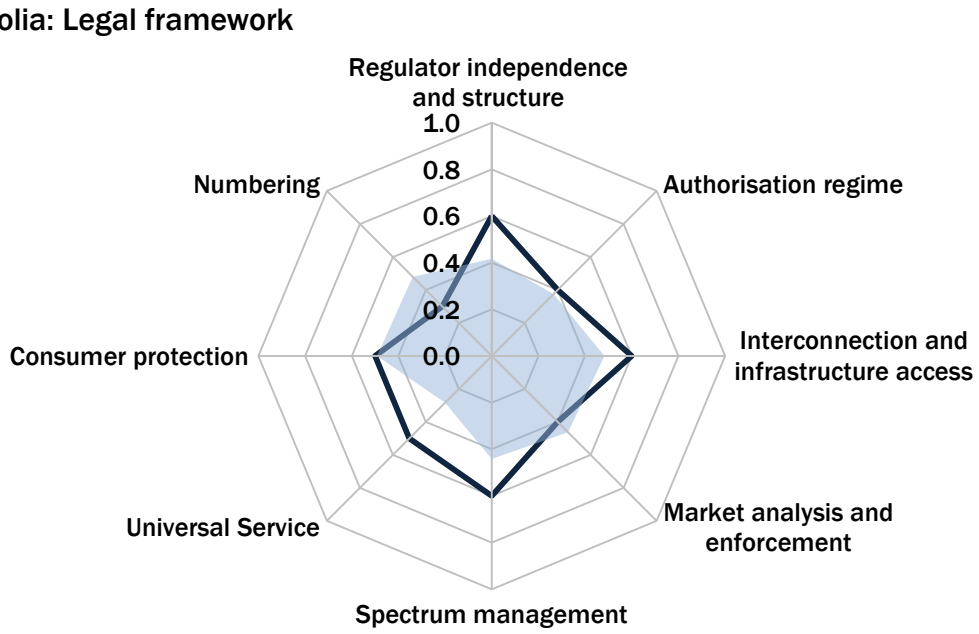
The law includes a basic framework for dispute resolution, but does not provide procedures to be applied in originating and resolving disputes, or require that CRC publish reasons for its decisions. The enforcement provisions of the law are limited. The penalties for breach of the law carry a maximum fine of less than €150, which is unlikely to provide a meaningful deterrent. Although state communications inspectors may also terminate unauthorised activities, and a service provider's licence can be revoked for infringements, these sanctions lack the proportionality or likely effectiveness of the measured sanctions framework seen in best practice jurisdictions.

The spectrum management framework is defined by the law, though these provision need to be read in conjunction with the Radio Wave Law of 2005. There is no specific assignment of responsibility for preparation of the national table of radio frequency allocation or related frequency band plans. It is not clear from the Radio Wave Law which entity is responsible for the monitoring of spectrum usage. There are no specific provisions in the law addressing or assigning responsibility for the development and implementation of the national numbering plan. Number portability and service provider selection are not provided for in the law.

The law includes a basic universal service framework and provision for a Universal Service Obligation Fund. The 2008 amendments to the law transferred the operation of the fund to the ICTPA together with ultimate responsibility for the fund. The law includes limited consumer protection provisions such as privacy of communications, the right to expect timely service fault repair and to claim compensation for service interruption.

There is no meaningful framework in the law for granting telecoms network operators rights of way over public and private property.

Chart 2: Comparison of the legal framework for telecommunications in Mongolia with international practice and regional performance



Key: Extremities of the chart = International best practice
Mongolia = Solid line
Regional average = Shaded area

Sector organisation and governance

Before 2005 the state directly controlled the fixed-line infrastructure network, with Mongolia Telecom being granted exclusive use. In 2005 ownership was then transferred to a state-owned company ICNC. The service provision function is carried out by Mongolia Telecom (65 per cent state-owned, 35 per cent owned by Korea Telecom), which provides the retail services over ICNC's network on a non-exclusive basis. The policy role was transferred to ICTPA, a state administrative authority. Privatisation of the state's remaining holdings in the sector is included in the government's current Policy White Paper, which contains the 10 Year Vision up to 2020.

The mobile sector is dominated by Mobicom (owned by Japanese companies KDDI and Sumitomo and Mongolia's Newcom Group) with over 60 per cent market share, followed by Unitel (owned by MCS Mongolia) which has around 25 per cent market share. MCS also has part ownership of the third player Skytel. The fourth player, G-mobile, has a very small customer base.

To regulate the competitive market, CRC cooperates with the Competition Authority (UCRA). UCRA issues the dominance designation, but CRC carries out the market analysis and performs the related monitoring and tariff determination. A special "Council" was recently established to define inter-agency procedures. In practice, CRC approves tariffs for the Mongolia Telecom and ICNC (designated as dominant providers). The government and parliament have no formal role in setting tariffs. The CRC has reportedly settled many disputes, mostly regarding interconnection and access issues.

Mongolia has been member of the WTO since 1997 and is therefore committed to liberalised markets.

Regulatory conditions for wired networks

There are three classes of licence:

- Class A (Network Construction and Operation) has six different categories covering fixed, mobile, internet and broadcasting, with further sub divisions for fixed networks.
- Class B (Services) has 13 different categories covering fixed and mobile calls, wireless local loop, broadcasting, internet, VoIP, international internet connectivity, local area networks, cable TV and directories.
- Class C (Registration Certificates) covers internet cafés, hardware and software, end terminals, equipment manufacturing, consultancy and third-party wholesale intermediaries.

The procedure for obtaining licences is routine and the information requirements are defined. It reportedly typically takes around one month to obtain a licence. The licences do not define the technologies to be used. Spectrum authorisations have defined services, in accordance with internationally defined usage bands. Once a licence is obtained, obtaining rights of way over public and private property is not generally a problem, even though there are no specified procedures.

In practice ICNC has the main infrastructure (ducts, transmission, local loops) which other service providers use. Infrastructure sharing is not required from other operators; so for example, the mobile operators each have separate masts.

Mongolia Telecom's fixed-line monthly retail charge is only around €2 per month for residences and €3 per month for business. There are no known tariff rebalancing plans.

Alternative call services are available by pre-paid scratch-cards, where alternative service providers operate under specific VoIP licences. Any licenced provider can sell broadband service using ICNC local loops, but there is no wholesale commercial offer, only ICNC's internal procedure documents. The ICNC wholesale charges are reported to be high, and there are complaints from service providers.

The general principles of interconnection to ICNC are defined, but these are not published as a commercial offer. They amount to internal rules for ICNC and include cost based charges. ICNC charges have to be approved by the regulator, based on a documented cost methodology.

There is no fixed number portability and no indication of an adoption or implementation timescale.

Regulatory conditions for services requiring frequency spectrum

When operators tender for frequencies, they have to specify the technology in accordance with a defined frequency plan. The Licensing Law states that frequencies should be released on request. If there is more than one request for the same frequency bands, there has to be a contest. Frequency requests can be refused in the case that the frequency coincides or overlaps with an already licensed frequency or a part of the frequency for "special usage".

Mobile Termination rates are around €0.015 per min, which is significantly lower than the EU average. Only the dominant mobile operator MobiCom has produced a reference interconnection offer.

There is no mobile number portability and no indication of an adoption or implementation timescale.

Mongolia has developed a switchover plan for analogue to digital broadcasting to happen by June 2014.

Payments required from operators

The CRC is funded mainly from annual licence fees from the operators. The procedure aims to cover the cost of CRC. Any surpluses are transferred to a universal service fund.

Operators have to pay a defined contribution to the universal service fund at the rate of 2 per cent of profit. The fund has the specific purpose of expansion of infrastructure to remote areas. The administration of the fund has recently been transferred from the CRC to ICTPA. The arrangements in Mongolia for Universal Service were specially noted in the EBRD 2008 Electronic Communications Assessment as a model for other countries to use[26]. CRC believes that it continues to operate successfully.

There are no known special taxes for telecommunications imposed on operators or service providers.

Information society safeguards

There is a generally liberalised approach to internet freedom, with no evidence of censorship, apart from a CRC-developed filter that is directed at removing “immoral language”. There is no legal basis for electronic documents and signatures. The data protection law applies fully to electronic communications services, including the internet.

Internet domain name registration is not liberalised. Legislation on the prevention of cybercrime is at the drafting stage.

Summary and outlook

A good competitive market exists in Mongolia, even though all the components typically required to support competition may not be totally clear in the legal or regulatory framework. With lack of provisions for regulatory enforcement, the commercial operators negotiate deals to establish service with the owners of public and private property and with the infrastructure providers. New entrants find that the costs of setting up interconnection must be paid entirely by them, causing a significant barrier.

The government has shown good commitment to modern services, with its “One Home One PC” programme initiative running since 2005, providing low-cost computers for less than €200. It also initiated an effective universal service programme to serve the county’s more remote regions and herder population. The government has recently issued a "New Vision" document (White Paper) which gives a plan up to 2020 with specific eSociety deliverables, plus internet, broadband and mobile penetration targets. The document supports a competitive market with public and private investment in infrastructure.

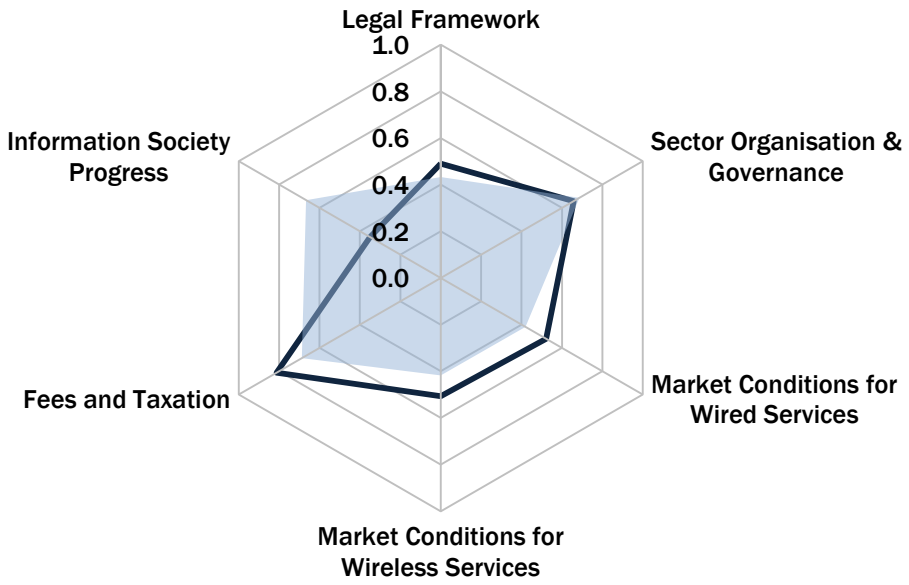
The main infrastructure is still state-owned, although the service provider entity (Mongolia Telecom) that uses that infrastructure has been part privatised. The main growth area is still the mobile sector, now with good competitive offerings for mobile broadband. Fixed broadband is offered by a number of independent service providers who are allowed to use the state-owned infrastructure. There is also growth in alternative fixed wireless services in the urban centres. Already one existing Wimax operator (Ulusnet) claims to be well-positioned to serve residential and business customers with 4G services.

The market flourishes in urban areas largely without a formal regulatory framework. To ensure that consumers and new market players continue to benefit from investment in modern electronic communications, the regulatory agency CRC should adopt a modern formal regulatory regime. The priorities are to introduce a general authorisation scheme and to introduce the normally expected competitive safeguards like number portability and cost-based interconnection and infrastructure access charges. The government needs to build on its existing support for an eSociety by implementing a proper basis for electronic documents and signatures and legislation against cybercrime.

26 See Box A.1.2.3 of www.ebrd.com/downloads/legal/telecoms/annex.pdf

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Mongolia with international practice and regional performance

Mongolia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Mongolia = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 54 (0 is the highest, 100 is the lowest risk)

RUSSIA

At a glance

Market penetration	
Population	142m
Fixed penetration*	31
Mobile penetration*	181
Broadband penetration*	25

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Telecommunications and Mass Communications
National regulatory authorities	Federal Service of Supervision in Telecommunications, Information Technologies and Mass Communications The Federal Agency of Communications

Market access	
General authorisation	✘
Technological neutrality	✘
Rights of way	✘
Infrastructure sharing	✘
Granting of spectrum	✔

Competitive safeguards	
Number portability	✘
Interconnection offers	✔
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✔

Information society	
Internet penetration per 100 population	44
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✘

Market liberalisation

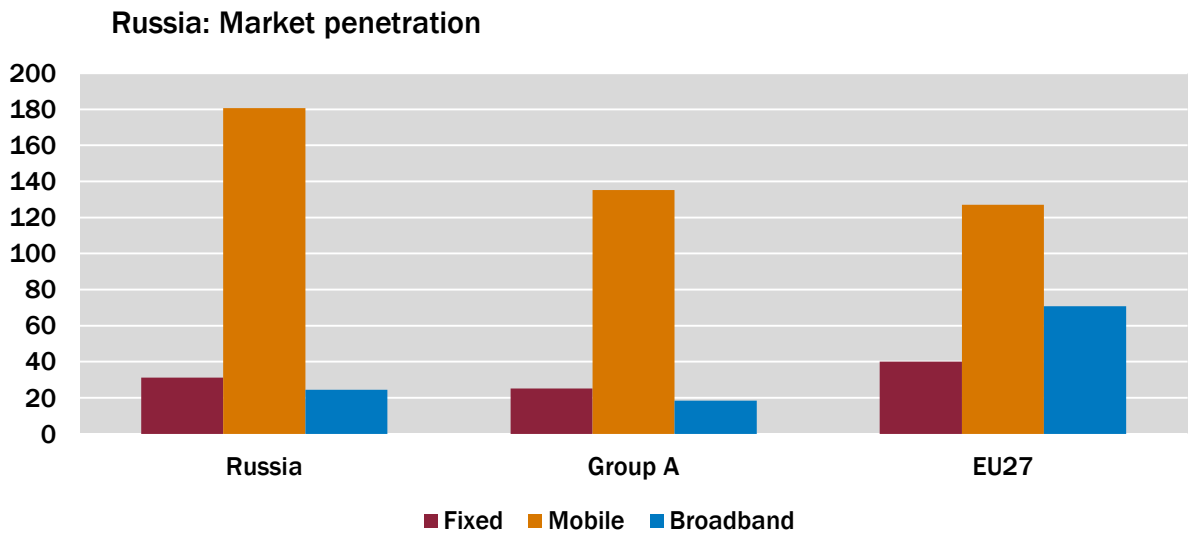
The liberalisation of the electronic communications market was completed in 2007 when long-distance communications was opened to competition. The fixed market is dominated by state-owned Rostelecom with its seven "Macroregional Branches" (Center, North-West, Volga, South, Urals, Siberia and Far East). There are many active companies competing in local and national markets, including MTT, Golden Telecom, TransTelecom and Synterra, all operating their own networks. During 2011 alone the state regulatory body (RosComNadzor) issued over 600 new licences for local services, five new licences for national and international communications, 550 new licences for the provision of channels for leasing and over 1,400 new data transmission licences (including internet service providers). Fixed-line penetration is 31/100 population, slightly higher than the regional average of 28/100.

The mobile sector has three national operators (BeeLine, MegaFon and MTS) which together hold over 60 per cent of the market, with newer entrants Tele2 (21 per cent) Rostelecom (12.5 per cent market share) plus a number of smaller regional players including Sotovaja Svaz, SMARTS and Skylink. In 2011 RosComNadzor issued seven new licences for provision of mobile networks plus 23 new licences for virtual network service providers. The competitive market for virtual mobile operators started at least 10 years ago when independent companies sold services via Vimpelcom's network infrastructure. Most of the early independent companies were then either merged into the network providers or remained as local niche players. In 2010 the virtual mobile network operator market was stimulated by the X5 Retail Group in conjunction with network provider MTS. X5 controlled its supermarket customer base, using its own competitive tariff construction and promotions, while MTS provided the network and billing. The years 2010 and 2011 were significant in terms of growth for mobile communications, which were stimulated by new competition. Although the overall mobile market grew by 3 per cent in 2011, the three established operators are now losing subscribers to the newer entrants.

Mobile penetration reached 181/100 population by the year ended 2011. This is significantly higher than the second highest country (Kazakhstan) in the region which has 151/100 population.

Broadband growth has been one of the fastest globally, with 37 per cent growth during 2011, supported by a doubling of IPTV subscriptions. The current penetration rate of broadband is 25/100 population, with broadly equal numbers of fixed and mobile subscriptions. Triple-play services are offered across the country over copper and cable TV networks and increasingly over newer fibre networks in cities.

Chart 1: Market penetration of main services per 100 population in Russia, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The Federal Law on Electronic Communications no. 126-FZ (2003 amended 2011) and the Statute of the Ministry of Telecommunications and Mass Communications (MTMC) approved by Government Decree no. 418 (2008 amended 2011) are the main laws and statutes impacting the electronic communications sector. MTMC is responsible for state policy and regulation in the electronic communications sector. The regulatory tasks are divided between two main Federal Agencies: The Federal Agency of Supervision in Telecommunications, Information Technologies and Mass Communications (RosComNadzor) and the Federal Agency of Communications (RoSSvyaz), both reporting to MTMC.

The functions of these bodies are separated based upon the provisions of the Statutes for MTMC, RosComNadzor and RosSvyaz. The latter two agencies are entitled to establish consultative and expert bodies (such as councils, commissions, groups, collegial bodies), the activities of which are regulated by statutes approved by RosComNadzor and RosSvyaz.

MTMC is authorised to suspend or cancel, if necessary, decisions made by RosComNadzor and RosSvyaz. Procedures for appointment are described in the 2009 Decree "Provision on the Federal Service for Supervision in the Sphere of Telecom, Information Technologies and Mass Communications". The heads of RosComNadzor and RosSvyaz are appointed by the government, on presentation by the Minister of Telecommunications and Mass Communications. Deputies of these agencies are appointed by the Minister of Telecommunications and Mass Communications. However, there are no limitations on dismissal rights, which gives rise to the potential for political involvement in regulatory decisions. There is no legal obligation on the Ministry or its regulatory bodies to conduct public consultations or provide reasons for decisions.

The Russian licensing framework requires individual licences for specific services. In 2011 the licensing body for the electronic communications sector (RosComNadzor) continued its work to ease authorisation and licensing procedures and reduce application timeframes. Licences are granted based on competitive tender results if services require radio frequency spectrum that has limited availability or there are limited resources in the public network, including numbering resources. Internet service providers must obtain two licences, one for data transmission and the second one for “telematic” services. Licences are not technology neutral.

The Russian interconnection regime appears to be reasonably aligned with best practice. The rules provide for a clear right of operators to obtain interconnection of their networks, on the basis of negotiation and agreement. In order to ensure non-discrimination in the electronic communications market, an operator with significant market power (SMP) must establish equal conditions for network interconnection and traffic transmission for alternative operators, supply information and provide interconnection services to operators on equal conditions and of equal quality. Prices for these services provided by operators with SMP must be based on cost recovery and may include reasonable return on investment. Operators must publish terms and conditions for network interconnection. However, there are no provisions in the law governing infrastructure sharing and access. RosComNadzor is responsible for considering applications of operators for network interconnection, making decisions and issuing orders to operators. According to the law, interconnection and relationships between operators are considered and resolved by RosComNadzor. It is not clear whether the telecommunication regulatory bodies have the authority to resolve all disputes between operators/service providers, or only disputes related to interconnection.

Decisions taken by the telecommunication regulatory bodies can be appealed judicially or administratively in accordance with the Code of Civil procedure, Arbitration Procedure Code and Administrative Violations Code. As indicated above, MTMC has the power to suspend or cancel decisions taken by RosComNadzor and RosSvyaz.

The Law on Competition provides a framework for market analysis and designation of dominance. That law also states the functions and powers of the state Anti-Monopoly Agency, which is responsible for designating dominant positions and revealing restrictions on competition. The Anti-Monopoly Agency may initiate cases addressing violations of the anti-monopoly legislation, make decisions and issue binding orders. It also has the right in certain circumstances to apply to court to force structural separation of operators. The agency may apply to the regulatory body that issues licences with a proposal to withdraw, cancel or suspend a licence.

Tariffs on electronic communication services are regulated by the Law on Electronic Communications, the Law on Natural Monopolies and Government decrees issued in 2005 “On Approval of the Rules of Provision of Local, National and International Telephone Communication Services” and “On State Regulation of Prices on Interconnection and Traffic Transmission Provided by Operators with Significant Market Power”. Regulation of tariffs for telecom services provided by natural monopoly entities is carried

out by the Federal Tariff Agency, while regulation of universal service tariffs is carried out by RosSvyaz in coordination with the Federal Tariff Agency (FTA). Interconnection and traffic transmission service tariffs are regulated by RosSvyaz, in conjunction with the FTA.

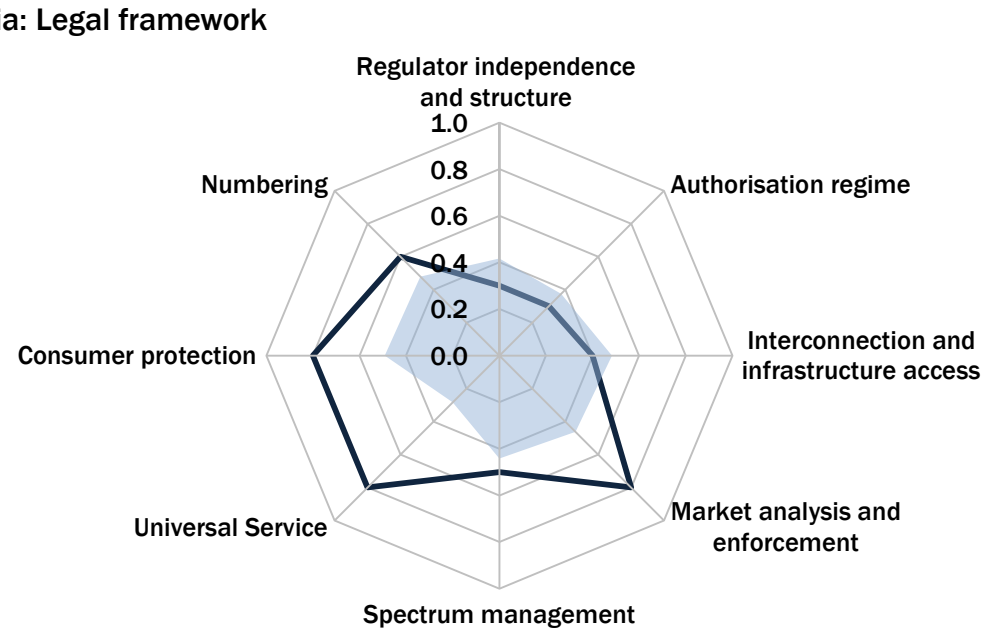
The State Commission on Radio Frequencies (SCRF) is responsible for regulation of the use of radio frequencies, makes proposals regarding radio frequency spectrum policy, allocates spectrum, suspends allocations and develops a draft Frequency-Band Allocation Table and Forward-looking Radio Frequency Use Plan. The SCRF functions under the MTMC and its Chairman is the Minister of Telecoms and Mass Communications. RosComNadzor is responsible for control and supervision of compliance by radio frequency spectrum users, assignment of radio frequencies based on SCRF decisions and registration of assignment used for radio frequencies and radio channels. The law provides that radio frequencies are allocated for a term of 10 years or less, which can be extended or shortened on request of the spectrum user. Transfers of spectrum rights by operators requires authorisation by SCRF or the authority that granted these rights.

Numbering administration is regulated by the Law on Electronic Communications and the "Rules of Allocation and Use of Numbering Resources" approved by the Government Decree no. 350 (2004). The procedure for allocation and use of numbering resources of the common electronic communication network is defined by the government. MTMC Statute authorises MTMC to adopt the Russian Numbering System and Plan. RosSvyaz reviews and decides applications for numbering allocations, withdrawal, transfer or renewal of numbering resources, maintains the numbering register, allocates numbering resources for communication networks and ensures the availability of free numbering resources. RosComNadzor carries out control and supervision of compliance with procedures for allocation and use by operators of numbering resources. The allocation of numbering resources must be completed by RosSvyaz within 60 days if the numbering volume allocated to operators in a particular territory is less than 90 per cent of the total available resource. Operators may transfer allocated numbering resources to other operators with the approval of RosSvyaz.

The universal service framework, which is relatively well aligned with best practice, is regulated by the Law on Electronic Communications and government Decrees "On Arrangement of Provision of Universal Services", "Rules of State Regulation of Universal Service Tariffs" and "Rules of Competitive Tendering on Granting the Rights to Provide Universal Services".

Consumer protection is regulated by the Law on Electronic Communications, government and Decrees on "Provision of Local, National and International Telephone Communications Services" and "Rules of Provision of Data Services". Operators must provide services to end-users on the basis of contract. Rules regulate the relationships between the operator and subscriber, the procedure and grounds for suspension and termination of a service and contract, specifics of provision of communication services, rights and obligations of operators and users, payment procedure, claims and the responsibilities of parties.

Chart 2: Comparison of the legal framework for telecommunications in Russia with international practice and regional performance



Key: Extremities of the chart = International best practice
Russia = Solid line
Regional average = Shaded area

Sector organisation and governance

The Svyazinvest Group of companies is the largest telecommunications group in Russia. The main shareholder of Svyazinvest OJSC is the Russian state through the Federal Property Management Agency (75 per cent minus one share). Rostelecom JSC owns the rest of equity capital (25 per cent plus one share). The subsidiaries and associates of Svyazinvest own more than 80 per cent of the telecommunications infrastructure in the country.

At present, Svyazinvest holds a voting majority in cellular telephony operator Sky Link. In addition, it owns non-controlling equity stakes in national telecom operator Rostelecom (43 per cent of voting shares), MobiTel, StartCom and KGTS. Svyazinvest also owns minority shareholdings in national internet services leader RTKomm.ru.

The leading mobile companies are: MTS (controlled by Sistema), BeeLine (controlled by VimpelCom) and MegaFon (Telia Sonera, AF Telecom Holding and MegaFon Investments). The fourth largest operator (with 21 per cent market share) is Tele2. Among the minor players are the state-owned Svyazinvest/Rostelecom, which operates its own services and via another wholly-owned company SkyLink. There are currently around 10 active virtual mobile operators, five using MegaFon and/or SkyLink, the remainder spread between MTS, Synterra or SMARTS.

The MTMC is responsible for policy and regulation in the sector, while RosComNadzor is responsible for control and supervision and the Federal Agency of Communications is responsible for emergency situations, numbering administration and universal service regulation. The fact that RosComNadzor and RosSvyaz are both under the authority of MTMC limits the independence of the regulatory function.

This regulatory structure is further complicated by the allocation of functions to a number of different operators:

- The Federal Tariff Agency, which has strong powers in controlling “natural monopoly” tariffs. and regulation of tariffs on network interconnection and traffic transmission provided by dominant operators carried out by RosSvyaz in coordination with the Federal Tariff Agency.
- Tariffs for universal services and charges for interconnection and traffic transmission services are set by the Federal Agency of Communications.
- The State Committee of Radio Frequencies, which manages the spectrum.
- The Federal Anti-Monopoly Service, which is responsible for designating a dominant position in the market, initiating and considering cases on violation of the anti-monopoly legislation.

Although the primary law does not define separation of policy and regulatory functions, in practice, based on various decrees, the functions of regulation are fragmented, with no overall consistency in approaching the increasingly convergent electronic communications sector.

The Russian Federation became a member of the WTO in August 2012. It has been a participant to the Regional Commonwealth in the field of Communications (RCC) since 2001.

Regulatory conditions for wired networks

The Russian licensing framework requires licences for specific services. The time taken for decisions on radio frequency assignments has now reduced from 120 to 35 working days. The recently adopted Federal Law "On licensing of certain types of activity" regulates the licensing system and introduces the unified order for issuing of licenses for 49 types of activity, including for provision of communications services. The large number of different categories of licence required for local, national, international, leased capacity, infrastructure and data communications services indicates that further work is required to simplify the licensing regime.

For rights of way over public and private property, state authorities and local self-governing bodies must assist operators who provide universal electronic communications services in building communications networks, facilities and/or premises designed for universal service provision. Operators must first seek agreement from the owner of any buildings, power lines, railways, masts, bridges, tunnels (including subway tunnels), highways and other engineering facilities.

There are no provisions regarding infrastructure sharing and access. The dominant operator has no obligation to share essential facilities including ducts, conduits, infrastructure or other facilities. Local loop unbundling is not available to alternative carriers, unless they are subsidiaries to the incumbent network provider. All independent alternative providers therefore have to build their own infrastructures.

Operators designated as dominant are required to publish their terms and conditions of network interconnection, but there is no laid down content for such documents. Regulations apply to the dominant operator’s call termination, call transit and call origination services and to the corresponding services of the counterparty to the interconnection.

Number portability has not been implemented.

Regulatory conditions for services requiring frequency spectrum

Decisions on assignment of frequencies for commercial use are taken by RosComNadzor within 35 working days from the receipt of application. Information from these assignments should be published on their official web site within five days from the date of decision. In 2011 RosComNadzor conducted seven contests for the provision of spectrum authorisation. The frequencies assigned are not technologically neutral. Recent contests have specified Long Term Evolution (LTE) standard, fixed wireless access and GSM.

In May 2012 RosComNadzor announced that it plans to hold a contest for the 800MHz “Digital Dividend” spectrum for LTE, thus paving the way for the extension of fixed and mobile broadband services. In July 2012 Russia’s three national mobile operators along with national fixed operator Rostelecom (which is expanding into mobile services), won the auction for 800MHz spectrum for LTE services, after eight bidders submitted bids. Megafon, MTS, Rostelecom, and VimpelCom were allocated the four lots; each operator obtained 25 MHz of paired nationwide spectrum from the auction. The auction results provide Rostelecom with nationwide mobile spectrum for the first time. The losing bidders were TTK, Summa Telecom and two

divisions of Tele2's Voronezh and Omsk subsidiaries. Losing operators such as Tele2 must now hope that the government allows it to re-farm its existing 1,800-MHz spectrum for LTE[27].

A commission on re-farming GSM900/1800 frequencies has been formed consisting of RosComNadzor and the State Committee for Radio Frequencies. In consultation with BeeLine, Megafon, MTS, Tele2 Russia, Rostelecom and SMARTS, the commission has already agreed on the re-farming of frequencies in six of Russia's regions. The re-farming aims to create wider bands in order to raise the efficiency of spectrum use.

No spectrum trading is allowed without authorisation given by the State Committee for Radio Frequencies (SCRF). The introduction of virtual mobile operators into the market has recently stimulated competition, and there were 17 new licences issued during 2011 alone. The major mobile network operators, led by MTS are now getting involved with the new retail service providers.

The Russian government has been attempting to implement mobile number portability for many years. In 2005 the rules for retaining mobile phone numbers were worked out at ministerial level and affirmed them in 2009. MTS, Vimpelcom and MegaFon, the three largest mobile operators, were against implementing the service, citing cost. President Dmitry Medvedev then instructed mobile operators to allow customers in Russia to retain their mobile phone numbers after changing their mobile operator and in 2010 Russia's Interregional Transit Telecom firm offered to become a special mediator to implement help implement number portability. The Federal Anti-Monopoly Service (FAS) has also been striving to introduce it for over three years, but still, number portability has not been implemented.

Reference interconnection offers are published by the largest operators. RosComNadzor claims that there is no need for regulation, because mobile termination rates are comparatively low. Currently the average in Russia is at the level of €0.022 per minute, which is low by average EU comparison.

National roaming is required by regulation.

Payments required from operators

The various regulatory bodies (see sector organisation and governance above) are funded from the federal budget. The regulators' annual budgets are submitted not by the regulators themselves but the MTMC to the Ministry of Finance. The income part of RosComNadzor's budget is formed from payments of state duties for issuing of licences for telecommunications, TV and radio broadcasting, as well as fees for the use of radiofrequency spectrum and of state duty for the registration of mass media services.

Operators are charged for the use of numbering resources in accordance with the tax legislation of the Russian Federation.

The Law on Electronic Communications includes provisions regarding the Universal Service Fund which is established for the purpose of reimbursing designated operators for losses caused by universal service obligations. The Universal Service Reserve is funded by means of mandatory contributions (non-tax payments) by public electronic communications network operators. The rate is set at 1.2 per cent of revenues received by the network operator after deduction of taxes.

The auction prices paid for the recent 800MHz LTE spectrum licences were not published. The four winning operators are required to launch LTE services by 1 June 2013 and invest a minimum of around €300 million annually to satisfy coverage obligations with the LTE networks. They must launch service in six regional markets by 2013 and meet further coverage obligations each year to provide full national availability by year-end 2019. The operators have different roll-out obligations, with Megafon having the most extensive obligations, and Rostelecom and VimpelCom having least onerous obligations

There are no other known special taxes on electronic communications.

Information society safeguards

Internet service providers must obtain two licences; one for data transmission and the second for "telematic services". Although it is claimed that freedom of expression on the internet is allowed, the Russian government has reportedly stated that it wants to exercise centralised control over the internet and the right to block access "where it is used for interfering with internal affairs, or undermining the

27 See also Russia Case Study "Spectrum for broadband expansion using LTE services" included in Section 4 of this report.

sovereignty, national security, territorial integrity and public safety, or to divulge information of a sensitive nature[28]." In July 2012 parliament passed a law that allows the government to impose limits on the internet. There is a legal framework (from 2011) in place for electronic documents and signatures. The Ministry of Communications and heads and deputies of RosComNadzor's territorial bodies are provided with qualified electronic signatures.

RosComNadzor is an authorised body for the protection of rights of personal data entities, under a recent law "on personal data". RosComNadzor's activities include keeping a register of operators and conducting inspections.

Russia is not a signatory to the Council of Europe Convention on Cybercrime. Instead, it is pushing for a UN code of conduct on security in cyberspace.

Summary and outlook

Russia has a highly saturated mobile telephony market, stimulated by healthy competition, including the entry of a number of virtual mobile operators. The quoted penetration rate of 181/100 population is probably a significant overstatement, confirmed by the fact that operators are currently offloading inactive subscriptions. The reported net reduction of subscribers during one quarter in 2011 was reported to be around 1.7 million subscribers. A more realistic figure for Russia's mobile penetration is probably in the region of 160/100 population, still the highest in the region and significantly higher than the EU figure.

During 2011 the leading operator Vimpelcom reported a 12 per cent increase in mobile broadband subscribers. MTS reported a "dramatic increase in subscriber data traffic over the last two years from 70MB to 455MB per user per month". The growth in fixed broadband connections is also very high, with Vimpelcom reporting a 42 per cent increase in its fixed broadband services during 2011.

In response to this significant growth in broadband services, the mobile operators, plus national broadband operator Rostelecom, discussed cooperation agreements for an LTE network being built by former WiMAX player Yota (see Russia Case Study "Is cooperation on network infrastructure the way forward for the next wave of investment?).

In the traditional mobile voice market, the urban regions are approaching saturation, limiting growth opportunities. The market has entered a very competitive phase, with virtual mobile service providers offering cheaper deals than their network counterparts. Newly empowered Rostelecom, which has received approval to acquire SkyLink, could pose a significant challenge to the big three established mobile operators in mobile and mobile broadband services. Its resistance to mobile number portability will eventually collapse as consumers become more demanding and the anti-monopoly and regulatory agencies force through their high-level commitment to number portability.

Until recently the fixed-line sector has continued to grow; there remains considerable demand for fixed voice telephony and the sector's decline is therefore expected to be gradual. The increasing presence of mobile operators in the sector has stimulated fixed-to-mobile substitution, but both fixed and mobile will continue to grow strongly, either as separate products, or as bundled "quadruple play" offerings, provided that the trend towards increasing operator cooperation continues (see case study below).

Since the regulatory body RosComNadzor announced its plans to award "digital dividend" frequencies for LTE broadband network growth[29], the large and small operators are now gearing up to make the very significant investments required to meet the demand to increase broadband (fixed and mobile) penetration and cope with the very significant increase in data speeds demanded by consumers. As the case study below shows, the operators appear to be entering a new phase of cooperation, with significant infrastructure sharing deals, participation in joint investments and a very active market in virtual mobile service providers in conjunction with network operators.

The regulatory agencies should continue to insist that these infrastructure sharing deals do not reduce the already limited competitive safeguards available to the newer, smaller players. By adopting best practice regulatory approaches, all parts of the market will ultimately benefit.

28 See: www.dailymail.co.uk/sciencetech/article-2163165/The-battle-internetinternet-freedom-Russia-tells-U-N-wants-able-censor-web-repress-political-opposition.html
29 See: www.rsoc.ru/tender/communication/p606/news15164.htm

Russia

In a significant step in July 2012, RosComNadzor awarded significant spectrum and LTE licenses to four national players: MTS, Vimpelcom, MegaFon and Rostelecom. The spectrum and licences, reportedly awarded for free in a competition among eight competitors, will allow the operators to provide wireless broadband services using the extra fast LTE technology. This opens a new stage in the development of the Russian telecoms sector. The government has been particularly vocal about reducing "digital inequality" by helping poorer people in Russia's regions to get online. The 'Big Three' mobile groups and Rostelecom must meet stringent coverage and investment obligations, and start providing services no later than June 2013 (See Russia Case Study "Spectrum for broadband expansion using Long Term Evolution services".

The race to be the leading competitive provider of fast broadband services has already begun:

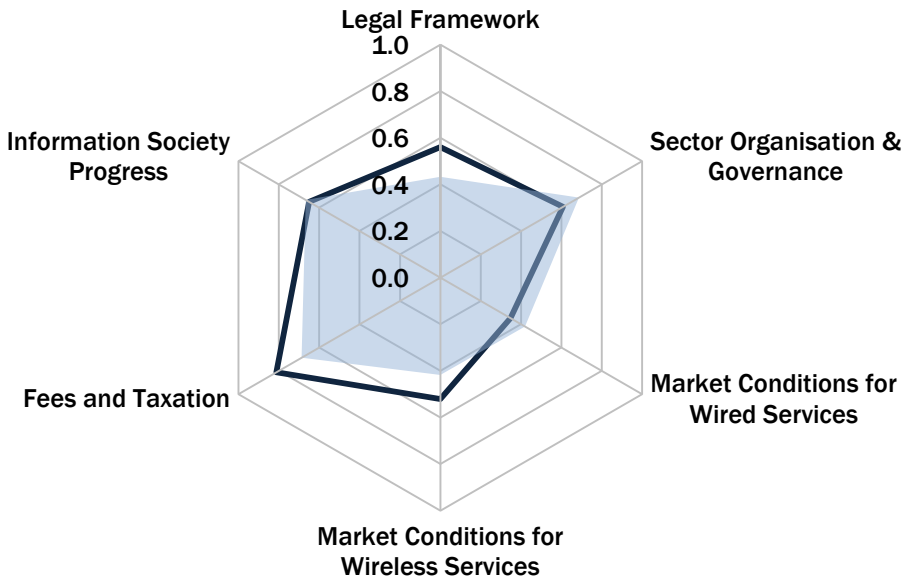
- Megafon has already started to provide LTE services in Moscow in May, using the infrastructure of Rostelecom's partner 4G operator Scartel.
- MTS claims that its offering is already available to 10 per cent of Russia's and it has pledged to expand the footprint to 27 per cent by the year ending 2012.
- Vimpelcom has pledged to provide LTE services in six Russian regions by the year ending 2013.
- Rostelecom, which was transformed last year into a multi-service provider by merging with seven regional operators, wants to boost its share of mobile as well as broadband and pay-TV markets to offset a fall in its core fixed-line business. Its stated mobile strategy is to take into account the LTE licence as well as the planned consolidation of Russia's smaller wireless carrier Sky Link, which has 2G and 3G licences in more than 70 Russian regions.

The outcome of the current moves in Russia – particularly the initiatives on infrastructure sharing and the auctioning of new broadband spectrum – will have repercussions outside Russia, especially in the former Soviet republics that tend to follow the situation in the much larger Russian market. The big market players in Russian have operations in many of the former republics, including the Central Asian States, the South Caucasus countries, Belarus and Ukraine. In most of these countries, infrastructure sharing has not been mandated by regulators beyond the simple case of duct sharing. If those countries follow Russia's lead, then considerable investment savings may be possible to complete the infrastructure, especially out to the rural areas where penetration of modern telecommunications networks have been historically low.

The results of Russia's 2012 LTE spectrum auction have been watched closely, as many of Russia's neighbouring states still need to plan their own "digital dividend" based on spectrum demand over the next three years, leading up to the required deadline for analogue broadcasting switchover in mid-2015.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Russia with international practice and regional performance

Russia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Russia = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 54 (100 is the lowest risk)

TAJIKISTAN

At a glance

Market penetration	
Population	6.9m
Fixed penetration*	5.3
Mobile penetration*	52
Broadband penetration*	1.4

*Per 100 population

Key Institutions	
Policy and legislation	The Communications Service
National regulatory authority	The Communications Service

Market access	
General authorisation	✘
Technological neutrality	✘
Rights of way	✘
Infrastructure sharing	✘
Granting of spectrum	✔

Competitive safeguards	
Number portability	✘
Interconnection offers	✔
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	10.4
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✘

Market Liberalisation

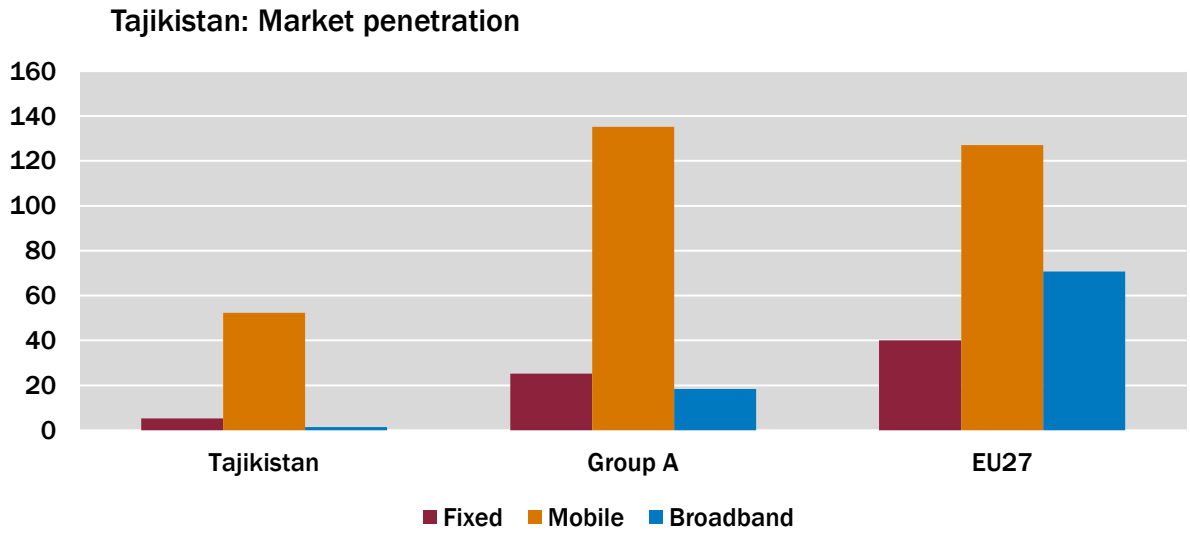
The incumbent Tajiktelecom is still the only provider of fixed voice services, but alternative internet service providers use these lines, plus their own fixed wireless networks to provide competitive services. Basic fixed-line penetration is only 5.3/100 population and fixed broadband still less than 1/100 population.

In the mobile market, 11 licences have been issued, but recently the seven active companies have consolidated to four main operators. Mobile penetration has reached 83/100 population compared with a regional average of 135/100. All mobile operators have launched 3G services since 2006 and these are gradually expanding outside the capital Dushanbe. Indigo-Somoncom, backed by TeliaSonera, launched 4G services in Dushanbe in 2011.

Tajiktelecom is reported to be suffering badly since its exclusive right to international traffic was removed. Other operators have negotiated separate agreements with international parties to carry international traffic.

One of the mobile and internet providers reported that they intend to buy a broadcasting company in order to make triple-play more economic for them. Broadcasting requires a separate licence, however the regulator refuses to grant these. As a result, alternative telecoms operators are making deals with broadcasters to distribute their TV channels to overcome the licensing problem.

Chart 1: Market penetration of main services per 100 population in Tajikistan, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The Law of the Republic of Tajikistan on Telecommunications (as amended in 2006 and 2008) includes few features that align with best practice. The law contains insufficient separation between policy, regulatory and operations functions, so the regulator lacks independence. The “Communications Service” (CS) is responsible for developing sector policy while the Authorised State Body for Supervision and Regulation in the Field of Telecommunications (ASB) is the regulator, responsible for implementing sector policy. ASB’s independence is compromised by its inclusion within the CS, which also manages the state’s ownership interest in the sector. The licensing powers of the ASB are addressed in the Law on Licensing, which subjects public telecoms networks to individual licences, not a general authorisation and notification regime. The law does not require a competitive tendering process for issuance of new licenses.

The Law on Telecommunications no longer includes any meaningful market analysis or SMP/dominance provisions after the 2008 amendments (ASB was previously responsible for preventing unfair competition and monopolistic activities). The Anti-Monopoly Body now exercises these functions under the Law on Competition, which presumes dominance at 50 per cent or higher market share and presumes non-

dominance at less than 35 per cent market share. The Anti-Monopoly Body also regulates infrastructure access charges based on cost estimates and to encourage competitive markets. Tariff regulation and approval powers of the ASB, including over interconnection tariffs, were eliminated as part of the December 2008 amendments to the Law on Telecommunications. However, ASB is still separately authorised under the Law on Consumer Protection to approve retail tariffs of dominant service providers.

The Law on Telecommunications imposes interconnection regulation on network operators holding "significant dominant market power", with interconnection agreements requiring approval by the ASB. Interconnection may be refused based on technical capacity limitations if fully justified. The law has limited dispute resolution procedures. The ASB establishes procedures for settlement of disputes (between telecommunications operators, or between telecommunications operators and the users of telecommunications services) and is authorised to resolve disputes related to interconnection subject to court appeal. However, in practice, ASB does not appear to use this power – disputes go to court instead.

Penalties are determined under the Administrative Violations Code, however fines are insufficient to deter significant or recurring non-compliance by larger commercial service providers. Though the code also permits license suspension or revocation sanctions, these remedies are typically impractical for larger operators.

The State Committee on Radio Frequency Spectrum (SCRFS) is responsible for development and implementation of uniform frequency allocation policy and ensuring radio equipment electromagnetic compliance. The SCRFS establishes the National Plan of frequency allocation, develops spectrum "recommendations and procedures", represents Tajik interests in international organisations, prohibits inappropriate use of spectrum or radio equipment and requires spectrum users to obtain authorisations. The structure, functions and authority of the SCRFS are further elaborated in the 2004 "Regulations on the State Committee of the Republic of Tajikistan on Radio Frequencies". A separate Law on Spectrum requires a "contest" among multiple operators seeking spectrum. The law does not address spectrum trading or provide specific powers to address radio frequency disputes.

Numbering administration is the responsibility of the ASB, which must agree numbering fees with the State Anti-Monopoly Body. There are no specific provisions in the law on telecommunications regarding development and implementation of the national numbering plan. There are no requirements that numbering allocation be carried out using clear and non-discriminatory processes, or that numbering fees be limited to the reasonable, incremental costs of number administration.

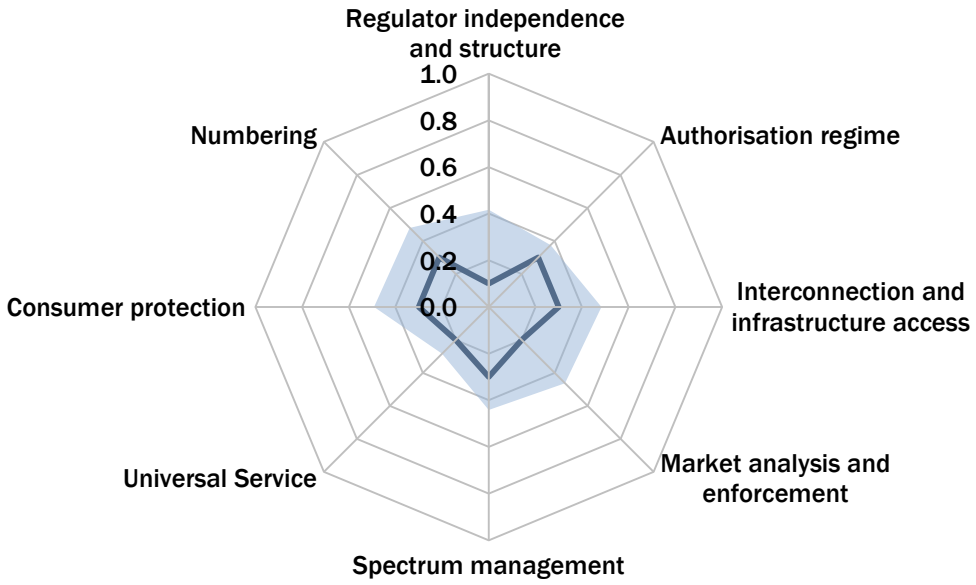
The universal service provisions of the law make provision of universal service programmes the function of the government. No formal universal service fund exists, and universal service obligations are performed informally by state-owned Tajiktelecom in the course of its normal range of operations. Tajiktelecom is not formally compensated for the cost of these obligations.

The law does not define a complete framework for consumer protection. It identifies the rights of users, including: access to the public telecommunications network, timely and high quality services, user compensation for losses from failure to provide telecommunications services and the opportunity to complain to the ASB or the court when their rights are violated. The law requires confidentiality and privacy of communications, compliance with quality of service requirements established by the ASB, the provision of quality of service performance information and authorises the ASB to prohibit provision of poor quality service. However, there appears to be: no minimum requirement for consumer contracts, no prohibition against unjust consumer discrimination, no right to receive an itemised bill, no right of inclusion in or exclusion from directory services, no harmonised numbers for harmonised services of social value, or a limitation on long-term contracts.

The Law includes provisions regarding national security and emergencies, including identifying the responsibilities of telecommunications undertakings and providing for operators to be paid compensation for losses incurred due to use of their networks during such situations.

Chart 2: Comparison of the legal framework for telecommunications in Tajikistan with international practice and regional performance

Tajikistan: Legal framework



Key: Extremities of the chart = International best practice
Tajikistan = Solid line
Regional average = Shaded area

Sector organisation and governance

The state owns 95 per cent of Tajiktelecom, the incumbent fixed-line provider and also 25 per cent of Megafon, with the other 75 per cent owned by the Russian Megafon company.

The Chairman of the CS is a ministry official and there is no division of responsibility between ownership, policy and regulation. The powers of the CS displace those of the ASB – particularly regarding "demonopolisation" and privatisation initiatives. ASB's independence is compromised by its inclusion within the CS, which also manages the state's ownership interest in the sector. CS is funded from the state budget.

There are no retained monopolies, but Tajiktelecom still receives a subsidy in the form of international traffic minutes from all operators to compensate it for the loss of its international incoming voice revenues.

The mobile sector is fiercely competitive, with up to seven active participants at one stage. These have recently consolidated into four main players. Market leader Babilon Mobile has a 37 per cent market share. Indigo-Somoncom (owned by TeliaSonera) has a 34 per cent market share, BeeLine (owned by Russia's Vimpelcom) has 20 per cent, and Russian-owned Megafon has 9 per cent share.

Market analysis is the responsibility of the State Anti-Monopoly Body (AMA) and other functions, including numbering, are exercised by the ASB in cooperation with the (AMA). Spectrum regulation is largely the responsibility of the State Committee on Radio Frequency Spectrum. AMA does the market analysis and uses a simple 35 per cent market share rule to determine dominance. AMA then has to approve the designated operators' retail tariffs. The cost calculations for the tariff setting are carried out by CS using an established methodology, but this is done in consultation with the operators in order to use their cost information.

Tajikistan is not a member of the WTO.

Regulatory conditions for wired services

The market is open to all but so far only Tajiktelecom has a national infrastructure, albeit with a very low penetration of basic services. Many alternative providers compete in the internet services markets, giving broadband access mostly via Tajiktelecom's copper networks.

Some internet service providers install dedicated data lines into businesses in order to handle data rates higher than Tajiktelecom lines. Tajiktelecom and the mobile operators also lease dedicated lines to each other to expand their networks. Although these wholesale charges are supposed to be regulated, the arrangements between operators are often "cooperation" deals whereby one company leases main line capacity in return for being able use the other's access network. Tajiktelecom reported that around 20,000 of its local loops were unbundled to alternative service providers, mostly in Dushanbe.

There are no standard arrangements for granting rights of way over public or private property, and any arrangements for sharing infrastructure must be made between operators.

Tajiktelecom's basic retail tariff is less than €1 per month, which is very inexpensive compared with international benchmark cost rates of around €14 per month.

For wholesale charges, call termination charges on the fixed network are included in Tajiktelecom's reference interconnection offer and are very low. Its rates for local loop unbundling are around €7 per month, which is in line with EU benchmarks.

Regulatory conditions for services requiring frequency spectrum

Sufficient spectrum has been assigned to the operators and they can use it on a service and technologically neutral basis. The existing operators say that they have enough spectrum and use it for GSM, 3G, LTE and fixed Wireless. Operators have to get permission each time they want to open a new base station or new transmitter frequency. This permission can take some time (two to three months). If an operator does want a particular frequency it is taken back and given to other users if there is a demand.

Mobile call termination rates are applied to all operators at the rate of around €0.06 per minute. This is higher than the EU average. These rates are included in the mobile operators' reference interconnection offers.

Number portability has not been planned, with all four main operators reportedly being against it. There have been no national roaming agreements and no attempts to introduce virtual mobile service providers, and there have been no plans reported for analogue to digital broadcasting switchover.

Payments required by operators

There are no administrative fees paid for the regulatory function, instead, yearly licensing fees are charged at 2.5 per cent of operator revenues. This goes into state budget.

There is a special tax of 3 per cent on mobile revenues. Until recently, incoming international revenue settlements were exempt from VAT, now it has been imposed. This has added significant costs to the mobile companies.

There is no universal service regime and contributions are required from operators.

There is a significant market distortion that gives Tajiktelecom compensation for loss of international incoming call minutes by adding € 0.03 per min to the termination rate for incoming international calls, which has to be paid to Tajiktelecom, even though its network is not used.

Information society safeguards

Internet service providers need a licence separately from telecommunications network licences. There is a liberalised approach to internet freedoms, although in March 2012 it was reported that the government blocked access to Facebook and several Russian language web sites for a short period of time.

There is a legal basis for electronic signatures, although there is little evidence that these are used in practice. Internet domain names have been liberalised and can be obtained from any internet service provider. Tajikistan has its own cybercrime rules and is not a signatory of the Council of Europe convention.

Summary and outlook

Tajikistan

The modernisation of the telecommunications infrastructure is nearing completion, with 90 per cent digitalisation by the year ended 2011. Fixed and mobile subscriptions are still growing as the existing market players expand their networks, driven by the higher demand for internet and IPTV services. The generally competitive market and the liberalised approach to spectrum management give Tajikistan good growth potential.

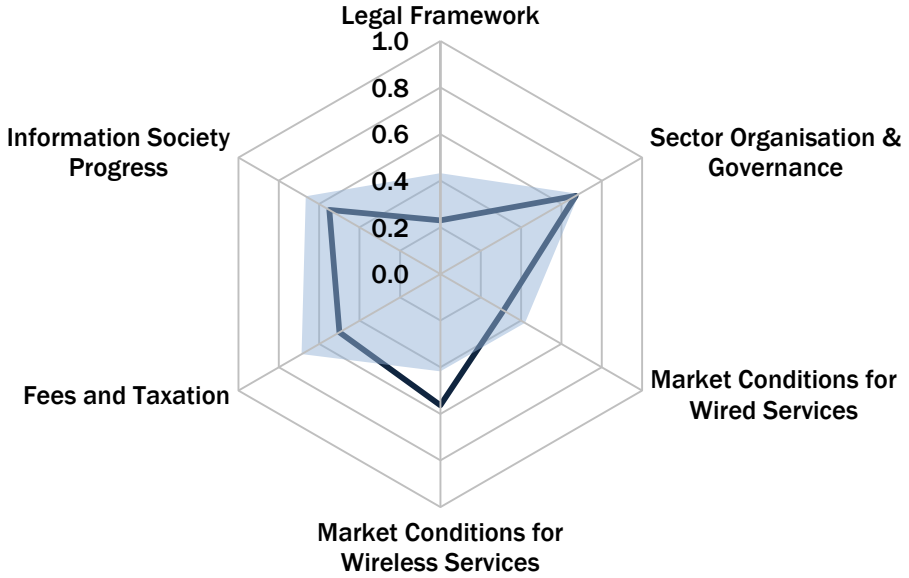
Several market distortions remain, including the over reliance on operators to make their own deals, which inevitably results in lack of transparency and possible discrimination. There is special tax on mobile service revenues. The market players also have to make special payments outside the regulatory regime to compensate Tajiktelecom for its significant reductions in international call traffic revenues caused by competition.

The relative lack of regulatory intervention will inhibit significant investments outside the urban centres, which is required to bring modern services to rural areas. A strategic approach is required to policy, regulation and enforcement to set the government's objectives and to create the conditions for competitive investments within a more universal electronic communications market.

With four mobile operators having 3G licences, and internet usage expanding quickly, the prospects for growth are good in the urban areas. Unless the regulatory conditions and state-ownership are reformed, investment in rural infrastructure will remain poor.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Tajikistan with international practice and regional performance

Tajikistan: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Tajikistan = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 42 (100 is the lowest risk)

TURKMENISTAN

At a glance

Market penetration	
Population	5.0m
Fixed penetration*	10
Mobile penetration*	63
Broadband penetration*	0.1

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Communications
National regulatory authorities	Ministry of Communications

Market access	
General authorisation	✘
Technological neutrality	✘
Rights of way	✘
Infrastructure sharing	✘
Granting of spectrum	✘

Competitive safeguards	
Number portability	✘
Interconnection offers	✘
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	2.2
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✘
Safeguards against cybercrime	✘

Market Liberalisation

There are two state-owned fixed telecommunications providers: Turkmen Telecom and Ashgabat City Network. Both are monopoly providers within their geographical boundaries. Under the telecommunications legislation, theoretically any alternative operator can apply for a licence, but the Ministry of Communications reports that there have been no such applications.

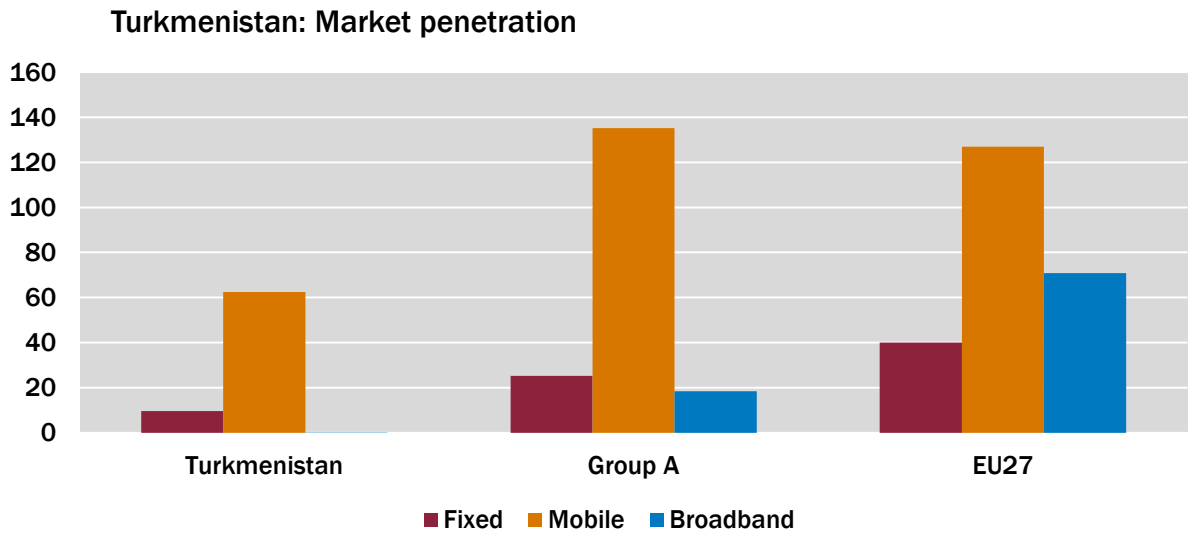
Mobile services were first launched with a 10-year exclusive licence given to Barash Communications in 1994. When this expired, Russian owned MTS acquired Barash and the government launched its own competing service Altyn Asyr (TM Cell). By 2010 market penetration had reached around 52/100 population. In late 2010 MTS's licence was suspended and not renewed. The only remaining operator, Altyn Asyr, struggled to satisfy the demand from the 2.5 million customers seeking service after MTS was closed down. After discussions with government, MTS re-launched service in early September 2012 after having been granted new GSM and 3G licences. Under the agreement, MTS will pay 30 percent of its net profit in the country on a monthly basis. According to MTS, the agreement was signed for a period of five years and may be extended for an additional five years, subject to fulfilment of certain conditions.

Turkmenistan connected to the internet in 1997. Four internet service providers served the market until being forced out of business by government's decision to grant Turkmen Telecom a monopoly over data services. The abrupt closure of the internet service providers was consistent with government policy, which required tight control over all communications in the country. Internet access continued to be severely restricted, and the few internet cafés that existed in Ashgabat were closed down in 2002. Internet growth in the country was further hindered by severe government controls, until 2007 when there was an apparent easing of restrictions with internet cafés reopening. This has raised internet usage somewhat, but it remains the lowest in the CIS.

Prior to the suspension/non-renewal of MTS' concession at the end of 2010 mobile subscriber numbers in Turkmenistan were finally on the increase but were still relatively low in number, having just passed the 3.2 million mark, representing a penetration of 63/100 population. MTS had around 80 per cent of these subscribers and it has been unclear since the end of 2010 how many customers are now served by the remaining provider Altyn Asyr.

Fixed-line penetration in Turkmenistan has only reached 10/100 population. Broadband services are not generally available at a reasonable price or quality of service and only a few fixed broadband connections are thought to be provided to business customers. Altyn Asyr recently announced a major programme of investment in network expansion and quality improvements. This includes new customer service and billing systems and staff training.

Chart 1: Market penetration of main services per 100 population in Turkmenistan, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

The Law of Turkmenistan on Electronic Communications (2010) provides that public administration in the electronic communications sector is performed by the Cabinet of the Ministers and the Ministry of Communications (MoC). The Cabinet is responsible for policy making, establishing priorities for sector development, international cooperation, state policy on allocation and use of radio frequency spectrum and approval of the Radio Spectrum Allocation Table. Laws are approved by the Cabinet of Ministers, and the Minister of Communications reports to a Vice Chairman of the Cabinet of Ministers.

There appears to be some overlap in functions between MoC and the Cabinet of Ministers, including in supervision and control of use of radio spectrum, where some functions are given to the Radio Frequency Spectrum Committee under the Cabinet. The law does not clearly specify the role of the Cabinet and the Ministry in tariff regulation. Although there is no requirement for formal broad consultations with stakeholders on policy and regulatory issues, MoC is required to invite specialists from other Ministries and state bodies to round-table discussions. The Ministry of Justice is expected to represent consumer and private sector interests. MoC regulatory decisions are not always published.

Licensing in the electronic communications sector is carried out by MoC and is regulated by the Law on Licensing of Certain types of Activities (2008) and regulations on licensing in electronic communications. Market entrants are required to apply for licences under complex procedures. State-owned enterprises currently hold all active licences in the sector except for the recently issued MTS GSM and 3G licences, awarded after MTS was earlier required to cease providing service in the country. The law on licensing includes provisions on transparency, equal rights for undertakings and individuals to obtain licenses, procedure for issue, renewal, suspension and withdrawal of a licence. A licence application is considered by the Ministry only if it has concluded that equipment complies with the protocols and standards valid in Turkmenistan. Competitive tenders are not required for granting of licences. Licence fees are regulated across all sectors by the Ministry of Economy and are understood to be low. Each licence is for a fixed term of three years, which is extremely short by international standards and limits investment interest.

Interconnection provisions are weak. The law obligates operators to provide access to their networks for other operators based on agreement or other legal provisions, if technically feasible. Technical conditions must comply with rules of interconnection approved by MoC. If interconnection is not available as required, then the interconnecting operator must pay the cost of creating the interconnecting link.

The law states principles governing operators' activities, which include equal rights of operators, fair competition and non-discrimination. Operator licences also contain clauses on quality, confidentiality and security.

There is no framework provided in the law for market analysis, designation of operators with significant market power or imposition of appropriate market remedies on those operators. The law does provide principles for tariff setting in line with costs (incorporating an element of profit) and time-based payment for services. The law does not state which authority regulates tariffs or whether there is any freedom for operators to set their own tariffs. The law provides that MoC regulates relationships between operators and considers issues on relationships between operators and consumers. Dispute resolution between operators is defined broadly in the Law and involves the parties reaching agreement with the assistance of MoC if necessary. Appeals against MoC decisions can be made to the Administrative Court. There is no provision for MoC to impose fines, although a procedure is provided to revoke an operator's licence.

Radio Frequency Spectrum is regulated by the Law on Electronic Communications and the Law on Radio Spectrum, which addresses the conditions and principles of use of spectrum, limitation and termination of the right of use of spectrum and state supervision of use of spectrum. The national frequency spectrum table is approved by the Cabinet. The Inter-Agency Commission is chaired by the Vice Chairman of the Cabinet of Ministers and addresses all sectors including electronic communications, broadcasting and military uses. The published regulations are sector specific. When special authorisation is required (right of way or radio frequency), such authorisations shall be issued after a licence has been issued.

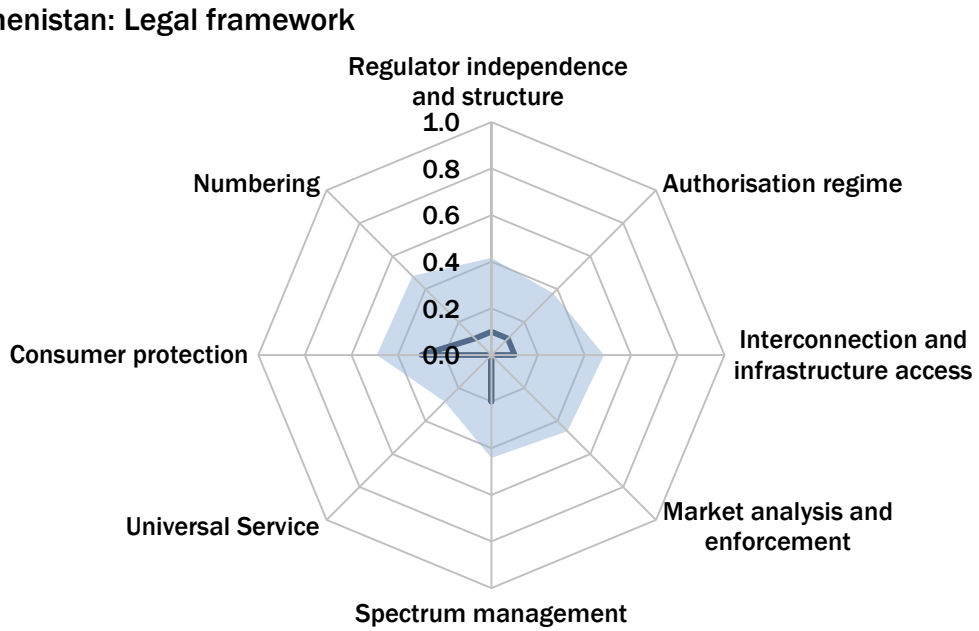
The law provides a regulatory framework for numbering resources. MoC, subject to agreement by the Cabinet, defines the procedure for allocation and use of numbering resources, although there is no clear requirement in the law to develop a national numbering plan. Operators have the right to transfer allocated numbering resources to other operators only with the consent of the Ministry. Numbering fees are set by the Cabinet. There is no provision for number portability.

The law includes limited provisions regarding consumer protection, including a brief statement of the rights and obligations of consumers. The rights of consumers include access to telecommunication services,

security of telecommunication services, carrier selection, obtaining information on services provided, termination of service, right of appeal against actions of operators to "higher bodies" or court. It also provides that the Ministry shall protect lawful rights and interests of consumers of telecommunication services and that telecommunication operators must ensure and be responsible for protection of consumer data.

The law includes provisions requiring secrecy of communications. However, beyond obligations of operators to provide free access to emergency call services to users, the law does not state a universal service definition, specific obligations or a framework for provision of such services by operators.

Chart 2: Comparison of the legal framework for telecommunications in Turkmenistan with international practice and regional performance



Key: Extremities of the chart = International best practice
Turkmenistan = Solid line
Regional average = Shaded area

Sector organisation and governance

MoC, under the Cabinet of Ministers, acts as the policy maker, regulator and owner of all State telecommunications assets. There is very little published information regarding the regulatory conditions in the sector.

MoC is responsible for implementing state policy including: allocation and use of national resources, performing state regulation and control in the communication sector, licensing, developing and managing the numbering system, creating conditions for functioning of telecommunication service market, managing national resources in electronic communications, technical supervision and control and regulating relationships between undertakings and individuals and protecting consumers.

The 100 per cent state-owned operators Turkmen Telecom and Ashgabat City Network have the status of licensed operators under MoC. These state entities are the only fixed-line telephone services providers. From the end of 2010 to September 2012, mobile services were provided by a single operator "Altyn Asyr", which is 100% owned by the state. MTS Turkmenistan, which had been required to cease service in Turkmenistan in late 2010, re-launched service in early September 2012, and claimed to have signed up over 500,000 subscribers on its first day of operation by reactivating existing SIM cards. MTS will start selling new SIM cards from the start of October 2012. According to MTS, the agreement was signed for a

period of five years and may be extended for an additional five years, subject to fulfilment of certain conditions.

There are no exclusive rights explicitly defined in the law. Where there is only one licence holder this is understood to be because no other operator has applied to be licensed. Turkmen Telecom is currently the only licence holder for fixed services nationally, excluding the capital city, where Ashgabat City Network is the only licenced operator.

Any operator is theoretically allowed to offer internet services provided they have a licence, but at present Turkmen Telecom is the only licence holder. Turkmen Telecom handles all international incoming and outgoing traffic and carried all interconnecting traffic between the two mobile operators that existed until the end of 2010 before MTS was forced to terminate its services.

Regulatory conditions for wired services

There are currently 32 different types of licences defined for the electronic communications sector, issued by MoC. Each licence is for a fixed term of three years. The main types of telecoms licences are:

- Connection to the customer – general licence covering local telecoms service, maintenance, telephone and facsimile services (currently only held by Turkmen Telecom and Ashgabat City Network).
- Mobile service - general licence (currently only held by Altyn Asyr).
- Internet licence, covering database, internet sites (currently held only by Turkmen Telecom).
- VoIP licence (licence holders not known).
- International access links (currently held only by Turkmen Telecom).

Licences are not technology neutral; however, it is reported that the licensing arrangements are under review, to take into account that there are now more technologies and services.

There are no standard procedures for obtaining rights of way over public or private operators. Infrastructure sharing is not regulated, but transmission capacity was leased by MTS from the Turkmen Telecom network until its links were cut off at the end of 2011 when the government closed down MTS.

Interconnection arrangements are decided between operators, but the main parameters of quality, confidentiality and security and charges have to be examined by MoC before they will issue a licence. Currently only MoC-controlled operators have interconnection agreements, and there is no published set of conditions.

None of the commonly-observed best-practice competitive safeguards are in place in Turkmenistan. There is no number portability or wholesale line rental arrangements. Dial-up internet service was available via scratch-cards, but the status of this service is now uncertain. For broadband services, there is no local loop unbundling or wholesale broadband access service from the incumbent fixed operators. All interconnection at local, national and international levels must go via Turkmen Telecom.

Regulatory conditions for services requiring frequency spectrum

Frequency authorisations are granted only after a licence has been issued. The licence request has to detail the technologies and frequencies required. The Ministry is reportedly studying foreign experience on spectrum authorisations, recognising the needs of the market and optimisation of scarce resources.

It was reported that MTS applied for national WiMax frequencies. The MoC was prepared to grant licences, but during the process MTS was required to discuss its proposed service with the National Security Committee. These discussions were not concluded before MTS was closed down in late 2010.

It is understood that, when operational, the main traffic charges for MTS were covered by a simple revenue sharing formula, with the terminating operator getting 82.5 per cent of the revenue for the calls, the originating operator keeps only 17.5 per cent. This applied only to national and international calls. For local calls the operators pay nothing to each other. There is still a portion of mobile subscribers that pay to receive incoming calls from fixed-lines (in that case the fixed-line caller pays nothing for the call).

There were no national roaming agreements between MTS and Altyn Asyr and number portability did not exist. There are no provisions in the licensing regime for virtual mobile service providers.

Payments required by operators

The yearly levy applied to licensed operators is 0.8 per cent of revenues from each entity. It is understood that if contributions exceed the costs of running the ministry, then the percentage is reduced the following year. All the telecommunications revenues (and costs) from the sector are currently handled by MoC. It is reported also that MTS (a privately owned company) had to share its profits with the Ministry (20 per cent), a fact revealed in MTS's published annual reports[30].

There is no universal service fund or payments, and there are no known special taxes applied to telecommunications.

Information society safeguards

Internet service providers must obtain two licences; one is for data transmission and the second for "telematic services". Internet access continued to be severely restricted and the few internet cafés that existed in Ashgabat were closed down in 2002. The incoming President announced in 2007 that the government had re-opened internet cafés in the capital Ashgabat and was set to follow this move in regional centres. One hour of computer time at a public internet café costs about €2. Most private connections to the internet are still slow speed dial-up. To obtain a broadband connection, a 2Mbps line is available from Turkmen Telecom at a price of around €5,000 per month.

Although it is possible to access the internet at home or at one of the country's estimated 30 internet cafés, the government imposes tight controls, blocking foreign web sites and some social networking sites. Visitors to internet cafés have to show their ID cards and any messages that they send or pages viewed are logged.

Turkmenistan has no legal basis for electronic signatures, data protection or prevention of cybercrime. Internet domain name registration for .tm is available for €700 (for a fixed 10 years).

Summary and outlook

Turkmenistan's telecommunications services are considered to be the least developed of all the CIS countries. Poor growth in telecom services can be attributed to a large extent to the slow development of the private sector, state control over most economic activities and the poor legislative and regulatory framework. Efforts to move towards a more market-oriented economy have been limited. In the telecom sector there has been small progress on this front, but this in turn was overwhelmed by significant setbacks, including the return to monopoly mobile service following the forced closure of MTS.

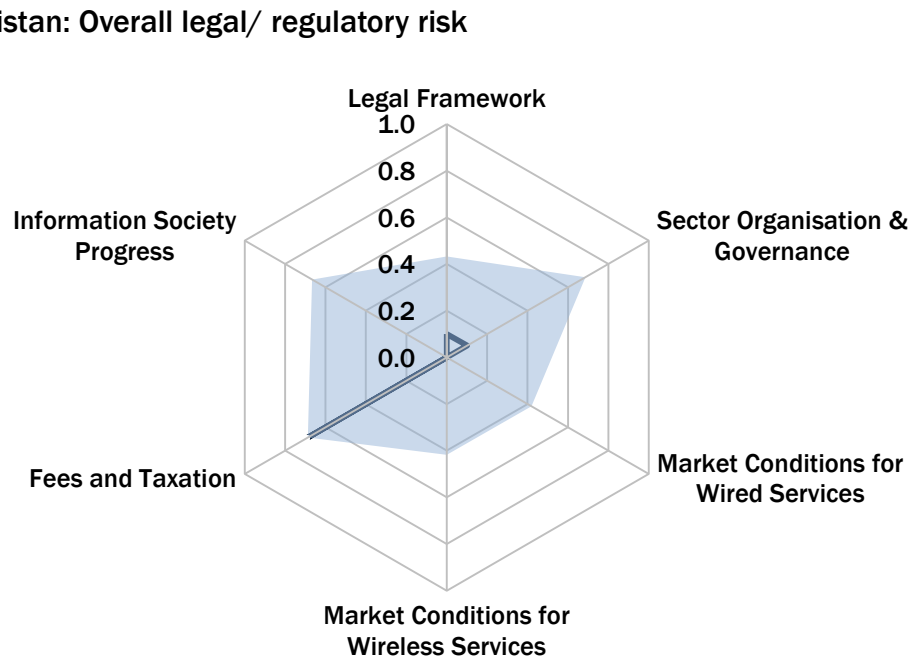
The re-launch of service by MTS as a competing operator is a very positive development, which should support broader growth in the mobile sector and encourage other potential investors.

The penetration of fixed and mobile services is very low, even by CIS standards. Internet usage is the lowest in the CIS countries at only 2.2 per cent of the population and is tightly controlled with no access to many foreign web sites. Fixed broadband is unaffordable to all but a few businesses. 3G services were launched in Ashgabat in late 2009, but the quality and speeds are reportedly poor.

Until some liberalising reforms are in place there is limited scope for an effective market in electronic communications. Entry conditions remain complex, licences are awarded for only three years and none of the normally expected market safeguards are in place for new entrants.

30 See http://annualreview2010.mtsgsm.com/

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Turkmenistan with international practice and regional performance



Key: Extremities of the chart = International best practice
Turkmenistan = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 11 (100 is the lowest risk)

UKRAINE

At a glance

Market penetration	
Population	46m
Fixed penetration*	27
Mobile penetration*	151
Broadband penetration*	16

*Per 100 population

Market access	
General authorisation	✘
Technological neutrality	✔*
Rights of way	✔
Infrastructure sharing	✘
Granting of spectrum	✔

*Fixed only

Competitive safeguards	
Number portability	✘
Interconnection offers	✔*
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✔

*Fixed only.

Information society	
Internet penetration per 100 population	34
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

The process of liberalisation in the electronic communications sector of the Ukraine started in 1992 with the formal opening of international calls to competition. The process continued until full formal liberalisation of the sector in 2001. The first licence for mobile services was issued in 1992 and competition in the mobile sector commenced in 1995. Internet services are liberalised, although it is still necessary for internet service providers to obtain a license before using telecommunications access networks or leasing of telecommunications channels.

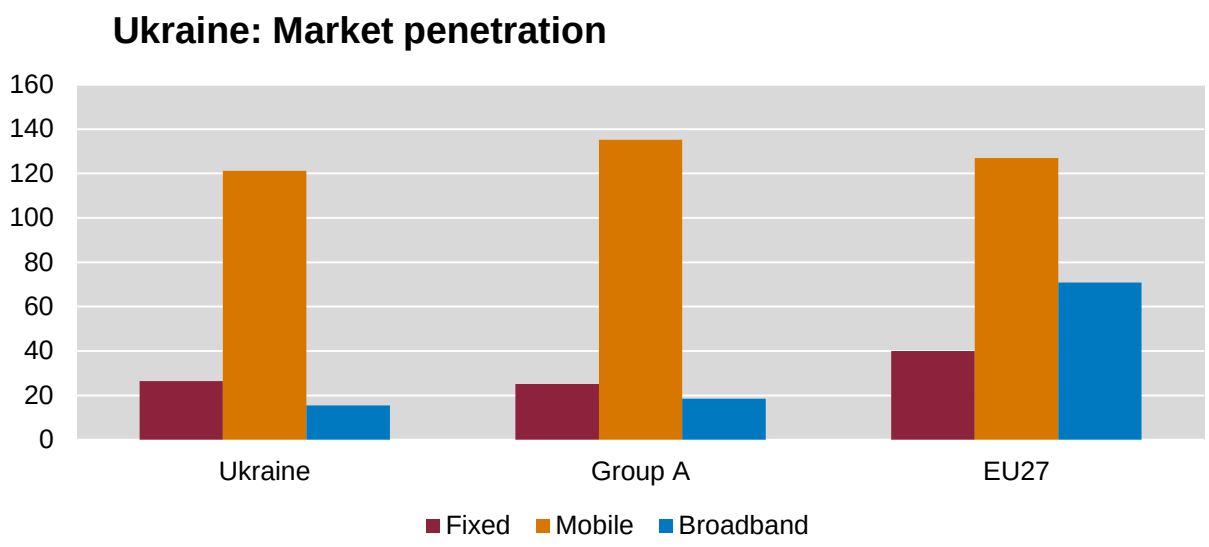
The fixed incumbent operator, Ukrtelekom was privatised in May 2011. The sole bidder at the auction was Ukrainian registered company ESU, the mobile network subsidiary of EPIC Invest, an Austrian-based investment company. Soon after privatisation, Ukrtelekom pledged to sell its mobile division (TriMob) by end of 2011. So far this sale has not taken place.

In 2011 there were 12.2 million fixed telephony lines giving a penetration of 26/100 population which is around the regional average. The number of active mobile service subscribers is 55.6 million (121/ 100 population). Fixed broadband service connections are reported to have achieved a penetration of 10.7/100 population and mobile broadband services 4.8/100.

The market for broadband services is very active, with triple-play offerings available from fixed-line, cable TV and mobile operators.

Ukraine has extensive coverage of cable TV networks in the main urban centres.

Chart 1: Market penetration of main services per 100 population in Ukraine, compared with the Group A regional averages



Group A average is for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine.

Legal framework

Although the Law on Telecommunications (2003 and last amended in March 2012) appears to align closely with the objectives, principles and concepts of the 2003 EU framework, some specific provisions of the law, such as those addressing market entry (authorisation) and market regulation, fail to provide for competitive market regulation and proportionate obligations to be imposed by the regulator on operators with significant market power.

Law No. 3610-VI dated 7th July 2011 “On amendments to some legislative acts of Ukraine on national commission which carry out the state regulation of natural monopolies in the area of Communications and Information, securities markets and financial services” created a new type of authority, a state collegial authority of Ukraine, with substantially greater independence and decision making powers. According to this law and the Decrees of the President No. 1065/2011, and1067/2011 dated 23 July 2011 the previous regulator (the National Commission for Communications Regulation) was ended, and a new regulator was created (the National Commission for the State Regulation of Communications and Informatization or NCCIR), which is a state collegial authority subordinate to the President and accountable to Parliament. NCCIR advises that these changes also provided for the professional independence of the Chairman and members of the Commission. In addition, Law No. 4910-VI dated 7 July 2012 “On amendments to some legislative acts of Ukraine on separation of powers of state authorities in the areas of natural monopolies and in communications” provided for the separation of powers of regulatory authorities with respect to determination of entities that are natural monopolies in certain markets, thereby eliminating duplication of the roles of state authorities in setting price controls and authorizing NCCIR to undertake analysis of markets and determination of telecommunications operators with Significant Market Power in the markets for telecommunications services. As a result, the new regulatory authority for the sector now holds a broader range of powers including to act as the licensing and permitting authority, conduct state regulation and supervision functions in the communications market.

However, it appears that the separation between policy and regulatory functions continues to be compromised by the broad and overlapping functions of the "central body of executive power in the sphere of communications". The central body was previously the Ministry of Infrastructure and is now the State Service of Special Communications and Protection of Information (SSCPI). Some of its powers can be viewed as regulation rather than policy, and the relationship is unclear between the SSCPI and the sector regulator, NCCIR. For example, the central body is authorised to "develop drafts of laws, other regulatory and legislative acts" whereas in practice these documents are often drafted by NCCIR. The funding of NCCIR by budget appropriation rather than via operator fees could reduce its regulatory independence and resources.

The licensing framework under the law does not provide for the general authorisations framework used in best practice. Although the law establishes a notification regime, requiring NCCIR to respond within a week of notification, individual licences are required for almost all networks and services. Licence terms are not required to be objectively justified, transparent, non-discriminatory and proportionate, as in best practice. NCCIR retains powers to include "special conditions" in the licences of operators and service providers.

The law requires interconnection among all types of public networks. Interconnection obligations are imposed on all operators and additional specific obligations are imposed on operators with significant market power. The interconnection framework does not address important access obligations such as infrastructure and facilities sharing or local loop unbundling. There is no clear requirement or power for NCCIR to require accounting separation or that interconnection charges will be based on an identified costing methodology. There is no general obligation for operators to file interconnection agreements with the NCCIR or to obtain prior approval for these agreements. The SSCPI is assumed to be the body responsible for telecommunications technical standards including interconnection.

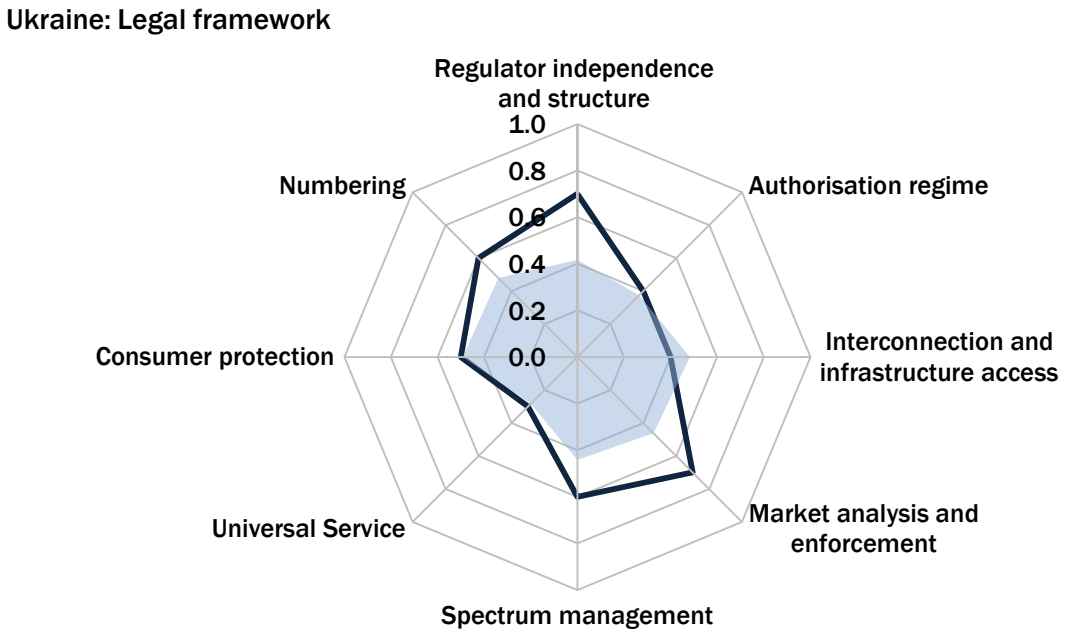
The law does not require NCCIR to publish reasons for its decisions. NCCIR may impose penalties for violations under the Administrative Offences Code, however these penalties are too small to be meaningful to larger operators. Appeals against NCCIR decisions are limited to licensing related matters.

Spectrum management is subject to the Law On Radio Frequency Resource of Ukraine and the related authority is divided among a number of bodies. The NCCIR remains the general frequency authority, responsible for spectrum licensing and ensuring compliant use. The SSCPI is responsible for spectrum policy, spectrum standards and the development of the National Radio Frequency Allocation Table ("NRFAT") jointly with NCCIR, the Armed Forces and other stakeholders. SSCPI also drafts laws, other regulatory and legal acts addressing spectrum issues and represents the Ukraine in ITU and other international activities.

NCCIR is authorised to impose universal service obligations on dominant (monopolistic) operators and to arrange a "loss compensation mechanism" to be set by the Cabinet of Ministers of Ukraine. Although the law provides basic consumer protections such as privacy of communications, as well as the right to obtain full service information and to claim compensation for service interruption, the law does not provide the high level of consumer protection required in best practice.

Numbering administration is reasonably aligned with best practice. The SSCPI is responsible for numbering policy, while NCCIR is responsible for numbering administration. The law does not explicitly provide for the development and maintenance of a national numbering plan.

Chart 2: Comparison of the legal framework for telecommunications in Ukraine with international practice and regional performance



Key: Extremities of the chart = International best practice
Ukraine = Solid line
Regional average = Shaded area

Sector organisation and governance

The national incumbent operator Ukrtelekom was fully privatised in May 2011. However, the state still retains ownership in national and regional TV and radio companies.

The mobile sector is dominated by Kyivstar (100 per cent owned by Russia's Vimplecom) and MTS (100 per cent owned by Russia's MTS). Together these two operators hold around 80 per cent market share. A third operator, "Life", which has around 13 per cent market share, is jointly owned by Turkcell and SCM Holdings. The former BeeLine and Golden Telecom brands have been merged with Kyivstar. Ukrtelekom's mobile division (TriMob), which offers 3G services does not yet have national coverage and uses Kyivstar to supplement its coverage.

The determination of a dominant or monopolistic position is the responsibility of the Anti-Monopoly Committee on the basis of the legislation on protection of economic competition. In 2010 the NCCIR's investigatory powers were increased to include market analysis leading to determinations of significant market power. NCCIR has now developed draft legislation to enable it to define and analyse relevant electronic communications markets that are subject to ex-ante regulation, to determine operators with significant market power and to impose regulatory obligations. However, the NCCIR lacks market analysis experience and it has no direct powers regarding the imposition of remedies for a dominant market position.

Currently, NCCIR may impose fixed tariffs or tariff caps on operators regardless of whether the operator has been found to have significant market power in identified markets. There is no clear requirement that tariffs be set on the basis of an identified costing methodology and no description of the procedures to be followed in implementing tariff regulation. NCCIR's enforcement powers are not strong, because the level of penalties is relatively low.

As part of NCCIR's aim to adapt Ukraine's sector legislation to the EU framework, it has developed a draft Law "On Amendments to the Law of Ukraine "On Telecommunications" which addresses the definition and analysis of relevant electronic communications markets subject to ex-ante regulation, the process of

telecommunications markets analysis, determination of operators with significant market power and the imposition of regulatory obligations on wholesale and retail markets.

Spectrum management takes place across a number of organisations, representing the government, broadcasting and telecommunications interests. This could lead to economically sub-optimal exploitation of spectrum. There will need to be close cooperation to meet the challenges of market convergence, in particular to ensure that the "digital dividend" spectrum made free from the changeover from analogue to digital broadcasting is used to promote modern rural broadband services.

Ukraine has been a member of the WTO since 2008. An EU-Ukraine Association Agreement has been negotiated, part of which is the Free Trade Agreement containing provisions for alignment of Ukraine's legal and regulatory framework for electronic communications with that of the EU.

Regulatory conditions for wired networks

Licensing and registration are still necessary to enter the electronic communications market. Based on the applications from potential operators, the NCCIR adopts a decision within a defined timeframe (six weeks). A licence is needed only for voice services, not for data transmission services. The applicants must indicate the type of equipment which they plan to use, and provide a confirmation of the equipment's certification. Ukraine has signed a mutual recognition agreement that recognises equipment certification from EU and other countries.

Right of access to public and private property is governed by civil law and has standard procedures and timescales. These require individual discussion with building owners and local government. Passive infrastructure sharing is governed by commercial agreements between service providers and infrastructure owners. To facilitate the process, the NCCIR has now adopted a binding procedure for access to ducts.

The retail price of a basic fixed connection remains low despite increases in recent years to around €3.

There is no obligation on the dominant fixed-line provider Ukrtelekom to provide wholesale access to its infrastructure via leased lines, local loop unbundling, wholesale broadband access or passive infrastructure sharing (although duct access is now governed by a regulatory procedure).

The Law On Telecommunications stipulated that number portability for fixed communications should have been implemented in 2010, but at present the technical specifications are still being prepared. Similarly there is provision in the law for carrier selection and pre-selection but currently there are no implementation timescales evident.

NCCIR regulates fixed call termination and transit rates, which are currently above the average rates for EU countries. The separate rates allowed for the termination of transit traffic originating outside Ukraine are significantly above costs. Operators set up tariffs for other wholesale services on a contractual basis.

Regulatory conditions for services requiring frequency spectrum

The NCCIR issues licences for frequency usage, on application or by tender/beauty contest. Licenses are not technologically neutral, with specific technology indicated in the licence.

National roaming is used by TriMob to enhance its limited coverage using KyivStar's network. Two companies (Jeans and Ecotel) are retail-only mobile service providers, based on the established mobile network operators.

According to the Law on Telecommunications, mobile number portability should have been implemented by the year ended 2010, but the implementation plan has still not yet been agreed between the operators.

Actual interconnection tariffs were set up on the basis of consensus among the main mobile operators. These are symmetric and lower than the EU average. NCCIR is currently in the process of designating operators with significant market power who will then be obliged to publish their reference interconnection offers.

Payments required from operators

NCCIR is funded directly by the state budget, so there are no administrative fees paid by service providers in the sector. NCCIR collects licence fees, spectrum usage and numbering charges, which are paid into the state budget. The charges are published in the state Tax Code. In 2011 the government increased spectrum usage fees to around €1,000/MHz per month.

Although there are provisions for universal service in the Law on Telecommunications, there is no provision for a universal services fund.

The country has a special tax for telecommunications in the form of an additional retail charge of 7.5 per cent applied by all mobile operators to their subscriber bills, which is paid to the State Pension Fund.

Information society safeguards

The Law On Electronic Signature and Documents provides a framework for electronic documents and signatures. The Law "On Personal Data Protection" similarly provides a regulatory regime for data protection and processing.

In 2001 Ukraine signed the European Convention on Cybercrime on the basis of which intellectual property rights protection in the technological area is effected and criminal code rules on cybercrimes are set up. These rules were fully implemented in 2006.

Summary and outlook

The market has been fully liberalised, with active competition in mobile and broadband markets. Fixed-line services are still dominated by Ukrtelekom. The sector regulator has some of the powers required to improve market efficiency, but it is still not fully independent, requiring intervention by the Anti-Monopoly Agency and the SSCPI in key regulatory functions such as designation of dominance and spectrum management. The NCCIR is gradually adopting best practice approaches through its negotiations (currently taking place) on the EU Free Trade Agreement, which contains provisions for alignment with the EU framework for electronic communications.

The clear priority for better market regulation is to strengthen competitive safeguards by implementing number portability and better wholesale access to infrastructure, including local loop unbundling and wholesale broadband access.

For the mobile market, re-farming of frequency spectrum in 900 and 1800 bands could provide new opportunities for growth, but it is difficult to see how re-farming could be coordinated with the main operators. The main mobile providers use low tariff on-net price packages to retain customers and reduce the chances of new entrants gaining ground. Consumers in Ukraine therefore typically hold mobile subscriptions with multiple service providers. Spectrum management is undertaken by multiple agencies, representing the different interests in the broadcasting and telecommunications sectors. Ukraine was very late in awarding 3G spectrum and there does not appear to be sufficient coordination to ensure that the overall economic exploitation of the scarce national spectrum resource is optimised. This situation will need to be addressed so that the "digital dividend" resulting from the required changeover from analogue to digital broadcasting (where no date has yet been set) can be exploited to meet the very high demand expected for broadband services.

In general, Ukraine needs a national strategy for broadband infrastructure and growth, otherwise the high levels of expected demand will not be satisfied, due to lack of infrastructure wholesale markets and spectrum management constraints. The establishment of a universal services fund may have a place in supporting the development of national broadband infrastructure, otherwise the rural regions of Ukraine may miss out on modern electronic communications services.

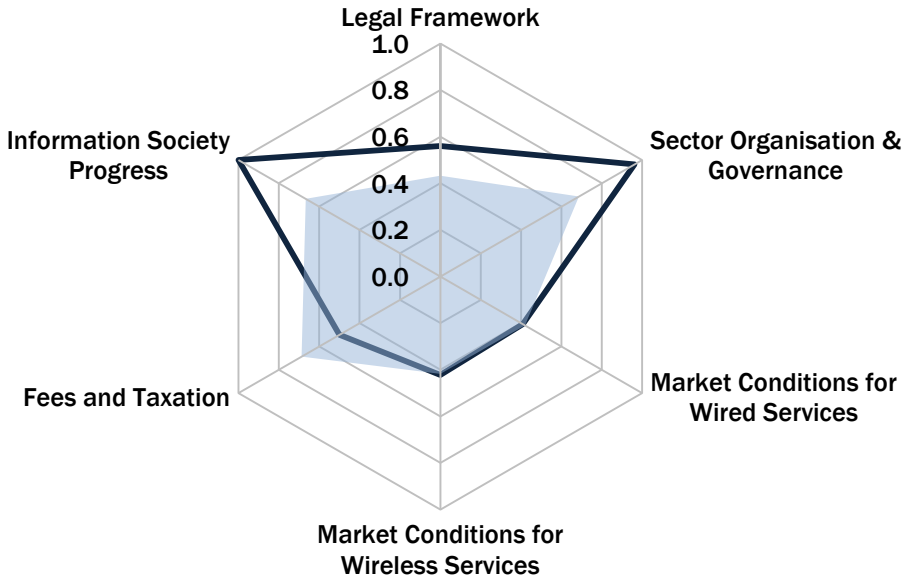
In 2011 the State Agency for Investments announced the creation of an "Open World" project which will provide a national 4G network within five years. Another component is the "1 schoolchild – 1 PC" project. A memorandum of understanding has been signed with Viettel (Vietnam's state infrastructure provider) to invest around €500 million in broadband access for Ukraine's educational system. It is not clear if this infrastructure is to be publicly or privately owned, and whether other service providers (apart from government) will be able to use it for commercial broadband services.

The privatisation in 2011 of Ukrtelekom represents a step forward in the liberalisation process. Demand for broadband services is booming. Greater investment confidence will come when a coherent national

policy for the sector, including the convergence of internet, broadcasting and telecommunications markets is published and with greater regulatory independence and best practice.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Ukraine with international practice and regional performance

Ukraine: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Ukraine = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 55 (100 is the lowest risk)

3.2 Group B countries

Regional overview

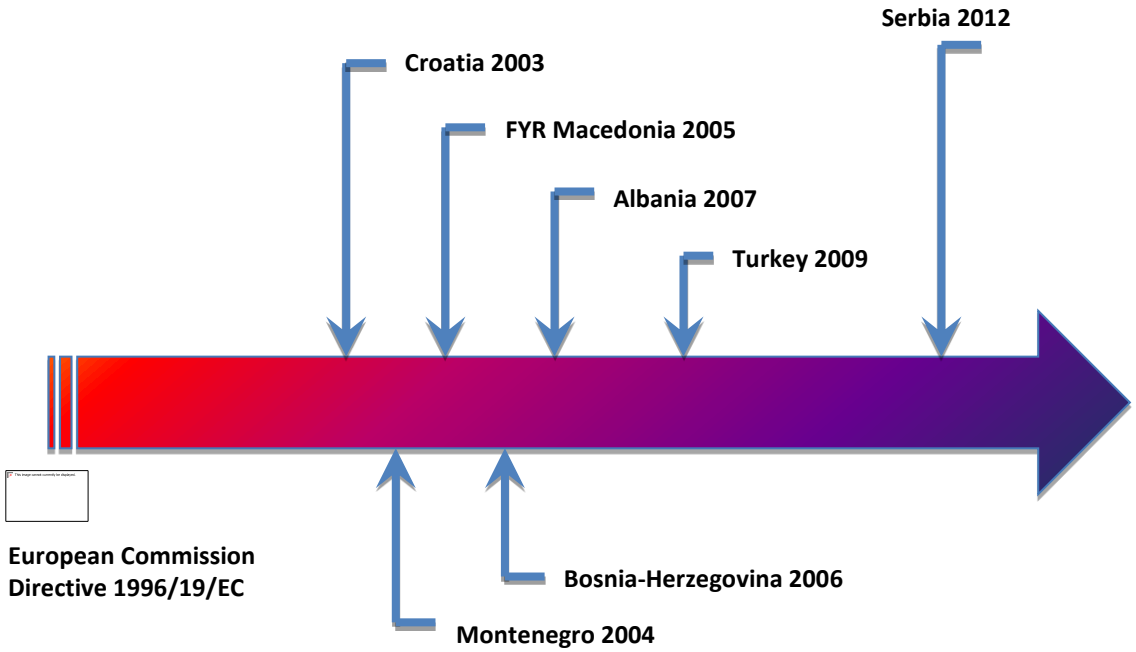
The seven countries assessed (Albania, Bosnia-Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey) have a total population of around 95 million (2011), with Turkey the largest (74 million) and Montenegro the smallest (0.6 million). Apart from Croatia and Serbia, penetration of telecommunications services is low by EU standards, and in the case of Albania, very low.

Fixed-line penetration averages 23/100 population for the Group B countries, compared to an average EU penetration of 40/100 population. Fixed-line penetration reaches the EU average in Serbia and Croatia, but the remaining countries are below the EU average, with Albania having a rate of less than one third of the EU.

Average mobile subscriber penetration in the region is 97/100 compared with the EU rate of 127. Montenegro and Albania have the highest rates at around 185/100 population, Serbia also has higher levels than the EU (140/100 population). The remaining countries are below the EU average, with Bosnia-Herzegovina the lowest at 83/100.

Broadband services are still at an early stage, with penetration levels of total broadband subscriptions (fixed plus mobile) in all countries well below the EU level of 71/100 population. Croatia and Montenegro have the highest at around 27/100, Albania the lowest at around 6/100 population.

Legalisative dates of market liberalisation in Group B countries



[source: Cullen International]

All countries now have formally liberalised markets, with their legislative and regulatory frameworks based on the EU regulatory framework. Fixed-line competition has only just begun in Serbia (where it was only liberalised at the start of 2012).

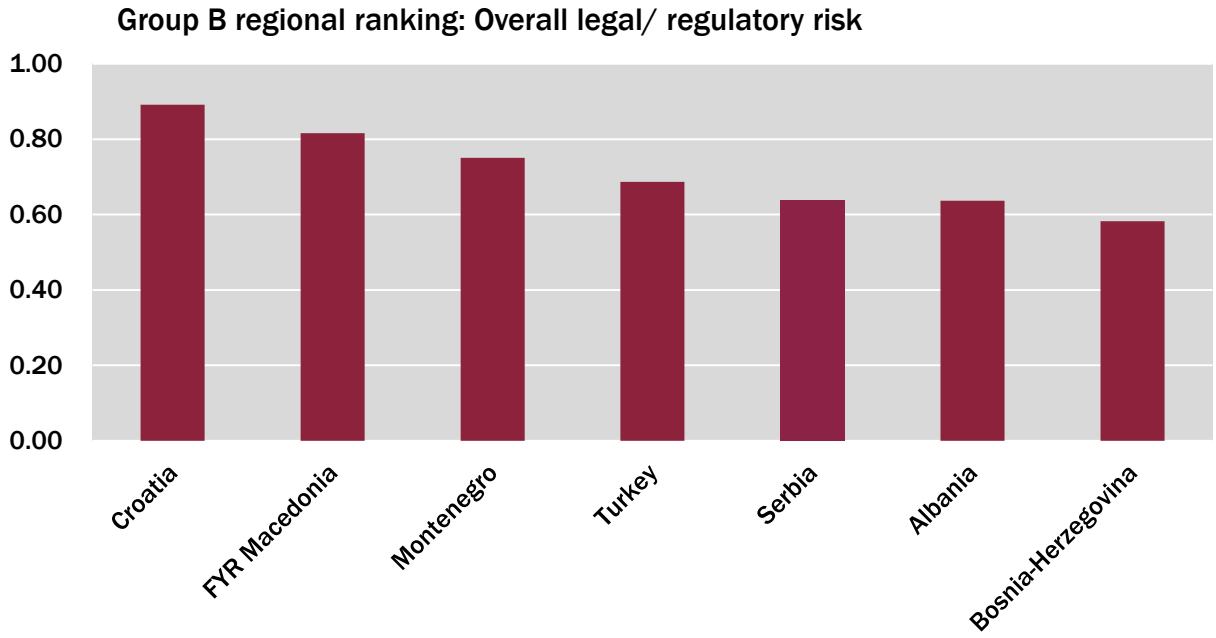
Mobile communications has been the main competitive growth market, with three licensed mobile operators in each country (except Albania with four).

Broadband communications are showing the greatest growth potential in markets that are becoming generally more competitive.

Overall market summary

	Albania	Bosnia and Herzegovina	Croatia	FYR Macedonia	Montenegro	Serbia	Turkey
Population	2.8m	3.8m	4.4m	2.1m	0.6m	7.3m	72.8m
Remaining state ownership in fixed operator	25%	90%/ 50%*	0%	35%	0%	100%	30%
Date of full sector liberalisation	2007	2006	2003	2005	2004	2012	2009
Market share of fixed incumbent (by revenue)	60%	96%	67%	78%	99%	100%	82%
No. of mobile network operators	4	3	3	3	3	3	3
Penetration of fixed-lines per 100 population	12	23.8	39.9	20.5	27.6	39.6	20.6
Penetration of mobile subscribers per 100 population	185	82.5	116	108	188	140	88.6
Penetration of fixed broadband per 100 population	4.9	11.2	19.4	13.7	13.6	13.4	10.3
Penetration of mobile broadband per 100 population	1.2	2.5	6.5	0.8	13.6	3.4	6.7
Internet usage per 100 population	48	42	59	52	50	56	44
Overall legal/ regulatory risk index (100 =lowest risk)**	64	58	89	82	75	64	69

[Source: Cullen International and EBRD analysis]
*BH Telecom is 90 per cent and HT Mostar is 50 per cent owned by the Federation of Bosnia and Herzegovina. Telekom Srpske is fully privatised.



1.00 is the lowest risk, zero is the highest
[Source: EBRD analysis]

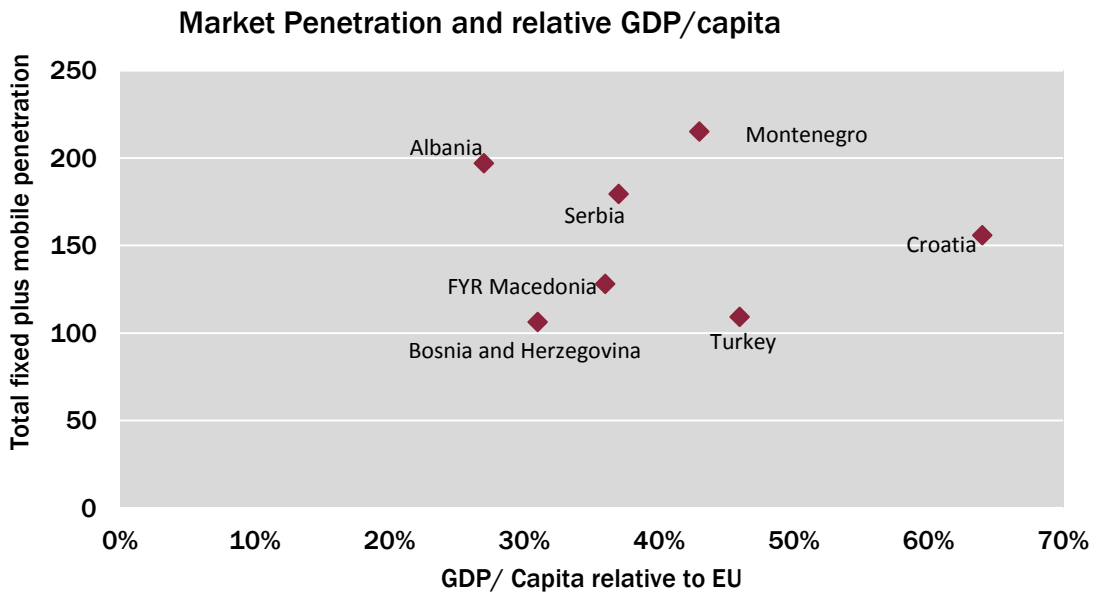
The Overall Legal/ Regulatory Risk Index is a summation of a number of components, as defined in section 2 of this report:

1) **Legal Framework**. This component assesses if the degree of conformity with a modern legislative framework for an efficient competitive market for electronic communications. (Weighting = 30 per cent.)
2) **Sector organisation and governance**. This relates to the structure of the electronic communications sector including ownership, regulation and the main regulatory procedures. (Weighting = 10 per cent.)
3) **Market conditions for wired networks and services**. This relates to the market entry conditions faced by operators and service providers who base their services on metallic, as opposed to wireless (spectrum) based methods. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 20 per cent.)
4) **Market conditions for wireless networks and services**. These relate to market entry by operators and service providers who base their services on wireless (spectrum) methods. This includes mobile services and fixed wireless services. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 25 per cent.)
5) **Fees and taxation on electronic communications services**. This relates to the types of payments required from operators/ service providers to the state and/or regulatory agency in order to start and continue providing services. (Weighting = 10 per cent.)
6) Progress towards implementation of Information Society. This relates to the country's environment for conducting business and providing services electronically. (Weighting = 5 per cent.)

Market commentary

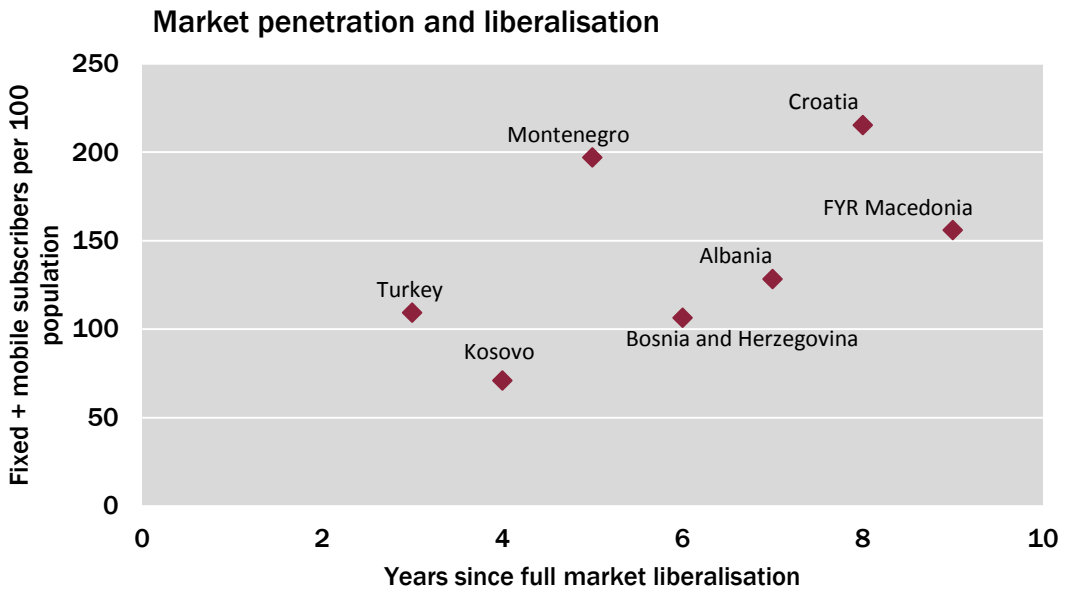
Apart from Croatia and Serbia, the fixed market has been poorly developed, with full market liberalisation occurring only within the last nine years. The mobile sector has filled the gap quickly, especially in the countries where competitive mobile services have been in place for at least 10 years (Albania, Croatia, Montenegro and FYR Macedonia). Bosnia Herzegovina and Turkey still lag behind in both fixed and mobile penetration.

Total market penetration (the sum of fixed and mobile penetration per 100 population) does not appear to correlate with relative wealth (GDP/capita) in the Group B countries, with (for example) Albania, Montenegro and Serbia all achieving very high market penetration despite having significantly lower GDP/capita than the EU average. This may be due in part to the use of multiple sim cards in some countries to reduce expensive off net calling and the purchase by tourists of sim cards for short term holiday use in several countries such as Montenegro and Croatia.



[Source: EBRD analysis]

Competition has been effectively implemented in all mobile markets, there are three active network operators licensed in each country, except Albania where there are four. Generally speaking, the liberalisation of markets does appear to have had an impact on overall market penetration, as shown below.



[Source: EBRD analysis]

Broadband services are showing significant growth, especially in Bosnia-Herzegovina, Montenegro and Serbia, where fixed broadband penetration has now exceeded the regional average following growth rates of over 10 per cent per annum in the last two years, fuelled by the extensive use of xDSL technology by the incumbent fixed operators.

Mobile broadband has only really advanced rapidly in Croatia and Montenegro, where 3G services have been available for over five years and penetration rates are already approaching EU levels. In the other countries, mobile broadband trails EU rates by some margin. The fastest growth in mobile broadband is in Albania (where 3G service was introduced only in 2010).

There is still a majority state ownership of incumbent operators in Bosnia-Herzegovina and Serbia, plus minority state holdings remaining in FYR Macedonia, Turkey and Albania.

Croatia has already adopted the EU 2009 legal and regulatory framework, with all relevant service provider safeguards and consumer protection mechanisms in place. The market will develop faster in the other countries when all the necessary competitive entry and safeguarding conditions are implemented.

Some reforms to the sector have already been introduced in the region, most noticeably in the improvement of market access conditions. All countries except Bosnia-Herzegovina have introduced general authorisation regimes, easing market entry conditions. In all countries, newcomers can gain access to existing international gateways and negotiate their own international settlement deals for voice and data traffic.

The main areas where better conditions still need to be enforced are:

- Access to public and private rights of way remains problematic in all countries, despite some recent legislative initiatives to improve procedures for granting construction permits.
- Passive infrastructure access (for example ducting) where only Croatia and Turkey have made this mandatory.
- Spectrum should be granted on a first-come, first-served basis, or by open and transparent comparative selection or auction procedure, without undue political interference. This is yet to be implemented in Albania and Bosnia Herzegovina.
- Basic spectrum liberalisation using re-farming of existing GSM bands and technological neutrality has yet to be implemented in Albania, Serbia and Turkey.

None of the countries yet allow secondary spectrum trading. None of the incumbent fixed-line operators have completed tariff rebalancing of their retail telephony services. The artificially low tariff charged for basic fixed-line service presents a significant entry barrier to potential competitors in the fixed telephony market.

Conditions for market access

	Albania	Bosnia and Herzegovina	Croatia	FYR Macedonia	Montenegro	Serbia	Turkey
General authorisation procedure	✔	✘	✔	✔	✔	✔	✔
Technology neutrality for fixed licences	✔	✔	✔	✔	✔	✔	✔
Technology neutrality for mobile licences	✘	✔*	✔	✔*	✔	✘	✘
Reasonable access to rights of way	✘	✘	✘	✘	✘	✘	✘
Infrastructure sharing mandated	✘	✘	✔	✘	✔	✘	✔
Regulated interconnection charges	✔	✔	✔	✔	✔	✔	✔
Access to international gateways	✔	✔	✔	✔	✔	✔	✔
Spectrum granted on fair, transparent basis	✘	✘	✔	✔	✔	✔	✔
Spectrum secondary trading allowed	✘	✘	✘	✘	✘	✘	✘
Fixed-line retail tariff rebalancing completed?	✘	✘	✘	✘	✘	✘	✘

[Source: Cullen International]
Note: *UMTS services are allowed in the 900/1800 MHz bands but not LTE.

Some progress has been made by the electronic communications market regulators to introduce the normally expected competitive market safeguards. These safeguards include number portability plus a range of wholesale access devices to improve completion at the retail level in fixed, mobile and broadband services. Croatia and FYR Macedonia have all the normally expected market safeguards in place, with Turkey the next best market.

Group B countries

Progress on the normally expected range of competitive market safeguards is as follows:

- Number portability has been fully implemented in Croatia, FYR Macedonia, Montenegro and Turkey. Albania and Serbia have mobile, but not yet fixed number portability. Bosnia-Herzegovina has fixed, but not mobile number portability.
- All countries have reference offers for interconnection with incumbent fixed operators and mobile operators.
- To enable fixed broadband markets, local loop unbundling and/or wholesale broadband access have now been introduced in all countries.
- Competition in the voice markets has been improved by having carrier selection/pre-selection and/or wholesale line rental options in all countries except Serbia.
- In mobile services national roaming is either mandated or available on commercial basis.
- Mobile Virtual Network Operators are permitted in all countries except Serbia. So far, none have appeared as competitive market players.

Implementation of competitive safeguards

	Albania	Bosnia and Herzegovina	Croatia	FYR Macedonia	Montenegro	Serbia	Turkey
Fixed number portability	✘ *	✔	✔	✔	✔	✘	✔
Mobile number portability	✔	✘	✔	✔	✔	✔	✔
Reference Interconnection Offer (Fixed)	✔	✔	✔	✔	✔	✔	✔
Reference Interconnection Offer (Mobile)	✔	✔	✔	✔	✔	✔	✔
Local loop unbundling	✔	✔	✔	✔	✔	✔	✔
Wholesale broadband access	✘	✘	✔	✔	✔	✔	✔
Carrier selection/ pre-selection	✔	✔	✔	✔	✔	✘	✔
Wholesale line rental	✘	✘	✔	✔	✔	✘	✔
National mobile roaming	✔	✔	✔	✔	✔	✔	✔
Mobile Virtual Network Operators	✔	✔	✔	✔	✔	✘	✔

[Source: Cullen International]
*Albania has a firm date to implement fixed number portability in September 2012

The governments of all countries have published strategy documents for the information society in general and eGovernment in particular. Progress with implementation has been good, with only Turkey and Bosnia still needing to adopt key elements.

Implementation of information society safeguards

	Albania	Bosnia and - Herzegovina	Croatia	Macedonia	Montenegro	Serbia	Turkey
Basic internet freedom of expression	✔	✔	✔	✔	✔	✔	✘ *
Ease of setting up internet business	✔	✔	✔	✔	✔	✔	✘
Legal basis for electronic documents and signatures	✔	✔	✔	✔	✔	✔	✔
Legal basis for data protection	✔	✔	✔	✔	✔	✔	✔
Safeguards against cybercrime	✔	✘	✔	✔	✔	✔	✔

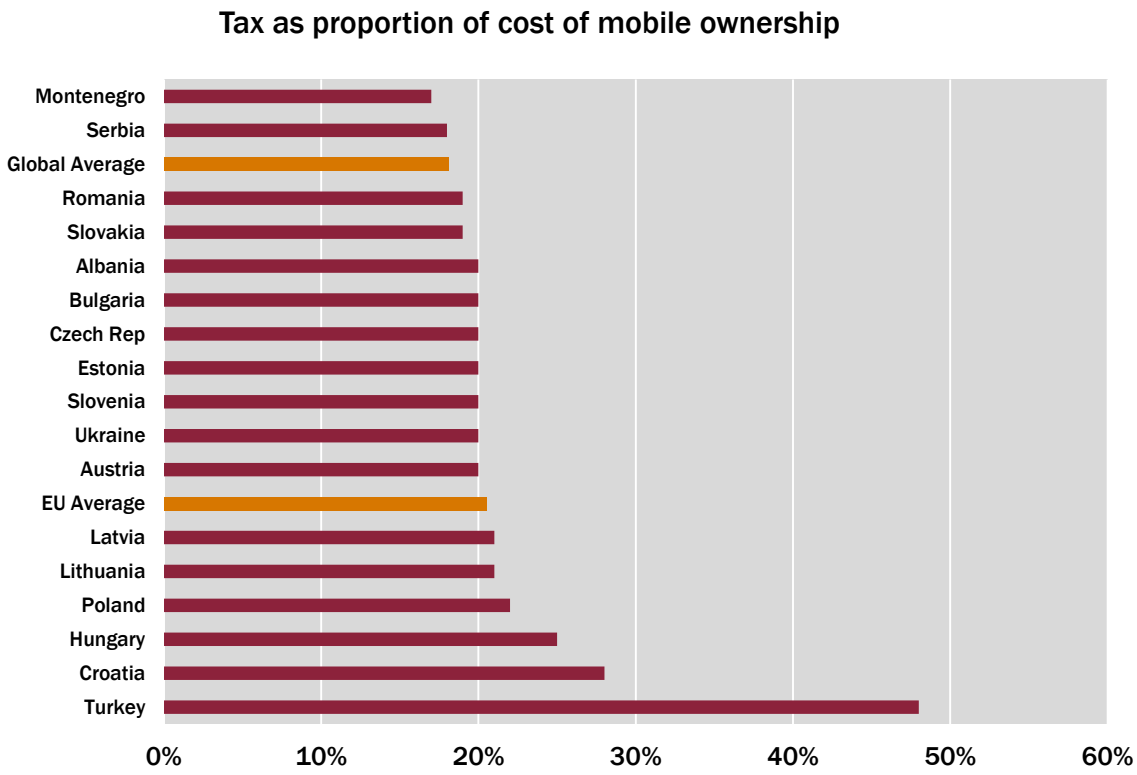
[Source: EBRD Analysis]
Note: *There is a remaining concern in Turkey regarding censorship of popular web sites.

The normal fees paid by licensed operators are generally transparent and reasonable throughout the region. Initial licensing fees are zero in Albania, Croatia, FYR Macedonia, Turkey and Serbia. Montenegro and Bosnia-Herzegovina charge €1,000 or less. Annual licence fees are generally set as a percentage of the annual revenues of the operators, typically 0.5 per cent or less. Montenegro has an average of 0.8 per cent and fees are capped at €255,000 in Bosnia-Herzegovina and €250,000 in FYR Macedonia.

Fees paid for mobile licences at auction or beauty contest have been generally lower in Group B than other regions (averaging €3 per head of population over the last 10 years).

A worrying trend in recent years has been the propensity of governments to take additional taxes from the electronic communications sector, in particular the mobile operators. These taxes are usually in the form of simple percentages of revenues, rather than profits. In Serbia the tax was 10 per cent, and is itemised separately on all customers' bills. The Serbian government abolished the tax in 2011 following criticism from the mobile phone operators. In Croatia there has been a tax of 6 per cent on all mobile operators' revenues since 2009. This is imposed directly on the mobile operators with no transparency on customer bills. The Croatian government removed the tax from 1 July 2012.

Turkey's consumers are the most taxed. There is a special tax levied on electronic communications in addition to 18 per cent VAT, amounting to a further 15 per cent tax on fixed services, 5 per cent on internet services and 25 per cent on mobile services revenues.



[Source: Deloitte Global Mobile Tax Review 2011]
Note: Croatia removed the 6 per cent special tax on mobile operators' revenues on 1 July 2012.

According to the mobile operators, the imposition of high taxes affects the investment potential of the telecommunications sector with indirect repercussions on the country's GDP. Special mobile tax measures have also been heavily criticised by the GSM association[31] and the European Commission. As most mobile operators in the region are foreign-owned, the imposition of special taxes is seen as an investment risk for foreign investors in telecommunications.

Regional summary and outlook

The fixed telephony market has an overall Group B regional penetration of 23 per 100 population, while the mobile market has grown to reach a regional penetration of 97 per 100 population. Both these are significantly below the average for EU countries, but the averages mask significant differences within the Group B region. Whereas Croatia and Serbia have matched EU average fixed penetration levels, all the other countries of the Group B region have significantly less fixed penetration.

Overall for the Group B region, the fixed-line market is declining at around 4 per cent per annum, while the mobile voice market is still increasing by around 5 per cent per annum. The broadband market is growing at 33 per cent per annum, with mobile broadband taking most of the new sales, as 3G services become more competitive across the region.

31 http://serving.webgen.gsm.org/5926DA9A-2DD6-48E7-BAD4-50D4CD3AF30A/assets/taxreview0607.pdf

Group B countries

The market growth leader is Albania, with annual growth (2011) in fixed-lines at +2 per cent, mobile subscriptions at +16 per cent and broadband at+46 per cent. FYR Macedonia and Montenegro also showed growth in all parts of the market, especially in mobile broadband. Most countries showed a doubling of mobile broadband penetration in 2011. Serbia's market remained sluggish, with a decline of 7 per cent in fixed-lines and a rise of only 3 per cent in mobile subscriptions and 14 per cent in broadband.

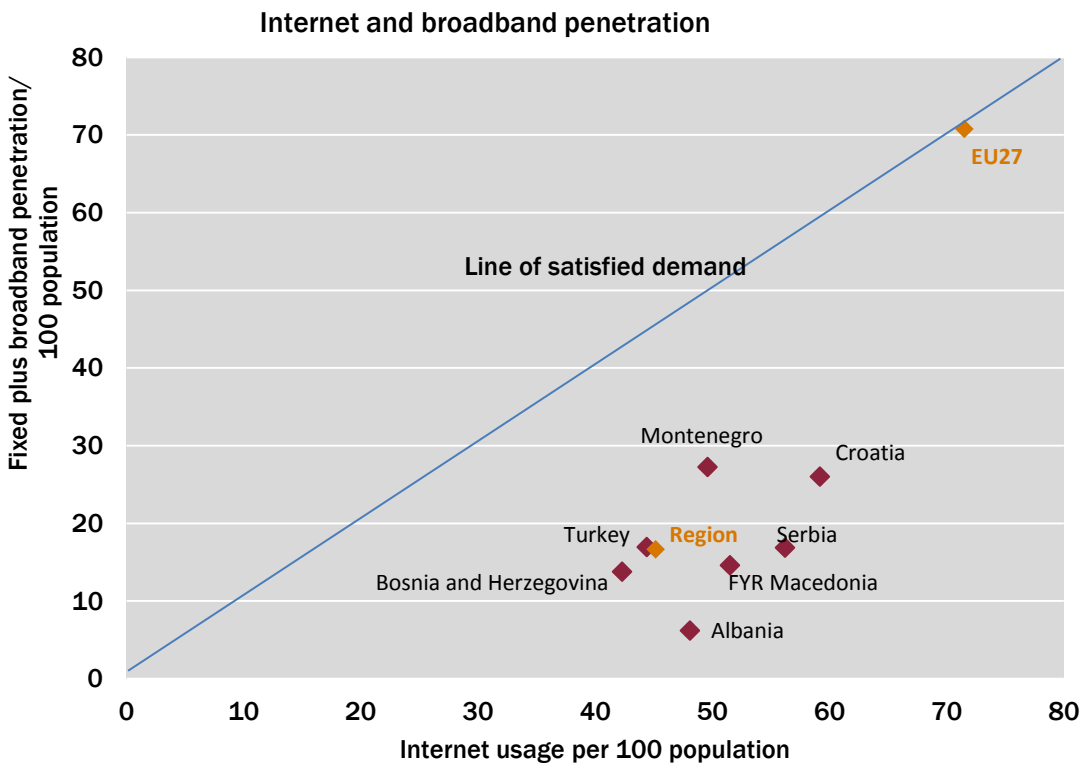
All the Group B countries are now introducing changes to their regulatory frameworks for the electronic communications sector to become aligned with the EU framework. The investment required to enable the Group B countries to catch up with the EU in terms of market efficiency depends on the level of demand and the speed of implementation of the required regulatory conditions. There is evidence of significant new growth in the Group B region for broadband services, following the recent EU experience. Although the existing penetration of fixed and mobile broadband is still significantly below EU levels, the growth in Group B is starting to accelerate, driven by high levels of internet usage and the roll-out of 3G mobile networks.

With the present rates of growth in competitive broadband markets, a key point will be reached where fixed broadband lines will overtake ordinary fixed-lines, a trend which is expected to spread across all Group B countries, following the same transition to broadband in the EU.

In the Group B region, new spectrum has generally not been released for mobile broadband as fast as other regions and only now is the Group B region experiencing take off in mobile broadband, with growth expected to remain strong over the next few years. New investment will be needed to cope with the very high data growth rates being experienced across network infrastructures.

New investment in high speed broadband networks has already started in urban areas, including fibre access networks, fixed wireless access and the launch of commercial 4G/LTE services. The key challenge for the region remains the creation of attractive investment conditions for building out these high speed infrastructures to rural areas.

The following chart shows the internet usage (percentage of population who regularly use the internet) compared with the penetration of broadband services. The blue line is where, in country average terms, the internet users' demand is fully met by broadband. All countries to the right of this line have latent demand for broadband services; that is where internet users have not yet been supplied with broadband.

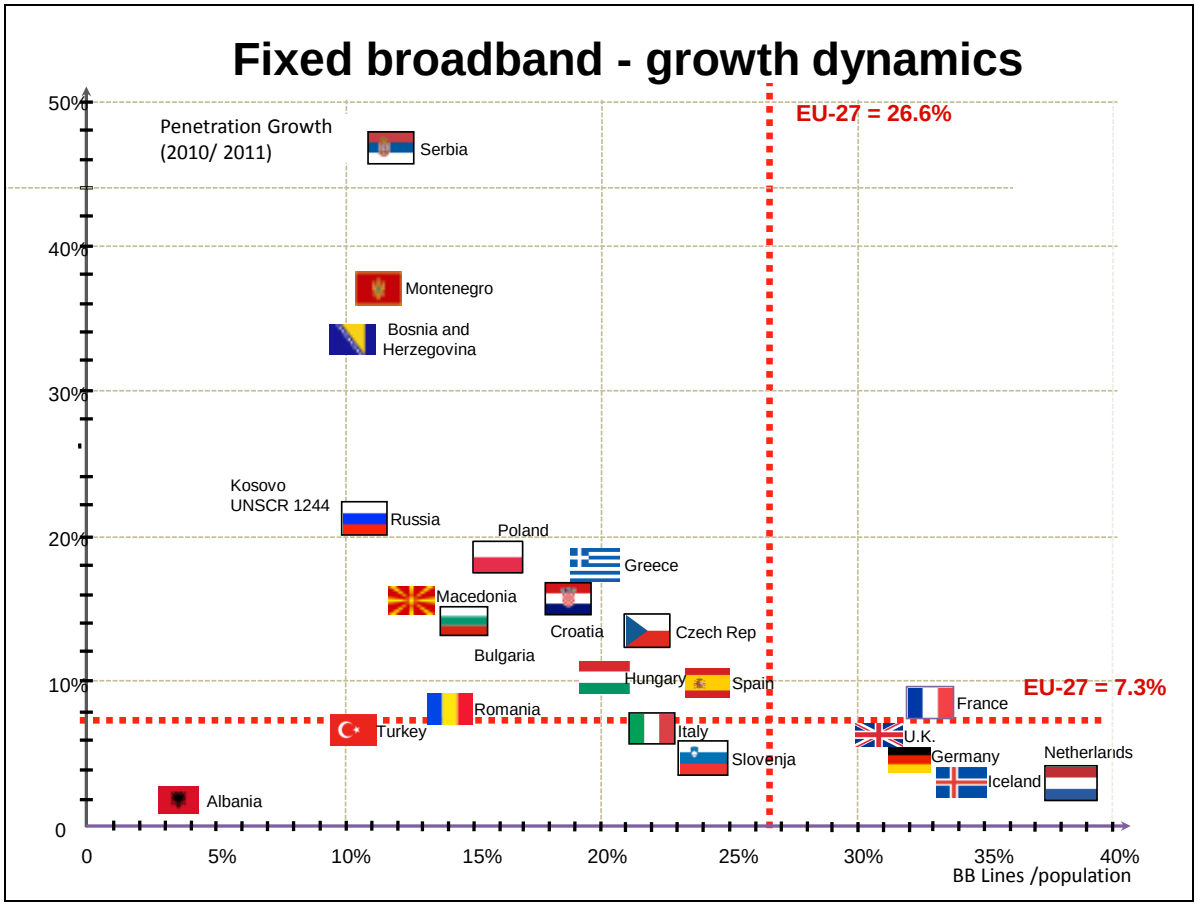


[Source: EBRD Analysis]

One way of estimating the potential for broadband growth and investment is by examining the extent of internet usage and comparing this with the penetration of broadband. All countries of the region have

greater percentage of the population using the internet than the penetration rate of broadband (all countries are to the right of the diagonal line). In the chart above, the further towards the bottom right, the more potential there is for broadband growth. Albania has the most pent-up demand for broadband service, with nearly 50 per cent of its population being internet users and less than 10 per cent connected via broadband. Similarly, there is significant latent potential in Bosnia, FYR Macedonia, Serbia and Turkey, which all have relatively high numbers of internet users, yet only low penetrations of broadband subscriptions. All countries have a significant gap with the EU, where on average, broadband subscriptions and penetration are significantly higher and demand is being satisfied by broadband.

Incumbents in most countries still tend to dominate in fixed broadband markets. By far the majority of fixed broadband connections are based on existing copper loops. Alternative infrastructures, such as cable TV and fixed wireless access networks are making inroads, mostly in the urban areas. The mobile broadband market continues to be the most dynamic segment and the penetration rate of dedicated 3G mobile data cards/wireless modems is doubling every year in most of the enlargement countries.



[Source: Cullen International]

This analysis of fixed broadband market growth during 2010 shows that Serbia, Montenegro and Bosnia-Herzegovina had the highest growth in penetration (vertical axis), while Albania and Turkey had the slowest. From a much lower penetration base in 2010 (horizontal axis), growth during 2010 (vertical axis) beat the EU average in most Group B countries. No Group B country has yet reached the EU average penetration rate, but Croatia, Montenegro and Bosnia-Herzegovina should catch up fast.

ALBANIA

At a glance

Market penetration	
Population	2.8m
Fixed penetration*	12
Mobile penetration*	185
Broadband penetration*	6.2

*Per 100 population

Key Institutions	
Policy and legislation	Ministry for Innovation and ICT
National regulatory authority	Electronic and Postal Communications Authority

Market access	
General authorisation	✔
Technological neutrality	✔*
Rights of way	✘
Infrastructure sharing	✘
Granting of spectrum	✘

*Fixed only, and some restrictions for Cable TV operators

Competitive safeguards	
Number portability	✔*
Interconnection offers	✔
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✔

*Fixed number portability from September 2012

Information society	
Internet penetration per 100 population	48
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Albania began liberalisation in 1998, initially limiting new entrants to enter only rural areas and the national data communications market. The national calls market had no competitive offering until 2003 and international calls when unliberalised until 2005. Full formal liberalisation was not achieved until 2008. The long retention of the urban monopolies was designed to protect the state-owned Albtelecom, whilst encouraging private investment into the rural areas. There are currently 58 active fixed network operators serving the market, most are still local operators serving their own communities.

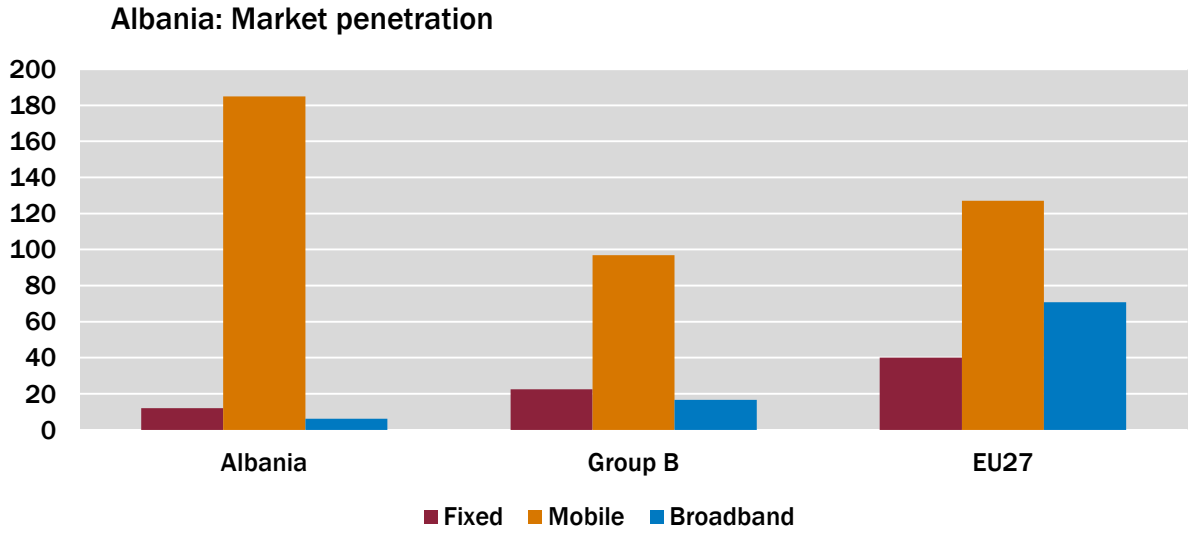
Alternative operators have significantly increased the number of subscribers of fixed telephony and broadband access. The market share of the incumbent fixed operator Albtelecom has reduced to 75 per cent for fixed telephony subscribers and 43 per cent for access to broadband. Some of the main alternative operators have coverage in several regions and Albtelecom now faces competition from at least one alternative operator in all the areas where it is present.

A general authorisation scheme was introduced in 2008. Fixed-lines penetration (12/100 population) remains very low and Albtelecom remains the dominant player. In 2007 the government reduced its stake in Albtelecom to 24 per cent. Fixed broadband has reached 5/100 population, which is less than half the Group B regional average.

The mobile sector has shown very high growth since 2009, with penetration growing from 136/100 population to 185 over the last two years, which is the highest growth in the Group B region. AMC and Vodafone, which dominated the market for over 10 years, are now in competition with Eagle mobile and Plus Communications, which became operational only in 2008 and 2010. AMC now has 37 per cent market share, Vodafone 35 per cent. Eagle has reached 20 per cent market share after only three years in the market and Plus has 8 per cent after two years. These market shares make the Albanian mobile market the most competitive in the Group B region. The government awarded only one 3G licence in 2010 (to Vodafone) giving it a one-year monopoly before the second 3G licence was awarded to AMC mobile, which launched in early 2012. Given this poor start, mobile broadband penetration remains very low at 1.2/100 population, but there is evidence of very high growth. Vodafone's 3G mobile service has reported a 520 per cent increase in data traffic throughout 2011.

Despite much controversy about the regulation and legality of digital TV, it continues to thrive in a highly competitive Albanian media market.

Chart 1: Market penetration of main services per 100 population in Albania, compared with the Group B regional averages



Group B average is for Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.

Legal framework

Albania has several pending legislative activities, all of them aiming for full alignment with the EU acquis. It began aligning its legislation with the EU regulatory framework relatively late, between 2008 and 2010.

Albania

The electronic communications law is currently based on the EU 2003 regulatory framework. Amendments which will incorporate some provisions of the EU 2009 regulatory framework were prepared in 2010. These were adopted by the Council of Ministers in August 2012 before proceeding to parliamentary approval.

Legislation on electronic signatures was passed in 2008, on electronic commerce in 2009 and on eGovernment in 2010. Draft laws on transposing the EU Audiovisual Media Services Directive and on the rights of way are already in the parliamentary procedure. Albania is also understood to be working on data retention and final alignment of the law on electronic commerce with the EU Electronic Commerce Directive.

The main legal basis for electronic communications regulation is the Law on Electronic Communications of 2008. Under the law, the regulatory authority, the Electronic and Postal Communications Authority (AKEP) is defined as a "public, independent, non-budgetary, legal entity" run by a Governing Council composed of five full-time members. A significant deficiency in the law is the absence of protection for the members of the Governing Council against unjustified dismissal. AKEP also does not appear to have sufficient independence to decide on its organisational structure, staffing and salaries, which are regulated by a separate law. For example, AKEP cannot create a new internal department without approval by parliament.

The general authorisation scheme is generally aligned with the EU acquis. 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, operators can circumvent that restriction in practice and the draft legislation currently waiting parliamentary approval removes this restriction.

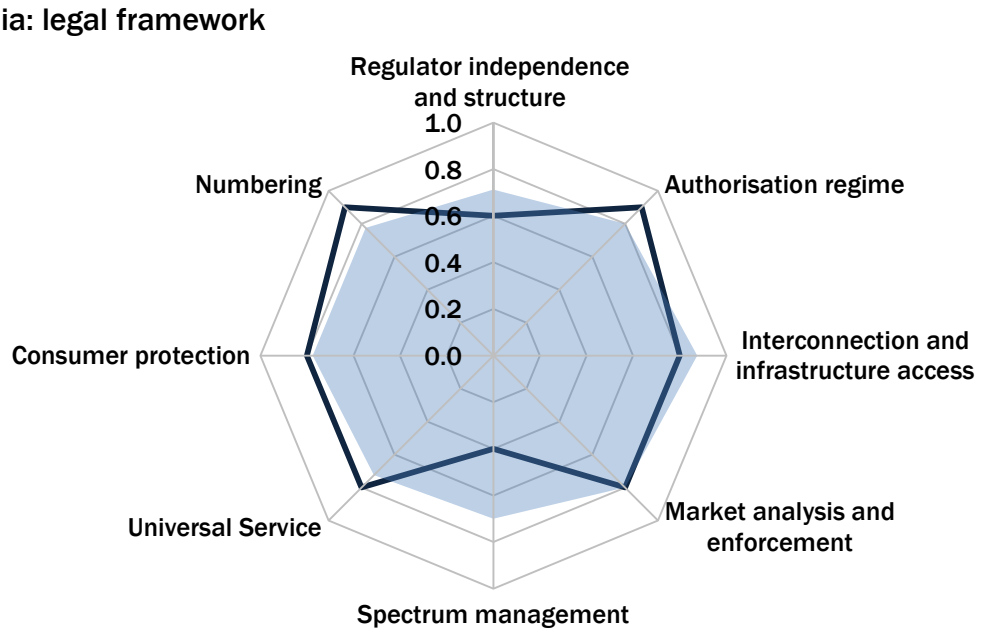
Rules on access and interconnection, on price control and on market analysis are generally aligned with the EU 2003 regulatory framework. The introduction of key competitive safeguards such as number portability, local loop unbundling and tariff rebalancing have been delayed, but this can be seen to be a problem of implementation rather than a problem of the legislation in force. The law provides a procedure for settling disputes between operators and methods for enforcing the dispute settlement decisions of AKEP.

AKEP has powers to enforce the law and its decisions, but is hesitant to use these powers against operators with significant market power (SMP). This might be caused by the relatively high level of fines, which are imposed by AKEP inspectors, not by the AKEP Governing Council or the Chairman. Typical infringements of an operator with significant market power (for example non-compliance with remedies imposed after a market analysis) are punishable by a fine of at least 7 per cent and up to 10 per cent of the operator's annual revenue.

The legislative framework does not allow AKEP to administer spectrum independently and efficiently. The spectrum management chapter of the law divides the power to award spectrum between AKEP and the Minister for Innovation and ICT in a way that allows the Minister to decide how many licences will be awarded. The Minister also decides on the reserve price for the spectrum. Whereas the law binds AKEP to conduct objective, transparent and non-discriminatory procedures which are based on the objectives of the law and the government policy, the law does not contain similar rules for the Minister's decisions. In practice the Minister appears to decide on the timing of licences, which are awarded one by one with large gaps between awards.

Other aspects of the regulatory framework, including universal service provision, consumer protection, out-of-court dispute settlement and number administration are expected to be aligned when the latest legal amendments receive parliamentary approval, hopefully in 2012.

Chart 2: Comparison of the legal framework for telecommunications in Albania with international practice and regional performance



Key: Extremities of the chart = International best practice
Albania = Solid line
Regional average = Shaded area

Sector organisation and governance

The state has ownership of 24 per cent of fixed incumbent Albtelecom, which includes a 24 per cent stake in Eagle mobile, one of the four licensed mobile operators.

Policy and legislation on the information society are overseen by the Ministry for Innovation and ICT, and AKEP is responsible for regulation of the electronic communications sector. A National Agency on Information Society (AKSHI) is responsible for information society, and the National Council on Radio Television (KKRT) is the regulatory authority for broadcasting.

AKEP 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. Also, the administrative capacity and resources of the regulator remain limited. While the key functions of the government and the regulator were redefined in the 2008 law, giving independent powers to AKEP, there still appears to be political interference in the award of spectrum, with effective decision-making coming from the Ministry, not the regulator. The Ministry is also involved in the implementation of universal service. Parliament approves AKEP's annual report, containing its activity and financial plans.

Appeals against regulatory decisions can be brought before civil courts. Appeals procedures remain slow and inefficient.

A Competition Agency has existed since 2004 and a Memorandum of Understanding governs its relationship with AKEP.

Albania has been a member of the WTO since 2000 and has signed a Stabilisation and Association Agreement with the EU, setting the need for the legal and regulatory regime to be fully aligned with the EU framework. One of the main requirements in this respect is the securing of more transparency and independence for the sector regulator AKEP.

Regulatory conditions for wired networks

A general authorisation regime for all electronic communications networks and services was introduced in 2008, using a simple notification procedure. Albania still has some legal restrictions preventing cable TV networks from offering voice services or broadband access (currently cable operators have to establish a separate entity to be able to do so), but these should be removed by a forthcoming new law on audio-visual media. Taking into account the market development where the largest cable TV operator (ABcom) is also the largest alternative voice and broadband operator, with coverage in several regions and main cities and with the largest growth in the last two years, this legal restriction doesn't seem to be a major problem.

After lagging behind for many years, Albania is now making progress with implementation of competitive safeguards. Following AKEP's recent market analyses, regulatory obligations to implement carrier selection and carrier pre-selection, local loop unbundling and wholesale broadband access have been imposed on Albtelecom. Fixed number portability should finally be in place during 2012, after a two-year delay.

A reference interconnection offer governs the call termination fees for the dominant fixed incumbent, Albtelecom. The charges made are now subject to modern cost-based regulation. Fixed termination rates remain considerably higher than EU-27 average. Albania is the only Group B country that includes a call set-up fee (of €0.0059) in addition to per minute charges for fixed network termination. The per minute rates are €0.0139 for local termination and €0.0252 for single and double transit. These call termination rates are more than double the EU averages, but reductions based on modern cost modelling are expected to be approved before the end of 2012. At the retail level, basic fixed service tariffs have made some progress towards rebalancing.

Access to rights of way for electronic communications infrastructure is not satisfactory, and it is not clear if recent draft proposals before parliament will fully resolve this.

Regulatory conditions for services requiring frequency spectrum

Although AKEP has legal responsibility for awarding spectrum to market players, in practice, the liberalisation of access to spectrum has been slow and hampered by political interventions. The regulatory agency made preparations to issue four UMTS/3G licences in 2010, but the Minister decided to award these licences on a piecemeal basis, with only one licence in 2010 and another in 2011. AKEP has not awarded licences for fixed wireless access. Albania already has well-developed DVB-T and DVB-H networks with national coverage. The networks, however, appear to operate outside of the current legal framework for broadcast services. In May 2012 the Council of Ministers adopted a strategy for digital TV and analogue switch-off, which is scheduled region-by-region, ending in 2015.

Reference interconnection offers govern the rates paid to mobile operators for call termination, which has been subject to cost-oriented regulation since 2007. The current mobile termination rate is €0.0541 per minute for the two largest operators, with higher fees for the two newer entrants. These rates are now around the EU average following significant reductions during 2011, in addition to the abolition of a call set-up charge for the three mobile operators with significant market power. In February 2011 the regulator set glide paths for further reductions in mobile termination rates to reach cost oriented levels by 2013 for the three largest operators. AKEP has also imposed obligations on wholesale mobile access and call origination services, so that AMC and Vodafone Albania now have to provide access to national roaming services on commercial terms.

There has been controversy over a number of years regarding the discriminatory rates applied by mobile operators for terminating interconnection of incoming international calls transiting through other Albanian operators. AKEP has tried to take action but these discriminatory charges remain.

Mobile number portability was finally introduced in 2011.

Payments required from operators

Albania has implemented a simple notification scheme for services not requiring spectrum and no initial fees or annual payments are charged (although an annual fee of up to 0.5 per cent of revenue could be applied). For spectrum usage, one-off fees are paid, and annual frequency usage fees apply. In 2010 Vodafone paid €31.4 million for the first 3G licence, against a reserve price of €12.5 million. The second 3G licence was issued in 2011 to AMC for around €16 million.

There are no universal service fund contributions to pay and there are no special taxes applied to the electronic communications sector. The full system of payments is described in AKEP published regulations, but a clear statement of the overall system needs to be more transparent.

Information society safeguards

The internet services market is fully liberalised, apart from the restriction on Cable TV companies, who have to set up separate legal entities to enter the internet services market.

For electronic signatures, a supervision schemes has been established by the National Authority for Electronic Certification and Albania Post has started issuing certificates.

For domain name registration, which has not yet been liberalised, AKEP operates a national registry and is the only registrar. It charges only €7 per domain per year. Albania stands out with a particularly low figure for number of domains registered. AKEP is upgrading is technical systems to be able to support competition between registrars.

Summary and outlook

Regulation of electronic communications markets and information society services has developed slowly, but has gained speed over the past three years. New government policies and AKEP's work plans have set goals to complete implementation of the EU *acquis*. The legal basis should be approved in 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. AKEP needs additional resources to introduce further competitive safeguards and to enforce its decisions.

In early 2012 the government announced a "National Strategy for Broadband Access to Services of the Information Society[32]", which defines the objectives and procedures for the future development of broadband up to the year 2020, as well as concrete measures for its implementation. The policy seeks to create an enabling environment for private investments, including legal and regulatory reform and effective market and financial mechanisms to develop Broadband networks. Key enablers include universal access and service financing, with other initiatives becoming self-sustaining from service fees (for eGovernment programs) or cost savings (using infrastructure sharing).

There are currently two 3G licences issued to Vodafone Albania and Albanian Mobile Communications. AKEP has recently launched a tender for two more 3G licences. The minimum price has been set at €4 million. The deadline for bids has been set at 10 October 2012. The tender documents suggest that operators will require heavy investment schedule, with 85% of the territory to be covered within 18-months. The government is using the tender as an instrument to improve broadband coverage in Albania.

With little progress on LTE licensing so far, 2013 appears a likely date for the next round of mobile licensing.

Albania has the largest gap between broadband subscriptions and internet users. Nearly 50 per cent of the population are internet users, yet the total of fixed and mobile broadband subscriptions is only 6/100 population. Investors would be more attracted to meet this latent demand if market liberalisation was accelerated. In particular, in mobile markets, more UMTS spectrum needs to be made available at market prices, together with technological neutrality and re-farming of the existing GSM frequencies to ensure full competition for mobile broadband.

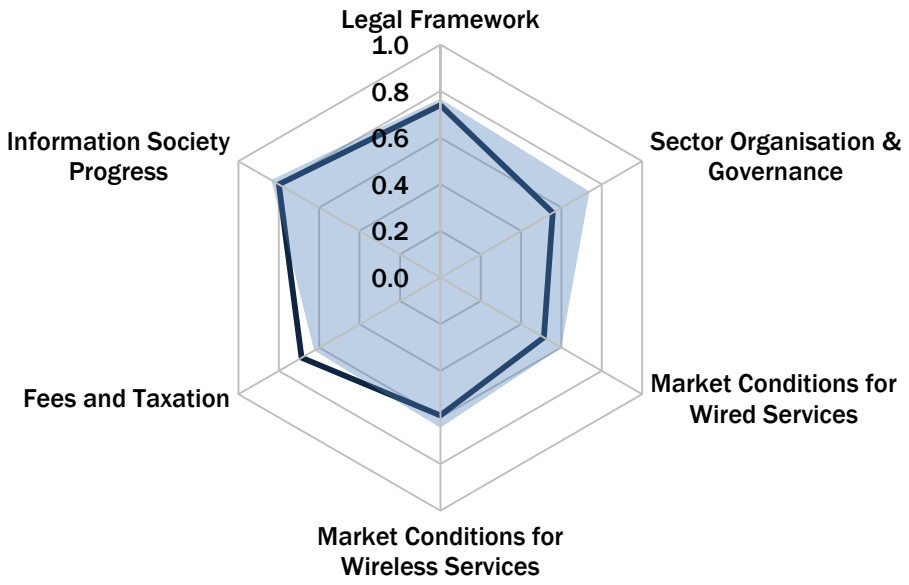
In fixed broadband markets, alternative operators have made significant inroads so that Albtelecom's market share is down to around 50 per cent. In the main cities, the establishment of these alternative infrastructures has given rise to some very untidy aerial distribution networks. The incumbent's fixed penetration will remain low until its planned fibre investment is completed. AKEP enforced new competitive safeguards during 2011, which should improve competitiveness in the fixed broadband market.

A recent upgrade of its international connectivity has removed capacity restrictions to Albania's data services growth.

32 www.mitik.gov.al/mitik/legjislacioni/Draft_Final_National_Broadband_Plan_3%20May.pdf

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Albania with international practice and regional performance

Albania: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Albania = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 64 (100 is the lowest risk)

BOSNIA AND HERZEGOVINA

At a glance

Market penetration	
Population	3.8m
Fixed penetration*	24
Mobile penetration*	83
Broadband penetration*	13.7

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Communications and Transport
National regulatory authority	Communications Regulatory Agency

Market access	
General authorisation	✘
Technological neutrality	✔
Rights of way	✘
Infrastructure sharing	✘
Granting of spectrum	✘

Competitive safeguards	
Number portability	✔*
Interconnection offers	✔
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✔

*Fixed only

Information society	
Internet penetration per 100 population	42
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✘

Market liberalisation

The national market was liberalised in 2002. At that point, the three incumbent operators in three different parts of the country received national licences:

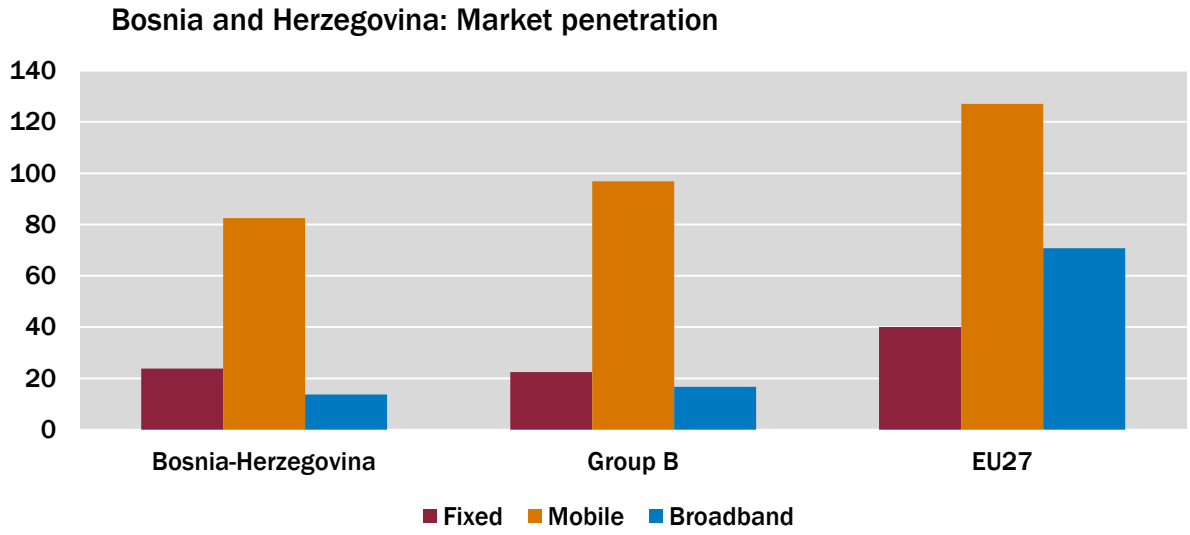
- BiH Telecom d.d Sarajevo (BA-bh), based in Sarajevo, Federation of Bosnia and Herzegovina.
- Hrvatske Telekomunikacije d.o.o. Mostar (BA-ht), based in Mostar, Federation of Bosnia and Herzegovina.
- Telekom Srpske a.d. Banja Luka (BA-ts), based in Banja Luka, Republika Srpska.

All three incumbent operators have been designated as having significant market power in the markets for fixed and mobile voice telephony services and leased lines, based on a 25 per cent market share criterion.

None of the three incumbents face much competition with regard to fixed voice telephony services, but there is strong competition from alternative cable and wireless networks offering broadband access. Each of the incumbents also offers mobile services nationwide. Fixed-line penetration is a reasonable 24/100 population, which is around the regional average, but still significantly short of the EU average of 40/100 population. Fixed broadband has grown at over 50 per cent per annum since 2009 and has reached a penetration of 11/ 100 population which is around the Group B regional average.

Mobile penetration has grown from 34/100 population in 2005 to 83/100 population in 2011. Mobile broadband is still at a very early stage, with 3G services being launched only in 2010.

Chart 1: Market penetration of main services per 100 population in Bosnia-Herzegovina, compared with the Group B regional averages



Group B average is for Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.

Legal framework

The main legislation governing the electronic communications sector in Bosnia and Herzegovina includes: the Law on Communications of Bosnia and Herzegovina, enacted on 21 October 2003 and amended on 19 September 2006 and 22 April 2010; the Law on General Administrative Procedure enacted on 25 June 2002; the Law on Consumer Protection enacted on 21 February 2006; the Law on Personal Data Protection enacted on 23 May 2006; and related legislation. The legislative framework largely conforms with EU framework requirements in several important areas, including interconnection and access to infrastructure, tariff regulation, market analysis, significant market power designation and the imposition of market remedies.

The Communications Regulatory Agency (RAK) appears to have adequate enforcement powers as well as monitoring, inspection and equipment certification powers. However, RAK should also be enabled to

impose monetary penalties based on the percentage of the income made by a provider of telecommunications services, which could be a more meaningful sanction for larger operators that fail to comply with legal and regulatory requirements. RAK does not exhibit the level of independence under the law and related legislation required by the EU framework, especially in the procedures for the appointing of RAK's management and for approving its financial plans.

A number of components of the legislative regime require revision in order to fully align with EU framework, including the introduction of a general authorisation scheme for the provision of telecommunications services. The current legislation means that separate licences for different services are still required. The framework also requires comprehensive, objective and transparent procedures for the assignment of spectrum.

The universal service provisions do not conform to the EU framework, with no clear definition of universal services scope, no procedure for determining universal service operators or their right for reimbursement.

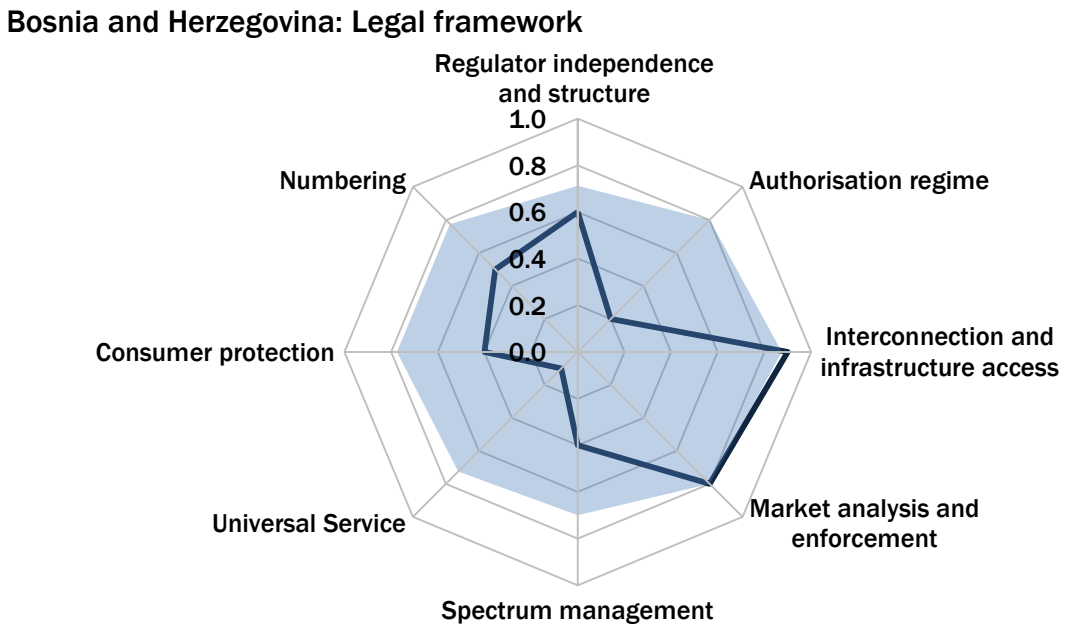
The law does not adequately address consumer protection with respect to confidentiality in communications, limitation of long-term contracts, protection against spam, consumer dispute settlement procedure or shorter deadlines for enacting number portability.

Other areas requiring adaptation are the procedures for numbering assignment, the enabling of rights of way for operators, prohibition on illegal interception, more clarity in dispute resolution, clear authority for RAK to make binding decisions, and clear obligation to publish such decisions.

There is also a need to improve the clarity and legal basis for implementing information society provisions. Full alignment of the legal framework would appear to require significant amendment to the existing Law on Communications and also the adoption of appropriate secondary implementing legislation.

Bosnia and Herzegovina's legal framework lags behind the other countries in the Group B region. The electronic communications law is mainly based on the EU 1998 regulatory framework and the country does not appear to have made much progress in drafting a new electronic communications law or cybercrime legislation. Against the background of continued discussions on broader 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. The legislative processes were further slowed down by the delays in the establishment of the state level legislative and executive authorities following the general elections of October 2010.

Chart 2: Comparison of the legal framework for telecommunications in Bosnia-Herzegovina with international practice and regional performance



Key: Extremities of the chart = International best practice
Bosnia-Herzegovina = Solid line
Regional average = Shaded area

Sector organisation and governance

Of the three incumbent operators, only Telekom Srpske is fully privatised. The other two are still controlled by the Federation of Bosnia and Herzegovina, although HT Mostar is 39.1 per cent owned by T-Hrvatski Telekom, the Croatian incumbent operator, which is itself owned by Deutsche Telekom.

At government level, the Council of Ministers is responsible for adopting policies and the Ministry of Communications and Transport drafts policies and legislation. 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 notably failed to formally appoint the Director General of RAK since 2007 and RAK council members since 2009. Authorities of RAK in respect of market analysis should be strengthened, in order to allow imposing of price caps and functional separation to SMP operators when necessary.

RAK has the power to resolve disputes in the electronic communications sector under short timescales, but appeals against regulatory decisions, which are decided by the State Court, can take several years.

A Competition Council was established in 2004, but it has no formal agreement with the RAK. Plans to establish an Agency for the Development of the Information Society have not been successful.

Bosnia-Herzegovina has signed a Stabilisation and Association Agreement with the EU, setting the need for the legal and regulatory regime to be fully aligned with the EU framework. The main requirement is for the regulator to continue with market analysis and to enforce the resulting regulatory obligations.

Bosnia-Herzegovina is undergoing discussions about its accession to the WTO.

Regulatory conditions for wired networks

Although local, national and data services were liberalised in 2002, international services were not formally liberalised until 2006. The authorisation regime is still based on individual licences, with separate licences for national, regional and local networks and for internet services. Cable TV services require two licences from RAK, a network licence for the provision of a public network and a service licence for content distribution services over a cable TV network. No decision has been taken on the introduction of a simpler general authorisation regime, although RAK has been consulting on a possibility to implement one for internet service providers.

Bosnia and Herzegovina has been slow with implementation of competitive safeguards. However, several important provisions have been introduced and implemented over the past two years. Carrier pre-selection finally became available in practice in 2009. Number portability for fixed networks was introduced in September 2011. Reference interconnection offers have been available for the three fixed incumbents for several years. Local loop unbundling has been introduced and wholesale charges are regulated.

Call termination charges on fixed networks are regulated, but are significantly higher than the EU average, despite decreases since 2009. The rates are €0.0089 per min for local termination, €0.0134 per min for single transit and €0.0179 per min for double transit. True cost-based figures have not yet been calculated.

The incumbents do not yet offer wholesale line rental or wholesale broadband access to alternative service providers.

Regulatory conditions for services requiring frequency spectrum

The three incumbent operators, who compete nationally, have equivalent spectrum blocks in all three bands. UMTS licences were awarded in 2009. Since 2010, the 900 and 1800 MHz allow the deployment of 3G services. The digital switchover plan is to be approved in Q1 2012, with a planned switchover date of 1 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.

Number portability for mobile networks it is expected to become available during 2012. The first reference interconnection offers were published by mobile operators in April 2011 together with provisions enabling MVNO access. There is no direct interconnection between the mobile networks and all calls have to transit through the fixed incumbents. The mobile operators apply two termination rates, €0.092 per min from a fixed network and €0.115 per min from another mobile network. Mobile termination rates are significantly above the EU average level, and no cost-basis has yet been applied by the regulator.

Payments required from operators

In January 2011 RAK reduced annual licensing fees for operators of public fixed networks and for providers of public voice telephony services. Initial licence fees are very low. The annual fees for licensed providers of public networks are now €16,000 at national level, €3,000 at regional level and €1,500 at local level. These amounts, plus the relatively low numbering usage fees, are the main funding source for the regulator.

There are no universal service fund contributions to pay, and there are no special taxes applied to the electronic communications sector.

Information society safeguards

There is no legislation on cybercrime, electronic documents or eGovernment at state level. Laws exist at entity level. For example, Republika Srpska and the Federation of Bosnia-Herzegovina both have laws on electronic commerce and electronic signatures, which are not aligned with each other. 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.

Bosnia and Herzegovina does not yet have a provider for issuing qualified certificates for electronic signatures.

On domain name registration, an academic institution has the task of the national registry. There is no explicit legislation on domain name management. The Ministry of Communications and Transport intends

to adopt a policy on the .ba top-level domain. There is a high charge of €40.90 in the first year, which reduces to €15.30 in subsequent years.

Bosnia and Herzegovina is the only Group B country which does not have a provision against illegal interception or explicit legislation on spam.

The Data Protection Authority is responsible for supervision. There is no explicit provision allowing a national authority to audit personal data security measures, although it might be possible that RAK or the Data Protection Authority can use some general inspection powers for that purpose.

In Bosnia and Herzegovina there is no cybercrime legislation at state level, but at entity level the Republika Srpska has some cybercrime provisions in its criminal code. Cyber-squatting dispute resolution is based on ICANN's Uniform Domain Dispute Resolution Policy.

Summary and outlook

A unique aspect of the Bosnia and Herzegovina market is the existence of three incumbent operators. While in theory this should produce a ready-made competitive environment (as each have national licences) they face little actual 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 nationwide. Mobile broadband is still at a very early phase.

Bosnia and Herzegovina is impaired by an apparent 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. This has hindered full alignment with the latest EU regulatory framework and weakened the position of the sector regulator RAK.

Nevertheless, RAK has made progress in implementing competitive safeguards and adopting regulations on market analysis based on the EU regulatory framework. So far, carrier selection/pre-selection and local loop unbundling has been introduced, allowing competitors to the respective incumbents to offer competitively priced fixed voice and broadband services. Number portability had to be enforced by fining eight fixed operators and has still not been implemented for mobile numbers.

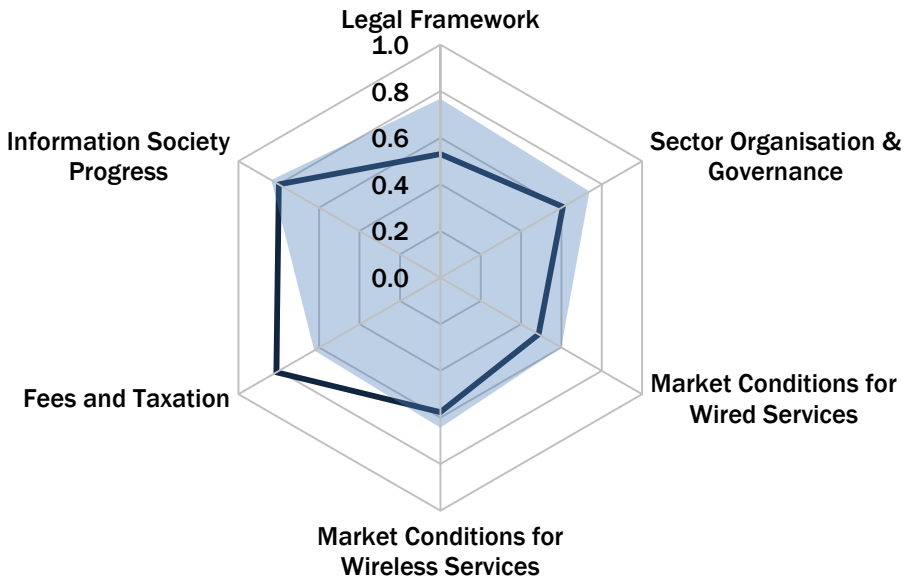
Preparations have been made to support the launch of virtual mobile operators, which, if implemented in 2012, should see new service providers entering the mobile market in 2013.

There is a high growth for fixed broadband services (over 50 per cent per annum growth for the last two years), fuelled by fixed wireless competitors to the incumbent service providers. Mobile broadband has been slow to develop, with 3G services only being launched in 2010, and mobile broadband penetration is well below the regional average. From a low base, mobile broadband grew 69 per cent in 2011, showing good potential.

Around 40 per cent of the population are already internet users, but total broadband penetration has so far only reached the regional average of around 14/100 population, well below the EU average.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Bosnia-Herzegovina with international practice and regional performance

Bosnia-Herzegovina: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Bosnia-Herzegovina = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 58 (100 is the lowest risk)

CROATIA

At a glance

Market penetration	
Population	4.4m
Fixed penetration*	40
Mobile penetration*	116
Broadband penetration*	26

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of the Maritime Affairs, Transport and Infrastructure
National regulatory authority	Croatian Post and Electronic Communications Agency

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔*

*not regulated, available on commercial basis

Information society	
Internet penetration per 100 population	59
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Croatia implemented full formal liberalisation of electronic communications in 2003, with a general authorisation procedure for all electronic communications networks and services implemented in 2008. Croatia was the first (in 2011), and remains the only, country in the Group B region to bring its regulatory framework fully into line with the EU 2009 framework.

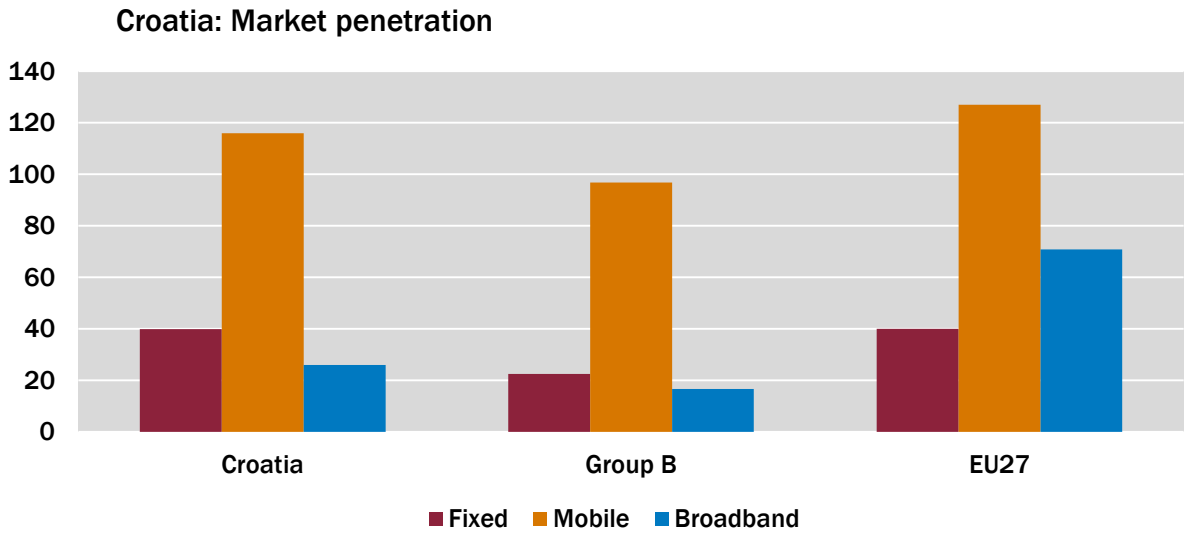
Fixed penetration is relatively high for the region at 40/100 population, which matches the average EU penetration level. The alternative operators have now gained over 40 per cent market share in provision of voice telephony services, although one of the major fixed operators Iskon is 100 per cent owned by the incumbent, Hrvatski Telekom. Further liberalisation of wholesale markets in 2011 has helped to fuel fixed broadband growth, which has already reached a penetration of 19 per 100 population, well above the Group B regional average of 10/100 population. The fixed broadband market continues to be dominated by Hrvatski Telekom, with a market share of around 65 per cent.

Croatia has three mobile network operators: HT (T-Mobile), VIPnet and Tele2, with respective market shares of 47 per cent, 39 per cent and 14 per cent. Mobile penetration is 116/100 population, with mobile broadband subscriptions at 6.5/100 population and growing fast. The mobile broadband growth is being driven by the rising penetration of smartphones and other mobile broadband devices such as tablet computers.

During 2011 all major operators launched pay-TV and broadband offers, both mobile and fixed, in order to increase market share. In 2011 the number of tablet computers increased from around 5,000 to almost 30,000. At least half broadband customers have now subscribed to IPTV. This highly competitive market has already produced a combined fixed plus mobile penetration of 26/100 population, which is over twice the Group B regional average.

The special 6 per cent tax related to mobile voice and SMS services, introduced as an antirecession measure, remained in place throughout 2011, but will be removed in July 2012.

Chart 1: Market penetration of main services per 100 population in Croatia, compared with the Group B regional averages



Group B average is for Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.

Legal framework

The main legislation governing the electronic communications sector in Croatia includes the Croatian Electronic Communications Act (2008, amended in 2011) plus the Laws on General Administrative Procedure, Consumer Protection, Misdemeanours and related legislation. Croatian telecommunications sector legislation is now aligned with the EU regulatory framework, including the EU 2009 package.

The Croatian Post and Electronic Communications Agency (HAKOM) has clear authority to regulate market competitiveness and impose adequate regulatory measures and remedies on operators with significant market power. These provisions generally conform to the EC Recommendation on Relevant Markets Susceptible to ex ante regulation and have been efficiently applied in practice. Following the 2011 amendments to the Croatian Electronic Communications Act, the provisions addressing HAKOM's authority, enforcement and monitoring powers are generally appropriate. Decisions and other administrative acts of HAKOM may not be appealed, but an administrative dispute may be initiated before the High Administrative Court, which does not postpone the enforcement of HAKOM's decision. To impose fines, HAKOM requires the authority of the Misdemeanour Court of the Republic of Croatia. The provision of services in the telecommunications sector is subject to a general authorisation regime, as required by the EU framework, rather than individual licenses.

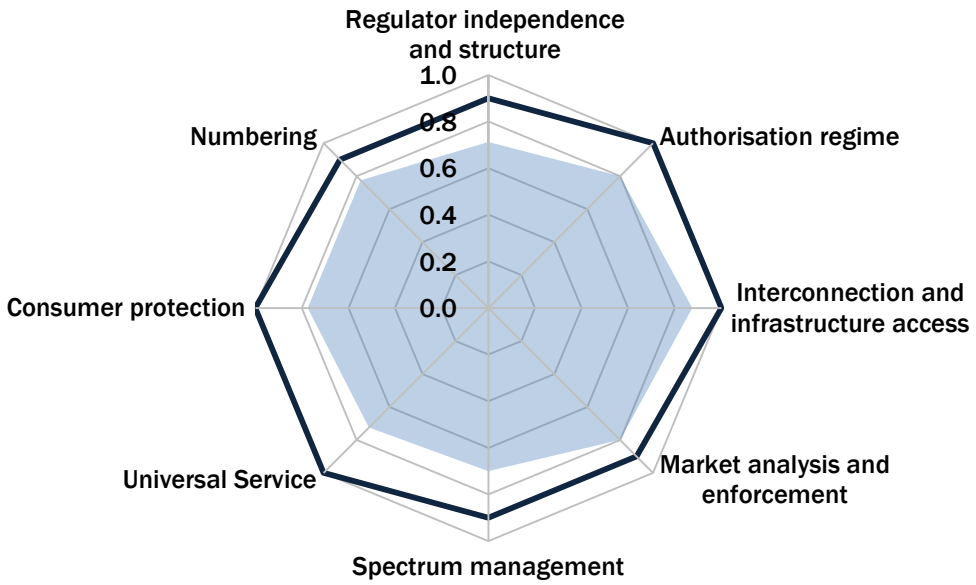
The regulation of scarce resources, including spectrum and numbering, is generally aligned with the EU framework; however, some areas require revision especially with respect to the rights of use for numbering and transparent tendering procedures. The formal deadline for issuing numbers should be reduced. Obligations with respect to interconnection, access and facilities sharing, are adequate and reasonably aligned with EU framework. These obligations are applicable to all operators, not just operators with Significant Market Power.

HAKOM is vested with clear authority to resolve disputes between operators, as well as between operators and end-users. Previously HAKOM at times avoided issuing binding decisions and limited itself to providing suggestions or recommendations which were not binding on operators. However, this practice was later ended, since such recommendations were rarely fully observed by the parties involved. Provisions on consumer protection contain all core provisions necessary for a high level of consumer protection, and generally correspond with the 2009 EU framework. Universal services are also regulated in line with the 2009 EU legal framework, with detailed provisions that have been consistently implemented in practice in designating USO operators.

The law provides for clear procedures for establishing rights of way, in particular when these rights are established on public property. Establishing rights of way on private property is regulated in more detail by other sector specific laws (the Property Law, General Expropriation Law and the Law on Physical Planning and Construction), which in HAKOM's view provide reasonable procedures to be complied with before starting any construction of communications network. In practice, there are problems at the level of the local authorities that are responsible for granting the permits.

Provisions of the Electronic Communications Act and other applicable legislation (in particular the Law on Criminal Procedure with regard to lawful interception procedures) are well aligned with the EU framework in respect of inspection and monitoring, equipment approvals, national security, emergencies and lawful interception procedures.

Chart 2: Comparison of the legal framework for telecommunications in Croatia with international practice and regional performance



Key: Extremities of the chart = International best practice
Croatia = Solid line
Regional average = Shaded area

Sector organisation and governance

By 2001 the state had sold 51 per cent of the fixed incumbent Hrvatski Telekom to Deutsche Telekom. Privatisation was completed when the remaining stake was sold in 2010, which included the mobile subsidiary, T-Mobile Croatia. Nationally, there are now nine active fixed operators and three mobile operators competing in a fully liberalised market.

Policy making in the electronic communications sector is the responsibility of Ministry of the Sea, Transport and Infrastructure (MPPI). In October 2011 Croatia adopted a new broadband strategy for the years 2012-2015 and an action plan for 2012-1013. Croatia does not have a policy document on information society in general. There is no single body responsible for information society policy-making at the government level, but responsibilities are divided between two ministries.

The national regulatory authority was established in 2003 and was merged with the Postal Services Council in 2008 into the current Croatian Post and Electronic Communications Agency (HAKOM). The administrative capacities of HAKOM have been significantly enhanced over recent years. A relatively effective independence has been achieved in Croatia, where the Ministry is no longer involved in adoption of regulatory decisions and is restricted from influencing HAKOM decisions in individual cases. The amendments to the law on electronic communications adopted in July 2011 (see legal framework above) further reinforced this division between legislative and regulatory tasks by making HAKOM the only body responsible for inspection and monitoring.

Croatia has fully transposed the new provisions of the EU 2009 framework concerning all regulatory procedures, including public consultation, publication of decisions and the clear and transparent rules for dismissal of the NRA management. A remaining problem is the long duration of appeal proceedings at courts. For consumers, a mediation procedure is available under the separate mediation body within the Chamber of Commerce. For out-of-court dispute resolution procedures, HAKOM may impose the level of compensation.

A Competition Agency was created in 1997, which has a good working relationship with HAKOM. A situation arose in 2011 in the retail "triple-play" market (retail voice, internet and IPTV packages) where the EU guidance did not define a relevant market for ex-ante regulation. HAKOM felt that competition law alone was not sufficient to address a potential market failure. HAKOM defined the relevant markets itself and carried out the required market analyses and established proportionate market remedies. The Croatia case study included in section 4 of this report illustrates this process.

There is a separate Agency for Electronic Media, responsible for content regulation.

Croatia has signed a treaty to make it the 28th member of the European Union from mid-2013, becoming the EU's second ex-Yugoslav member after Slovenia.

Croatia has been a member of the WTO since 2000.

Regulatory conditions for wired networks

Croatia has made the most progress in the Group B region in implementing retail tariff re-balancing of the incumbent (HT's) basic fixed-line service. The line connection charge is €82, and the monthly rental charge is €10 per month (compared with €15 for the EU).

HT's interconnection offer now includes the full set of wholesale services to alternative operators. There are a significant number of wholesale ordinary fixed-lines and broadband-enabled unbundled loops in the market. The Croatian regulator has also imposed symmetrical obligations related to access to in-building wiring infrastructure and the requirement to apply fibre-to-the-home point-to-point topology for all new NGA deployments. Croatia is so far the only country where the obligation to provide wholesale broadband access over fibre-to-the-home networks has been imposed. The new reference offer covering bitstream access over fibre was published by HT in 2011.

On rights of way over public and private property, recent improvements in the transparency of the procedures and shortening the deadlines for issuing relevant permits have been implemented.

Local loop unbundling prices have been set by the regulator, although actual implementation is still limited. Connection charge for shared access is €4.18 and full access is €21.63 (these are very low by EU standards). The shared LLU recurring charge is €2.44 per month and full access is €5.85 per month.

The remaining task is to develop modern cost models to apply to wholesale services. HT's local call termination is €0.0056 per minute, single transit is €0.0083 and double transit is €0.016. Alternative operators interconnect with the incumbent operator at the local and single transit level, and their rates are higher than the incumbent's because of the asymmetry applied on the termination rates. These main wholesale charges are still generally higher than the average for the EU.

Regulatory conditions for services requiring frequency spectrum

Croatia has three mobile network operators with spectrum authorisations in the 900 MHz, the 1800 MHz and the 2.1 GHz bands. Since 2009 these mobile licences have been technology neutral, allowing 3G services in the existing GSM frequency bands. National roaming has been used by the third mobile operator (since 2007) on a commercial basis. Mobile number portability was implemented in 2006. Although virtual mobile operators are allowed by commercial negotiation between the parties, none have been launched.

Frequency allocation is carried out by the MPPI on the basis of a proposal of HAKOM and the latter performs all frequency assignment tasks. The spectrum assignment method can be through public call, tender or auction. The regulator renewed in 2009 spectrum licences of the three mobile operators on a technology neutral basis. 3G services were launched in 2005, ahead of the other countries of the region. LTE technology has also been allowed in 900 MHz and 1800 MHz bands. In March 2012 two mobile companies claimed to be the first to launch 4G services in Croatia.

Spectrum licences for broadband wireless access have been issued on a regional basis. Most of these have either expired or were returned to the regulator. Currently there are two valid licences issued to one company for the territory of the whole country.

The switchover from analogue to digital broadcasting was completed in October 2010, earlier than in most EU member states and the first country in the Group B region. There is still the unresolved issue of interference with the neighbouring countries that greatly influences broadcasting reception in coastal area.

In 2011 the regulator implemented significant reductions in the regulated mobile call termination charge. These wholesale charges are now in line with the EU average. The regulator has still to introduce modern cost modelling of interconnection charges.

Payments required from operators

The funding source of the Croatian regulator is distributed between annual revenue-based and spectrum usage fees. In addition, in 2010 the Croatian NRA secured almost €2.8 million funding through the EU pre-accession funds. Surplus funds are allowed to be transferred to the next calendar year's budget

Operators pay no initial fee, and an annual fee currently 0.25 per cent of the operator's revenues.

An additional 6 per cent tax on mobile communications services was imposed by the government in 2009. This tax is levied on mobile operators directly and cannot be itemised on tariffs/ receipts and is therefore not transparent to customers. The intention was to abolish it on 1 January 2012, but the government then decided to extend the 6 per cent fee until Croatia's entry into the EU, set for 1 July 2013. In June 2012 the government modified its decision and decided to end the special tax on 1 July 2012.

According to the mobile operators, this tax has affected their investment with indirect repercussions on the country's GDP. The measure has also been condemned by the GSM association and the European Commission. As all three MNOs are foreign-owned, the imposition of this tax was seen as an indication of investment risk for foreign investors.

In addition to corporation tax and the mobile specific tax on gross revenues from voice, SMS and MMS, Croatian mobile operators still face a number of other taxes and regulatory fees they are subject to, including:

- Payment to the Croatian chamber of commerce at 0.056 per cent of revenues plus a fixed monthly amount, currently €730.
- Payment to Croatia forests: 0.0525 per cent of revenues.
- "Touristic community" fees: approximately 0.12 per cent of revenues.
- Indirect "Monumental" fees: 0.05 per cent of revenues.

These taxes represent a significant burden for mobile operators, particularly as they are predominantly calculated from revenues rather than profits.

National legislation defines the scope of universal service as broadly corresponding to the elements listed in the Universal Service Directive. HAKOM has, so far, carried out universal service provider designation procedures in line with the requirements set out in the EU regulatory framework. In October 2010, following an open tender procedure, the Croatian regulator designated two providers for different universal service components: Imenik – for provision of directory services and Hrvatski Telekom – for all other components, for another five-year period.

Information society safeguards

Croatia has a liberalised approach to freedom of expression and information and there are no licensing requirements for internet businesses. There is a full functioning legal framework for data protection and the country has adopted the Council of Europe Convention on Cybercrime.

Croatia is the only Group B country with its own voluntary accreditation scheme for electronic signatures which has been established under the Croatian Accreditation Agency. The state-owned Financial Agency (Fina) is the only issuer of qualified certificates. As of June 2011 there have been 26,000 valid qualified certificates.

For internet domain names, 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. Croatia allows competition between registrars since 2010. About 80 per cent of the registered domains are free of charge – typically, the first domain is free if it corresponds to the registrant's name.

Summary and outlook

Croatia has 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 in the electronic communications sector is the finalisation of regulatory cost accounting models. HAKOM has introduced a full range of wholesale enablers to the broadband markets, giving all operators full country-wide reach. The fully digital broadcasting market (since analogue switch-off in 2010) is also fuelling broadband growth.

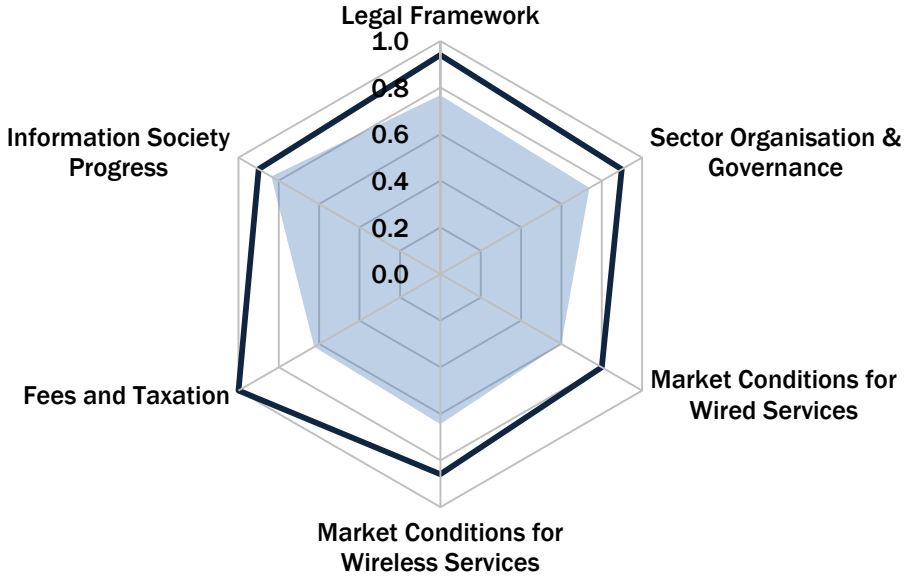
HAKOM has also taken steps to ensure sustainable competition in the broadband access market, where HT and its internet subsidiary currently dominate. Some market players are starting to consolidate, for example the merger of Austrian-owned VIPnet and B.net making it a more powerful player in the growing multiple-play market. HAKOM has analysed this broadband retail market, together with the closely related market for monthly-paid TV. The Croatia case study included in section 4 of this report shows how regulators can take remedial action outside the list of markets defined by the European Commission.

Analogue broadcasting switch-off was completed in late 2010, assisted by government subsidies available to all households. Digital dividend spectrum has already been made available for mobile broadband services with the aim of bringing high-speed broadband to rural areas in the coming years. Two of the existing mobile operators, T-Hrvatski Telekom and VIPnet, switched on the country's first commercial LTE networks in early 2012.

The remaining dampener in the sector has been the government's continuing application of special taxes on mobile operators. Although some of these still remain, the main special tax of 6 per cent has now been removed by government, signalling new investment, especially in mobile broadband services.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Croatia with international practice and regional performance

Croatia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Croatia = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 89 (100 is the lowest risk)

FYR MACEDONIA

At a glance

Market penetration	
Population	2.1m
Fixed penetration*	21
Mobile penetration*	108
Broadband penetration*	15

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Information Society and Administration
National regulatory authority	The Agency for Electronic Communications

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✘
Infrastructure sharing	✘
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔

Information society	
Internet penetration per 100 population	52
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

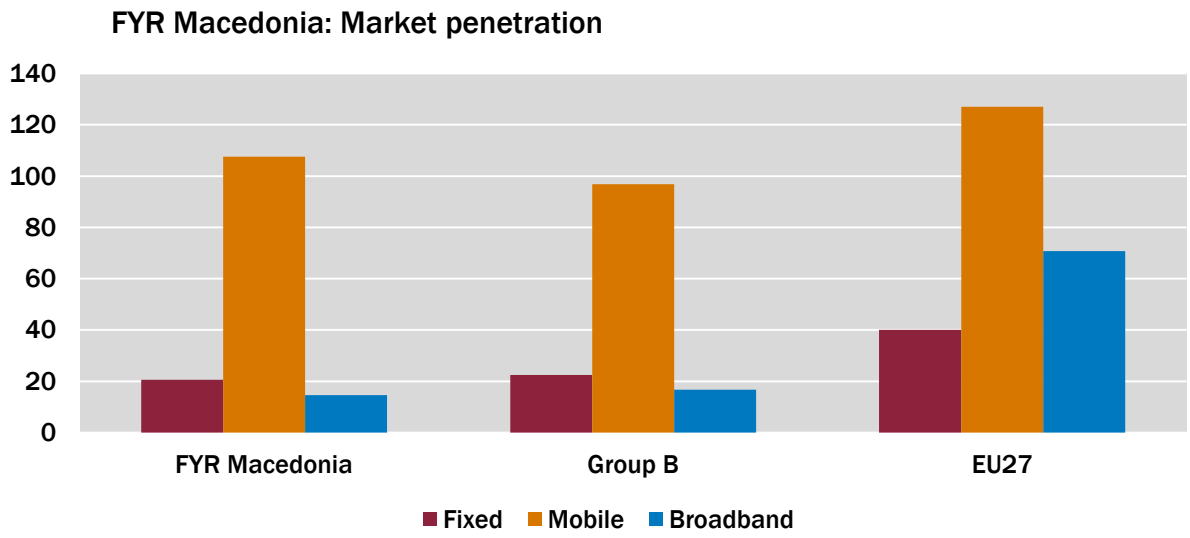
Market liberalisation

Following the early liberalisation of data networks by 2007, fixed voice telephony was formally 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.

Makedonski Telekom (MT) is the incumbent provider of fixed services. Fixed-line penetration has declined from 29/100 population in 2005 to 21/100 population in 2011, which is now below the Group B average. Alternative fixed operators have gained a market share of around 25 per cent. MT faces particularly strong competition from cable operators and also fixed wireless access providers in the provision of fixed broadband services, with. MT's fixed-line market share having shrunk to below 50 per cent. Overall, fixed broadband has grown quickly in an active competitive market since 2005, reaching 14/100 population, which is above the Group B average.

There are three mobile network operators, but only two offering UMTS/3G. Mobile penetration is modest by Group B standards, at 108/100 population. Mobile broadband has grown, only slowly, with only two mobile networks offering service since 2008. Penetration remains below 1/100 population in 2011.

Chart 1: Market penetration of main services per 100 population in FYR Macedonia, compared with the Group B regional averages



Group B average is for Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.

Legal framework

FYR Macedonian legislation on electronic communications is generally aligned with the EU 2003 regulatory framework, but legislative progress to ensure full alignment of legislation with the EU 2009 regulatory framework is slow. The Ministry of Information Society and Administration plans to work on draft amendments in 2012.

The main legal basis for electronic communications regulation is the Law on Electronic Communications, which was adopted in 2005 and has been amended several times by parliament and by decisions of the Constitutional Court.

Policy, regulatory and operations functions are generally separated. The Agency for Electronic Communications (AEC) is defined as an "independent and non-profitable legal person with public authorities". The AEC is governed by a Director and a Commission of five members. It is not subordinate to any state body or other public legal entity. Most decisions are adopted by the Director and can be appealed to the Administrative Court. AEC has its own budget and is mainly financed by spectrum fees. The annual financial plan needs approval by parliament. The provisions of the law on civil servants do not apply to the employees of AEC.

The general authorisation scheme present in FYR Macedonia is aligned with the EU acquis.

Rules on access and interconnection, price control and market analysis are generally aligned with the EU 2003 regulatory framework and all the competitive safeguards foreseen in the EU regulatory framework have been implemented in practice. The specific amendments resulting from the EU 2009 regulatory framework have not been transposed yet.

The law does not yet contain provisions that ensure adequate access to public property. A separate law on spatial planning was amended in 2010 to facilitate the roll-out of fibre-optic lines. It contains two procedures: one for operators to acquire permits from the municipality and another (for projects across several municipalities) for operators to acquire permits from the Ministry of Transport and Communications.

The law provides dispute settlement procedures and methods for enforcing the resulting decisions of AEC. AEC cannot impose fines by itself, but must refer cases to the court under the Law on Misdemeanours or the Law on Criminal Procedures. However, in practice, AEC sends warning letters before initiating a procedure and operators generally comply with those warning letters.

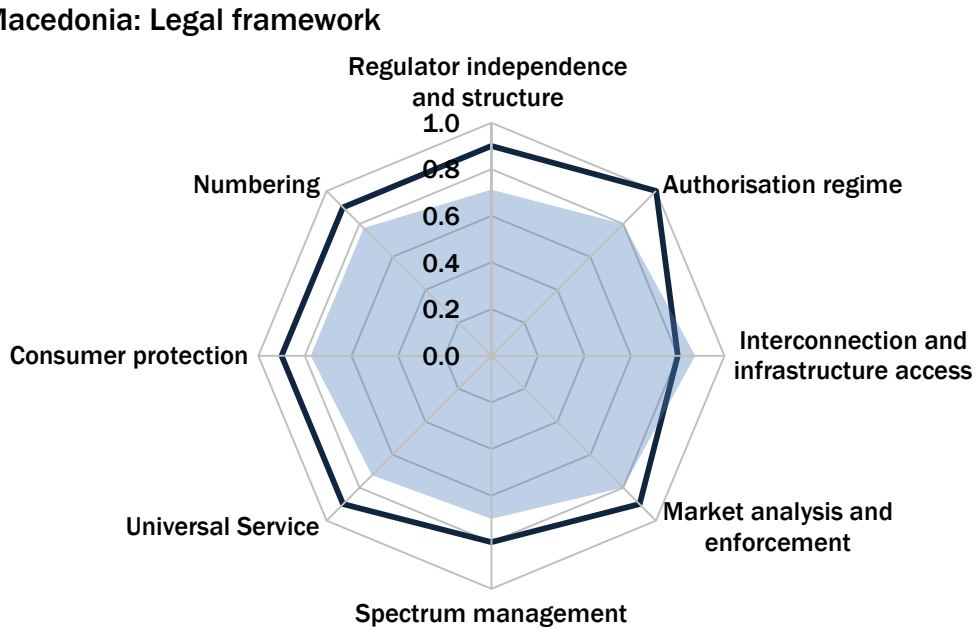
The law does generally allow AEC to manage spectrum in accordance with the EU regulatory framework, but the law does not bind AEC to open bands in line with EU time schedules and with principles of technology and service neutrality.

Rules on universal service provision are generally aligned with the EU 2003 regulatory framework. AEC designated universal service providers in 2011.

Rules on consumer protection provisions have not been updated to the EU 2009 regulatory framework. Further protection of consumer's rights is needed with respect to limitations on long-term contracts and procedures for termination of service by the operators.

Rules on number administration are aligned with the EU 2003 regulatory framework, but the EU 2009 regulatory framework requirement for one-day number porting and the extension of scope to all numbers in the national numbering plan have not been transposed.

Chart 2: Comparison of the legal framework for telecommunications in FYR Macedonia with international practice and regional performance



Key: Extremities of the chart = International best practice
FYR Macedonia = Solid line
Regional average = Shaded area

Sector organisation and governance

In 2000 the state sold 51 per cent of its shares in the fixed incumbent, MT. Currently, the government controls 34.81 per cent plus one golden share. All three mobile operators (T-Mobile, One and VIP) are foreign-owned.

The responsibility for policy making in the electronic communications sector has been transferred from the Ministry of Transport and Communications to the Ministry of Information Society and Administration, including responsibility for legislation, spectrum fees and universal service. There is little capacity at ministry level for legal drafting or policy work. Parliament has to approve the sector regulator's activity and financial plans, as well as reviewing the regulator's annual report.

AEC was established in 2005 as an independent regulator. Appointment of the members of the collegial body that governs AEC is by parliament only. AEC's initial activities were seriously hampered by the lack of administrative capacity. The situation improved in 2009 following the recruitment of newly qualified staff.

The AEC always conducts public consultations before reaching its decisions, which are published on its web site. There are particularly short deadlines for dispute resolution, but these can be extended in practice. Appeals against regulatory decisions can be brought before the Administrative Court. On enforcement of fines, AEC has to initiate a misdemeanour procedure before the relevant court. The maximum amount of fine is set as a percentage of the total annual turnover with the level at 10 per cent, although financial penalties have not yet been applied in practice by AEC.

A Commission for Protection of Competition was established in 2005 and it has a well-functioning relationship with AEC. There is also a separate Broadcasting Council.

FYR Macedonia has been a member of the WTO since 2003 and is therefore committed to liberalisation. It has been granted the status of EU candidate country, though no date has been specified yet for the start of EU membership talks.

Regulatory conditions for wired networks

The general authorisation regime, introduced in 2008, applies to all categories of electronic communications services, so market entry is straightforward. By 2009 FYR Macedonia had implemented all of the normally expected competitive safeguards, including reference interconnection offers, number portability, carrier selection and pre-selection, wholesale line rental in the fixed voice market, local loop unbundling and wholesale broadband access in the fixed broadband market.

There is a single call termination rate applied by the incumbent fixed operator of €0.0089 per minute. This is in line with the EU average.

Wholesale access to the incumbent's infrastructure is covered by new regulatory obligations including access to ducts and dark fibre. Local loop unbundling has also been available since 2006. There is only one agreement for full unbundling in place and by the third quarter of 2011 there were 3,743 unbundled loops (which represents a decline from 4,300 lines reported a year ago). Full unbundling costs €21 connection charge plus €5.37 per month. Shared unbundling is €18 plus €2.17 per month. These rates are below the EU averages. For wholesale broadband access, bitstream access has been implemented on the basis of regulated reference offers. By early 2011 there was one MT resale agreement in place covering nearly 19,000 broadband lines.

The procedures to obtain rights of way are unclear. According to the Ministry of Transport and Communications the one-stop shop procedure at the Ministry has never been used in practice. Operators ask each municipality separately for approval. Operators have commented that the procedure often does not work at municipality level.

It is unclear whether the agency for the state roads has clear instructions to grant access to operators along the roads it administrates.

FYR Macedonia was the first Group B country to implement modern cost accounting for fixed networks, but so far there has been little progress in terms of implementing tariff rebalancing. The residential monthly line rental is currently less than €7.66, with a discounted rate of €2.10 per month for low users. The business rate is €11.40 per month. The connection charge is around €2. These are well below the EU averages.

Regulatory conditions for services requiring frequency spectrum

AEC is responsible for the full scope of frequency management functions, including frequency allocation and frequency assignments for telecommunications and broadcasting. AEC used competitive allocations based on a hybrid method combining financial bid and other non-financial selection criteria. An amendment to the Law on Electronic Communications in May 2012 provides the legal basis for spectrum auctions.

FYR Macedonia started with two mobile networks and licensed a third in 2007. UMTS/3G licences were awarded late, in 2008, but only to the two largest operators. In 2009 the frequency plan was amended to allow UMTS/3G in the 900 and 1800 MHz bands and a further amendment allowing LTE services is expected in 2012. Mobile number portability was implemented in 2008. T-Mobile is required to provide virtual mobile operator access and national roaming under regulated conditions.

Most of the 18 regional and two national licences for fixed wireless access issued in 2007 have reverted to the regulator and currently there is only one active licensee (Neotel) operating in all six regions. All other licences were revoked either because of the failure of the operators to meet their coverage obligations or on request of the licensees themselves.

An amendment of the Law on Electronic Communications in January 2012 introduced an unusual obligation for mobile providers to send unsolicited SMS messages on request of the tourism agency, which is not in line with the EU e-Privacy Directive.

FYR Macedonia was the first country to implement modern cost accounting for mobile networks. The wholesale mobile termination rate is different for each operator, averaging around €0.06 per minute. Using its cost model, AEC has set convergent glide paths reductions for T-Mobile, One and VIP until August 2013. This parallels the step-by-step reduction trend being applied in the EU.

The broadcasting digital switchover is planned for 2013, and the auction procedure to award digital dividend spectrum for wireless broadband is planned for the second half of 2012.

Payments required from operators

The government is involved in determining the amount of the administrative fees for the use of limited resources. Spectrum usage fees remain the main source of financing of AEC and are set at a high level, so that recently one of the operators decided to return part of its UMTS spectrum to the regulator. The government also oversees the implementation of universal service. They have so far designated MT, for the main services. The Universal service funding scheme has not been used in practice.

There are currently no special taxes applied to telecommunications services.

Information society safeguards

For electronic signatures, certification service providers must register their activity with the Ministry of Finance 30 days before beginning 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. Two certification-service providers issue qualified certificates, but no data appears to be currently available on the number of certificates.

For internet domain name registration, the Macedonian Academic Research Network (MARNet) was adopted in 2010 as the national registry. The market of domain name registrars has not been liberalised yet and MARNet is the only registrar.

The Directorate for Personal Data Protection is responsible for supervision of data security. There is no explicit obligation to notify, neither an authority nor affected subscribers when there are breaches of data security. There is also no explicit provision allowing a national authority to audit personal data security measures, although it might be possible that AEC or the Directorate for Personal Data Protection can use some general inspection powers for that purpose.

On cybercrime, there are provisions in the Law on Electronic Communications and in the Criminal Code, though not all forms of illegal interception are covered. For example, if somebody who is not an operator intercepts a communication that is not an audio conversation (such as intercepting e mails or SMS), this is not yet covered by any legal provisions.

Summary and outlook

Competitors have entered into the fixed telephony market and alternative operators now collectively have 20 per cent market share. Competition is intensifying in the mobile market, especially since the fees for mobile number portability have been reduced. Virtual mobile operators can now enter the market and national roaming is available.

Fixed broadband penetration has already reached 13.7/100 population. Broadband growth is expected to be strong with the incumbent placing greater emphasis investment in fibre access networks, and the deployment of fixed wireless access by newly licensed providers. The growth of mobile broadband has been slow, following the late awarding of UMTS licences in 2008, and spectrum fees remain high. Mobile broadband should accelerate to compete with fixed broadband as the market develops.

Digital TV is a particularly strong market, with widely available satellite, digital terrestrial TV and cable TV. The IPTV subscriber base has grown steadily in the wake of upgraded network capabilities.

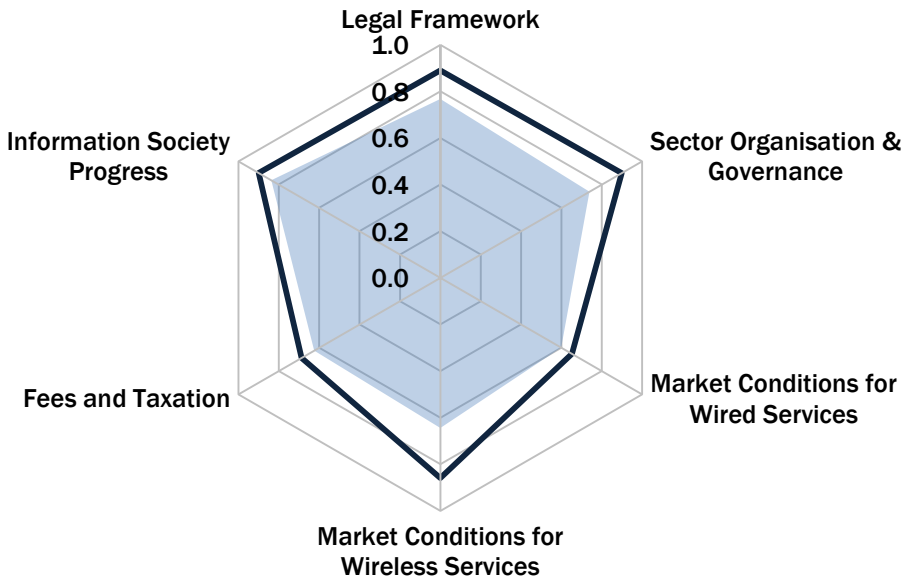
AEC has been successful in completing its first round of market analyses and implementing a broad range of competitive safeguards. Increased efforts are necessary to align the legislative framework fully with EU 2009 regulatory framework and to strengthen the administrative capacity of the ministry.

FYR Macedonia's market development is second only to Croatia's in the region, with most of the normally expected market entry and competitive safeguards in place.

The operator One returned some spectrum in 2011 for the sole purpose of saving on licensing fees, which are very high compared with other countries. There is unused spectrum available in all relevant frequency bands, but operators do not seem to be interested to acquire additional spectrum at the moment, possibly because the operators consider the fees or coverage obligations too onerous. In a situation where spectrum will be needed to cope with the growth in demand, especially for broadband services, AEC should ensure that the annual fees for spectrum are reduced to cover only its administrative costs, as required in the EU framework.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in FYR Macedonia with international practice and regional performance

FYR Macedonia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
FYR Macedonia = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 82 (100 is the lowest risk)

MONTENEGRO

At a glance

Market penetration	
Population	0.62m
Fixed penetration*	28
Mobile penetration*	188
Broadband penetration*	27

*Per 100 population

Key Institutions	
Policy and legislation	Ministry for Information Society and Telecommunications
National regulatory authority	Agency for Electronic Communications and Postal Services

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔

Information society	
Internet penetration per 100 population	50
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

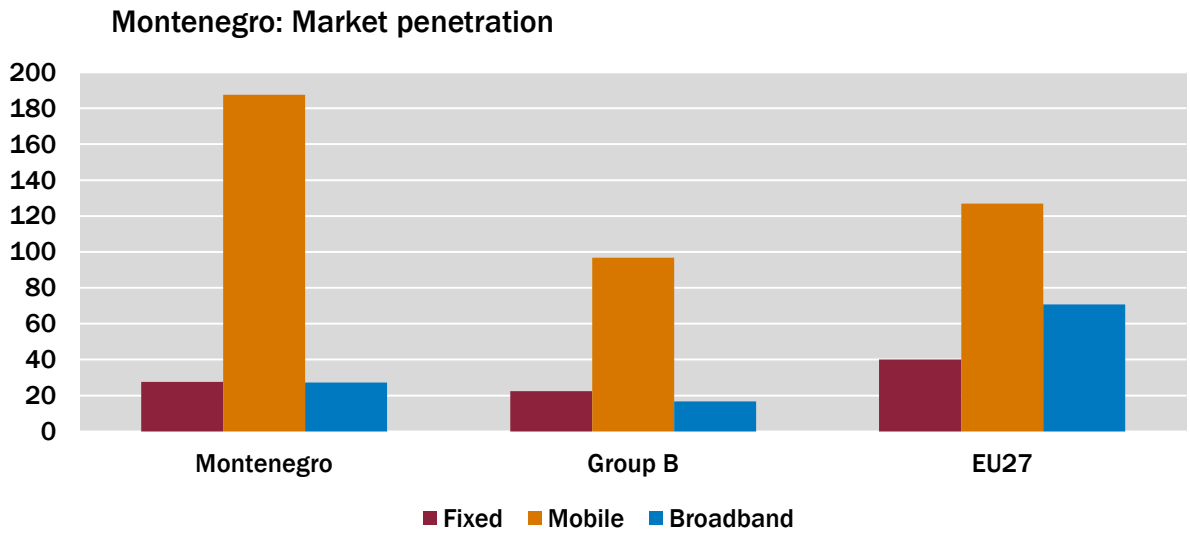
Montenegro formally liberalised its telecommunications markets at the beginning of 2004, but remaining high licensing fees created a barrier to entry until 2007. A general authorisation framework for all electronic communications networks and services was introduced in 2008.

The fixed telephony market is strongly dominated by Crnogorski Telekom, which has 96 per cent market share in provision of fixed voice telephony and 87 per cent in provision of fixed broadband. The overall penetration of fixed-lines has decreased from 31/100 population in 2005 to 28/100 population in 2011, which remains above the Group B regional average, but significantly behind EU levels. Fixed Broadband penetration, at 13.6/100 population is around the Group B average and shows a very high growth rate (18 per cent in 2011), but most users have broadband speeds below 2MBps.

A competitive environment has emerged in mobile networks with three operators having similar market shares (Telenor, MTEL and Crnogorski Telekom). Mobile penetration, at 188/100 population[33] is the highest in the Group B region, and also significantly higher than the EU average of 124. This high penetration is due in part to the purchase by tourists of sim cards for short term use during vacations in Montenegro.

Mobile broadband has grown fast and at 13.7/100 population is more than double the Group B regional average.

Chart 1: Market penetration of main services per 100 population in Montenegro, compared with the Group B regional averages



Group B average is for Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.

Legal framework

Substantial aspects of the 2008 Law on Electronic Communications are broadly aligned with EU 2003 framework, however several areas have not yet been fully aligned, including independence of the regulator, more effective allocation of inspection and monitoring responsibilities, meaningful penalties for breaches of the law and comprehensive provisions for obtaining rights of way. A draft new Law on Electronic Communications, which would more fully align with the 2009 EU Framework, was submitted for public hearing in July 2012.

33 Following a review of inactive users, the official figure for mobile penetration has been reduced to 165/100 population at the end of June 2012.

The Agency for Electronic Communications and Postal Services (EKIP) is defined under the law as the independent regulator for the sector. The Law amending the Law on Electronic Communications prescribes that the operational plan and budget of EKIP are adopted by the parliament, and this authority is understood to supersede other inconsistent provisions in the law that provided a role for government in approving the operational plan and budget.

In cases of breach of the law by operators, the competent inspectors are entitled to impose monetary fines, whereas EKIP, as a regulatory body, does not have clear legal ground to impose such fines. Furthermore, penalties for misdemeanours defined in the law can be imposed by the Ministry and EKIP, but only at levels fixed by the law, with no discretion depending on the circumstances of the case. The defined amounts are not meaningful in the circumstances (€500 or €1,500) and enforcement is immediately suspended if contested before the Misdemeanour Court. Fines imposed by Misdemeanour Court can be up to €20,000. A revised system of penalties, based on the revenue of the operator, would support better enforcement of the legislative and regulatory regime.

Although the general authorisation regime and framework for use of scarce resources are generally aligned with EU framework, EKIP lacks sufficient independence to determine fees for use of scarce resources or administration charges. Conditions for the rights of use of scarce resources (especially for numbering) need to be better aligned with 2009 framework.

Procedures for granting rights to use numbering resources are defined in the Law on Electronic Communications, though some revisions would be helpful to ensure they are fully objective, transparent and proportionate. Dispute resolution provisions between the operators are generally aligned with the EU framework, except that EKIP's independence is undermined by the possibility of appeal to the Ministry from EKIP decisions on disputes relating to interconnection, operator access and facilities sharing and other decisions of EKIP relating to rights of the operators and end-users. The law prescribes that EKIP settles disputes among operators in cooperation with agencies responsible for competition and user protection. Procedures for appeals of EKIP's decisions are provided in the Law on General Administrative Procedure; EKIP has initiated proceedings (pending) before the Administrative Court to assess the merits of these provisions. The new draft law includes a proposal that EKIP's decisions shall be final and that parties can initiate administrative proceedings against EKIP's decisions before the relevant court within 30 days.

EKIP has the authority to regulate tariffs for operators with significant market power and special tariffs to be charged for disabled users or users with low income. EKIP also determines tariffs for number portability. These powers of EKIP are generally aligned with the EU framework.

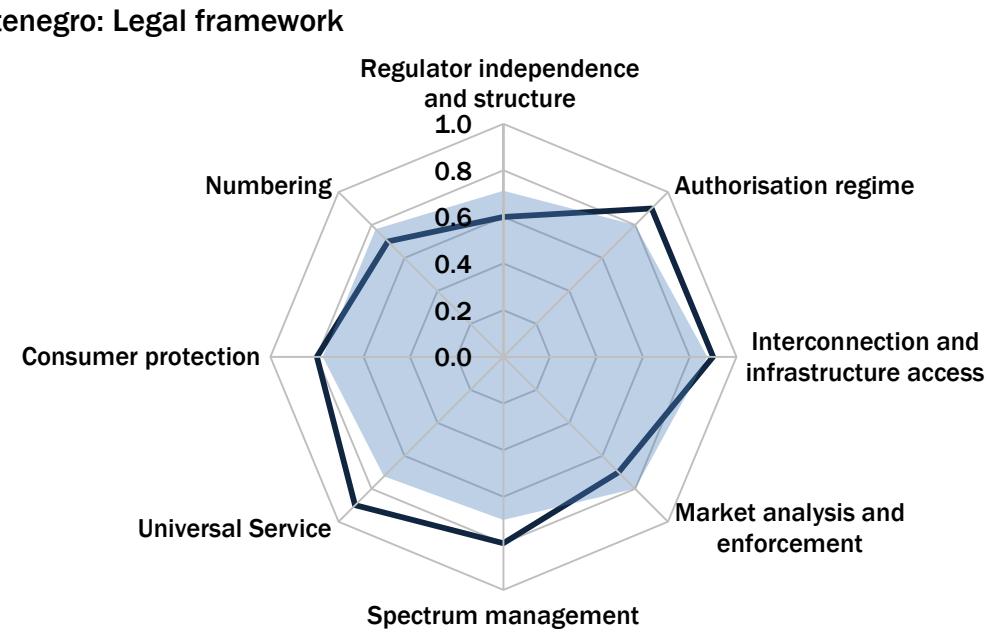
The market analysis and SMP provisions within the law, together with obligations with respect to interconnection, access and facilities sharing (which are applicable to all operators, not just SMP operators) are also generally aligned with EU framework. However, EKIP should be authorised also to impose functional separation on SMP operators, as a non-standard and exceptional remedy.

The universal service provisions of the law appear adequate, and EKIP has already designated two operators with universal service obligations using public tenders. The law prescribes that EKIP, or an auditor authorised by EKIP shall conduct an audit and approve the annual balance sheet and net costs for providing universal service. However, there are limitations to the universal service operator's right to receive compensation for the universal service burden, with the Ministry empowered to reject requests for reimbursement. There are also a few formal uncertainties relating to universal service arising out of inaccurate and incomplete cross references in the law, which should be remedied (although they do not appear to have caused a problem in application to date). Reimbursement of expenses of universal service operators can be obtained for providing directory and enquiry services, special tariffs for disabled users and users with low income. It could be contested whether costs of other universal services can be reimbursed to operators.

With respect to consumer protection, the law is generally aligned with 2003 EU framework, but some changes are required to fully align with the 2009 EU framework, especially in terms of minimum content of consumer contracts and deadlines for number portability.

The law lacks comprehensive provisions addressing rights of way, though such rights arise generally from Articles 28(2) and 29 of the law. Separate legislation addresses national security issues as they relate to electronic communications. The law ensures normal function of networks and services during public emergency, while it forbids any interception, except in cases provided by Criminal Procedure Code.

Chart 2: Comparison of the legal framework for telecommunications in Montenegro with international practice and regional performance



Key: Extremities of the chart = International best practice
Montenegro = Solid line
Regional average = Shaded area

Sector organisation and governance

Montenegro and Croatia are the only countries in Group B region with no remaining state ownership in the electronic communications sector. The government sold its remaining shares in the fixed incumbent operator Crnogorski Telekom in 2005. The company is now majority owned by Magyar Telekom of Hungary (itself a subsidiary of Deutsche Telekom).

Responsibility for the sector was transferred from the Ministry of Maritime Affairs, Transportation and Telecommunications to the Ministry for Information Society and Telecommunications in 2010. The key functions of the government and the regulator were redefined in the laws adopted in 2008. The government is involved in determining administrative fees for the use of limited resources and the fees for certification and registration tasks carried out by the sector regulator.

Insufficient administrative capacity of the Ministry also appears to present an area of concern. The Ministry plays the key role in adopting the secondary acts foreseen under the primary legislation, whereas in other countries this responsibility has been largely delegated to the sector regulator. The Law on Electronic Communications gives the Ministry the powers of administrative review of the regulator's decisions as the first appeal instance, effectively undermining the regulator's independence. Parliamentary approval of the regulator's budget is required.

EKIP is the independent national regulatory authority established in 2001, but its competencies and name were changed first in 2005, when it took over regulation of the postal sector, and again in 2008, when it became the sole authority responsible for spectrum assignments. In terms of the management structure, EKIP was, until 2009, headed by a single managing director who oversees all policy, management, and administrative activities, but the roles have now been split between Chairman and Executive Officer. The salaries of EKIP management were reduced in 2009 to the pay level of government officials. The 2008 law requires that the Board be appointed by parliament for a term of office of five years, whereas the previous law required that the Board be appointed by the government. In addition, the Executive Director shall be appointed by the Council for a term of four years, while the President of the Council, Members of the

Council and the Executive Director shall not hold office for more than two consecutive terms. EKIP has 65 staff and is adequately funded by the sector, independent of the state budget except for approval of its budget and activity plans by parliament. EKIP can carry forward any funding surpluses into future years.

Certain powers of the Ministry and EKIP may potentially overlap to some extent, for example, the Ministry is authorised to adopt regulations relating to electronic communications, while EKIP also prepares regulations itself as well as provides expert inputs for the development of regulations by the Ministry. Although the law defines the issues to be regulated by the Ministry and EKIP, potential for overlap exists. Furthermore, as the Ministry has limited capacity, there can be delays in adopting relevant regulations.

The financial independence of EKIP is limited by the Ministry's authority to adopt criteria and methodology to be complied with by EKIP when setting fees payable to EKIP by operators and service providers.

Although the board of EKIP is appointed by parliament, EKIP reports to the government, and all decisions of EKIP are subject to appeal to the Ministry, which has general authority to monitor the non-regulatory activities of EKIP. The Ministry and government are entitled to issue obligatory guidelines for EKIP in some cases, and since there are vague provisions on dismissal of EKIP's Council members, it leaves the possibility for parliament to dismiss them at any time, severely undermining their independence.

EKIP holds public consultations on specific decisions, with a maximum period for comments of three months. EKIP has the power to resolve disputes, with specified short deadlines. EKIP's decisions in the first instance are appealed to the Ministry, which must be completed within 60 days.

A Directorate for Protection of Competition was created in 2007, which cooperates with EKIP to ensure the prevention of harmful effects of the lack of competition in the market of electronic communications. There is a separate regulator for broadcasting.

The WTO approved Montenegro's membership package in December 2011. It has already been granted the status of EU candidate country, and the membership talks with EU commenced in end of June 2012.

Regulatory conditions for wired networks

Montenegro has implemented a general authorisation scheme requiring a once-off initial payment of €1,000. Licences are technologically neutral.

EKIP appears to have been lagging with implementation of competitive safeguards, but has made major progress after the first seven market analyses were completed in 2010 and an additional five market analyses were completed in 2011. In particular, new reference offers were published by the incumbent operator for interconnection (which now covers carrier selection and pre-selection, wholesale broadband access, wholesale line rental and local loop unbundling). Practical implementation is still at an early stage and may take some time. For enforcement of regulatory decisions, the maximum fine is set as a specific monetary amount: €16,500. Wholesale access to the incumbent operator's passive infrastructure is limited to duct access plus copper loop and does not yet extend to fibre. In 2011 EKIP extended the number of markets subject to ex-ante regulation to the retail fixed call markets, wholesale broadcasting transmission services and wholesale trunk segments of leased lines.

Number portability for non-geographical numbers at all locations and for geographical numbers at a specified location was implemented in practice in October 2011.

Some progress has been made on fixed retail tariff rebalancing, with increases to monthly rentals over the last five years. The current rate is €5.97 per month, with €3.07 per month for low users. These are still significantly below the average rates for the EU.

Crnogorski Telekom has recently reissued its reference interconnection offer with local and single transit call termination charges set at €0.0142 per min with no double transit rate quoted. The rate is above the EU average.

Regulatory conditions for services requiring frequency spectrum

Montenegro has three privately-owned mobile operators, with equivalent spectrum assignments. Since 2010 operators have been allowed to use the GSM bands for UMTS/3G services.

Frequency allocation is carried out by the government on the basis of EKIP's proposals, and EKIP performs all frequency assignment tasks. A tender procedure launched in November 2011 to award additional spectrum in the 900 MHz, 1800 MHz and 2100 MHz bands concluded with Telenor being announced the winner offering to pay €1.65 million. Under the tender conditions the winner also had the obligation to offer

two-thirds of awarded spectrum in all three bands to the other two existing operators. Crnogorski Telekom accepted one-third of awarded spectrum in all three bands and paid one-third of the one off fee to Telenor. Since MTEL was reportedly not interested, Telenor kept two-thirds of the awarded spectrum.

Spectrum licences for broadband wireless access in the 3.5 GHz band have recently been issued. Montenegro initially planned to complete analogue broadcasting switch-off in 2012, giving the possibility for the re-farming of the "digital dividend" frequencies for broadband expansion, but the switchover date it now likely to be pushed back to 2015.

Number portability in mobile networks was implemented in December 2011.

Mobile operators have reference interconnection offers, but these do not include national roaming or access by virtual mobile providers. It is reported that around 40 per cent of masts are now shared between operators. The call termination rates on mobile networks are regulated, and reductions were applied in 2011 making the current charge €0.071 per min, which is above the EU average.

Payments required from operators

EKIP's funding is distributed between annual operator administrative charges and spectrum usage fees. Operators have to pay €1,000 registration fee, followed by annual fees capped at 1.5 per cent of revenues (the figure is adjusted annually in line with EKIP budget and operators' financial reports, 1.01 per cent was approved for 2011).

Universal service provider designation procedures have been carried out in line with the requirements set out in the EU regulatory framework. The regulator designated for a five-year term nationwide universal service 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. The highest minimum data rate in the Group B countries has been defined, corresponding to the minimum broadband speed of 144 kbps. Universal service providers for comprehensive directories and directory enquiry services have been also designated. In 2012, upon the request of the universal enquiry service operator, EKIP issued a decision on approval of net costs of the operator, ordering other operators to pay amounts designated in the decision to compensate the universal service operator.

There are no special taxes on mobile services, and Montenegro has one of the lowest tax regimes on mobile ownership, at 17 per cent, compared to the EU average of 21 per cent.

Information society safeguards

Montenegro has a liberalised approach to the freedom of expression and information, and no special licensing is required to set up an internet service. The incumbent's Internet Service Provider continues to dominate with a reported 85 per cent market share.

For electronic contracts and signatures, supervision schemes have been established by the Ministry for Information Society and Telecommunication. The Post of Montenegro is currently the only provider issuing qualified certificates. Around 1,882 certificates have been issued so far, almost all to enterprises.

Montenegro is in a fortunate situation to have a top level domain (.me), which is an attractive English-based suffix. 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. Foreign undertakings may become accredited registrars. Montenegro reported 520,206 domain names by June 2011, twice as many 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 are about 820 .me domain names per 1000 inhabitants, two orders of magnitude more than in other countries of the Group B region.

There is no explicit provision allowing a national authority to audit personal data security measures, although it might be possible that EKIP or the data protection authority can use some general inspection powers for that purpose. 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.

In Montenegro, the criminal code does not consider computer-related forgery as a crime. Dispute resolution on cyber-squatting is based on ICANN's Uniform Domain Dispute Resolution Policy.

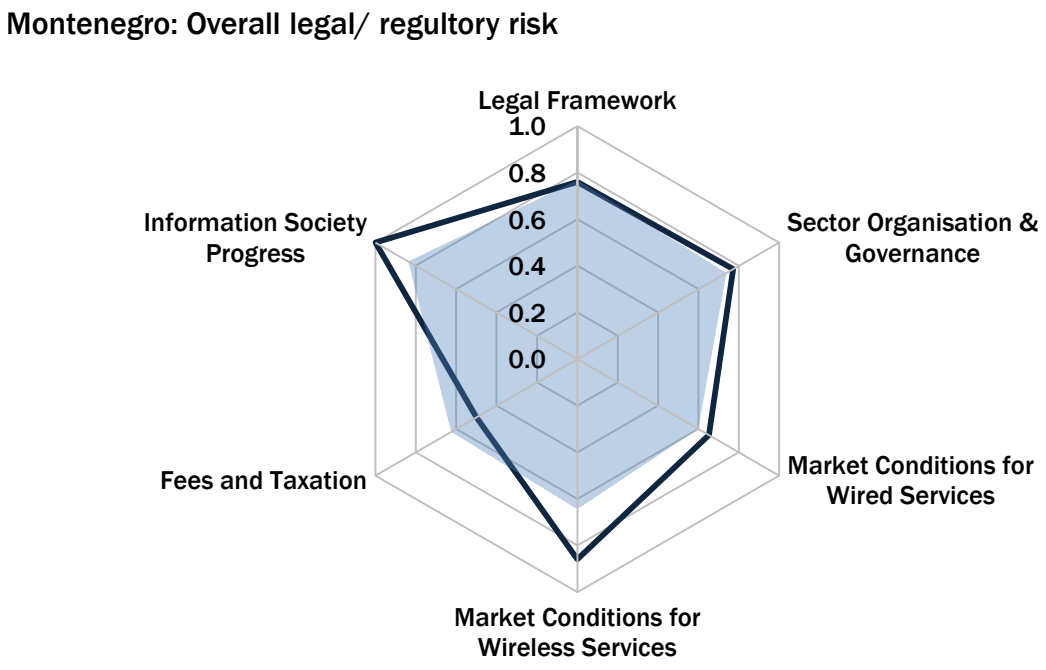
Summary and outlook

Competition in fixed markets remains low, as most of the competitive safeguards introduced in 2011 do not appear to have been implemented in practice. Worryingly, the maximum fine that can be imposed for non-compliance is not a sufficient deterrent. Fixed broadband penetration continues with strong growth (18 per cent in 2011), fuelled by more competitive wireless broadband offerings and the high demand for IPTV. The transition to digital terrestrial TV is underway, ahead of analogue switch-off in 2013.

Competition in the mobile market could enter a new phase when the obligation imposed on the three existing operators to admit virtual network operators is implemented. The very high mobile penetration figures recorded in recent years do not appear to have been adjusted downwards to exclude inactive numbers, and the figures are artificially high due to consumers typically holding three SIM cards. This enables them to avoid paying the high off-net call charges made by the operators, fuelled by the very high wholesale rates between them (these are the second highest in the Group B region and 55 per cent higher than the EU average). Better regulatory approaches, including the use of modern cost models should eventually reduce these interconnection rates.

Mobile broadband service is now widely available on a competitive basis, representing a good growth prospect from the present penetration level of 13.7/100 population. The mobile broadband market grew rapidly in 2011 and has now overtaken fixed broadband.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Montenegro with international practice and regional performance



Key: Extremities of the chart = International best practice
Montenegro = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 75 (100 is the lowest risk)

SERBIA

At a glance

Market penetration	
Population	7.3m
Fixed penetration*	40
Mobile penetration*	140
Broadband penetration*	17

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Foreign and Home Trade and Telecommunications
National regulatory authority	Republic Agency for Electronic Communications

Market access	
General authorisation	✔
Technological neutrality	✔*
Rights of way	✔
Infrastructure sharing	✘
Granting of spectrum	✔

*Fixed only

Competitive safeguards	
Number portability	✔*
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔

*mobile only

Information society	
Internet penetration per 100 population	56
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

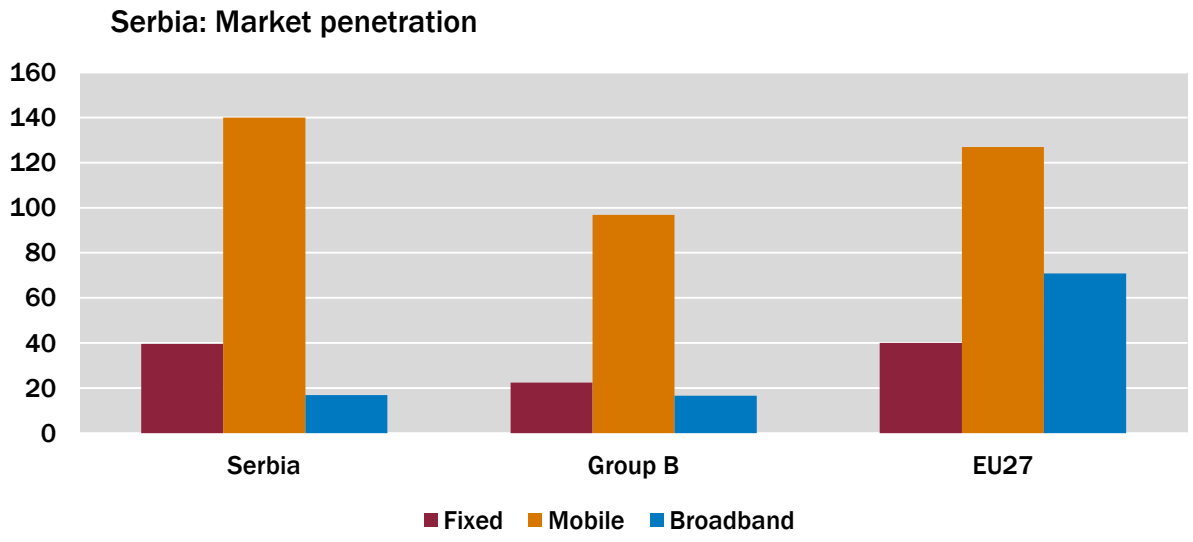
Market liberalisation

Serbia was very slow in liberalising its electronic communications markets. Data communications become competitive only in 2005 and international gateways in 2008. The completion of the liberalisation of fixed voice telephony markets had to wait until the start of 2012. Although these markets have been formally liberalised since June 2005, market entry remained very restricted, with only two licences issued to alternative operators - a fixed wireless access licence in 2009 and a fixed network licence in 2010. A new general authorisation framework only came fully into force at the beginning of 2012, lifting the monopoly on fixed voice services and making market entry open to all.

Fixed-line penetration has continued to grow (from 34 to 40 per 100 population between 2005 and 2011) and has now reached the EU average level. Incumbent fixed operator Telekom Srbija remained the only licensed provider of fixed voice services until 2010. Fixed broadband growth was reported to be 14 per cent during 2011, driven mostly by alternative infrastructures, such as cable TV and fixed wireless access networks. Alternative operators rely on Telekom Srbija's commercial wholesale bitstream access offer and international connectivity, although their positions have been weakening in competition with the incumbent's retail offers. Commercial offers up to 20 Mbps broadband access are offered, but at the high price of €118 per month. The penetration of fixed broadband services has reached 13.4/100 population in 2011, which is above average for the Group B region.

Mobile services have developed well under competitive conditions with three mobile operators (since 2006) Telekom Srbija, Telenor and VIP mobile, with market shares of 56 per cent, 30 per cent and 14 per cent respectively. Overall mobile penetration is now 140/100 population, higher than the Group B regional average. Mobile broadband is at an early stage. 3G services were launched in 2006, and now reaching a penetration of only 3.4/100 population, which is below the Group B regional average.

Chart 1: Market penetration of main services per 100 population in Serbia, compared with the Group B regional averages



Group B average is for Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.

Legal framework

The Law on Electronic Communications (2010) is broadly aligned with EU 2003 Framework and some aspects (such as conditions for right of use for frequencies) are fully aligned with EU 2009 framework. Although the law states that the sector regulator, RATEL, is functionally and financially independent of government authorities, organisations and entities, as well as organisations performing electronic communications activities, the new Law on Cinematography adopted in 2011 in practice undermines RATEL's financial independence. According to provisions of this new law, RATEL is required to transfer 10 per cent of its gross annual revenue from fees collected to the State Cinema Centre to promote the national film industry. These provisions were contested by RATEL before the Constitutional Court of Serbia.

Certain authorities of the Ministry and RATEL overlap, for example, the Ministry may interfere based on other state regulations, laws and constitution and request changes to the regulations of RATEL, or request the Government to annul or suspend RATEL's regulations if it does not implement the government's requested changes. The Ministry is responsible for monitoring the legality and appropriateness of RATEL's work. Under the existing Law on Electronic Communications, the Ministry now takes a more advisory role in the process of implementing regulation, when compared to previous legislation. However, under the existing Law on State Administration, the Ministry could take over some of the authorities of RATEL for up to 120 days, if RATEL does not perform its duties in a proper manner. In practice, however, the Ministry has never used this provision against RATEL.

RATEL is responsible for monitoring compliance with the law by operators and service providers. In case of repeated breaches of the law by the operators, RATEL can only report this to the Ministry, which performs its own additional inspections, causing potential overlap and inconsistency in determining possible breaches of the law.

In addition to the above, in case of breach of the law, the Ministry does not have clear authority to impose monetary fines intended to force the operators and service providers to remedy the breaches and restrain from further breaches. RATEL also has no authority to impose fines. Penalties for misdemeanours can be imposed only by a "Misdemeanour Court". Penalties of up to €20,000 are allowed, although in practice courts tend to be lenient in imposing penalties. The absence of more significant monetary penalties means that practical enforcement for significant breaches or involving large operators or service providers is compromised.

Although the recently implemented general authorisation regime for use of scarce resources is generally aligned with EU framework, there are still some restrictive factors, including government interference with the fees for use of scarce resources and administration fees. The Ministry also has the authority to initiate tenders for granting rights of use of radio frequencies and prescribing conditions applicable to the individual licences.

Dispute resolution provisions are not sufficiently clear in the law and are not specific to the circumstances of the electronic communications sector.

The universal service provisions in the law are not comprehensive and do not provide certainty that the principles of objective, public and non-discriminatory procedures are observed in practice. The law does not require RATEL to use a tender process to designate universal service operators (though RATEL may use a tender process if it decides to). The law is also not particularly comprehensive with respect to calculating and reimbursing any compensation payments, or determining amounts to be contributed by other operators to a universal service fund. The Ministry and RATEL need to adopt a comprehensive set of decrees and/or regulations to specify the universal service regime more clearly and specify the obligations of designated operators, as well as the need to use public tenders to provide transparency.

With respect to consumer protection, the law in general provides adequate provisions aligned with the 2003 EU framework, but aspects currently not addressed by law include long-term consumer contracts and contract termination procedures.

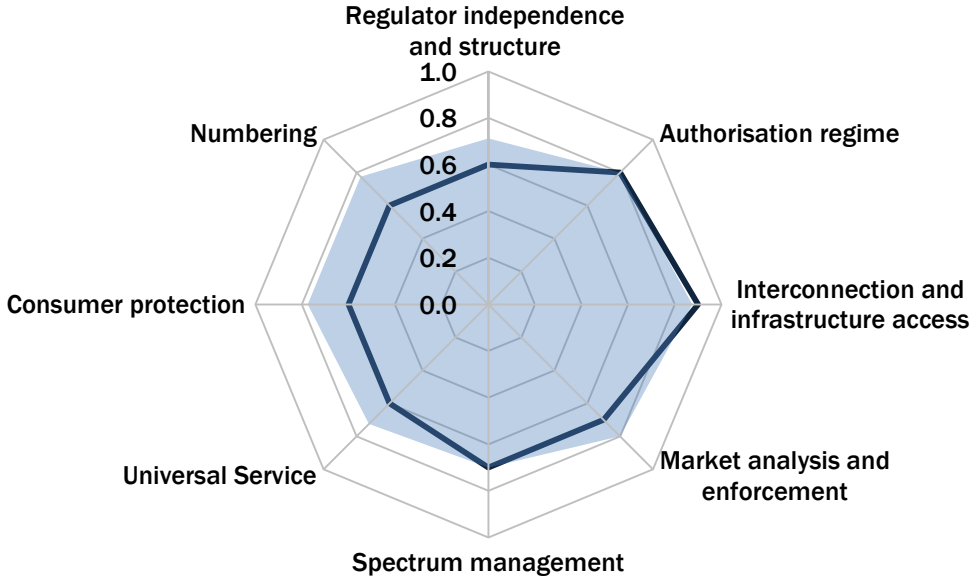
The market analysis and significant market power provisions within the law are adequate, although clear authority for RATEL to impose functional separation on operators should be introduced. Obligations with respect to interconnection, access and facilities sharing are applicable to all operators and are also generally aligned with EU framework. The law provides for general rights of way for operators, but these rights are not fully aligned with provisions of other relevant laws, which are outdated (for example, the Law on Expropriation is unclear as to the possibility for electronic communications operators to become beneficiaries of expropriation, and to obtain rights of way pursuant to expropriation procedure). Provisions

on rights of way over public property are more detailed and provide more certainty than those regulating rights of way over private property.

Provisions of the law addressing national security, emergencies and lawful interception are generally adequate.

Chart 2: Comparison of the legal framework for telecommunications in Serbia with international practice and regional performance

Serbia: Legal framework



Key: Extremities of the chart = International best practice
Serbia = Solid line
Regional average = Shaded area

Sector organisation and governance

The government now controls 100 per cent of the incumbent Telekom Srbija (80 per cent of shares are owned by the government, whereby 20 per cent of shares are treasury shares owned by Telekom Srbija itself), which runs national fixed and mobile services following the exit of Greek operator OTE and Telecom Italia. Telekom Srbija was initially owned by Serbian state-owned Postal services company, while in 1997, Postal services company disposed with 49 per cent of shares in Telekom Srbija, which were acquired by Telekom Italia, for example, its Dutch subsidiary (29 per cent of shares) and OTE (20 per cent of shares). In 2003 Telekom Italia sold back its share to the Serbian Postal services company, and in 2010, in preparing the privatisation, Postal services company sold all of its shares in Telekom to the government, enabling it to obtain 80 per cent share in Telekom. During 2011 further privatisation attempts were announced by the government for a 51 per cent stake in Telekom Srbija but the process was cancelled. In 2012 the 20 per cent stake in Telekom Srbija was bought back from the Greek incumbent operator, OTE. The management of the ownership function rests with the Ministry of Finance.

The Ministry of Foreign and Home Trade and Telecommunications has overall responsibility for policy in the sector, including spectrum and universal service. A unit "Directorate for Digital Agenda" within the Ministry is specifically responsible for information society issues. Broadcasting is regulated by a separate agency (the Republic Broadcasting Agency, established in 2003). The key functions of the government and the electronic communications sector regulator were redefined in the laws adopted in Serbia in 2010. Parliament has to approve the sector regulator's activity plans and budget as well as its annual report.

The national regulatory authority, RATEL, was established as an independent legal entity in 2003, but became operational only in 2005. Since its establishment, RATEL's independence has been undermined

by the Ministry's supervision powers and by the systematic delays in approval of its board members. The current members were appointed on 31 March 2011 – nine months after the adoption of the new Law on Electronic Communications in June 2010. The possibility of reappointment without limitation is foreseen for the position of the executive director of RATEL. Its institutional capacity has improved recently, and RATEL has now been granted observer status on BEREC, the EU regulatory body, which will help RATEL to adopt regulatory best practice. 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. Most of the required secondary legislation has been adopted by RATEL, although the implementation still remains at an early stage.

The government approves the Financial Plan of RATEL and administrative charges payable by the operators to RATEL, thus limiting its financial independence, as does the 2011 Law on Cinematography (legal framework section above).

There are no legal restrictions on RATEL to set the salary level of its employees within the approved budget. However, in 2009 RATEL had to apply a temporary six months' salary limit imposed on all employees in the public sector.

Appeals against regulatory decisions can be brought before the Administrative Court. Lengthy and inefficient court procedures have been experienced, although recently some progress has been observed. The regulator has an established practice to organise public consultation on specific decisions. The minimum period for comments is 10 days.

A general regulation on universal service was adopted by the Ministry in March 2012. RATEL designated four operators with universal service obligations in 2010, but the basis for their designations and their obligations are not sufficiently clear. RATEL is currently preparing two additional by-laws which will regulate universal service in more detail.

A Commission for Protection of Competition was established in 2005.

Serbia is not a member of the WTO, although Serbia was designated a "candidate" for membership of EU on 1 March 2012.

Regulatory conditions for wired networks

Serbia was very slow to open up the market, despite the passing of a primary law in 2005 which envisaged full liberalisation. The fixed incumbent operator Telekom Srbija was granted an exclusive right to provide all types of fixed telecommunications services until 9 June 2005, 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 a second licence for the provision of public fixed telecommunications networks and services was issued to Telenor following a public tender procedure. A moratorium on similar new licences was in place until the end of 2011, thereby keeping competition in the sector limited. The market is now fully formally open, with a simplified general authorisation procedure requiring only notification to RATEL. In April 2012 Serbian Broadband was registered at RATEL for providing fixed telephone network and services under the general authorisation procedure. A separate licence to provide broadcasting services has to be obtained from the national broadcasting regulator.

Serbia is lagging with implementation of competitive safeguards. There is still no carrier selection/pre-selection, wholesale line rental or fixed number portability. Local loop unbundling is at a very early stage of implementation with a reference offer approved in April 2012, although wholesale broadband access was offered by Telekom Srbija on commercial basis from 2006. In 2011 there were 22 agreements in place covering over 123,000 lines.

The new reference interconnection offer for Telekom Srbija was approved in April 2012, along with the reference offer for infrastructure sharing (ducts and collocation). Local call termination is €0.0062 per minute, single transit is €0.0081, double transit is €0.0084. These are still above EU average rates. RATEL is working on the preparation and implementation of cost modelling for interconnection services.

Implementation of further competitive safeguards is foreseen in 2012 following the adoption of market analysis decisions in late 2011, although no timing for the introduction of carrier selection/pre-selection has been decided yet.

On access to public and private property, recent improvement in the transparency of the procedures and shortening the deadlines for issuing relevant permits have been implemented.

In 2011 RATEL made further progress on fixed-line retail tariff rebalancing, implementing an increase of almost 11 per cent in Telekom Srbija's basic line rental. This followed an 80 per cent increase already implemented between October 2009 and July 2010. The price of residential monthly rental has now increased from €0.56 per month in 2006 to €4.56 per month in 2011, which is now at a level comparable with other Group B countries, but still below the EU average of €15 per month. Serbia also had the lowest local call prices in the Group B region, but with a 130 per cent increase from 2010, prices are now aligned with the regional norms. The residential line connection charge is €53, and businesses pay €90.

Regulatory conditions for services requiring frequency spectrum

Frequency allocation is carried out by the government on the basis of a proposal by the sector regulator RATEL, which then performs all frequency assignment tasks.

Serbia has three mobile network operators, each offering GSM and UMTS/3G services. All three licences to operate in 900/1800MHz bands were granted in 2006. The mobile operators are not yet allowed to implement 3G services in the 900 MHz and the 1800 MHz bands pending adoption of an updated frequency distribution table by the Ministry. The later entrant (VIP mobile) has a smaller spectrum assignment in the 900 MHz band, but more in the 1800 MHz as compared to the two other established operators.

Mobile number portability has been implemented, although the regulator had to iron out teething problems among operators in late 2010. National roaming has been used since 2006. There are no regulations allowing virtual mobile operators and none exist.

Mobile termination rates have been set at €0.0434 per minute which is below the average EU rate. RATEL has not yet developed modern cost models to apply to wholesale interconnection charges.

For fixed wireless broadband, 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 RATEL 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.

The switchover to digital broadcasting was planned for April 2012, but this deadline was pushed back to June 2015.

Payments required from operators

The funding sources for the sector regulator RATEL are distributed between annual revenue-based and spectrum usage fees. Operators have to pay an annual fee of 0.5 per cent of their revenues to the regulator. This amount is artificially high because the new Law on Cinematography, adopted on 26 December 2011, requires RATEL to pay 10 per cent of the revenues that it obtains from operators for the purpose of cinematography improvement. RATEL's financial independence is further limited by the obligation to pay fee for forests in amount of 0.025 per cent of its annual revenue.

The amount of surplus funds transferred to the state budget was around €12 million. This relatively high sum results from the law which requires that any surplus funds collected by RATEL should be allocated to the development of electronic communications and information society sector.

The Serbian government introduced an "economic crisis" tax on mobile services of 10 per cent in June 2009. The tax was implemented transparently through an addition to the VAT level on the customer bills. After the operators voiced strong objections to the tax and acknowledging the fact that the tax was originally introduced as a temporary measure, the Serbian government removed this tax on 1 January 2011. The Serbian mobile sector now has one of the lowest tax burdens in the Group B region.

Information society safeguards

Serbia has a generally liberal approach freedom of expression and information. No special licences are required for internet services.

Serbia requires prior authorisation of providers of qualified electronic signatures. However, after adoption of new secondary legislation on the registration procedure, a supervision scheme has been established by the Digital Agenda Administration (part of the Ministry). Four providers of qualified certificates have now entered the market, who have now issued over 3,000 valid certificates in total.

On internet domain name registration, foreign undertakings may become accredited registrars, provided that they have a local presence). Serbia successfully replaced about 34,000 '.yu' domains (end of 2007) with about 67,000 '.rs'. domains (as of July 2011). Serbia also has an additional top level domain in Cyrillic letters, '.срб'.

For data protection, both RATEL and a data protection authority have supervisory powers. Electronic communications operators must notify personal data breaches to the data protection authority and under conditions, also to the subscribers and individuals affected by the breach. RATEL has a legal basis to audit operators' security measures.

Summary and outlook

Serbia is the second largest market in the Group B region (after Turkey), but was the last one to be fully liberalised. The latest attempt to privatise the incumbent fixed and mobile operator Telkom Srbija collapsed in June 2011.

Although the 2010 Telecommunications Law transposed the EU's 2003 regulatory framework for communications into national law, promising improved market prospects for competitors, it still needs the implementation of the normally expected competitive safeguards before investor confidence is fully restored. The recent abolition of the special tax on mobile revenues was seen as a good step and the overall tax burden on the sector is now relatively low.

In September 2010 the government adopted the strategy for the development of electronic communications from 2010 to 2020, but there is no implementation plan setting out specific targets and policy priorities in the short to medium term, which creates uncertainty for the market players. Fibre deployments are starting to appear, with public organisations seeking foreign investment partners in some cities[34].

Administrative capacity of the policy-making body in the sector of information society needs to be further strengthened. The sector regulator has completed its first round of market analyses and effective implementation and enforcement of regulatory obligations to improve competitiveness are expected in 2012.

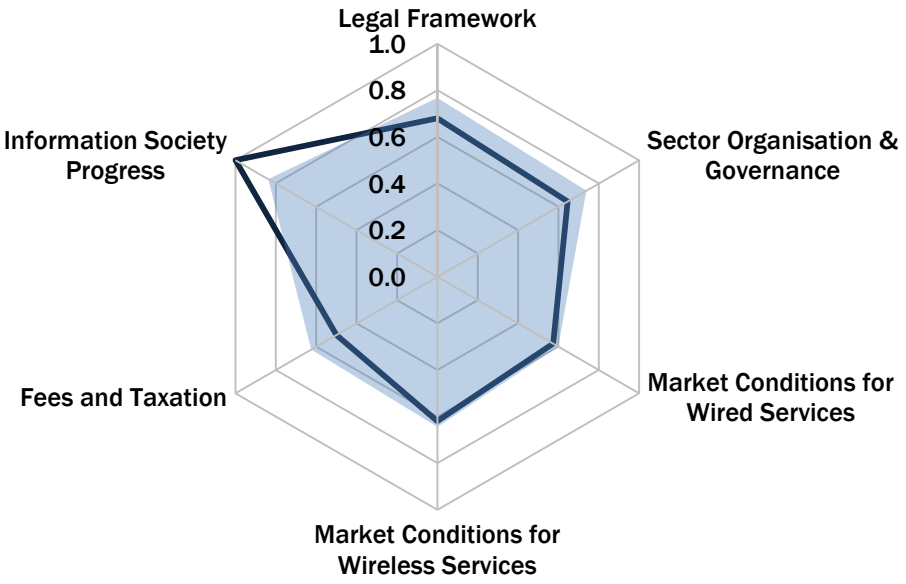
Growing usage of e-commerce, e-government and e-education services by both individuals and businesses characterises the nascent information society in Serbia. It has the highest fixed network penetration in the Group B region, and so broadband can penetrate rapidly by exploiting the copper network, as well as using the newly issued national fixed wireless licences.

The introduction of mobile number portability has gone some way to promoting competition in the mobile market. More innovation could be introduced if virtual operators were allowed into the market. Future market growth primarily depends on the promotion of mobile broadband, which could be better if the regulator allowed technological neutrality in the existing GSM spectrum bands. Mobile operators must further develop attractive offers for consumers and invest in network upgraded capable of meeting the anticipated growth in data traffic. Telekom Srbija's trial of 4G/LTE in mid-2011 anticipates RATEL's implementation of a more modern regulatory framework for spectrum, which will go far to promoting investment in the sector.

34 For example, see http://sorinzorca.com/?p=1315

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Serbia with international practice and regional performance

Serbia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Serbia = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 64 (100 is the lowest risk)

TURKEY

At a glance

Market penetration	
Population	74m
Fixed penetration*	21
Mobile penetration*	89
Broadband penetration*	17

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Transport, Maritime Affairs and Communications
National regulatory authority	Information and Communications Technologies Authority

Market access	
General authorisation	✔
Technological neutrality	✔*
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

*fixed only

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔

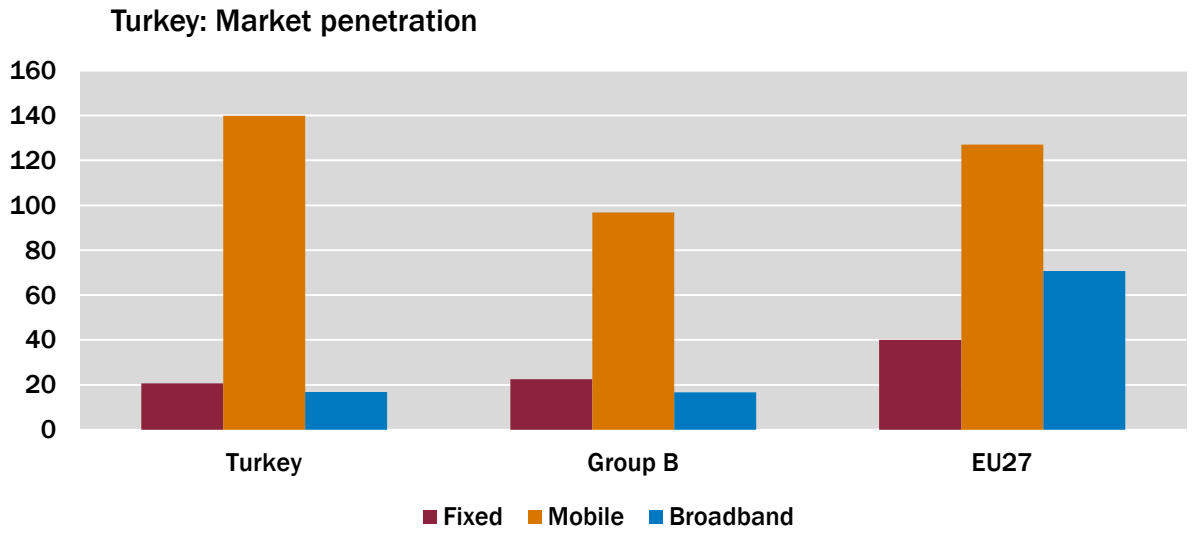
Information society	
Internet penetration per 100 population	44
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Full liberalisation of fixed voice telephony has been a slow process. Long-distance and international networks were liberalised in 2004 and data networks in 2006, but it was not until 2009 that the exclusive right of Türk Telekom over local services was removed. This followed the new Electronic Communications Law that came into force in 2008 applying a general authorisation framework. Fixed-line penetration has actually decreased from 29/100 population in 2005 to 21/100 in 2011. Fixed Broadband lines are growing fast, with penetration already over 10.4/100 population, easily beating mobile broadband penetration.

There are three mobile network operators, with privately-owned Turkcell having more than a 50 per cent market share. The overall penetration of mobile, at 89/100 population, is significantly below the EU level. Mobile broadband penetration is 6.7/100 population with very high growth in 2011.

Chart 1: Market penetration of main services per 100 population in Turkey, compared with the Group B regional averages



Group B average is for Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey.

Legal framework

Turkish legislation governing the telecommunications sector is a complex hierarchy of laws, bylaws and regulations. The new Electronic Communications Law adopted in 2008 (the 2008 law) is relatively concise, and some important issues are addressed mainly in secondary legislation or other laws, which can result in overlapping of provisions of different regulations. Turkey does not have specific plans to transpose the EU 2009 regulatory framework, though some regulations adopted after 2009 fulfil some of the additional requirements of 2009 Framework. The Turkish legislative framework is generally aligned with EU 2003 framework with respect to regimes for interconnection and access, tariff setting, market analysis, numbering, consumer protection and national security, emergencies and legal interception. The sector regulator, the Information and Communications Technologies Authority (ICTA) appears to have sufficient enforcement authority to impose meaningful penalties (including fines up to 3 per cent of net sales) directly without the need to resort to the courts.

The 2008 law did not entirely replace previous laws addressing the sector. In particular, the Law on Telegrams and Telephones (enacted in 1924) and the Wireless Law (enacted in 1983) are still in force, although most other applicable laws have been either repealed or replaced. The Telegrams and Telephones Law now mainly addresses the incumbent fixed-line operator's legal status, and provides the legal basis for a telecommunications tax. The Wireless Law is now titled the "Law on the Establishment of the Information and Communications Authority" and provides details of the structure and operation of the ICTA.

The 2008 law introduced a clearer distinction between the competencies of the regulator, ICTA, and the Ministry of Transport, Maritime Affairs and Communications (the Ministry) and provided for substantially increased independence of the ICTA. However, the Ministry is responsible for the implementation of universal service and has the authority to launch tender procedures for spectrum authorisations if it

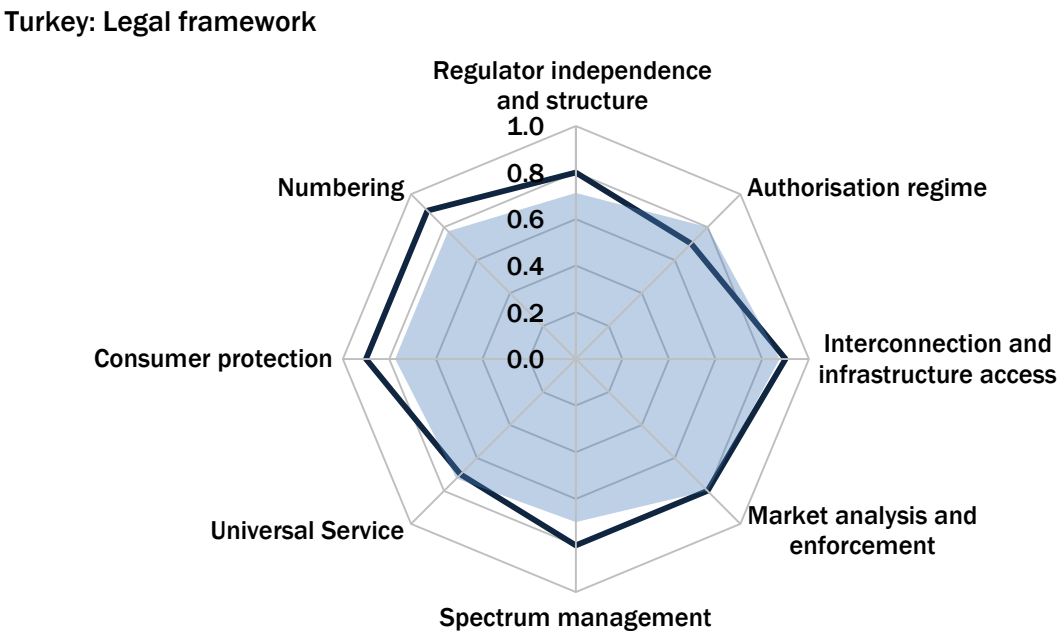
chooses. The ICTA has significant independence from the Ministry. However, deficiencies exist with respect to budgeting and appeal mechanisms, and Law 2813 states that the ICTA is "associated with the Ministry of Transport".

Turkey is the last of the enlargement countries to adopt legislation transposing the Electronic Commerce Directive: a draft law was prepared by the Ministry of Justice with the contribution of other institutions and submitted to the Grand National Assembly of Turkey on 27 December 2010, but has not yet been adopted.

Turkey has generally adequate provisions for spectrum management, but the law creates some uncertainty regarding potential for involvement by the Ministry, which is authorised to initiate tenders for spectrum when it deems it necessary, which introduces uncertainty. Although there is no specific requirement that spectrum and numbering assignments be technologically neutral, open, objective and proportionate as required by the EU framework, the Electronic Communications Law states that the principles to be applied in assigning spectrum and numbering resources include the "... promotion of qualitative and quantitative sustainability, regularity, reliability, productivity, clarity, transparency and the efficient use of resources". Timeframes specified for decisions on spectrum and numbering do not fully meet the short EU framework requirements. In addition, the ICTA can decide not to announce an open tender to grant rights of use for frequencies and may instead conduct it among specified candidates, which (while acceptable within EU framework if sufficient transparency is assured) raises issues of transparency. This exception is used for example to "top up" spectrum needed by existing operators.

Rights of way are covered by a 2011 decree which authorises the Ministry to determine general criteria and implementation procedures and principles regarding rights of way. There are standard timescales for receiving rights of way onto public and private property. While provisions for rights of way are generally aligned with EU framework, no methodology is provided to determine fees where parties cannot reach agreement on their own. In addition, there is no requirement that fees for rights of way must be justified, transparent, non-discriminatory and proportionate in relation to their intended use.

Chart 2: Comparison of the legal framework for telecommunications in Turkey with international practice and regional performance



Key: Extremities of the chart = International best practice
Turkey = Solid line
Regional average = Shaded area

Sector organisation and governance

Following part privatisation in 2005, the state now holds 30 per cent and a golden share of Türk Telekom, the incumbent operator. Indirectly, through Türk Telekom, the state also owns 24 per cent of the mobile operator Avea. The state also controls the satellite and cable TV operator Türksat.

The Ministry of Transport, Maritime Affairs and Communications (the Ministry) is responsible for policy making in the electronic communications sector, although a separate Ministry of Development (which took over responsibilities of the State Planning Organisation in June 2011) retains responsibility for long-term strategies.

The key functions of the government and the regulator were redefined in the laws adopted in 2008. The new Ministry of Development is responsible for policy-making across all sectors, including the preparation of a new version of its comprehensive information society strategy and action plan (the current version covers the years 2006 to 2010). Specific regulatory decisions are still subject to government approval; the Turkish government still decides on universal service and the government is also involved in determining the amount of the fees for the use of limited resources (numbering and spectrum).

Parliament is responsible for the approval of the ICTA activity plans and financial plans as well as in the review of the annual reports. Additional audits of the ICTA financial plans and annual reports can be performed by the Court of Accounts, Inspection Council of the Prime Minister and the State Inspection Council of the Presidency of the Turkish Republic. All decisions of ICTA may be appealed: appeals against ICTA general decisions on the sector can be brought to the Council of State within 60 days from the announcement of decisions and appeals against ICTA decisions on administrative fines can be brought to the Administrative Court within 60 days from the announcement of decisions. Execution of an administrative act by ICTA is not automatically suspended during the appeal process. ICTA must make the Board's decisions concerning the operators and consumers publicly available with its rationale and processes.

ICTA appears to have adequate resources and is funded primarily from usage fees. The board members are appointed by the Council of Ministers subject to the final approval by the President of the country. There is no separate position of the executive director and this function is assigned to the chairperson of the managing collegial body. The ICTA publishes its decisions on its web site, even though it has no obligation for this. The procedures for settlement of disputes between operators are published and there are separate consumer courts organised for handling disputes between consumers and service providers. Appeals against regulatory decisions are decided by courts (Council of State or Administrative Court).

Frequency assignment for broadcasting is carried out by a separate broadcasting authority, the Radio and Television Supreme Council. A Competition Authority has existed since 1997, which has a well-functioning cooperation with the ICTA.

Turkey has been a member of the WTO since 1995 and is therefore committed to liberalisation. It has been granted the status of an EU candidate country and accession negotiations are ongoing.

Regulatory conditions for wired networks

A general authorisation regime for all categories of electronic communications services has been implemented. Although Turkey is actively adopting new laws, the legislation is complex. Newly adopted legislation is not always based on the EU *acquis* and sometimes does not aim at full alignment. For example, the adoption of the general authorisation scheme in the law of 2008 did not abolish pre-existing concessions. This means that any concession agreements issued before the entry into force of the Electronic Communications Law of November 2008 will remain in force until their expiry (due in 2029), annulment or termination. The specific obligations and conditions stemming from the respective authorisation and concession agreements also continue to apply to the authorisation holders. Therefore, market restrictions still apply, even after the general authorisation process was introduced in 2009. However, Turkey committed to review existing concession and authorisation agreements so that full alignment with the EU regulatory framework will be accomplished by accession.

The operation of cable TV networks is subject to a general authorisation regime with a simple notification to ICTA.

The ICTA decided in 2011, for the purpose of encouraging new investments, and particularly fibre internet access services and improving infrastructure-based competition, that:

- Fibre access is excluded from its market analyses process for a five-year period or until the percentage of fibre internet subscribers reaches 25 per cent of all fixed broadband subscribers.
- Türk Telekom (the fixed incumbent) is required to comply with its 2011 commitment that it provides resale and bitstream access at wholesale level on fibre infrastructure to internet service providers on a non-discriminatory basis and that it notifies such wholesale tariffs to ICTA before entering into force.

Fixed-line retail tariffs are subject regulatory controls requiring advance notification for the incumbent Türk Telekom and a lower limit is applicable to all fixed operators. Tariff rebalancing by Türk Telekom is well advanced. Its reference interconnection offer was updated in 2011, but its fixed call termination charges (at €0.006 per minute for local termination, €0.0073 per minute for single transit and €0.0096 per minute for double transit) are around the EU average. ICTA imposed a full set of regulatory obligations in fixed markets with number portability, carrier selection and pre-selection already available (since 2009) and a new obligation of wholesale line rental imposed on Türk Telekom for residential and business access. Türk Telekom has an obligation to unbundle its local loops and wholesale rates are below the EU average. However, very few loops have been provided to alternative operators, with the operators preferring the Bitstream alternative from Türk Telekom.

Regulatory conditions for services requiring frequency spectrum

Three mobile operators have been competing in the market since 2000 and all launched 3G licences in 2009, later than most Group B countries. The mobile licences are not technologically neutral, although the regulator has proposed to the Ministry so that frequencies allocated to GSM (both at 900 MHz and 1800 MHz) are opened for 3G services. It also proposed a re-farming scheme whereby some existing GSM spectrum may be auctioned to operators that currently hold less than 10 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.

The largest operator, Turkcell is obliged to offer mobile access (including national roaming and virtual mobile access) but these have not been established so far. No licences for provision of broadband wireless access services have been issued so far.

Retail price controls in a form of price caps apply to mobile telephony prices, an obligation stemming from concession agreements that are still in place. A major cut in wholesale mobile termination charges (by over 50 per cent) was imposed by the regulator in April 2010. This followed a 30 per cent decrease already implemented in March 2009. The current rates are different for each mobile operator, averaging €0.0144 per minute, which is significantly below the EU average.

Currently, the three mobile providers operate under concession agreements. As indicated above, older authorisation and concession agreements that were signed before 2009 have not been aligned with the new legal framework and will remain in force until they expire (until 2029), are annulled or terminated. This prevents existing operators from becoming a virtual mobile service provider.

Payments required from operators

Turkey puts the highest tax burden of any Group B country on the electronic communications sector and the tax burden on mobile subscribers appears to be among the highest in the world.

In October 2011 the government further increased the tax rates applied to mobile phones. This increased the flat rate tax from 40 liras (€17) to 100 liras (€40) and the revenue tax from 20 per cent to 25 per cent. It is estimated that 48 per cent of the cost of using a mobile phone in Turkey is due to taxes, whereas the average for the countries surveyed by the GSM association is 18 per cent[35]. This historically high tax rate has kept the penetration of mobile phones down in Turkey to below 90/100 population, against the Group B regional average of 97 and the EU average of 127/100.

All telecommunications operators are also charged a yearly fee of 0.35 per cent of their revenues as payment for the large staffing of the sector regulator ICTA, which employs over 700 people (significantly higher than the other Group B countries). Some €582 million is collected from the industry by ICTA, of

35 See www.gsma.com/articles/growing -mobile-tax-burden-in-turkey-holds-back-economic-growth/17824

which about €290 million is transferred to the state budget and €104 million to the universal service fund, which is managed by the Treasury.

As a further contribution, a universal service fund collects from various sources, including revenue-based contributions from telecommunications operators and transfers from the ICTA budget. These contributions are allocated to the universal service fund kept by the Undersecretary of the Treasury but no decision on compensation to the universal service providers has been made so far. A portion of revenues collected is earmarked for the universal service purpose and transferred to the fund kept by the Treasury. The universal service legislation has not been applied in practice and 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.

Information society safeguards

Turkey has yet to adopt legislation transposing the EU Electronic Commerce Directive. Furthermore, the Turkish law regulating internet content raises concerns about restrictions to freedom of expression and citizens' right to access information. All countries except Turkey implemented the Electronic Commerce Directive 2000/31/EC. Turkey is preparing a draft transposing the directive. 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 EC directive.

Regarding electronic contracts and signatures, Turkey has adopted an electronic signature law based on the EC Directive 1999/93. There is also a new Code of Obligations, a new Code of Commerce and a new Code of Civil Procedure. According to E-Signature Law and Code of Obligations, secure electronic signatures and handwritten signatures have the same legal effect. The Code of Commerce obliges stock companies to establish a web site and to publish certain documents online. Executive Board meetings may be held electronically. The Code of Civil Procedure foresees the introduction of an e-Justice system and amendments to another law provide a legal basis for delivering official notifications electronically – for natural persons on request, but for certain companies compulsory. Turkey has secondary legislation on electronic documents standards.

There is a new by-law regulating internet domain name registrations that will enter into force in November 2012 and according to this new by-law, registry and registrar functions will be strictly separated. Also, domain names with “com.tr” extension will be registered on first-come, first-served basis. Turkey signed the Council of Europe Convention on Cybercrime in 2010. It has not yet ratified the convention, but the Turkish legislation has already been aligned with it.

Summary and 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 market entry regime, as well as regulation of retail tariffs and spectrum management.

There is still work to be done to ensure effective implementation of regulatory obligations, in particular in fixed voice and broadband markets. The electronic communications sector regulator ICTA’s draft work plan for 2012 includes a project to review Turkish regulation in line with recent updates in the EU regulation.

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.

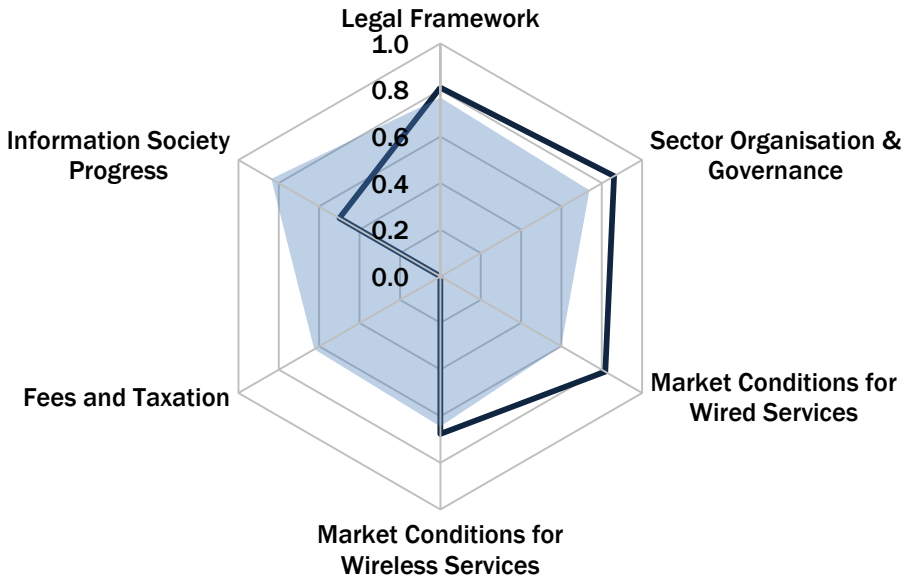
Spectrum management needs to be made technologically neutral, open, objective and proportionate with timeframes specified for decisions that align with EU norms in order to make the process less uncertain for investors.

The very high tax burden on mobile phones could be expected to have limited the growth of the sector/100. Mobile penetration is low by Group B and EU standards and the late launch of mobile broadband services has meant lower broadband penetration levels too, lagging significantly behind the EU. This means that there is a pent-up demand for broadband waiting to be met, with internet users at over 40/100 population and total fixed plus mobile broadband penetration still only 17/100.

The potential for high growth in broadband services has attracted investors to establish alternative fibre networks in the main cities. The incumbent fixed operator has also announced a 10-year national fibre investment programme. Against the EU practice, the Turkish telecoms regulator has excluded fibre from open-access requirements for five years, or until fibre subscriptions reach a 25 per cent share of the fixed broadband market. The decision has been taken in order to encourage investment in fibre infrastructure. However, this risks reducing demand, as the greater investment will feed into higher retail prices for consumers.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Turkey with international practice and regional performance

Turkey: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Turkey = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 69 (100 is the lowest risk)

3.3 Group C countries

Regional overview

The four countries assessed (Egypt, Jordan, Morocco and Tunisia) have a total population of nearly 130 million (2010), with Egypt the largest (81 million) and Jordan the smallest (6 million).

Penetration of telecommunications services is low by EU standards:

- Average fixed-line penetration is around 11/100 population in Egypt, Morocco and Tunisia, and only 7/100 population in Jordan (the EU average is 40/100 population).
- Mobile subscriber penetration is 105/100 population, with Egypt the lowest at 99 and Jordan the highest at 120 (the EU average is 127/100 population).
- Broadband services are still at an early stage, with the average levels of penetration of fixed and mobile broadband connections only one tenth of the average EU levels.

During the last eight years, all four countries have passed legislation that allows the full liberalisation of the sector, most recently in Tunisia in 2009. This means that there is a legal basis for new entrants in all markets, but in practice, the countries still have dominant fixed network incumbent operators, all of which have some remaining state interest[36].

Mobile communications is the main competitive growth market, with three licensed mobile operators in each country, operating with a mixture of state and foreign ownership.

Broadband communications are still at an early stage, but show the greatest growth and promise. Voice revenues have already stagnated.

36 In Jordan, the Social Security Corporation, which is independent of State funds, owns 29 per cent of Jordan Telecom.

Overall market description

	Egypt	Jordan	Morocco	Tunisia
Population	81.1m	6.2m	31.9m	10.5m
Remaining state ownership in fixed operator	80%	29%	33%	65%
Date of sector liberalisation	2005	2004	2006	2009
Market share of fixed incumbent in the fixed market	Over 95%	Over 95%	99%	97%
Number of mobile operators	3	3	3	3
Penetration of fixed-lines per 100 population	11.1	6.8	11.2	11.9
Penetration of mobile subscribers per 100 population	99	120	114	111
Penetration of fixed broadband per 100 population	2.1	4.7	1.8	5.1
Penetration of mobile broadband per 100 population	2.9	5.0	8.1	1.7
Overall legal/ regulatory risk index (100 =lowest risk)	46	70	69	55

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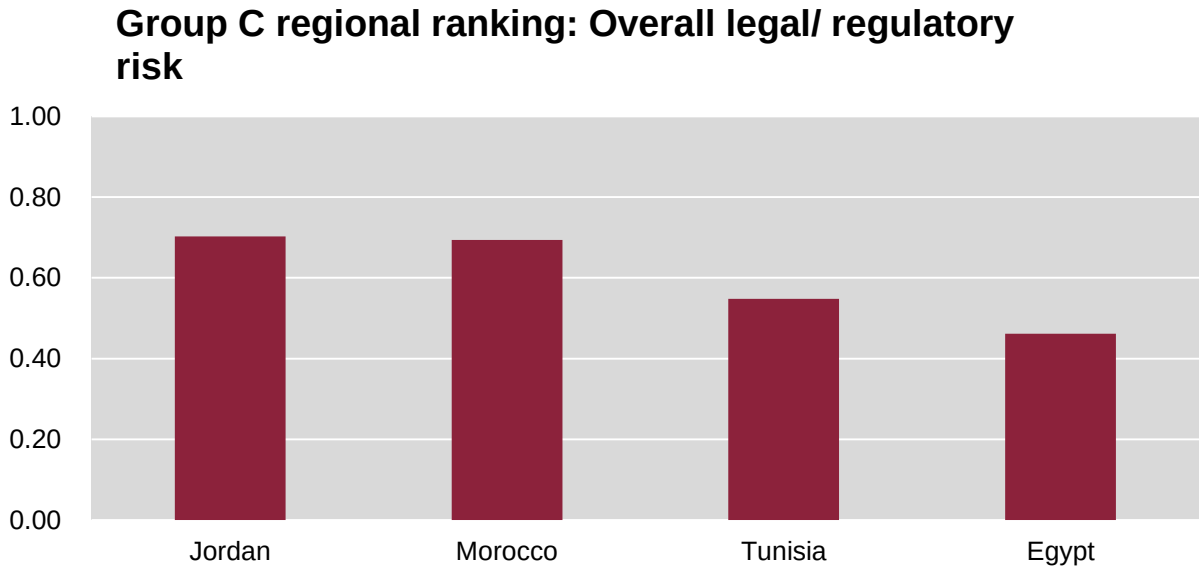


1.00 is the lowest risk, zero is the highest

[Source: EBRD analysis]

The Overall Legal/ Regulatory Risk Index is a summation of a number of components, as defined in section 2 of this report:

1) Legal Framework. This component assesses if the degree of conformity with a modern legislative framework for an efficient competitive market for electronic communications. (Weighting = 30 per cent.)
2) Sector organisation and governance. **This relates to the structure of the electronic communications sector including ownership, regulation and the main regulatory procedures. (Weighting = 10 per cent.)**
3) Market conditions for wired networks and services. **This relates to the market entry conditions faced by operators and service providers who base their services on metallic, as opposed to wireless (spectrum) based methods. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 20 per cent.)**
4) Market conditions for wireless networks and services. **These relate to market entry by operators and service providers who base their services on wireless (spectrum) methods. This includes mobile services and fixed wireless services. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 25 per cent.)**
5) Fees and taxation on electronic communications services. **This relates to the types of payments required from operators/ service providers to the state and/or regulatory agency in order to start and continue providing services. (Weighting = 10 per cent.)**
6) Progress towards implementation of Information Society. This relates to the country's environment for conducting business and providing services electronically. (Weighting = 5 per cent.)

Market commentary

The mobile sector is the most competitive in this region, with three licensed operators in each country. There is still some state ownership of companies, particularly in Tunisia where the state has part-ownership in all three mobile operators and in Egypt where the state owns 80% of the incumbent fixed and mobile company. 3G services have been launched in all four countries (Egypt being one of the first African countries to launch 3G in 2007). Mobile data services are showing very high growth, outselling fixed broadband, with over 4 million mobile data subscribers in 2011, compared with around 2.5 million fixed broadband connections. Overall penetration of broadband is highest in Jordan and Morocco at around 10/100 population and lowest in Egypt at 5/100.

The governments of all four countries are supporting "Information Society" policies, with various degrees of success. Morocco promotes an innovative "pay or play" scheme to encourage operators to invest in rural broadband networks. The scheme is aiming to bring service to 2 million population in rural areas where there has previously been no telecommunications coverage (see Morocco Case Study "Investing in rural areas". Tunisia and Egypt have established techno-parks, with some success in encouraging inward investment by ICT sector companies. Jordan's National Broadband Network aims to provide a country-wide fibre infrastructure, though this has stalled, with only one-third of the planned investment completed. The Jordanian government is currently understood to be examining options by inviting private investors to participate in the completion of the scheme.

Some regulatory reforms to the sector have already been introduced in all four countries, including movement towards simpler licensing procedures (although none of the countries has yet implemented the EU's more liberalised market entry conditions).

The main liberalising steps so far across the region are:

- All four countries allow any technology to be used when a licence is granted (except for fixed services in Egypt).
- Access to public and private rights of way appears reasonable in Jordan, Morocco and Tunisia, but not yet in Egypt.
- Passive infrastructure access (for example access to ducting) is mandated in Jordan and Morocco, but is not clear in Egypt or Tunisia.
- New entrant operators can gain access to existing international gateways and negotiate their own international settlement deals for voice and data traffic (although in Egypt this needs a separate licence with high fees).
- Spectrum is generally granted on a first-come, first-served basis, or by open and transparent public auction without undue political interference.

None of the countries has yet allowed spectrum holders to trade their holdings without the involvement of the relevant spectrum agency. Only in Morocco has the incumbent fixed operator completed the rebalancing of its retail telephony tariffs. Elsewhere the artificially low tariff charged for a basic fixed-line represents a significant barrier to competitors entering the fixed telephony market.

Conditions for market access

	Egypt	Jordan	Morocco	Tunisia
General authorisation procedure	✘	✘	✘	✘
Technology neutrality for fixed licences	✘	✔	✔	✔
Technology neutrality for mobile licences	✔	✔	✔	✔
Reasonable access to rights of way	✘	✔	✘	✔
Infrastructure sharing mandated	✔	✔	✔	✔
Regulated interconnection charges	✔	✔	✔	✔
Access to international gateways	✔	✔	✔	✔
Spectrum granted on fair, transparent basis	✔	✔	✘	✘
Spectrum secondary trading allowed	✘	✘	✘	✘
Fixed-line retail tariff rebalancing completed?	✘	✘	✔	✘

Some progress has been made by the electronic communications market regulators in the region to introduce the normally expected competitive market safeguards:

- Number portability for mobile subscribers has been implemented in Egypt and Morocco and is planned in Jordan and Tunisia. Morocco has introduced fixed number portability.
- For the fixed broadband markets, all countries except Egypt have introduced the process for competitors to use the existing infrastructure via local loop unbundling and wholesale broadband access.
- Morocco and Tunisia have also encouraged competition in the voice markets by introducing carrier selection/pre-selection, with Jordan due to follow in 2012. Egypt only provides consumer choice via pre-paid calling cards.
- Reference interconnection offers are available in the region, except in Egypt.
- In mobile services, Egypt, Jordan and Morocco have mandated national roaming.
- None of the countries have yet introduced wholesale line rental for their voice markets.

Implementation of competitive safeguards

	Egypt	Jordan	Morocco	Tunisia
Fixed number portability	✘	✘	✔	✘
Mobile number portability	✔	✘	✔	✘
Reference Interconnection Offer (Fixed)	✘	✔	✔	✔
Reference Interconnection Offer (Mobile)	✘	✔	✔	✔
Local loop unbundling	✘	✔	✔	✔
Wholesale broadband access	✘	✔	✔	✔
Carrier selection/ pre-selection	✘	✘	✔	✔
Wholesale line rental	✘	✘	✘	✘
National mobile roaming	✔	✔	✔	✘
Mobile Virtual Network Operators	✘	✔	✘	✘

All four countries have great aspirations for "Information Society" status, with optimistic government policy statements (particularly in Morocco and Tunisia). The main aims in all four countries are to attract foreign ICT companies and to equip schools and business with information and communications technology.

All four countries have implemented some of the necessary enablers to implementation of an information society, but none of them have the full set of expected enablers and safeguards. In Egypt there is no legal basis for personal data protection and neither Egypt nor Tunisia have internationally recognised safeguards against cybercrime.

Implementation of information society safeguards

	Egypt	Jordan	Morocco	Tunisia
Basic internet freedom of expression	✔	✔	✔	✔
Ease of setting up internet business	✔	✘	✔	✔
Legal basis for electronic documents and signatures	✔	✔	✔	✔
Legal basis for data protection	✘	✔	✔	✔
Safeguards against cybercrime	✘	✔	✔	✘

Regional summary and outlook

With the recent changes to governments in North Africa, there is much optimism that the necessary reforms to encourage information technology and investment in electronic communications will follow. All four countries have stated commitments to investor-friendly policies, especially towards ICT companies.

Group C countries

In the recently published Change Readiness Index[37], Tunisia (second), Jordan (fourth) and Morocco (sixth) all rank highly out of the 60 developing countries listed. The index measures a country's capacity to manage change and includes such factors as entrepreneurship, information and communication technology innovation, investment climate and economic diversification. Egypt was ranked 41st.

All four countries are active in regional discussion on the development of more competitive markets for electronic communications, generally aiming to harmonise with the EU regulatory framework. All countries are active in "twinning" projects on electronic communications regulation with EU countries.

Although the legal basis for competition is in place in all four countries, new entrants are discouraged by the power of the incumbent operators and by the absence of some of the normally expected competitive safeguards, as used in the EU regulatory framework. The main demand and investment is in the mobile markets, where very high prices have been paid by investors for establishing networks and launching 3G services. On the other hand, fixed access network investment remains low and few competitive licences have been taken up. Alternative fixed network investment is limited to the main cities. Fixed broadband access growth currently focuses mainly on the urban areas. The various government initiatives to increase fixed broadband penetration outside the cities will only succeed with substantial private sector involvement and investment. More private sector investment will require better market entry conditions and improved competitive safeguards.

Further investment in the mobile sector will be driven by the high demand for mobile data services.

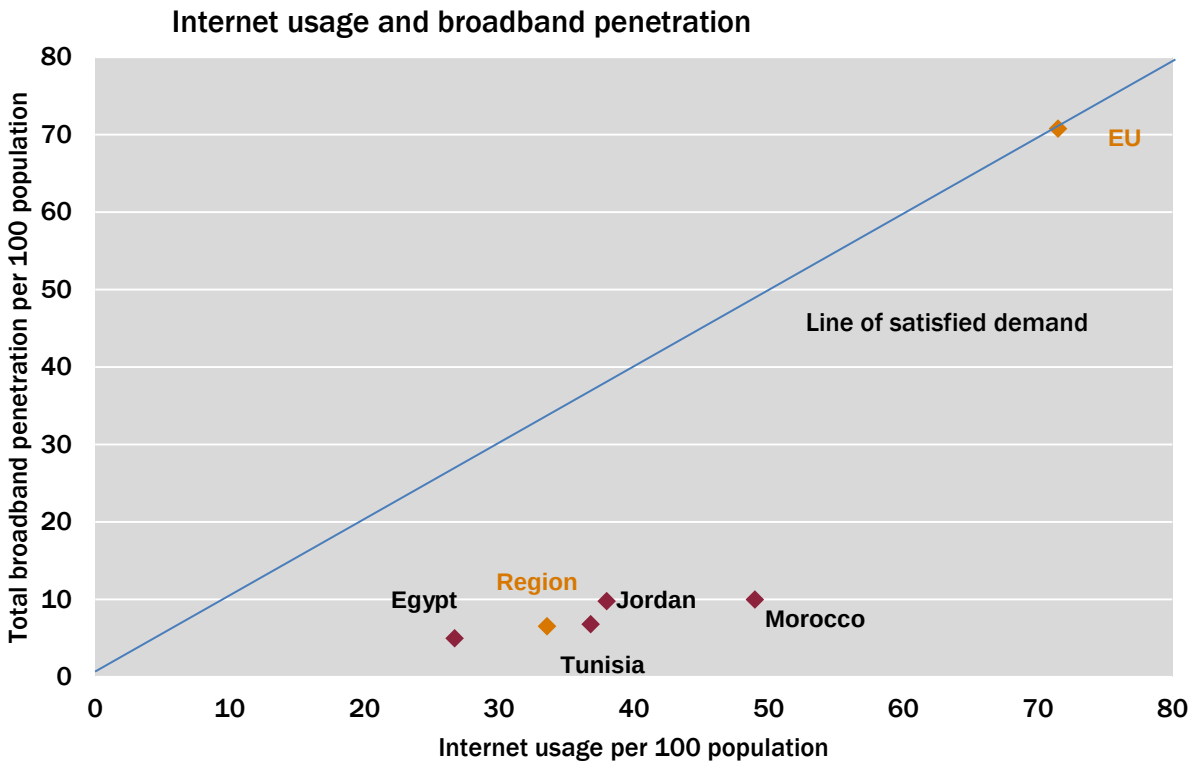
For both fixed and mobile markets, the sector regulators have to be more committed to the implementation and enforcement of the normally expected market entry conditions and competitive safeguards. All the regulators in the region appear positive towards the EU regulatory framework but as elsewhere, meaningful implementation is often held back by the inertia of state control and market dominance by the incumbent operators.

Some progress has been made in implementing basic competitive safeguards, for example, Morocco has both fixed and mobile number portability in place. The sector regulators need to step up their market analysis responsibilities and enforce the necessary remedies to remove the adverse conditions for new entrants resulting from the dominance of the incumbent operators.

The primary legislation governing the electronic communications sector is under review in all the Group C countries. Should the new parliaments accept these changes, and the regulatory agencies gain a strengthened capacity to enforce the resulting improvements to competitive market conditions, then the growth opportunities for fixed and mobile broadband services are very good.

The following chart shows the internet usage (percentage of population who regularly use the internet) compared with the penetration of broadband services. The blue line is where, in country average terms, the internet users' demand is fully met by broadband. All countries to the right of this line have latent demand for broadband services; that is where internet users have not yet been supplied with broadband.

37 2012 Change Readiness Index kpmg.com/changereadiness



[Source: EBRD Analysis]

One way of estimating the potential for broadband growth and investment is by examining the extent of internet usage and comparing this with the penetration of broadband. All countries of the region have a significantly greater percentage of the population using the internet than the penetration rate of broadband (all countries are to the right of the diagonal line). In the chart above, the further towards the bottom right, the more potential there is for broadband growth. Morocco has the most pent-up demand for broadband service, with nearly 50 per cent of its population being regular internet users but only around 10 per cent connected via broadband. Similarly, there is significant latent potential in the other three countries. All countries have a significant gap with the EU, where on average, broadband subscriptions and penetration are significantly higher and the overall demand is being satisfied by broadband.

EGYPT

At a glance

Market penetration	
Population	81m
Fixed penetration*	11
Mobile penetration*	99
Broadband penetration*	4.9

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Information and Communications Technology
National regulatory authority	The National Telecommunications Regulatory Authority

Market access	
General authorisation	✘
Technological neutrality	✔*
Rights of way	✘
Infrastructure sharing	✔
Granting of spectrum	✔

*Mobile only

Competitive safeguards	
Number portability	✔*
Interconnection offers	✘
Wholesale broadband offers	✘
Mobile national roaming and MVNO	✔*

*Mobile only

Information society	
Percentage of individuals using the Internet	26.7
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✘

Market liberalisation

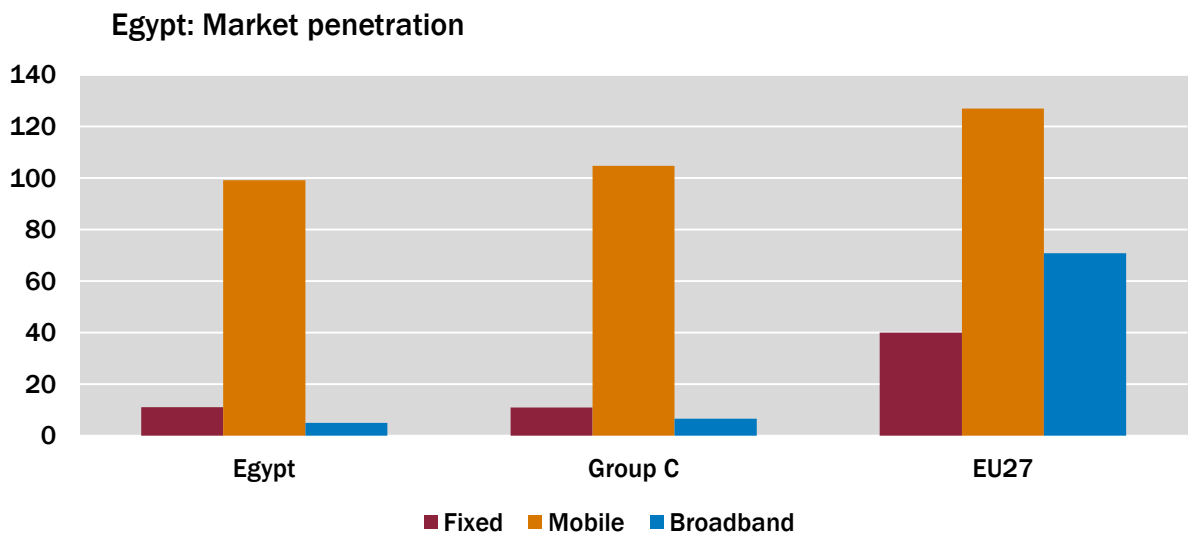
While the exclusivity of incumbent Telecom Egypt on fixed communications formally ended in December 2005, because no alternative operator licences have yet been issued, Telecom Egypt (incumbent operator, 80 per cent state-owned) continues to enjoy a de facto monopoly on the provision of basic fixed voice lines. Telecom Egypt also maintains exclusivity in the key wholesale market for infrastructure leasing. The lack of new licences and the absence of effective wholesale markets considerably hinder effective market development. The only real investment by alternative providers has been within newer 'residential compound' areas, where additional licences have been issued to new provide for fixed infrastructure.

Mobile services were first offered in 1996 by the public company Arento, which was then privatised and subsequently taken over by Mobinil (owned by Orange and Orascom) in May 1998. In November 1998, the second mobile licence was granted to Click GSM, which subsequently became Vodafone Egypt - this operator remains 45 per cent owned by the state. In 2006 the third mobile licence was granted to UAE based Etisalat. NTRA has indicated willingness to possible issue a fourth mobile licence in the form of a Mobile Virtual Network Operator during 2012.

The market for internet services appears very competitive. Most service providers (several hundred) are simply using Telecom Egypt's network, or other networks in the new residential closed compound areas. There are very few internet service providers that have attempted to install their own networks. The National Telecom Regulatory Authority (NTRA) approved two licences in 2010 to provide geographically-focused triple-play services to residential compounds in Cairo's suburbs that contain between 50 and 5,000 housing units. One group, LINKdotNET Egypt, recently sold out to mobile operator MobiNil and includes affiliates of local telecoms group Orascom Telecom.

In December 2011 there were 8.71 million fixed subscriber lines (10.9/100 population) and 83.43m active mobile subscriptions (102.76/100 population). Broadband has achieved 1.8 million fixed subscriptions (2.2/100 population) and 2.68 mobile data subscriptions (3.3/100 population).

Chart 1: Market penetration of main services per 100 population in Egypt, compared with the Group C regional averages



Group C average is for Egypt, Jordan, Morocco and Tunisia.

Legal framework

The legal framework for the electronic communications sector is set out in the Telecommunications Regulation Law (Law no. 10 of 2003 of Arab Republic of Egypt). Some important components of the law reflect best practice, including market analysis procedures, universal service, numbering administration, equipment approval, national security and emergencies. There is a lack of full separation of policy and regulatory functions, however. For example, the Minister of Information Communications Technology (the 'Minister') is also the chairman of the sector regulator (NTRA) and Telecom Egypt. Among the other inconsistencies with best practice, NTRA is "subordinate to the Ministry Concerned".

NTRA's board includes representation from armed forces and national security entities. There are no apparent restrictions on dismissal of NTRA executive and board members other than as provided in "The General Rules of Law" (civil law). Law 144/1988 states that NTRA's previous year budget and financial performance is reviewed by the Central Auditing Organisation, the body of the President's Office that is appointed by parliament that reviews accountability of all government agencies; no outside body approves NTRA's proposed budget. Regulations of the NTRA governing internal issues must be issued by decree of the Minister, though this does not apply to other NTRA regulations. There is no apparent obligation by the Minister or NTRA to conduct their functions transparently using consultations.

Unlike the EU general authorisation and notification regime, the law sets out an individual licensing regime with detailed and complex procedures, with exceptions for some services, such as 'Class C' internet service providers (providers without networks of their own). NTRA is responsible for issuing licenses to operators. The law requires that all operators provide interconnection and access and Reference Interconnection Offers, although NTRA has only required Telecom Egypt to provide an RIO to date. There is no requirement that any operator provide a Reference Access Offer for access to infrastructure or that the offer include collocation services. However, in practice, the Telecom Egypt RIO includes terms for infrastructure access and collocation. Amendments to mobile licenses in 2007 included conditions and regulations that permit (but do not require) site sharing.

The situation regarding interconnection charges is not clear. The legislative framework requires that interconnection charges must be based on costs plus a reasonable rate of return. However, in 2010 NTRA adopted a decision setting interconnection charges based on 65 per cent of retail rates ("retail minus" methodology), which required a reduction in interconnection rates because mobile retail rates were low. As a result, interconnection charges are not based on the actual cost of termination. In 2011 operators legally challenged NTRA's authority to set interconnection rates. The operators did not challenge NTRA's methodology, but more broadly challenged NTRA's authority to set the rates, claiming that rates should be set by private contract between operators and not by NTRA. The court issued an interim decision to stop enforcement of NTRA's decision until it made a final decision. NTRA has appealed the court's interim decision.

The telecommunications law and the competition law combine to provide a legal framework for market analysis that largely conforms to best practice. NTRA is developing a draft regulation on market analysis, which is expected to fill the gaps needed to align with best practice. The regulation will set the criteria and procedures for defining relevant markets, market analysis, designation of operators with significant market power and imposition of remedies. NTRA and the Agency for Protection of Competition and Prohibition of Monopolistic Practices have signed a Memorandum of Understanding specifying their cooperation in addressing competition cases and complaints.

The law also authorises NTRA to resolve interconnection disputes, and a separate Minsterial Decree 128/2006 includes procedures for the resolution of interconnection and other disputes. The law authorises NTRA to take all necessary actions and sets out a penalty regime of fines and prison terms for violation of licences, the law and other "crimes". The penalties imposed are evidently among the highest by Egyptian laws, but do not appear sufficiently meaningful to deter larger operators. NTRA must apply to court to impose fines, unless the fines are stated in the license itself (for example, for violations of the licence), in which case NTRA can impose those fines without application to a court. Operators can appeal NTRA decisions and fines to the administrative court, which can use an expedited process to determine whether or not to suspend the decision. If not suspended by the court, the NTRA decision is binding until the court makes its decision on appeal. But in the interim, any fine is deducted from a performance bond paid by the operator, making NTRA decisions effectively binding when adopted with respect to fines. The court's decision can be appealed to a higher final court, and legal inconsistencies can be further appealed to the Supreme Court.

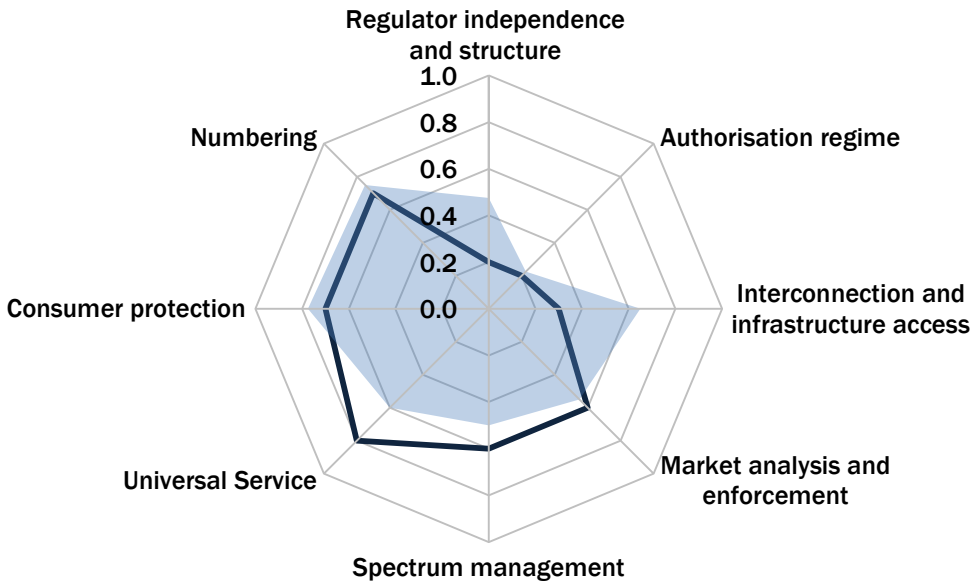
Spectrum management is broadly in line with best practice. NTRA develops the Frequency Spectrum Plan to ensure optimal use, then presents the Plan to the Frequency Regulation Committee (a committee of NTRA's board established by resolution of the Minister), though the role of the committee is not specified in legislation. There is potential for delay due to involvement of Ministry of Defence and National Security in spectrum issues. The deadline for responses to requests for spectrum exceeds the six-week period used in the EU framework. The Universal Service regime contains no requirement that the regulator must calculate net cost of providing universal service and decides whether this constitutes a net burden to universal service operators.

Although the law provides for operators to obtain rights of way, and that charges be "fair", there appear to be no mechanisms or procedures to determine charges for rights of way if two parties cannot agree, no requirement for transparency and non-discrimination in decisions regarding rights of way and no assurance that decisions regarding requests for rights of way must be made without delay.

The provisions addressing consumer protection, compliance with national security and public emergency requirements and numbering are generally aligned with best practice. NTRA is responsible for Egypt's numbering scheme and monitoring its implementation. The law provides that NTRA may develop and approve a National Numbering Plan and supervise its execution.

Chart 2: Comparison of the legal framework for telecommunications in Egypt with international practice and regional performance

Egypt: Legal framework



Key: Extremities of the chart = International best practice
Egypt = Solid line
Regional = Shaded area

Sector organisation and governance

Telecom Egypt, the main fixed-line provider, is still 80 per cent owned by the state. Its infrastructure is extensively used by the mobile and internet companies. Only in Cairo's exclusive residential compound areas does there appear to have been alternative infrastructure investment. The mobile sector has three competing network operators, one of which is 45 per cent owned by Telecom Egypt (Vodafone Egypt). The state (via Egypt Post) also has a 20 per cent stake in Etisalat, the third mobile operator.

The regulatory agency, NTRA, was established in 2001 and covers telecommunications and internet. Broadcasting (including content and spectrum management is regulated by a separate Broadcasting Authority. NTRA is managed by a board of directors (19 members) headed by the Minister of Information Communications and Technology. There are only two members of the board from NTRA, the other members are from other entities, which would tend to suggest a large external influence is exerted on the management of the regulator.

A decision on whether to carry out a public consultation before any key NTRA decisions relies on its own interpretation of whether the decision will significantly affect the market. Sometimes these consultations are published, other times private meetings are reportedly held. The NTRA has a defined role with timescales for dispute resolution, but in practice parties' appeal to the administrative courts, which has resulted in NTRA decisions being overturned.

NTRA signed a cooperation protocol with the Egyptian Competition Agency in 2011, confirming that all ex-ante regulation in the telecommunications sector is carried out by NTRA, while ex-post regulation is an area of cooperation between NTRA and the Competition Agency.

A National Broadband Strategy has recently been published by the Ministry of Information Communications and Technology, with much of the drafting of the strategy has been done by the NTRA together with external consultants. This document has been undergoing public consultation in early 2012. The overall national strategy envisages attracting companies and external investment and creation of jobs. This would include Public Private Partnerships, led by the private sector. Cairo has a "Smart Village" technology park that has targeted inward investment, and more of these "technology clusters" are included in the plan. There is provision for a Centre for Technology and Entrepreneurship with an objective of job creation, especially in the outsourcing market in areas of high-technology. The government is creating a Technology Development Fund to support this.

Egypt is a member of the WTO so it is committed to market liberalisation. It is also a signatory to other regional and bilateral agreements including membership of the Arab regulators network–AREGNET, Arab spectrum management group, ASMG, Euro-Mediterranean regulators group– EMERG).

Regulatory conditions for wired networks

In general the licensing regime is service specific and operators have to go through set procedures to obtain a new licence or modify a licence for any new service. Although the procedures are published, there is no set menu of services and the sector regulator NTRA can refuse on the grounds of lack of experience of the requester, or no solid business case. The result of this licensing process (since the fixed sector was liberalised in 2005) has been to issue only one national fixed infrastructure licence – to Telecom Egypt. Amongst the apparent disincentives for potential investors include the uncertainties involved in securing rights of way from local government authorities; the very cheap price of the incumbent's basic service (around €1.5 per month), lack of fixed number portability, an apparently subsidised broadband service from the incumbent and the lack of regulated wholesale infrastructure access.

In 2009 in order to increase the availability of broadband and to allow for new services to enter in the market, NTRA announced an invitation for interested companies to bid for two licences to install and operate access telecommunications networks in defined residential areas known as closed compounds. These licences allowed for the introduction of new innovative services, including 'triple-play', through fostering investment in fibre access networks. It is expected that the licences would attract an expected investment around €750 million over five years. The two operators who were granted licences were required to pay 8 per cent of their yearly revenues to the state.

Alternative operators are reportedly not satisfied about the interconnection arrangements set by Telecom Egypt, complaining about high charges, the lack of a service level agreement and the preferential treatment given to Telecom Egypt's own subsidiary companies.

The only alternative call service available to consumers is via pre-paid scratch cards, there is no carrier selection/pre-selection or wholesale line rental services available from Telecom Egypt. In the broadband market, Telecom Egypt does not provide fixed services directly. Most are provided to consumers via unbundled lines to TE Data, its 100 per cent owned subsidiary internet service provider. The wholesale charge for Egypt Telecom's unbundled local loops is kept artificially low (less than €1 per month, compared with an average of around £8 per month for EU countries) to encourage service providers to keep retail charges low. The basic 4 - 8Mbps retail broadband offerings from Egypt Telecom's TE Data subsidiary are around €33-52 per month (compared with an EU average of around €27 per month). TE Data's share in the internet market is 63 per cent of the residential subscriptions and 52 per cent of business subscriptions. The majority of the remainder are provided exclusively by the separate licence holders in the residential closed compound areas of Cairo.

Regulatory conditions for services requiring frequency spectrum

The mobile market is dominated by Vodafone and Mobinil (with 44 per cent and 39 per cent market shares respectively) with third-placed Etisalat growing to 17 per cent since its launch in 2007. Mobinil is owned by France Telecom and Orascom after paying a record (for Africa) price of €2 billion for its licence in a public auction. Vodafone Egypt is owned by Vodafone UK and Telecom Egypt and Etisalat is owned by Etisalat UAE, the National Post Authority and the National Bank of Egypt, together with minor holdings from smaller investors.

Egypt became one of the first countries in Africa to launch third generation (3G) mobile services in 2007, following the award of the country's third mobile licence. There is good growth in mobile broadband services, compensating for the decline in average voice revenues. The number of mobile data subscriptions has risen above 2.68 million (3.3/100 population).

In a move that could inject further competition into the sector, NRTA recently indicated a willingness to offer further entry possibilities to the mobile market in the form of a Mobile Virtual Network Operator (MVNO) licence. Telecom Egypt is reported interested in acquiring this licence, though NTRA has indicated that any such licence would be awarded after an open competition.

Mobile number portability was introduced in 2007 and has been one of the accelerating factors for greater competition in the market. There are no firm plans for further spectrum liberalisation, such as re-farming, spectrum trading or for digital broadcasting switchover.

Payments required from operators

All operators pay annual licence fees. In addition there is a payment of 0.5 per cent of revenues into a universal service fund and a per-number charge of around €0.20. There is also a special tax of 1 per cent of all telecoms and ICT revenues in Egypt plus an unusual (technology specific) "revenue share" payment of 2.4 per cent for GSM services and 6 per cent for 3G services

This payment regime is further complicated for mobile services providers, who have to pay an additional charge for the right to offer their customers international voice and data services. The cost of adding international telephony services is €13 per customer at the time of obtaining the licence, with a minimum cost of €13 million. Thereafter, €2.50 must be paid for every new customer that joins the mobile-service provider, paid annually at the beginning of each year. Even though the annual royalty fee is restricted to a maximum of 6 per cent of the provider's annual gross revenue, this represents a significant additional burden on the mobile operators.

Additionally, mobile subscribers pay a further 5 per cent over and above the normal 10 per cent sales tax. For fixed services, the sales tax is reduced to only 5 per cent.

Information society safeguards

The market for internet services is competitive, although licences are required even for simple internet service provision without infrastructure.

There is a legally valid basis for electronic documents and signatures (since 2004) and domain name registration has already been liberalised. Complaints regarding e-transactions are handled by ITIDA. There is now a more liberalised approach to freedom of expression in electronic media, but there is not yet any legal protection of personal data and Egypt is not yet a signatory of any international cybercrime conventions. NTRA advises that a data protection law is being drafted.

Summary and outlook

Despite attempts to introduce economic reforms and modernise its economy by emphasising important sectors, such as infrastructure and communications, the fixed market has only one national infrastructure licence holder (state-owned Telecom Egypt). There are also imbalances in mobile spectrum allocations that have contributed to the restricted development of fully competitive conditions in the mobile market.

Egypt is one of the few large markets in Africa and is one of the fastest growing. There is good investment potential, especially if the government's recently developed supporting policy framework is quickly turned into a credible implementation plan, backed up by improving the primary legislation and enforcing more pro-competitive regulatory reforms. Service providers face a very complex set of payments, including differential sales tax rates, special and revenue sharing payments, handset fees and universal service contributions. These collectively represent a very high burden.

Significant new investment in infrastructure is required to meet the expected strong demand for fixed and mobile broadband services. The National Broadband Strategy announced in late 2011 contains a 10-year broadband investment plan, connecting an additional four million households, at a cost of about €4 billion. The NTRA is currently considering funding options. On top of this infrastructure expansion, the National Broadband Strategy envisages advanced facilities to 16 million school and 2 million university students, a community-led programme of IT clubs, telecentres, Internet cafés (2,000 more of these in rural areas), plus internet access and ICT training. The government will also provide support to new businesses, and ensure that some 3,500 post offices are an effective channel for new eGovernment services.

This National Broadband Plan is understood to be at the policy development stage and it still requires a detailed implementation plan to be prepared. The initiative should also be supported by better regulatory conditions, including the introduction of a general authorisation scheme to replace the restrictive licensing regime, plus the introduction of the normally expected competitive safeguards. These market improvements include the need for fixed number portability (to accompany implementation of a more fully liberalised fixed market), guaranteed access to rights of way, regulated wholesale infrastructure access, wholesale broadband access and the removal of the distorting cross subsidies enjoyed by Telecom Egypt in basic and broadband fixed services.

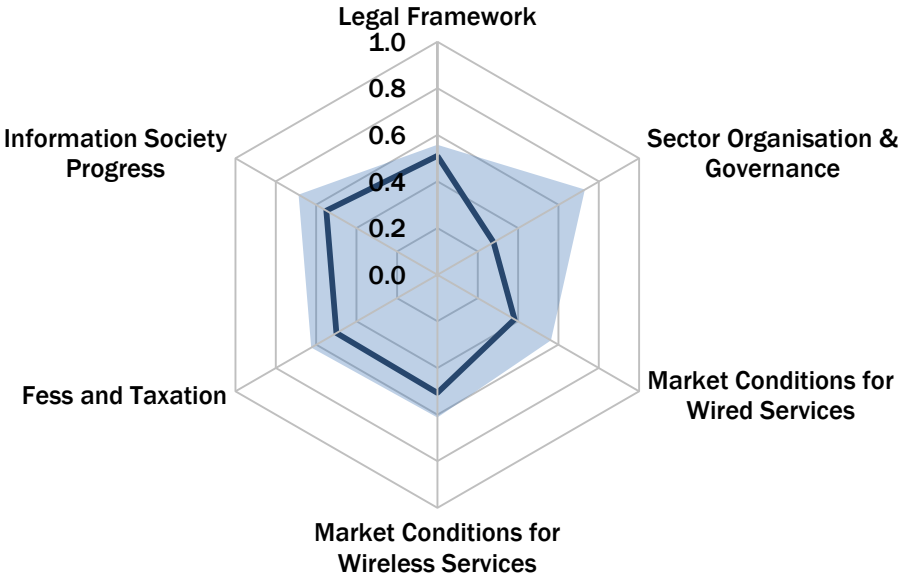
NTRA should also ensure that adequate additional spectrum is made available to investors to meet significant growth in mobile and wireless broadband services.

The announcement in April 2012 of the Egyptian government's stated intention to take a stake in mobile phone operators and major communications companies' telecommunications companies is a worrying development and goes against international trends in this respect. The state already has a 45 per cent stake in Vodafone Egypt through its ownership of 80 per cent of Telecom Egypt. The state also holds a stake in Etisalat through the National Post Authority and the National Bank of Egypt.

The regulator recently gave approval for France Telecom to take control of its Egyptian mobile phone joint venture, Mobinil in a deal worth around €1.5 billion. Orascom will retain a 5 per cent holding, but with a voting interest of around 28 per cent to ease Egyptian worries about foreign ownership.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Egypt with international practice and regional performance

Egypt: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Egypt = Solid line
Regional average = Shaded area

Egypt overall legal/ regulatory risk = 46 (100 is the lowest)

JORDAN

At a glance

Market penetration	
Population	6.3m
Fixed penetration*	6.8
Mobile penetration*	120
Broadband penetration*	9.7

*Per 100 population

Key Institutions	
Market access	
General authorisation	✘
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✘
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔*

*National roaming only

Information society	
Percentage of individuals using the Internet*	38.0
Ease of setting up internet business	✘
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

The liberalisation of the telecommunications and internet markets was announced in 2003. This ended a duopoly in the mobile market that had existed since 1999 and paved the way for new entrants into the fixed and internet markets from the end of 2004. A service neutral integrated licensing regime, involving two classes of licences, has been introduced to facilitate market entry and competition.

In the early stages of the liberalisation, competition in voice telephony started by the introduction of prepaid calling cards. At the wholesale level, mobile and VoIP operators were able to negotiate their incoming and outgoing international traffic directly. At the access level, in addition the legacy copper infrastructure owned by the historical incumbent, five fixed wireless access operators were licensed in 2007 and 2008. There are also some fibre-to-the-home operators, but their network deployments are currently limited to areas in the capital city, Amman.

The first mobile licence was granted in 1994 to the private company Fastlink, which was acquired in 2003 by the Kuwaiti Zain group. This licence was extended in 2006 for further 15 years. Jordan Telecom, the fixed incumbent operator, acquired the second mobile licence in May 1999, with this mobile subsidiary becoming Orange Mobile upon acquisition by the France Telecom Group of a controlling interest in the Jordan Telecom Group in 2007. Umniah, the third mobile operator, was licensed in 2004 and was acquired by Bahraini Batelco group in June 2006.

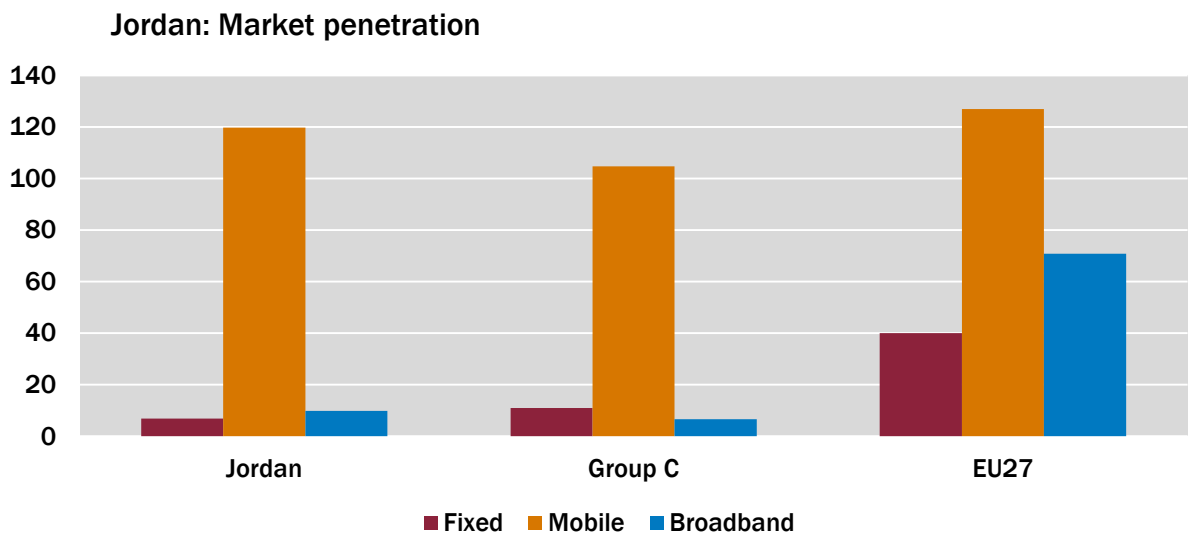
3G services were introduced to the market by Orange mobile in 2010, followed by Zain in 2011 and Umniah in June 2012. Mobile broadband penetration is already growing rapidly since Zain launched its services; the mobile broadband market doubled during the last nine months in 2011 reaching 5/100 population by the end of the year.

Fixed broadband growth appears to be slowing now that competitive pricing has made mobile broadband more attractive. There are three types of fixed access networks: the legacy copper network owned by Orange, five national fixed broadband wireless access networks plus fibre networks in limited areas of the capital city Amman. At the wholesale level, Orange has been offering bitstream access to several alternative services providers since 2007. On the international connectivity side, Orange owns a landing station in Aqaba and provides international capacity to other operators. Some operators are connected to submarine cables in the neighbouring countries through terrestrial extensions.

The process of privatisation of Jordan Telecom, the fixed incumbent operator began in 2000 when the government sold 40 per cent of its stake to France Telecom and 8 per cent to the social security investment unit. Most of the remaining government stake was sold progressively in 2002, 2006 and 2012. Approximately 3 per cent of the incumbent is held through a fund for the Army and Security Forces, with the remainder held privately by France Telecom or other funds.

In December 2011 there were 424,288 fixed subscriber lines (6.8/100 population) and 7.48 million active mobile subscriptions (120/100 population). Fixed broadband has achieved 296,611 fixed subscriptions (4.7/100 population) and 312,209 mobile data subscriptions (5/100 population).

Chart 1: Market penetration of main services per 100 population in Jordan, compared with the Group C regional averages



Group C average is for Egypt, Jordan, Morocco and Tunisia.

Legal framework

The Telecommunications Law was introduced in 1995 and amended in 2002. While it has facilitated the development and liberalisation of the sector in Jordan, it is less detailed than the legislation of many other countries. Nonetheless, the regulatory regime adopted by national regulator, Telecommunications Regulatory Commission (TRC), confirms a commitment to implementing best practice for the sector in Jordan. In essence, major components of the framework governing the Jordanian telecommunications sector are often included in regulations and decisions adopted by TRC, based on the general powers provided to TRC in the law. In addition, key initiatives of the 2007 government policy for the telecommunications sector have been implemented directly by TRC, without the need for revisions to the law. For example, TRC implemented the 2007 policy's requirement for public consultations by consulting more broadly on key issues, without amending legislation. Similarly, some changes in the constitution in 2011 that affect the sector have been implemented directly without amending the telecommunications law.

Areas of alignment of the Jordanian legal and regulatory framework with best practice include the interconnection and access regime, tariffs, market analysis procedures, dispute resolution, numbering and rights of way over private property (but not over public property). TRC has advised that amendments are being developed to the primary law that are expected to more closely align the law with EU framework requirements with respect to a range of issues including:

- Making TRC more independent, improving general governance and authority.
- Market convergence of telecommunications with internet and media.
- Improving TRC's enforcement powers (and possibly restoring some of TRC's former independence).
- Adoption of a General Authorisation regime (TRC is currently studying this issue under an EU twinning project).
- Expanded definition of "access", which would give TRC more authority to regulate different forms of access.
- Clarification regarding the status of TRC decisions during appeals to court.
- Authority for TRC to impose fines that are "proportionate to the situation", so that fines are more meaningful.
- Consumer protection and personal data protection (perhaps by way of separate laws).
- Improved procedures for type approval of equipment.

- Rights and responsibilities of telecommunications operators during events involving national security and emergencies.

The sector regulator TRC is a financially and administratively independent authority answerable to the Minister of Information and Communication Technology. In practice, the regulator does not have the full independence expected by best practice because the Minister may recommend to the Council of Ministers the dismissal of members of the board of directors of TRC. In addition, the budget of TRC is intensively reviewed or challenged by various government bodies and parliament. Also, TRC recently became subject to civil service bylaws governing staffing and purchasing instead of administering these areas directly based on its own bylaw. Separately, amendments to the constitution in 2011 resulted in a loss of recognition for "independent authorities".

TRC is studying the possibility of moving from an individual licensing regime to General Authorisation regime involving a simple authorisation/notification regime for most services except those requiring scarce resources. Although the Telecommunications Law provides good support for interconnection and access and in practice TRC requires that wholesale prices be based on cost, the law does not require that prices for interconnection (or any other services) include a reasonable return on capital. TRC has concluded consultation on interconnection pricing and is now using a modern costing model.

The telecom law does not specifically address market analysis. However, TRC derives authority to conduct market analysis from licence conditions that require licensees to abide by TRC instructions, and the government 2007 policy, which states that an analysis should be completed to impose ex-ante regulation, though it must not impose a burden. TRC issued Instructions on Competition Safeguards in 2006 which provides for a market analysis process generally aligned with best practice and TRC has already conducted several market reviews accompanied by extensive consultations.

TRC is responsible for undertaking the prosecution of offences and rendering of penalties. The board may set and impose fines directly for violations of licence conditions or TRC decisions, without resort to other state bodies. The individual licences state the level of fines that may be imposed. The effect of TRC's decisions is sometimes suspended by courts during appeal. Operators sometimes file appeals from TRC decisions to the High Court, even when that court does not have jurisdiction, followed by or contemporaneous with an appeal to civil court, resulting in delays.

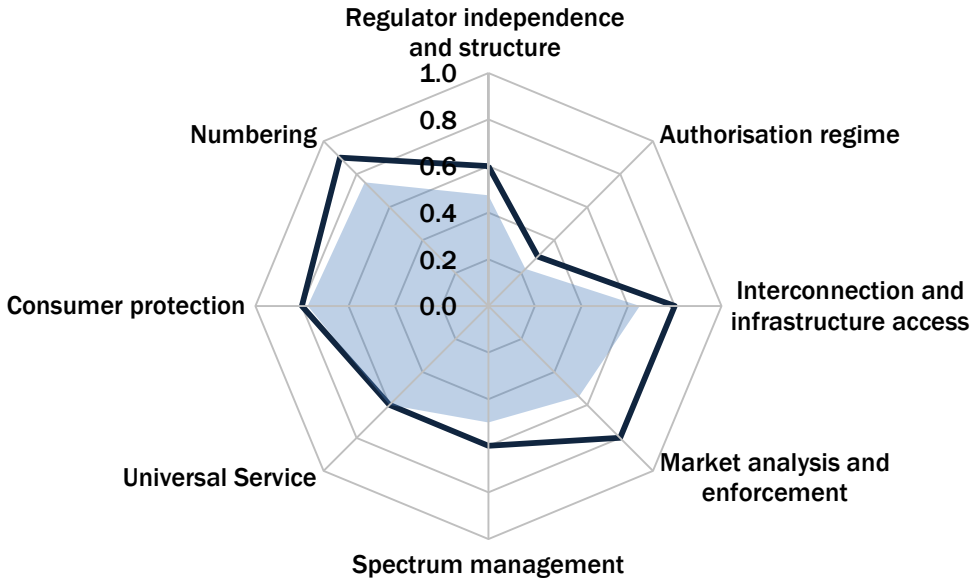
The Ministry of Information and Communication Technology has responsibility to facilitate cooperation that enables TRC to prepare the National Plan for Frequency Allocation and National Register of Frequency Assignments. TRC has formed the Consultative Committee for Frequencies, a joint committee chaired by TRC, which the TRC board must consult in preparing the National Plan for Frequency Allocation. The telecom law does not specifically guarantee open, objective, transparent, non-discriminatory and proportionate procedures for granting of rights of use for spectrum, such as use of open tender auctions. However, the regulations do allow for service licensing to be carried out using these principles.

The Board of TRC adopted universal service regulations in 2006 that are relatively closely aligned with EU provisions. TRC is considering whether to include broadband within the requirements for universal service. However, implementation of TRC's universal service regulations has not yet been applied. A decision has been made to establish a universal service fund, but the necessary by-law has not been passed. Consumer protection provisions are included as license conditions rather than in the law, and generally conform to best practice. The Board of TRC is authorised to adopt the numbering plan and assign numbers on the basis of objectivity, transparency and impartiality. Number resources are free.

Regulation of expropriation and rights of way is divided into two areas; rights over private property and rights over public property. Law 13/1995 gives TRC a strong role over private rights of way, authorising TRC to approve such rights and select an expert to set fair compensation (or either party may ask that a court determine compensation). For rights of way over public property, TRC plays a more limited role, coordinating with the licence holder to obtain agreement with Ministry of Public Works, municipalities or other relevant public institution.

TRC has implemented an equipment type approval regime in Jordan and technical standards used for equipment type approval are generally aligned with best practice, relying on ETSI standards. However, implementations procedures are not aligned with best practice, and TRC intends to revise these soon. Legislation does not address the rights and responsibilities of telecommunications operators in national security and emergency situations in a substantive way, though amendments are expected to provide guidance and procedures for requirements of telecommunications operators during events involving national security and emergencies.

Chart 2: Comparison of the legal framework for telecommunications in Jordan with international practice and regional performance



Key: Extremities of the chart = International best practice
Jordan = Solid line
Regional average = Shaded area

Sector organisation and governance

MoICT is responsible for preparing sector policy, preparing draft sector laws in coordination with TRC and representing TRC before the Council of Ministers (COM) among other responsibilities. Recently a comprehensive review was made to the law in order to merge the TRC and the Audio Visual Commission (AVC) into a single entity. The Audio-Visual Law refers to content matters only, and the convergence of regulation will better meet the needs of a converged market with, for example, the introduction of general authorisations, better competitive safeguards and spectrum trading.

The TRC was established in 1995 as an independent body answerable to the Prime Minister. However, since 2011 the TRC has become answerable to the Minster of ICT. Its mandates cover telecommunications, information technology and postal sectors. Among the mandates of TRC is the responsibility for managing radio spectrum (including the broadcasting spectrum).

MoICT is mainly responsible for preparing the general policies and strategies for the sector and to monitor their implementation. In addition to this, MoICT embarked in 2003 in building a National Broadband Network (NBN). This includes connecting 3,300 public schools, 100 knowledge stations, 17 public community colleges and 12 learning resource centres. The scope of the NBN network was modified later to include the medical and governmental entities in Jordan. Around 1,500 points of presence were implemented before the project was stopped in 2008, with no more public funding available. MoICT is currently investigating different options to complete and maintain the NBN network by public and private partnership. The current estimated cost for completing the network is around €80 million.

TRC is managed and supervised by a board of commissioners composed of five full-time members appointed by a resolution of the Council of Ministers, upon nomination by the Prime Minister, based on the recommendation of the Minister for ICT. TRC decisions and regulations are issued and approved by the board of commissioners after public consultation with stakeholders. Normally all consultations, submissions and comments are made publicly available on TRC's web site. Stakeholders can submit a request for TRC to review any of its decisions or they can appeal these decisions in front of the High Court of Justice (administrative court) but there is no specialised court in the ICT matters in Jordan. TRC has the

role of dispute resolution between operators and between consumers and operators. The results of these disputes are published on the TRC web site.

Jordan has been a member of WTO since 2000, committing it to liberalisation. It is also a signatory to other regional and bilateral agreements including membership of the Arab regulators network–AREGNET, Arab spectrum management group (ASMG) and Euro-Mediterranean regulators group (EMERG).

Regulatory conditions for wired networks

The major wired networks (copper and fibre) belong to the fixed incumbent operator, now owned by Orange. There are also significant fibre networks owned by the other mobile operators connecting their sites, some alternative fibre access operators plus the national electric power company (NEPCO) which has its own fibre backbone. The fixed incumbent operator (Orange) offers several wholesale services to other operators, including wholesale broadband access since 2007. The prices of these services are regulated by TRC based on modern cost modelling. Infrastructure sharing is mandated by TRC regulation. In practice, infrastructure sharing works in new cases (as a cost reduction exercise) but more intervention is required when there is unequal bargaining power between involved parties (for example, between a new entrant and a larger operator).

According to the operators, the process for obtaining public rights of way in Jordan is reasonable in time and cost. If required, TRC may coordinate with other governmental entities to facilitate obtaining public rights of way. There are two types of licenses – "individual" and "class". An individual license is granted for those networks or services which require the use of scarce recourses (specifically; spectrum, numbering and public rights of way). A class licenses is granted for other types of service. However, the use of some categories of scarce resources (for example, spectrum for VSAT and fixed Wifi service, dialling codes for carrier selection and pre-selection) are exempted from the individual licence requirement. As a part of a Jordanian–European twining project, the TRC is studying the alignment of the existing licensing regime with a more liberalised general authorisation scheme based on the EU framework. The latest statement of government policy calls for simplification of licence application requirements, but does not seek the adoption of a general authorisation scheme.

Carrier selection and pre-selection has been mandated since 2006, but implementation was postponed. The outcome of a TRC market review published recently, stipulated that Orange provide carrier selection/ pre-selection wholesale access for all types of fixed calls. TRC is conducting public consultations on number portability, with decision expected in 2012.

Orange still dominates the fixed broadband market. A market review by TRC concluded that local loop unbundling should be mandated on Orange in the wholesale market for access to fixed physical network infrastructure. Cost-related access prices are planned for introduction in 2012.

Regulatory conditions for services requiring frequency spectrum

Friendi, the first mobile virtual operator, launched its services in 2012, using Zain, the largest mobile operator as its network provider.

The government policy encourages the adoption of a liberalised approach on spectrum licensing. All licences granted after the 2007 have been technology neutral (fixed wireless access and 3G). For the existing mobile licenses in the 900 and 1800MHz ranges, TRC expressed the intention to publish consultations on spectrum liberalisation and re-farming in order to ensure equitable access for all operators in the 900/ 1800MHz bands. TRC has postponed its decision on publishing the liberalisation consultation until it can devise an implementation plan for spectrum re-farming.

In 2007 and 2008 the TRC granted licences to operate fixed broadband wireless access networks in the 3.5, 3.6 and 5.4 GHz frequency bands to five operators, namely: Umniah, Mada, Kulacom, Atco Clearwire Jordan (now Wi-tribe) and The Blue Zone East/Jordan. During 2011 the total number of fixed wireless broadband access lines declined slightly, while the incumbent's copper-based service increased.

Mobile number portability has been mandated since 2009, but its implementation has been postponed while TRC conducts a market review, with a decision expected during 2012. So far, consultation has taken place on a feasibility study.

TRC adopted a modern cost modelling approach in 2011 for mobile termination rates. The calculated values in 2011 were significantly less than charges imposed in 2010 (€2.26, €2.28 and €2.80 for Zain, Orange Mobile and Umniah respectively). TRC has now set a glide path starting with these 2010 rates and reducing to €1.31 on all networks by 2014. This will maintain parity with the EU rates and trends.

There is a plan for digital broadcasting switchover in 2015.

In September 2008 TRC adopted a policy to "create a predictable environment for the current and future use of radio spectrum in Jordan, which is in the national interest". Based on this policy, TRC launched a consultation on the harmonisation and opening of many spectrum bands for public mobile and fixed telecommunication services, including the 400, 800, 900 and 1800 MHz and 2.1, 2.5, 3.5 and 3.7 GHz bands. This resulted in the earmarking of significant new spectrum for commercial mobile and fixed services, with more to become available if needed by demand.

Payments required from operators

Annual operator licence fees are based on TRC administrative costs. This levy does not exceed 1 per cent of an operator's total revenues. Currently, operators are not contributing to a universal service fund.

There is a complex system of additional payments and taxes required by operators. Mobile service (voice and data) revenues are subject to 10 per cent revenue share to the government.

The taxes levied on telecommunications services are as follows:

For most of telecommunication services (for example, fixed voice services and fixed-line monthly rental fees) the normal VAT is imposed (the VAT in Jordan is 16 per cent).

In addition to VAT, mobile subscribers pay a 12 per cent special tax.

For internet subscribers (including fixed wireless broadband and mobile broadband when subscribed to data services only) the VAT rate is reduced to 8 per cent instead of the standard 16 per cent in order to promote consumer take-up of internet services.

Jordan has a high overall taxation on mobile phone users at 23.4 per cent, which is significantly higher than the world average of 18 per cent.[38]

In most cases, public mobile and fixed operators are waived from the custom fees and sales taxes on infrastructure equipment required for building their networks for a period of three to five years. In the same context, fixed broadband wireless operators that met the TRC's additional roll-out requirements in rural areas have been exempted from the annual spectrum fees for three years, but so far only three operators out of five have benefited from this.

Information society safeguards

In Jordan there is a legal framework for electronic documents and signatures and for the protection of personal data (though not a specific law on data protection – such protection is provided by Constitution and the telecommunications law). Electronic signatures are already used within the business community but not yet for consumers or government services.

National information technology centre is the only domain name registrar in Jordan for the ".jo" domain.

38 GSMA Global Benchmark Study 2011. www.prnewswire.com/news-releases/gsma-global-benchmark-study-into-mobile-specific-taxation-shows-consumers-pay-more-tax-today-than-in-2007-133345193.html

Summary and outlook

Jordan has a relatively stable investment environment, with liberalised market access, and gradually improving competitive safeguards. However, there are very high charges to be paid to the regulator and the state through a complex scheme of licensing, revenue sharing and taxation.

The government has already initiated a national broadband network, but with only one-third completed, the MoICT has been trying to attract private investors to complete the network and operate it commercially.

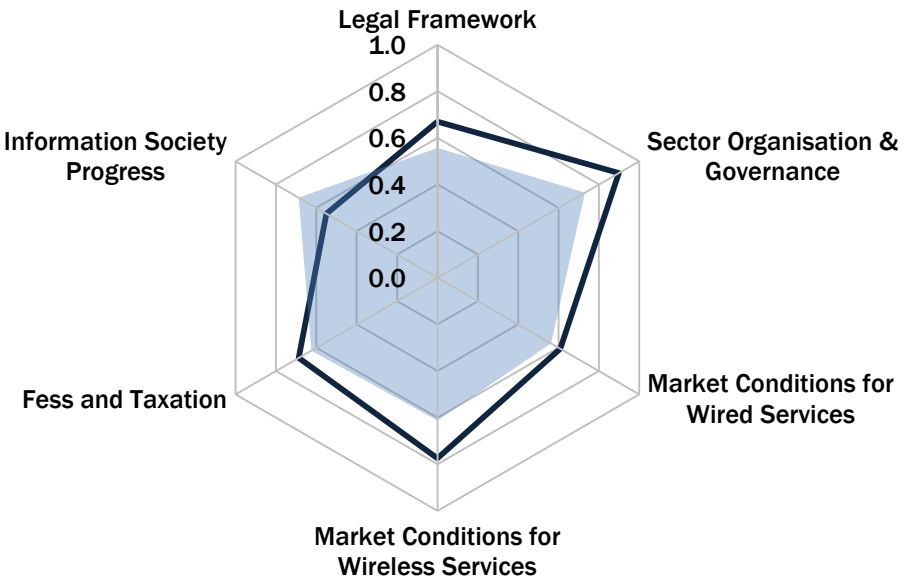
The market is the most liberalised in the region. Competition is allowed in all sectors of the market and investors are building new, mostly local infrastructures. Fixed wireless investment has provided much of this competition at retail level, but growth appears to have stalled in competition with mobile and copper-based broadband offerings.

Wholesale services are now offered by Orange, which should bring more competition, especially outside the urban areas. The quality of broadband services will improve through the recent enhancement of international access capacity. Competition within the mobile market is intense, resulting in much reduced prices. This has led to the highest penetration in the region (120/100 population). The launch of competing 3G networks by the existing operators offers a new revenue growth path centred on mobile broadband, content and applications.

The sector regulator has made significant new spectrum available for commercial mobile and fixed services, roughly quadrupling the current capacity released onto the market. This demonstrates a positive approach to investment in growth, especially in broadband services nationally.

Government has adopted a comprehensive "Statement of Government Policy 2012 on the Communications, Information Technology and Postal Sectors". This new policy adopts a number of aspects of best practice, including support for convergence, private investment, the administrative and financial independence of the regulator (and its enforcement powers), consumer protection, regulation of competition, rights of way, infrastructure access and better spectrum management.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Jordan with international practice and regional performance



Key: Extremities of the chart = International best practice
Jordan = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 70 (100 is the lowest risk)

MOROCCO

At a glance

Market penetration	
Population	31.9m
Fixed penetration*	11.2
Mobile penetration*	114
Broadband penetration*	9.9

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Industry Trade and New Technologies
National regulatory authority	Agence Nationale de Réglementation des Télécommunications

Market access	
General authorisation	✘
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✔*

*National roaming only

Information society	
Percentage of individuals using the Internet*	49.0
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

The telecommunication sector has been liberalised since 1997. After an unsuccessful attempt to attract new entrants to the fixed telephony market in 2002, the process was re-launched in 2006 and two new fixed licences were awarded. The three fixed players are now:

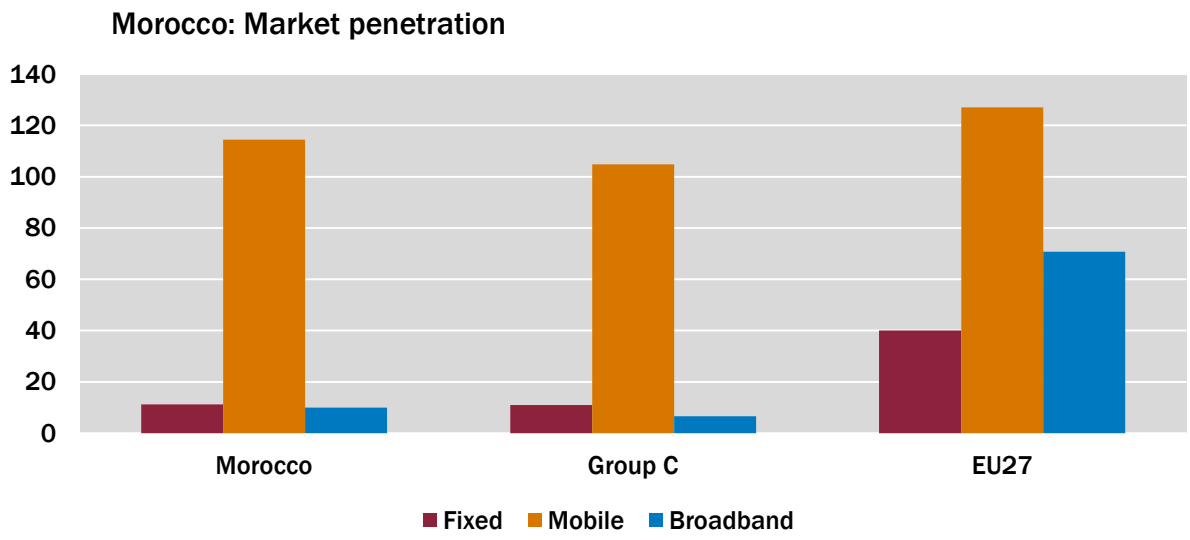
- The incumbent operator, Maroc Télécom (53 per cent Vivendi Group, 34 per cent Moroccan State and 13 per cent listed on the Casablanca bourse).
- Méditel (Orange: 40 per cent - Caisse de Dépôt et de Gestion: 30 per cent - Finance Com: 30 per cent).
- Wana (ONA Group and Zain).

Previous restrictions on wholesale transit traffic were removed and competitive operators are now permitted to provide any kind of voice service (national/international voice calls) and data transmission services. Maroc Telecom maintains 65 per cent market share of basic fixed telephony subscribers. There are 3.56 million fixed-lines. This gives a penetration rate of 11/100 population, which is around the average for the four regional countries assessed. Mobile subscriptions stand at 36.5 million, which represents a penetration rate of 114/100 population.

Fixed broadband penetration has reached 1.8/100 population with 99 per cent provided by Maroc Telecom. The other 1 per cent is covered by two alternative licensed operators. This low level of fixed broadband penetration has resulted from most growth coming from mobile broadband subscriptions, which have risen to 2.3 million since the launch of 3G services in 2006 (a current penetration rate of 8.1/100 population).

The incumbent operator, Maroc Telecom, began operating a mobile network in 1994 and currently has a 47 per cent market share. The second GSM licence was granted in 1999 to Méditel, which has a 33 per cent market share. A third GSM licence was granted to Wana in 2009, which already has a 20 per cent market share. All three operators were awarded 3G licences in 2006, each of them paying around €30 million plus €6.5 million as a contribution to spectrum re-farming. This mobile licensing timetable resulted in the unusual situation where Wana received a 3G licence before receiving a GSM licence. Wana launched its 3G service in 2008, building on its existing fixed-line and internet services.

Chart 1: Market penetration of main services per 100 population in Morocco, compared with the Group C regional averages



Group C average is for Egypt, Jordan, Morocco and Tunisia.

Legal framework

The Moroccan legislative framework for the electronic communications sector has a number of best practice features, including the interconnection regime, infrastructure access, market analysis, universal service and role of telecommunications operators in national security and emergency situations.

Consolidated Law of 1996 on Post and Telecommunications is the primary law impacting the telecommunications sector. It is supplemented with numerous decrees and other laws that address important aspects of the legislative and regulatory framework, which must be read in conjunction with the law to best understand the legislative regime. In Morocco, the law sets the general provisions and principles applicable while decrees provide for the detailed implementation of the law.

Regulation of the sector has developed in practice more than the legislation in place would suggest, as the general authorities and functions provided to the sector regulator (Agence Nationale de Réglementation des Télécommunications - ANRT) in the 1996 law have been used as a foundation to support separate decrees. For example, although market analysis is not specified in the law, the provisions of secondary legislation adopt many best practice concepts, as used in the EU framework. Other than for interconnection markets, there appears to provide limited guidance on the conduct of market analysis, the designation of operators with significant market power and the imposition of market remedies. ANRT is understood to have prepared comprehensive amendments to Law 24/96, which are expected to align key aspects of the legal framework with best practice. These amendments reportedly focus primarily on market analysis, rights of way, infrastructure access, dispute settlement, tariffs, national roaming, consumer protection and penalties.

Morocco retains an individual licensing regime, unlike the EU style general authorisation and notification framework. ANRT's authority to set tariffs differs depending on whether the service is wholesale or retail, interconnection related, subject to margin or price squeeze, instead of the general authority best practice to set tariffs for services of operators with significant market power. ANRT's authority with respect to tariffs is derived from several different laws and decrees, including the telecommunications law, which authorises ANRT to "propose" the method of determining network tariffs and services, and the 2000 law on Free Prices and Competition, which applies to all sectors and affirms the principle of free pricing. The 2000 law also created the Competition Council (Conseil de la Concurrence), which has a consultative role in setting tariffs.

Levels of fines appear to be meaningful to large operators; however, ANRT lacks the power to impose graduated penalties. ANRT must apply to court (Tribunal de Rabat) in order to impose a fine; ANRT may not impose fines directly, except for non-disclosure of information. All ANRT decisions are appealable to the Tribunal de Rabat and ANRT decisions cannot be suspended during appeal.

To address consumer protection, the relevant legal instruments are the operators' licence conditions, Decree 1026 on general conditions of operation of public telecommunications networks; Law 31/08 (revised February 2011) on consumer protection, a multi-sector law which also applies to the telecommunications sector, and Law 09/08 (revised February 2009) which addresses personal data protection. In combination, these address many best practice requirements for the sector.

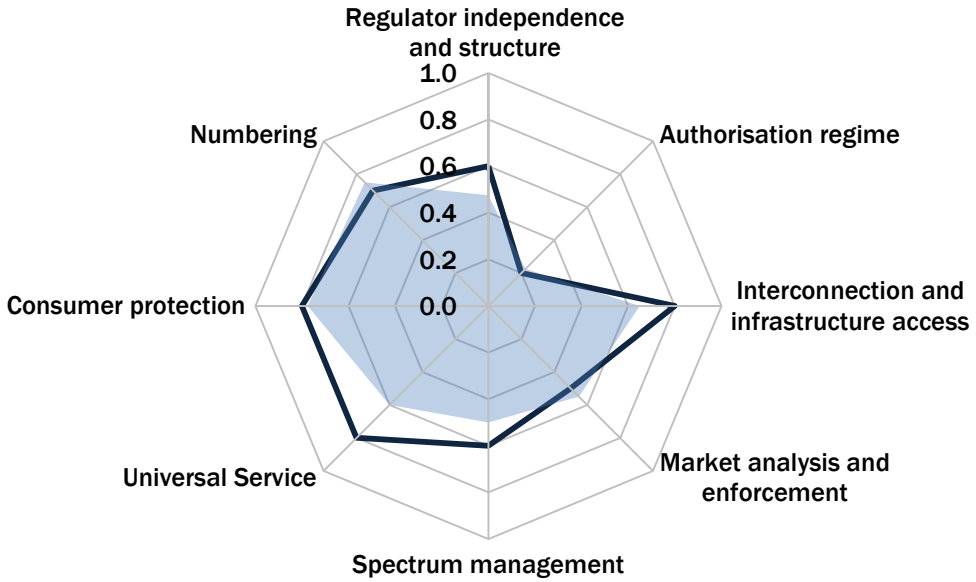
ANRT is responsible for management and monitoring of spectrum, including for allocating spectrum linked to licenses and authorizations subject to payment of a fee. The Ministry decides fees for spectrum to be assigned, though ANRT and Ministry work jointly on this task. Although the law does not state which entity is responsible for spectrum policy, in practice spectrum policy is established by ANRT and approved by ANRT's conseil d'administration. A competitive bidding process is used to award licenses for use of spectrum and ANRT may impose conditions in the spectrum license. Although no deadlines for responding to applications for spectrum are included in the law, ANRT practice is to make such decisions within 2 months.

ANRT is responsible for developing and managing the National Numbering Plan, which is published on its web site. After receiving a numbering request from an operator, ARNT assesses the request and if determined to be justified, ANRT assigns a block/range of numbers to the operator and informs the other national telecommunications operators. There is no specific requirement for adequate numbers and numbering ranges for all services. For broadband services such as VoIP, ANRT assigns non-geographic numbers.

For telecommunications equipment, Morocco retains a country-based equipment approval system instead of type approval regime prevalent in best practice. A relevant decree and specifications in operators' licences contain guidance for compliance with national security and public emergency requirements.

Chart 2: Comparison of the legal framework for telecommunications in Morocco with international practice and regional performance

Morocco: Legal framework



Key: Extremities of the chart = International best practice
Morocco = Solid line
Regional average = Shaded area

Sector organisation and governance

The Ministry of Industry Trade and New Technologies (MITNT) is responsible for policy and legislative development for a range of sectors and the sector regulator (ANRT) is responsible for implementation of policy and law relating to electronic communications. ANRT also prepares amendments to the regulatory framework on its own initiative, or on behalf of the Ministry.

ANRT was established in 1998 as a public body with financial autonomy. It carries out the allocation of radio spectrum and authorisation of frequencies for telecommunications services. There is a separate regulatory agency for broadcasting, the “Haute Autorité de la communication Audiovisuelle (HACA)”.

ANRT retains the responsibility for competition issues linked to electronic communications, where it has ruled on about a dozen cases. Each time ANRT rules on a competition case, it informs the Competition Council. Decree 1025 further authorises ANRT to set prices for all interconnection services (origination, transit and termination) even if for services provided by operators that do not have significant market power.

ANRT is governed by a board, the Conseil d’Administration, which is chaired by the Prime Minister, and includes several Minsters or secretaries of State, five designated telecom experts and the Director of ANRT (with a consultative role). The board meets at least twice a year, to set ANRT general policy and discuss budget issues. The board has delegated regulatory tasks to specific committees. Interconnection disputes are dealt with by a management committee which includes representatives of the ANRT board and representatives from the sector. So far ANRT is understood to have dealt with around 20 interconnection issues. Its decisions can be challenged in court but no ANRT decisions appear to have yet been challenged.

All ANRT decisions are appealable to the Tribunal de Rabat. If an operator appeals, the ANRT decision is suspended during the appeal process. However, ANRT may request court approval for payment by the operator of a deposit equal to a maximum of the fine imposed, pending the outcome of the appeal. A draft amendment to Article 30 of the telecommunications law, if adopted, would allow ANRT to impose fines not exceeding 2 per cent (and up to 5 per cent for second fine) without application to the Tribunal de Rabat and provide that ANRT decisions are not suspended during appeal process.

ANRT is headed by a Director, who is appointed and dismissed by the King of Morocco. The directors are proposed by the Prime Minister and a new law is expected to be adopted with clear criteria and conditions for appointment and dismissal. The ANRT Director makes regulatory decisions on non-strategic issues based on recommendations of ANRT staff.

ANRT has published a "General Guidance Note" on the development of the telecommunications sector for the period 2010-2013. From this guidance note the main goals for this period are stated to be to:

- Support the development of network infrastructure, including for very high speed broadband, to facilitate the development of the Moroccan economy and to help reducing the digital divide.
- Enhance competition on prices to increase affordability of telecom services.
- Use regulation as a tool to develop competition in several segments of the market.

To reach these goals, the stated ANRT actions are:

- To implement new regulatory tools or clarify existing ones to strengthen competition, for example to provide more details regarding the obligation to share infrastructures and to unbundle the local loop.
- To enhance transparency, simplify number portability procedures and strengthen price controls on wholesale services.
- To allow for the development of new infrastructures for the internet, both for fixed and mobile networks. This implies the possibility to award new licences both for fixed (NGA) and mobile (4G) networks and also to improve licensing regime of other operators like VSAT operators.
- To set a national action plan for very high speed access, which identifies the needs in terms of infrastructures, business models and financing.
- To revise the existing regulatory framework and other regulations (like town planning, use of public domain).
- To put in place a graduated system of penalties (including financial penalties) that ANRT could use for enforcement of regulatory decisions.

Morocco has been a member of the WTO since 1995 and is therefore committed to market liberalisation. It also has a free trade agreement with the United States, and another free trade agreement is being finalised with the European Union. ANRT is a member of AREGNET (group of regulators of Group C countries) and of EMERG (group of regulators of the Mediterranean region, including regulators from South Europe and North Africa).

Regulatory conditions for wired networks

There is no general authorisation regime, and ANRT remains in control of the number of licences granted. Market entrants currently have to wait until ANRT issues a request for proposals. Licences for fixed services are technology neutral so, where operators possess such licences, they are free to use whatever technology they want to rollout their fixed network. For example, while Maroc Télécom has its access network mainly based on copper, Méditel and Wana's networks are based on fixed wireless access.

To stimulate the fixed broadband market, local loop unbundling and wholesale broadband access obligations are imposed by ANRT on the incumbent operator Maroc Télécom. Monthly price for shared access to a copper loop is around €2 and for full access around €5. Despite this low price, local loop unbundling and wholesale broadband access are not a success so far. This could potentially be explained by the complexity of the procedures used by the incumbent, the relatively high penetration of 3G mobile services and the absence of market interest in IPTV (with satellite TV being the main service used by consumers in Morocco).

The prices of wholesale services for operators with significant market power are subject to an audit by ANRT to check cost-orientation. Although interconnection prices should be based on cost plus a return on capital, there is no clear requirement that prices of other wholesale services include a return on capital as a component of costs. Voice call termination services are regulated through a multiple-year price cap.

Carrier selection and carrier pre-selection are available but these have not impact the retail market. Fixed number portability was introduced in 2007.

There appears to be no consistent regime on rights of way to access the public domain. Operators have to contact both regional and local authorities to pursue public rights of way. Decision-making by these authorities can take about two months. There is an initiative to harmonise the procedure, reduce the maximum timeframe for decision-making on rights of way and to introduce standard fees for the use of the public domain. For private property, agreements are made under contract law. Building managers cannot

oppose the deployment of telecommunications infrastructure. Duct sharing has not yet been enforced but is expected to be clarified with the proposed amendments to the Telecommunications Law.

Regulatory conditions for services requiring frequency spectrum

All three mobile service providers have their mobile termination rates regulated through a multiple-year price cap. There are no virtual mobile operators so far, but a revision of the telecommunications law is intended to enable their introduction.

Mobile number portability was introduced in 2007.

Re-farming of spectrum took place for the 450-470 MHz, 1800 MHz, 2 GHz and 3.4-3.8 GHz bands. It will also take place in the 2.5-2.7 GHz for its future allocation to mobile broadband services. Re-farming of the 800 MHz spectrum band is understood to be under way.

Sharing of masts and antennas is enforced. The regulation covering national roaming in areas covered by universal service obligations (rural areas with low coverage) is already in place. It will be strengthened during the regulatory review under consideration.

Although the switchover from analogue to digital broadcasting is planned to take place by 2015, there is no firm plan in place.

Payments required from operators

Operators using spectrum pay yearly fees to ANRT. The initial one-off licence fees for spectrum go to the state budget. There are no numbering fees.

All operators that have received a licence must pay 1 per cent of their yearly turnover to the state for training and research in the field of telecommunications.

For universal service, Morocco opted for an innovative “Pay or Play” system whereby operators have to pay 2 per cent of their turnover into the universal service fund or invest into projects in rural areas for the similar amount (see case study: Investing into Rural Areas of Morocco below).

Information society safeguards

Provision of internet-based services does not require any prior authorisation, just a declaration to ANRT.

The legal framework for electronic contracts and electronic signatures has been adopted in November 2007. Electronic signatures are therefore recognised and there is one provider that has received an official approval from ANRT to provide secured electronic certificates and related services; Poste Maroc (Barid Al Maghrib).

Morocco has adopted a law concerning the protection of personal data in 2009. This sets up a specific Commission, “la Commission nationale de contrôle de la protection des données à caractère personnel”, in charge of the control and enforcement of this law, including fines or imprisonment for infringement. This Commission was officially launched in 2010.

Domain name registration is liberalised and currently the “.ma” domain names are commercialised by 21 different registrars. By the year ended 2011 a total of 42,187 .ma domain names were issued, with new registrations running at around 1,000 per month.

Morocco has not adopted the Council of Europe convention on cybercrime but has signed the Arab convention against cybercrime in December 2010. At a national level, there is no specific law concerning this issue but there are some provisions in different laws on related issues. The legal framework is in the process to be strengthened.

Summary and outlook

The mobile market grew strongly in 2011, up by 14 per cent. Users that took out voice plus data packages are currently growing at around 10 per cent every three months. Fixed broadband lines grew less strongly and there are signs of market saturation, with users preferring mobile broadband.

Morocco has the highest percentage of internet users in the region and this number is still growing. It is estimated that 25 per cent of households have internet access, even though only 13 per cent of households have a fixed connection, with only around 2 per cent having fixed broadband capability. Most access is carried out through wireless broadband.

Further investment in the fixed network will be critical to the government's national development plans, and measures to achieve more effective competition are necessary to attracting such investment. The issue of new licences for fixed services will be necessary in order to develop networks that can offer higher speed broadband. No date has yet been established for the introduction of these new licences.

Key amendments to the primary law are understood to be under consideration, which should improve the regulatory framework, including for market analysis, better conditions for rights of way, more effective infrastructure sharing and mobile national roaming.

In 2012, the Moroccan government has decided to adopt a ten-year national plan to develop ultra-fast broadband connections. Specifically, the ultra-fast broadband plan will give the entire population access to telecommunication services by 2022. ANRT will implement the plan in two phases.

The first phase will involve the rollout of 4G mobile technologies from 2014 onwards and the opening up the Wi-Fi spectrum band to telecommunications operators with a view to providing access to high-speed broadband networks. In parallel, ANRT plans to launch pilot projects to bring fibre-optic cabling to housing estates and to connect new developments to modern high speed networks. This emphasis on boosting fibre-optic coverage will focus on extending the networks currently covering the main urban areas out to more remote parts of the country.

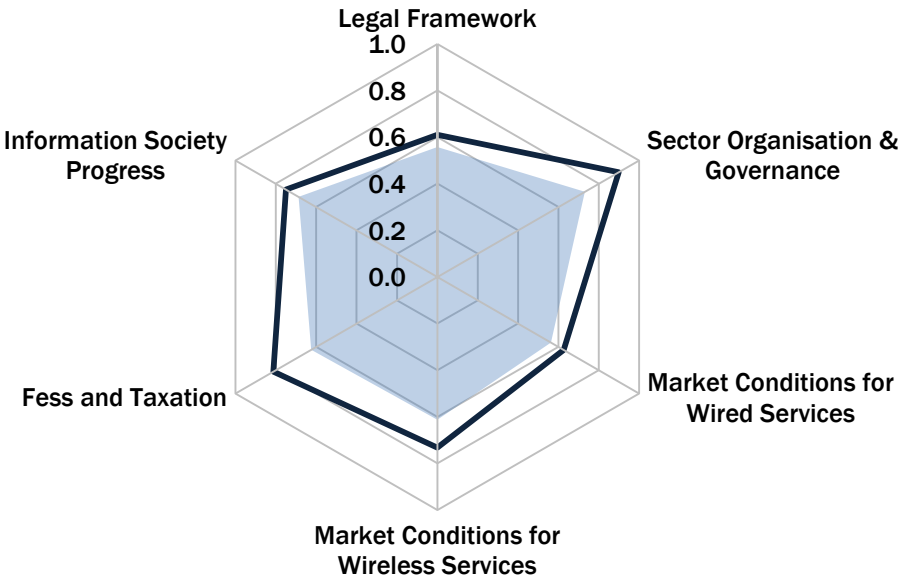
The second phase of the project will focus on two aspects. Firstly, transmission capacity will be boosted so to offer better capacity and quality between networks in different built-up areas and to serve mobile backhaul networks. Secondly, it will explore a variety of technological solutions to speed up the process of expanding access to this high-speed infrastructure.

In its announcement on the national plan, ANRT stated that implementation enablers will include legal and regulatory measures to encourage the sharing of infrastructures and pooling of investment. The regulatory body also plans to update the legal framework, including the 1996 Law on Post and Telecommunications, as well as decrees concerning the use of networks and relevant antitrust litigation.

As these plans unfold and the regulatory framework develops best practices to create more competitive conditions, the electronic communications market will show high potential.

Chart 3: Comparison of the overall legal/regulatory risk for telecommunications in Morocco with international practice and regional performance

Morocco: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Morocco = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 69 (100 is the lowest)

TUNISIA

At a glance

Market penetration	
Population	10.5m
Fixed penetration*	11.9
Mobile penetration*	111
Broadband penetration*	6.7

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Information and Communications Technologies
National regulatory authority	L'Instance Nationale des Télécommunications

Market access	
General authorisation	✘
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✘

Competitive safeguards	
Number portability	✘
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming and MVNO	✘

Information society	
Internet penetration per 100 population	36.8
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✘

Market liberalisation

Tunisia's legal framework for the sector has provided a formal basis for a competitive market for mobile communications since 2002 and for fixed electronic communications since 2009. Whilst there is competition in the mobile sector, the fixed market remains dominated by incumbent operator, Tunisie Telecom.

There are two fixed-line operators, three mobile operators and five internet access/service providers operating in Tunisia. In the fixed market, incumbent Tunisie Telecom, has a market share of about 96 per cent and fixed competitor Orange Tunisie maintains a market share of around 4 per cent. In the mobile sector, Tunisiana holds a 54 per cent market share while Tunisie Telecom (Tunicell) and Orange Tunisie have market shares of 37 per cent and 9 per cent respectively.

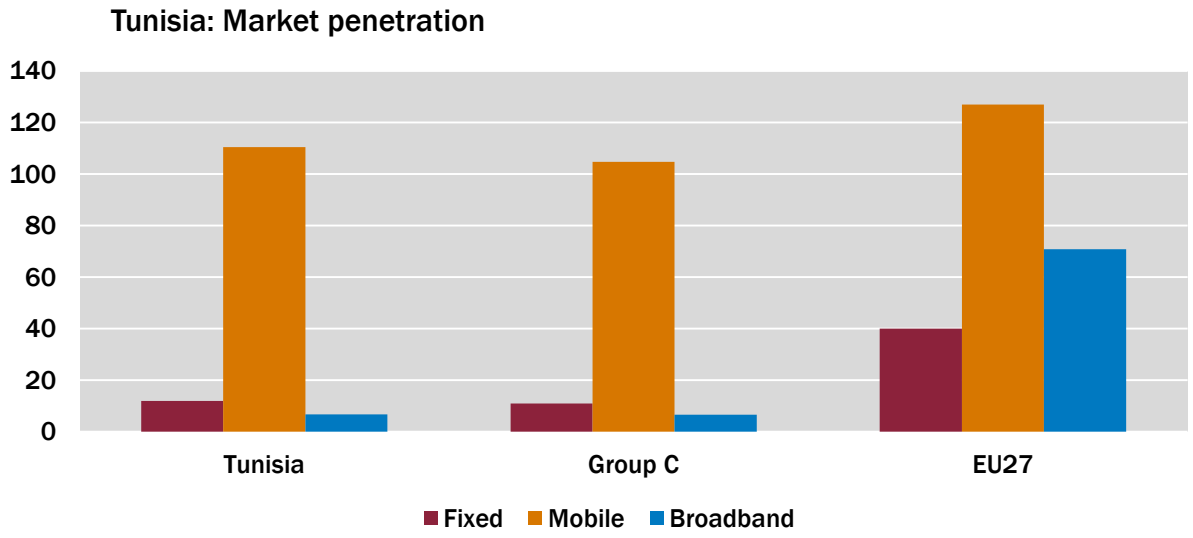
The mobile sector has experienced steady growth since the introduction of a second GSM network in 2002, operated under the name Tunisiana, owned by Kuwait's Wataniya in which Qatar Telecom (Q-Tel) holds a majority stake. France Telecom-owned Orange entered the market as the second fixed-line and third mobile operator in 2010 and launched Tunisia's first commercial 3G mobile service, followed by Tunicell (Tunisie Telecom's mobile arm) in 2011. The mobile market is expected to deliver significant growth to the broadband market by taking broadband internet access to a wider part of the population. 3G mobile broadband pricing is designed to compete head-on with Tunisie Telecom's fixed broadband service, which up to now has dominated the internet access market.

Competition between internet service providers has led to relatively low broadband prices in the market. The previous government encouraged and promoted internet use generally, but at the same time kept tight control by restricting access to certain web sites. Laws supporting e-commerce and digital signatures have been passed, which have led to one of the most active e-government and e-commerce sectors in Africa. A basic fixed broadband connection (1Mbps/sec.) costs around €13 per month, excluding voice over internet service.

At the end of December 2011 there were 1.21 million fixed subscriber lines (11/100 population) and 12.39 million mobile subscriptions (111/100 population). Broadband has attained 604,102 fixed subscriptions (5/100 population) and 254,145 mobile subscriptions (2/100 population).

Although allowed by legislation, there are no triple-play offerings in the market in practice.

Chart 1: Market penetration of main services per 100 population in Tunisia, compared with the Group C regional averages



Group C average is for Egypt, Jordan, Morocco and Tunisia.

Legal framework

The telecommunications sector in Tunisia operates within a legislative framework established by Law 1/2001 (as amended), various Presidential decrees and Ministerial Orders. L'Instance Nationale des Télécommunications (INT) is the regulator for the sector.

Several important components of the Tunisian legislative framework incorporate supportive aspects of best practice, including interconnection and infrastructure access, dispute resolution, consumer protection and numbering administration. However, the numerous legal instruments governing the sector, such as Law 1/2001 (with a series of amendments) and the many decrees that comprise the framework for the sector can be seen as overlapping and occasionally conflicting, with a lack of clarity on some issues. A new Law on Electronic Communications, to incorporate (and update) the provisions of Law 1/2001 and relevant decrees, would be welcome in order to continue the liberalisation of the Tunisian sector and support recent technological advances (for example, with respect to wireless communications).

Other components of the Tunisian legislative framework, while not fully aligned with best practice, exhibit continued progress through successive amendments to Law 1/2001 and various decrees over the past decade, for example to clarify that private internal networks are not subject to licensing, to clarify network access and to establish the methodology for cost accounting. However, some functions typically assigned to a national regulator in other countries are exercised in Tunisia by the Ministry of Information and Communications Technologies, including licensing and spectrum administration (via the National Frequency Agency). The use of an individual licensing regime, instead of the general authorisation and notification framework used in best practice, is also a notable deficiency compared with best practice.

Notable areas of relatively close compliance with best practice include:

- The interconnection and access regime, which requires that operators file Reference Interconnection and Access Offers.
- INT's mandating of the use of long-run incremental cost methodology by operators to set prices for wholesale services (under its authority to set costing methodology).
- A dispute resolution regime under which requests related to interconnection, local loop unbundling, physical collocation and common use of telecommunications infrastructure may be brought before INT by any affected party.

The law contains limited specific provisions regarding consumer protection. However, the law is supplemented by other provisions and is further supported by the authority of INT to approve the model service agreement used by each operator, which combines to provide a level of protection close to best practice.

INT is authorised to conduct market studies and introduce measures to guarantee effective competition; however, limited guidance is provided for the conduct of the market analysis and no definition of significant market power is provided. Remedies provided in Law 1/2001 and related decrees typically can be applied to all operators, not only to those determined to be dominant.

The Minister of Information and Communications Technologies approves the National Frequency Plan. This plan is managed, administered and monitored by the National Frequency Agency, "subject to the supervision of the Ministry of Information and Communications Technologies". INT, the regulator, has no role in spectrum administration. Although best practice does not require that the regulator be responsible for spectrum administration, such a lack of clear separation between spectrum policy and regulatory functions in other countries has often delayed spectrum assignments for new entrants and new technologies. Typically, the national regulator should be responsible for administration and implementation of spectrum policy.

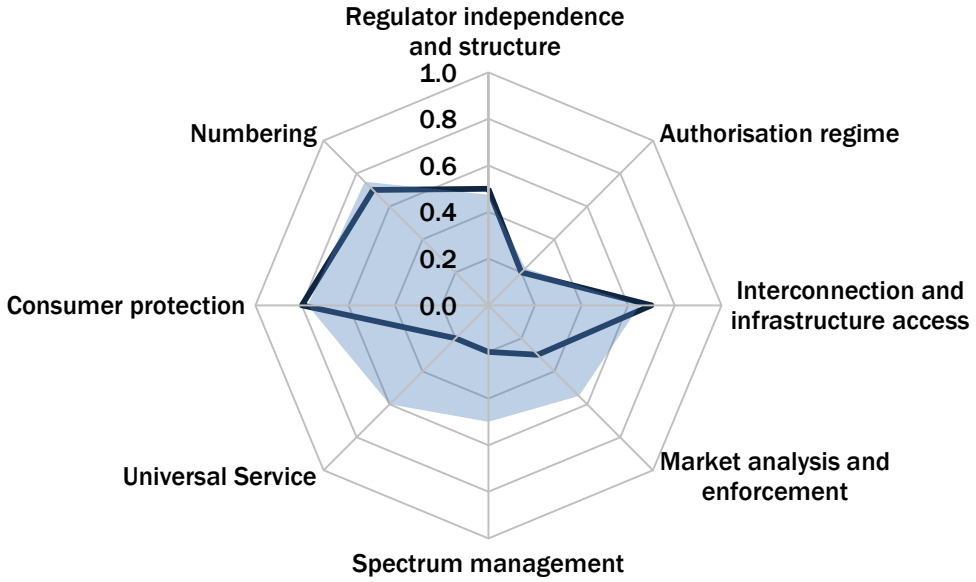
The Ministry also establishes the National Numbering Plan, while INT manages numbering and makes assignments. Although INT's practice is to act transparently and to conduct consultations, there is no legal requirement that INT do so. INT is authorised to impose fines of up to 1 per cent of annual turnover, which are insufficient to be meaningful to large operators. INT decisions may be suspended upon application to court as part of an appeal of INT's decision.

The law provides a universal service obligation; however, INT has no role in universal service and no provisions have been established to guide the selection of universal service operators. Compensation to operators may be granted by the State "in special cases" with no requirement that the regulator first determine that the net cost represents an unfair burden. The decree establishing the list of universal services and the maximum rates applicable has not yet been adopted. There is no universal service fund.

The legal framework defines procedures, conditions and time frames for obtaining rights of way. Tunisia has a country-based equipment approval regime, requiring certification of all terminal equipment and related equipment by the Tunisian Centre d'Etude et Recherche de Télécommunications.

Chart 2: Comparison of the legal framework for telecommunications in Tunisia with international practice and regional performance

Tunisia: Legal framework



Key: Extremities of the chart = International best practice
Tunisia= Solid line
Regional average = Shaded area

Sector organisation and governance

The Tunisian State owns part of three operators, with a 65 per cent stake in Tunisie Telecom, 51 per cent in Orange Tunisie and 25 per cent in Tunisiana. The regulatory regime has provisions for better competitive safeguards for new entrants, but many of these requirements appear to remain unimplemented. In practice Tunisie Telecom, the fixed-line incumbent, remains a near monopoly in the fixed market. The company was partly privatised in 2006 when a 35 per cent stake was sold to Dubai-based Tecom and DIG. Tunisie Telecom also operates a mobile network under the name Tunicell. The third mobile operator (which is also the second fixed network operator) is owned by France Telecom's Orange.

The Ministry of Information and Communications Technologies has overall responsibility for the electronic communications sector. There is no published policy statement defining the key targets for the sector, although the overall intention is to reinforce the powers of the regulator, and to create a sustainable competitive telecommunications market.

The sector regulator INT was established in 2001 and regulates telecommunications and internet services. Some functions typically held by a national regulator are still exercised by the Ministry of Information and Communications Technologies, such as licensing, while spectrum management and administration is carried out by the National Frequency Agency. INT is governed by rules on independence, transparency, consultation and avoidance of conflict of interest. In practice, the INT remains under the authority of the Ministry and has poor enforcement powers. The Ministry appears to intervene in many INT's areas of responsibility and still controls or supervises governmental agencies that are in charge of spectrum regulation, electronic certification and equipment control and certification. Notably, INT does not appear to have access to the necessary information to regulate the market. For example, INT does not receive costs and tariff information from operators. INT decisions are appealable to the Court of Appeal of Tunis

Tunisia has been a member of the WTO since 1995 and is therefore committed to market liberalisation. It is also a signatory to other regional and bilateral agreements including membership of the Arab regulators network (AREGNET) Arab spectrum management group (ASMG) and the Euro-Mediterranean regulators group (EMERG).

Regulatory conditions for wired networks

There is currently no general authorisation mechanism in place, although a working group has reportedly been created to propose solutions in this area, based on the EU regulatory framework. Notwithstanding the absence of general authorisations, however, licences issued are now "global" in nature (for example, integrated fixed, mobile 2G/3G and internet) and technologically neutral.

While the procedures for obtaining rights of way on public and private property are set out in legislation, they do not seem to have been applied in practice.

Access to existing infrastructure is regulated, with Tunisie Telecom obliged to offer access to all its active and passive infrastructure elements. Its most recent interconnection offer includes access to ducts, buildings (co-location), leased lines, optical capacity and copper access lines. However, in practice, Tunisie Telecom operates all the access lines, reportedly does not offer the sharing of its infrastructure, nor wholesale voice, nor wholesale broadband services. Orange Tunisie (the second fixed-line operator) is understood to be negotiating with Tunisie Telecom for local loop unbundling, but reportedly without success so far. A decision by INT mandating wholesale broadband (bitstream) access to Tunisie Telecom's network remains blocked in court, under appeal.

For basic services, the incumbent has not rebalanced tariffs so that it still offers a low-tariff line rental of around €1.5 per month. There is no number portability for fixed-lines and no carrier selection or carrier pre-selection. Tunisie Telecom's interconnection offer allows full interconnection at all levels, including international traffic. Fixed call termination charges are regulated at €0.018 per minute, for single and double transit, peak and off-peak time, rates high by EU standards.

Regulatory conditions for services requiring frequency spectrum

Licences have been issued in accordance with the published frequency plan and are specific to GSM, 3G/UMTS and fixed wireless. Orange Tunisie is the exception as it acquired its "global" licence in 2009 through a beauty contest (paying €130 million). This provides an integrated licence covering fixed, mobile 3G and internet. A second 'global' licence is expected to be auctioned in 2012. Secondary spectrum trading is not allowed.

The analogue to digital broadcasting switchover process started in 2010 and completion is aimed for by 2014.

The mobile market is dominated by two operators (Tunisiana and Tunicell) who together have over 90 per cent market share. Further regulatory measures are needed to ensure that competition the mobile market becomes more effective. A programme to re-farm the GSM 900 MHz band for mobile broadband has been launched. There is no national mobile roaming mandated by law (although it is required in licence documents) and roaming prices are left to commercial negotiations. In practice, a requirement for national roaming is not enforced. Legislation does not allow the entry of virtual mobile operators in the market.

While a public consultation on mobile number portability was launched by INT in 2010, a decision on adoption on implementation has yet to be made. A single mobile termination rate is set for all mobile operators at €0.041 per minute, which is broadly equivalent to average the average EU rate.

Payments required from operators

The full list of payments to be made by licensed operators of electronic communications networks and services is published on the Official Printing Office of Tunisia's web site, but there is no guidance available to explain the system clearly.

The telecom law provides that the regulator INT is financially autonomous and is funded by the fees charged on operators for numbers and domain names, as opposed to an administrative-fee based system, imposed on licensed operators, more commonly seen in the EU system. Around €5 million is reportedly collected per year from operators, with any surplus (after INT's expenditures are covered) being transferred to the government. A licence fee is also collected from operators, though this goes to the Ministry of

Finance. Fees for frequency acquisition and yearly usage are collected by the Agence Nationale des Fréquences (ANF) on behalf of the government.

While the telecom law provides for universal service, the list of such services and the maximum rates payable for these services has not yet been adopted by the Ministry. Operators are not required to contribute to a universal service fund but they are subject to a tax of 5 per cent of its annual turnover to finance a "telecommunications development" fund.

Information society safeguards

There is almost no reference to the internet in the law, although this does not mean that the internet market is fully liberalised. Special permissions are required to operate an internet service provider (ISP) business and all internet service providers (Orange, Tunisiana and two independent players are obliged to use Tunisie Telecom's fixed-lines). Further diminishing the competitiveness of the internet sub-sector is the fact that the Agence Tunisienne d'Internet (ATI), the national internet exchange point which supplies access and interconnection services to internet service providers, is 40 per cent owned by Tunisie Telecom. This national internet exchange point is the only allowed interconnection between internet service providers and to the rest of the internet.

Domain name registration is currently an activity that only the five internet service providers plus two other registrars (authorised by the Ministry in 1997 and 2000) are allowed to pursue. However, a consultation is ongoing with the aim to liberalise fully domain name registration.

There is a legal basis for electronic signatures and the protection of personal data, but the latter is not specific to electronic communications. Tunisia has not adopted the Council of Europe convention on Cybercrime. This matter is the responsibility of the Agence Nationale pour la Sécurité Informatique.

Summary and outlook

The conditions for full and fair competition are not yet fully in place in Tunisia. There is an established regulatory regime covering electronic communications and broadcasting, but its weak enforcement and monitoring powers mean that the incumbent fixed operator (Tunisie Telecom) still restricts the development of effective wholesale markets that would allow competitive use of the existing infrastructure. Other competition barriers also exist, in particular the fact that the Tunisian State owns part of the dominant fixed operator and the two largest mobile operators.

The competitive situation is better in the mobile sector with the added recent boost of competitive 3G services. Notably, neither number portability nor national roaming are in place, nor is there any provision for virtual mobile operators.

The government has adopted initiatives to promote a "digital culture" that covers all segments of society, including the teaching of computer science, establishing technology parks, and providing incentives for institutions and individuals to access the internet. There is a special policy to attract (foreign) investments; particularly into production sectors that create higher value for example biotechnology, electronics industries, health and environmental technologies. Tunisia is ranked second out of 60 emerging economies according to the Change Readiness Index[39]. This measures the forward-looking potential of the country to manage change, and includes factors such as economic diversification, entrepreneurship and investment climate.

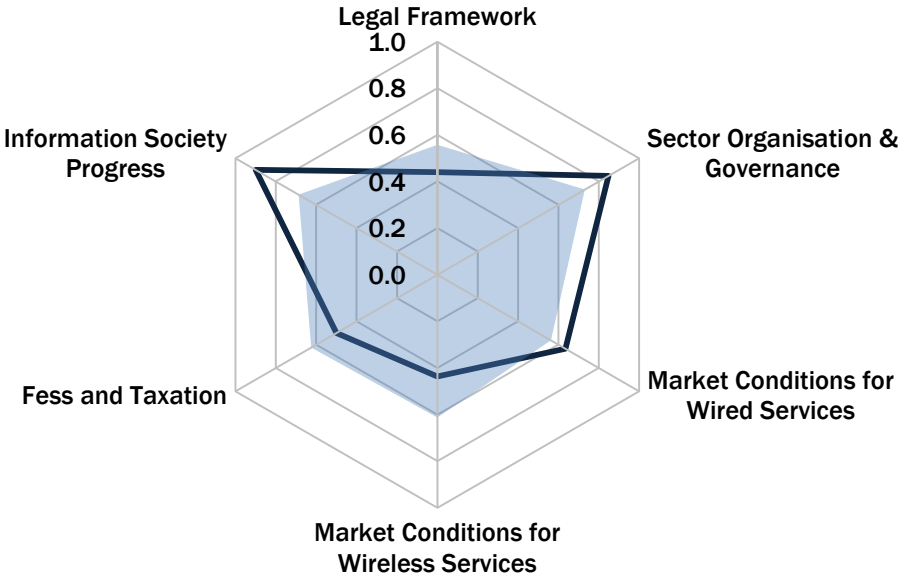
At the regulatory level, the enforcement powers and implementation capacity of the regulator need to be significantly strengthened. There have been announcements in this respect by the government, but concrete plans have yet to become apparent. The introduction of better competitive conditions will depend on the political will of the new government. Tunisia is now in a phase of transition until general elections are held and a new constitution is enacted.

By taking the necessary steps to promote strong policy leadership, and competitive market safeguards, Tunisia is well positioned to become a growth market in electronic communications in North Africa.

39 KPMG 2012 Change Readiness Index kpmg.com/changereadiness

Chart3: Comparison of the overall legal/regulatory risk for telecommunications in Tunisia with international practice and regional performance

Tunisia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Tunisia = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 55 (100 is the lowest)

3.4 Group D Countries

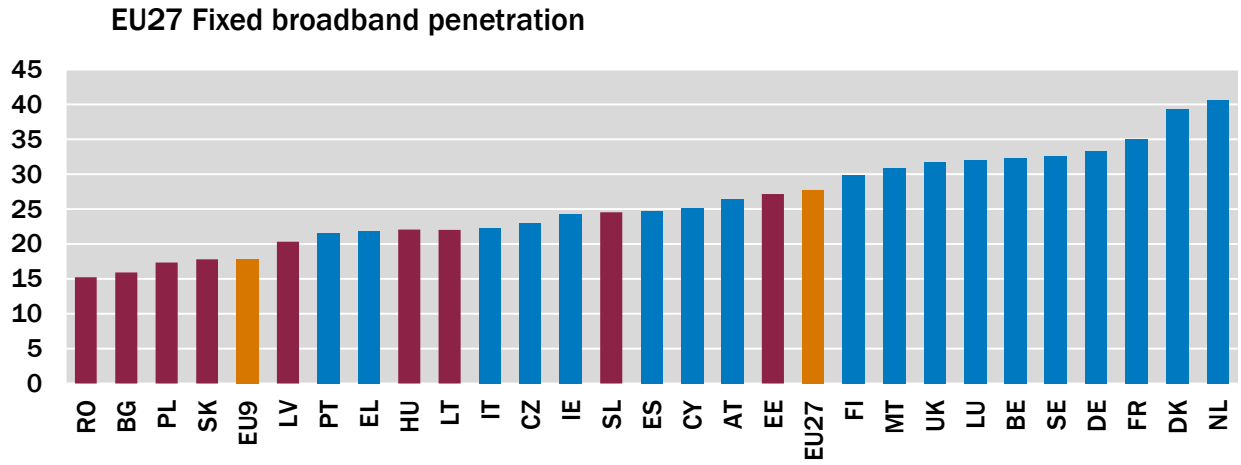
Regional overview

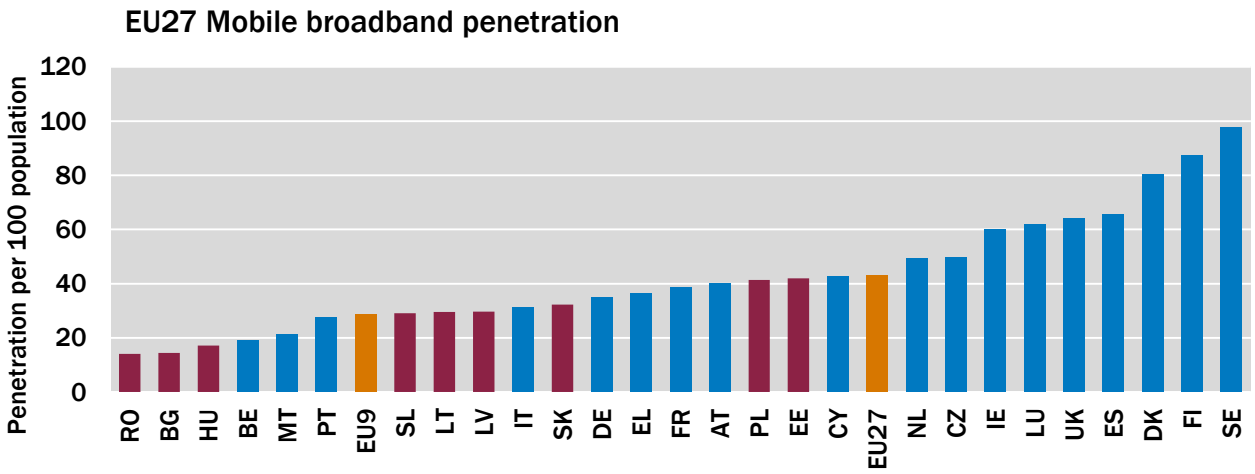
The nine countries of this regional grouping (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia) have a total population of nearly 92 million (2010), with Poland the largest (38 million) and Estonia the smallest (1.3 million). The average Group D Penetration rates of fixed, mobile and broadband communications are lower than the EU27 averages.

Fixed-line penetration is highest in Slovenia at 46/100 population and lowest in Lithuania, Poland and Slovak Republic at only around 22/100 population (Group D average is 25.2/100 and the EU27 average is 40/100 population).

Mobile subscriber penetration is highest in Latvia at 157/100 population and lowest in Slovenia at 105/100 population. (Group D average is 120/100 population and the EU27 average is 127/100population).

Fixed broadband penetration is highest in Estonia at 27/100 population and lowest in Romania at 15/100 population. The Group D average is 17.8/100 population and the EU27 average is 27.7/100 population.

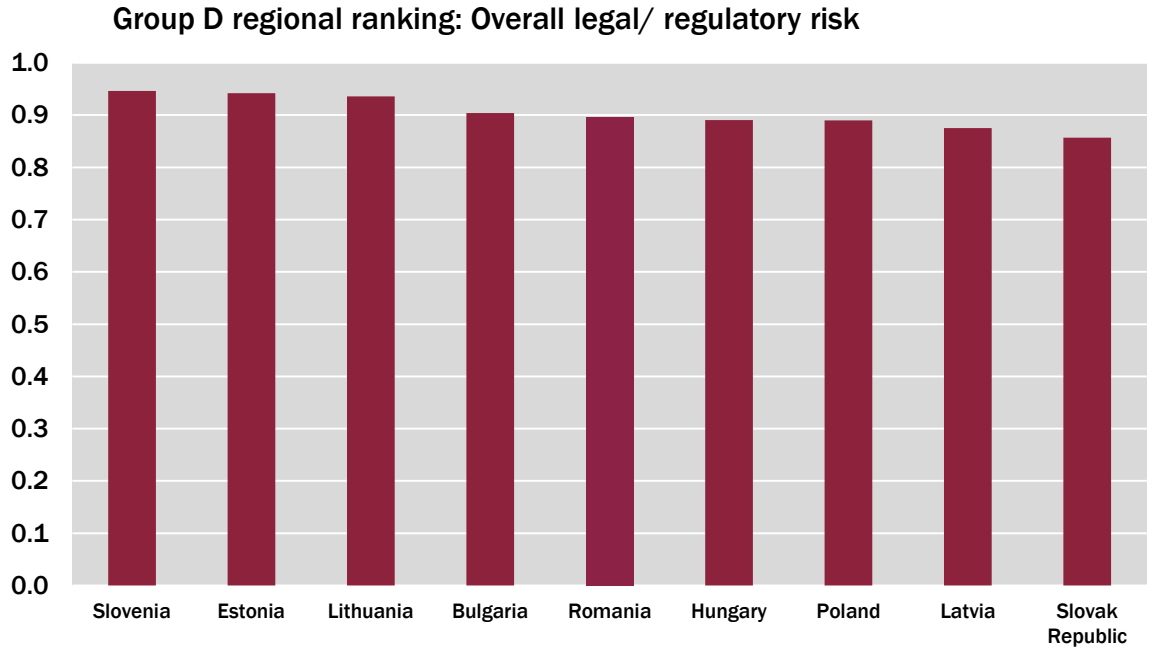




Mobile broadband penetration approaches the EU27 average in Estonia and Poland (at over 40/100 population) while Bulgaria, Hungary and Romania have mobile broadband penetration rates below 20/100 population.

Overall market descriptions

	Bulgaria	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia
Population	7.5m	1.3m	10m	2.2m	3.3m	38m	21m	5.4m	2.1m
Remaining state ownership in fixed operator	Golden Share	0%	0%	51%	<1%	0%	46%	49%	72%
EU framework version adopted	2009	2009	2009	2009	2009	2003	2003	2009	2003
Market share of fixed incumbent	93%	85%	45%	85%	97%	57%	56%	87%	73%
Number of mobile operators	3	3	4	3	3	7	6	3	4
Penetration of fixed-lines per 100 population	29.2	31.9	31.1	28.7	22.5	22.2	24.7	22.5	46.1
Penetration of mobile subscribers per 100 population	144.0	134.0	109.9	157.4	148	120.4	110.0	117.3	105
Penetration of fixed broadband per 100 population	15.9	27.2	22.1	20.3	22.0	17.3	15.2	17.8	24.5
Penetration of mobile broadband per 100 population	14.4	42.0	17.2	29.7	29.6	41.4	14.1	32.3	29.1
Internet users per 100 population	46	76	66	66	60	62	39	79	71
Overall legal/regulatory risk index (100 =lowest risk)	90	94	89	88	94	89	90	86	95



1.00 is the lowest risk, zero is the highest

[Source: EBRD analysis]

The Overall Legal/ Regulatory Risk Index is a summation of a number of components, as defined in section 2 of this report:

1) Legal Framework. This component assesses if the degree of conformity with a modern legislative framework for an efficient competitive market for electronic communications. (Weighting = 30 per cent.)
2) Sector organisation and governance. This relates to the structure of the electronic communications sector including ownership, regulation and the main regulatory procedures. (Weighting = 10 per cent.)
3) Market conditions for wired networks and services. This relates to the market entry conditions faced by operators and service providers who base their services on metallic, as opposed to wireless (spectrum) based methods. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 20 per cent.)
4) Market conditions for wireless networks and services. These relate to market entry by operators and service providers who base their services on wireless (spectrum) methods. This includes mobile services and fixed wireless services. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 25 per cent.)
5) Fees and taxation on electronic communications services. This relates to the types of payments required from operators/ service providers to the state and/or regulatory agency in order to start and continue providing services. (Weighting = 10 per cent.)
6) Progress towards implementation of Information Society. This relates to the country's environment for conducting business and providing services electronically. (Weighting = 5 per cent.)

Market commentary

The situation in the Group D countries with regard to the electronic communications sector is extensively documented in other sources, notably by:

- The European Commission, in its individual country reports "Electronic Communications Policy Implementation of Regulatory Frameworks 2011 Telecommunications Market and regulatory Developments[40]". The most recent reports were published in June 2012.
- The European Commission Staff Working Document "Digital Agenda Scorecard 2012".[41]
- The Body of Regulators for Electronic Communications (BEREC) "Termination Rate Snapshot (January 2012) integrated report on MTR, SMS TR and FTR".[42]
- The Cullen International database.[43]

The market summaries below for the individual countries draw extensively on these reports.

Each EU country is required to transpose the 2009 European Regulatory Framework (as described in Section 2 of this report) into its own legislation and to implement the framework. In the Group D countries the 2009 framework has been adopted in Bulgaria, Estonia, Hungary, Latvia, Lithuania, Romania and Slovak Republic. In Poland and Slovenia the 2003 regulatory framework has been implemented and the adoption of the 2009 framework will take place during 2012.

The European Union policy framework

The EU has adopted the Digital Agenda for Europe[44] as part of the overall Europe 2020 strategy "... for smart, sustainable and inclusive growth. The Digital Agenda proposes 101 specific policy actions across 7 domains: digital single market; interoperability and standards; trust and security; fast and ultra-fast internet access; research and innovation; digital literacy, skills and inclusion; and ICT-enabled benefits for EU society."

There are several key performance targets that are relevant to the penetration of electronic communications services, and the progress against these targets has been reported most recently in May 2012 report[45]. The EU case study included in section 4 of this report summarises the main features of the progress that are most relevant to the effectiveness of the electronic communications market in the Group D countries.

Implementation of the EU regulatory framework

The following tables summarise the progress of each Group D country in implementing measures to increase market competitiveness. More details are given in the country-by-country summaries included in this section.

40 The references to these individual country reports are given within each country summary in this section of the report
41 http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/2012
42 http://erg.eu.int/doc/bor_12_56_tr_integrated_snapshot_final.pdf
43 http://cullen-international.com/regulatory-services/telecommunications.htm?lng=en
44 Available at http://ec.europa.eu/information_society/digital-agenda/index_en.htm
45 http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/2012/scoreboard_progress_report.pdf

Conditions for market access

	Bulgaria	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia
General authorisation procedure	✔	✔	✔	✔	✔	✔	✔	✔	✔
Technology neutrality for fixed licences	✔	✔	✔	✔	✔	✔	✔	✔	✔
Technology neutrality for mobile licences	✔	✔	✔	✔	✔	✔	✔	✘	✔
Reasonable access to rights of way	✔	✔	✔	✔	✔	✔	✔	✔	✔
Infrastructure sharing mandated	✔	✔	✔	✔	✔	✔	✔	✔	✔
Regulated interconnection charges	✔	✔	✔	✔	✔	✔	✔	✔	✔
Access to international gateways	✔	✔	✔	✔	✔	✔	✔	✔	✔
Spectrum granted on fair, transparent basis	✔	✔	✔	✔	✔	✔	✔	✔	✔
Spectrum secondary trading allowed	✔	✔	✔	✔	✔	✔	✔	✔	✔
Fixed-line retail tariff rebalancing completed?	✘	✔	✔	✘	✔	✔	✔	✔	✔

All the normally expected market entry conditions are in place, except that in Bulgaria and Latvia the retail tariffs for basic fixed-line services have not yet been fully rebalanced. In these two countries, the rental charge for a basic fixed-line is around €5 per month, the lowest in the EU. This creates a market entry barrier to competitors in the fixed-line market.

Implementation of competitive safeguards

	Bulgaria	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia
Carrier selection/ pre-selection	✔	✔	✔	✔	✔	✔	✔	✔	✔
Fixed number portability	✔	✔	✔	✔	✔	✔	✔	✔	✔
Mobile number portability	✔	✔	✔	✔	✔	✔	✔	✔	✔
Reference Interconnection Offer (Fixed)	✔	✔	✔	✔	✔	✔	✔	✔	✔
Local Loop Unbundling	✔	✔	✔	✔	✔	✔	✔	✔	✔
Wholesale broadband access	✔	✔	✔	✔	✔	✔	✔	✔	✔
Wholesale line rental	✔	✔	✔	✔	✔	✔	✔	✔	✔
Reference Interconnection Offer (Mobile)	✘	✔	✘	✘	✔	✔	✔	✘	✔
National mobile roaming	✘	✘	✘	✘	✘	✘	✘	✘	✔
Mobile Virtual Network Operators	✔	✔	✔	✔	✔	✔	✘	✔	✔

All the normally expected competitive market safeguards have been implemented, except that reference interconnection offers have not been required from mobile operators, except in Slovenia. The main interconnection charging rates (mobile termination rates) are regulated, with all EU countries being required to implement to implement the European Commission recommendation on fixed and mobile termination rates[46].

National mobile roaming has only been mandated in Slovenia. In the remaining countries, the market for mobile call origination and access has been found to already be competitive.

46 http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/c_2009_3359_en.pdf

In all countries except Slovenia, the number of the incumbent fixed operator's unbundled local loops is less than 5 per cent of the total number of the incumbent's copper loops. In all countries except Hungary and Poland, the number of the incumbent's wholesale broadband access lines is less than 5 per cent of the incumbent's total broadband access lines.

Implementation of information society safeguards

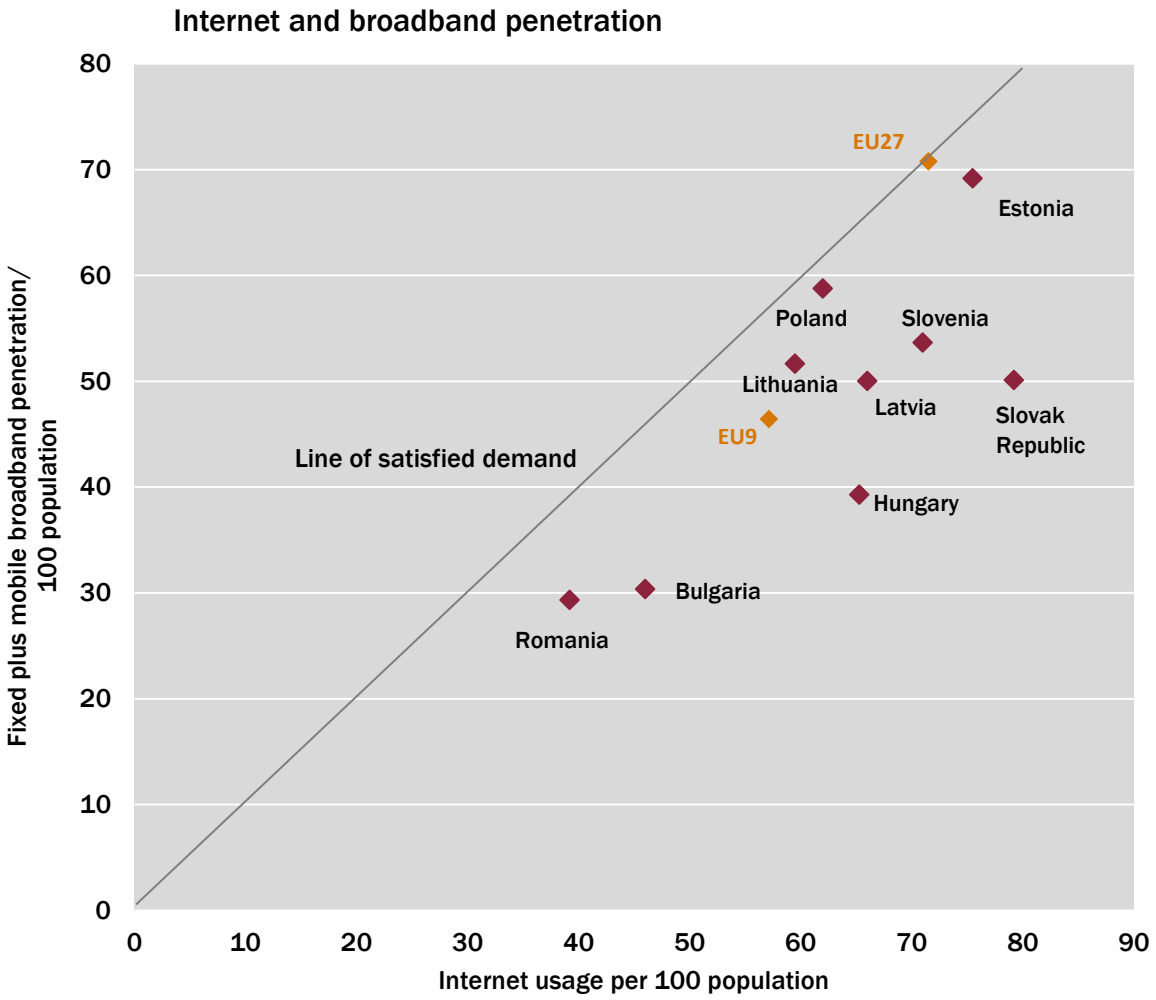
	Bulgaria	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia
Basic internet freedom of expression	✔	✔	✔	✔	✔	✔	✔	✔	✔
Ease of setting up internet business	✔	✔	✔	✔	✔	✔	✔	✔	✔
Legal basis for electronic documents and signatures	✔	✔	✔	✔	✔	✔	✔	✔	✔
Legal basis for data protection	✔	✔	✔	✔	✔	✔	✔	✔	✔
Safeguards against cybercrime	✔	✔	✔	✔	✔	✔	✔	✔	✔

In all countries, legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU *acquis*.

Potential for broadband growth

The internet penetration in the Group D countries (as measured by the percentage of citizens who regularly use the internet) varies from 39 per cent in Romania to 79 per cent in Slovak Republic. The Group D average internet penetration is 57 per cent and the average EU27 rate is 76 per cent.

By plotting the total (fixed plus mobile) broadband penetration against the internet penetration in each country, the potential for broadband growth (to meet the latent internet users' demand) can be deduced.



The chart shows that Poland is the closest to satisfying internet demand, whereas in the other countries, especially Hungary and Slovak Republic, broadband penetration lags behind internet usage. This suggests that there is still significant potential for broadband investment in the Group D countries to satisfy latent broadband demand.

BULGARIA

At a glance

Market penetration	
Population	7.54m
Fixed penetration*	29.2
Mobile penetration*	144
Broadband penetration*	30.3

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Transport, Information Technologies and Communications
National regulatory authority	Communications Regulatory Commission

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔*
Wholesale broadband offers	✔
Mobile national roaming	✘
MVNOs	✔

*Fixed only

Information society	
Internet penetration per 100 population	46
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

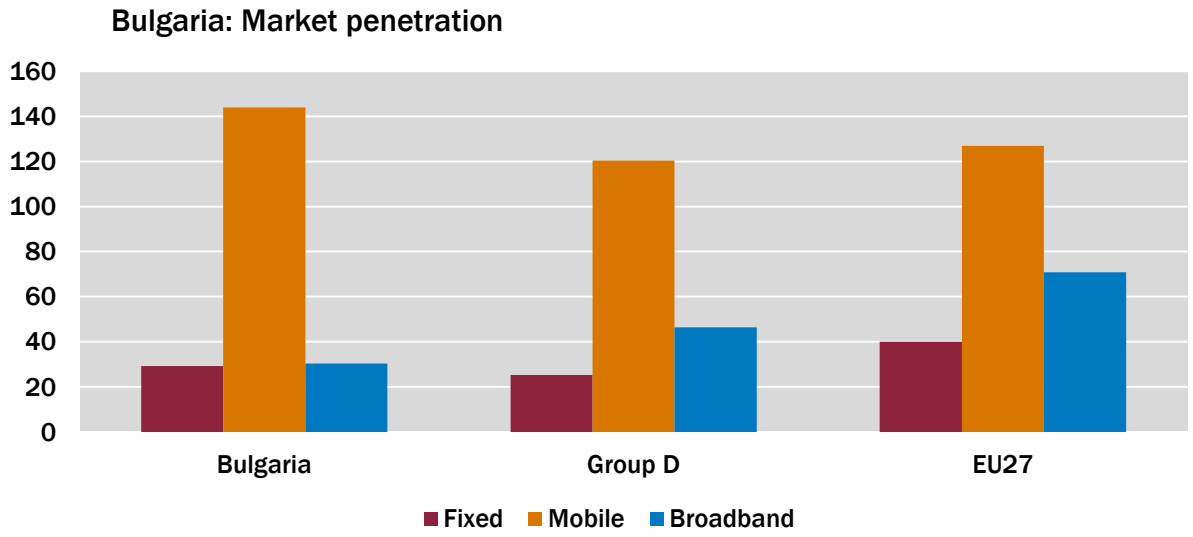
Bulgaria is a member state of the European Union. The electronic communications markets have been fully liberalised.

Fixed-line penetration is 29/100 population, above the Group D average of 25. Mobile penetration has reached 144/100 compared with the Group D average of 120. The penetration rate of fixed broadband is 16/100 population, the second lowest in the Group D region and significantly below the EU27 average of 27.7/100. Mobile broadband penetration is 14.4/100 population, up from 7.9/100 a year earlier.

The proportion of the population who use the internet regularly is 46 six per cent up from 42 per cent in 2010. This is significantly below the EU average of 68 per cent. Around 46 per cent of citizens have never used the internet, a reduction of 5 per cent since 2010.

Take-up of eCommerce is below EU average (43 per cent), with only 7 per cent of the population buying online, up 2 per cent from the previous year. Government usage by citizens in 2011 is the third lowest in the EU27 at 25 per cent with only a 1 per cent increase from 2010. Usage by businesses in 2011 is slightly better placed with 79 per cent, which is only slightly below the EU27 average.

Chart 1: Market penetration of main services per 100 population in Bulgaria, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Electronic Communications Act. The European Commission initiated infringement proceedings for non-communication of transposition measures in July 2011. Amendments to transpose the EU 2009 regulatory framework were adopted in December 2011.

Sector organisation and governance

The Communications Regulation Commission (CRC) is the regulatory authority for electronic communications. It is an independent body chaired by a commission of five members. The chairman is appointed by the government, the deputy chairman, two members of parliament and another member is appointed by the President.

Responsibility for policy making lies at the Ministry of Transport, Information Technologies and Communications (MTITC). The Commission for Protection of Competition (CPC) is the Bulgarian competition authority.

The incumbent operator BTC (Vivacom) has been privatised, but the state still holds a golden share.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

The incumbent operator Vivacom dominates basic fixed-lines with 93 per cent market share. New entrants are focussing on fixed broadband services market and have reached a market share of 70 per cent of all fixed broadband lines. The cable operators' market share remains stable with 14 per cent of all active broadband lines. The alternative operators continue to use their own infrastructures and the take-up of incumbent's whole sale products is very limited. A big obstacle for the development of infrastructure-based competition on the wholesale broadband market remains the deployment of illegal aerial cables.

Bulgaria has high coverage of fibre broadband. Several operators, including incumbent Vivacom, deploy fibre access networks. Bulgaria has 84.8 per cent of fixed broadband lines providing speeds of over 10Mbps, well above the EU average of 48.8 per cent. Bulgaria has 22.8 per cent of lines providing speeds of over 30Mbps and 0.2 per cent of fixed-lines providing speeds equal or above 100 Mbps.

Several of the competitive safeguards that are foreseen in the EU regulatory framework have not been implemented or are not used in practice. Retail tariffs are not rebalanced, with Vivacom's basic line tariffs, at €5.10, being one of the lowest in Europe. Local loop unbundling, wholesale broadband access and carrier selection/pre-selection are almost unused in practice.

Fixed number portability was introduced late and only after the European Commission initiated infringement proceedings.

In spite of the high fibre access overage, CRC has not yet imposed specific regulatory obligations for fibre unbundling or wholesale broadband access over NGA networks. Competition in fixed networks is therefore largely based on competition between different operators' own infrastructure. However, duct sharing has been imposed and is used in practice.

Call termination charges for the incumbent's fixed network are around the averages for EU countries.

Regulatory conditions for services requiring frequency spectrum

Bulgaria has three mobile network operators, each using spectrum in the 900MHz, 1800MHz and 2GHz bands: BTC (Vivacom), Cosmo Bulgaria Mobile (Globul) and MobilTel (M-Tel). CRC has made the GSM licences technology neutral and all three operators deploy 3G in the former GSM bands.

Transition towards digital TV is delayed and analogue switch-off is planned for September 2013. CRC has not yet announced when it will award the 800MHz and 2.6GHz bands.

In 2011 CRC tried to auction spectrum in the 2GHz band, but without receiving applications. CRC also tried to award spectrum in the 1,800MHz band to three operators (without a competitive procedure because there was sufficient spectrum for all three applicants), but the applicants failed to pay the licence fees and CRC did not award the spectrum.

Mobile termination rates are set by benchmarking, but remain significantly above than the average for EU countries. CRC is preparing a modern costing model to implement the European Commission recommendation on fixed and mobile termination rates, but results are not expected to be available until around mid-2013.

Payments required from operators

There is no special tax imposed on electronic communications networks or services.

The net costs of universal service are not shared between operators, but the law foresees that a fund could be established. Contributions of operators must not be higher than 0.8 per cent of the voice telephony revenue.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU acquis.

Summary and outlook

Fixed networks show promising development with fibre access networks, but there is still a lack of implementation of competitive safeguards such as tariff rebalancing, local loop unbundling and wholesale broadband access.

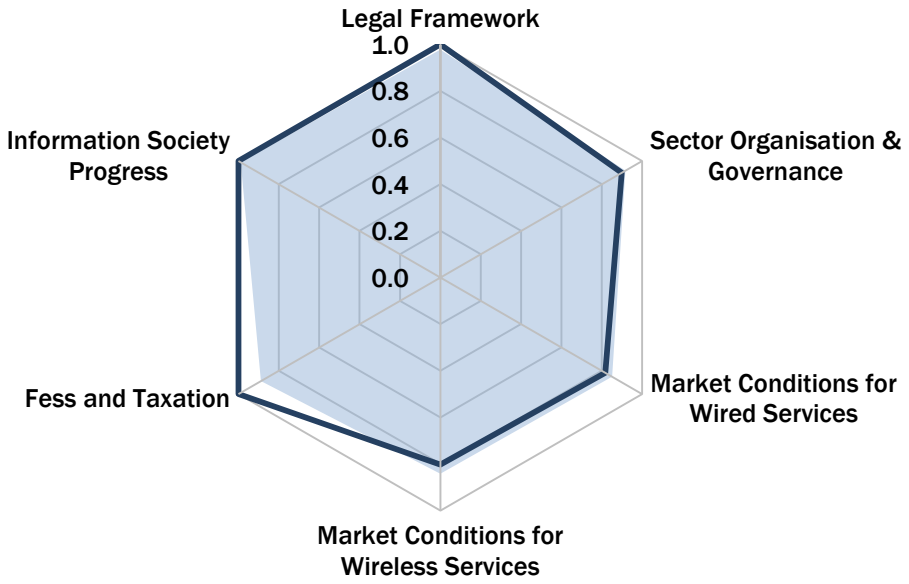
It is not clear when interconnection charges will reach full cost orientation as recommended by the European Commission.

Market entry in the wireless sector seems to be difficult. Three operators that were interested in parts of the 1,800MHz band failed to pay the requested licence fees. It is yet unclear when the 800MHz and 2.6GHz bands will be opened.

A full market report on the electronic communications sector in Bulgaria is published by the European Commission on: http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/2012/BG_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Bulgaria with international practice and regional performance

Bulgaria: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Bulgaria = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 90 (100 is the lowest risk)

ESTONIA

At a glance

Market penetration	
Population	1.34m
Fixed penetration*	31.9
Mobile penetration*	134
Broadband penetration*	69.2

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Economic Affairs and Communications
National regulatory authority	Estonian Competition Authority and 2) Estonian Technical Surveillance Authority

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming	✘
MVNOs	✔

Information society	
Internet penetration per 100 population	73
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Estonia is a member state of the European Union. The electronic communications markets have been fully liberalised.

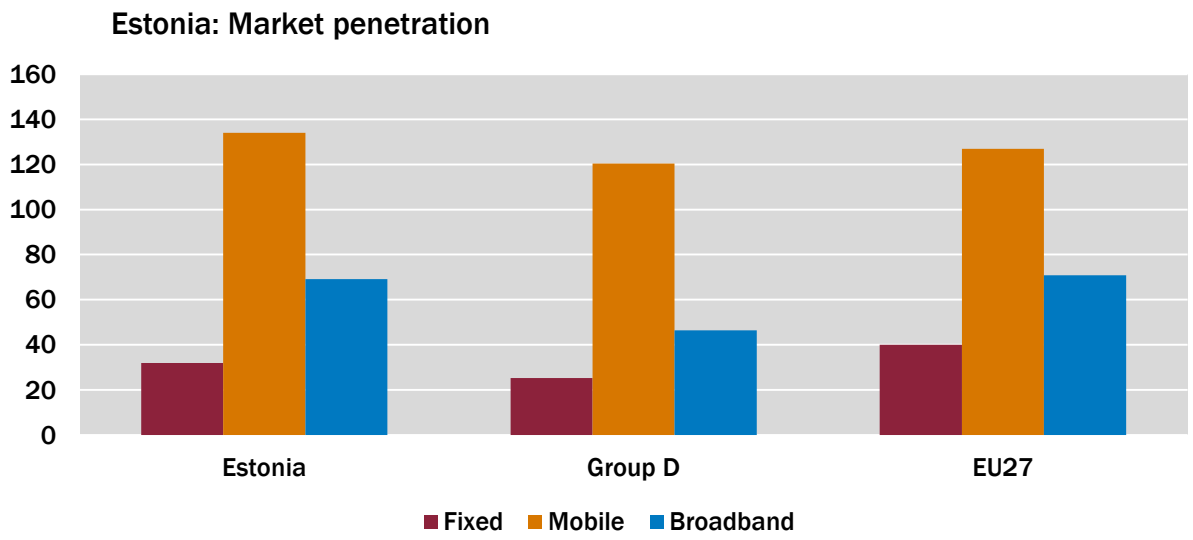
Fixed-line penetration is 31.9/100 population, significantly above the Group D average. Mobile penetration is also above average, at 134/100 compared to the Group D figure of 120.

Broadband penetration is the highest in the Group D countries. Fixed broadband is at 27.2/100 population, and mobile broadband has grown from 15.9 to 42/100 population during 2011, putting both fixed and broadband penetration at EU average levels.

73 per cent of the population use the internet regularly, up 2 per cent during 2011, taking it above the EU average of 68 per cent.

Take-up of eCommerce is comparatively low, with 21 per cent of the population buying online, up from 17 per cent over the year. The proportion of the population who uses eGovernment services is 53 per cent, which is above the EU27 average. Usage of eGovernment by businesses is well above the EU average at 91 per cent with good progress from previous year's figure of 80 per cent.

Chart 1: Market penetration of main services per 100 population in Estonia, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Electronic Communications Act. Amendments to transpose the EU 2009 regulatory framework were adopted in March 2011, the only country in the Group D region to do so before the EU deadline of May 2011.

Sector organisation and governance

The ministry responsible for the electronic communications sector is the Ministry of Economic Affairs and Communications (MEC). Unlike most EU member states, the functions of a regulatory authority for electronic communications are divided between the Estonian Competition Authority (ECA) and the Estonian Technical Surveillance Authority (ETSA).

The competencies of the ECA comprise the typical functions of a competition authority like merger control, as well as sector-specific regulation for energy, water, railways, the postal sector and electronic communications. In particular, the ECA is responsible for market analyses under the EU regulatory framework for electronic communications.

The European Commission initiated infringement proceedings in 2011, questioning the independence of the regulators in light of the structural separation.

The ETSA is also responsible for different sectors, namely electronic communications, railways and industrial safety. Within the electronic communications sector it is in particular responsible for numbering, spectrum management, radio and telecommunications terminal equipment and standardisation.

The state does not hold any shares in fixed or mobile operators.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

Fixed infrastructure–based competition continues to be based on alternative infrastructures rather than the use of the regulated wholesale products of the fixed incumbent. Despite several regulatory initiatives, including price control remedies for physical network infrastructure access since 2010 and full regulation of access to cable ducts, take-up of wholesale access services has slowed down in 2011. An important reason for the poor take-up by alternative operators of the fixed incumbent's regulated wholesale offers could be the insufficient margin between the wholesale costs and retail prices, but also difficulties when negotiating issues such as collocation with the incumbent operator.

Estonia has high coverage by NGA networks. The incumbent operator Elion reaches about one-third of the households with fibre and the cable operator Starman covers a similar number of households. Estonia has 16.2 per cent of fixed-lines providing speeds of 10 Mbps and above and 8 per cent of lines providing speeds between 30Mbps and below 100Mbps, with a further 3.2 per cent of fixed-lines providing speeds equal or above 100 Mbps.

Almost all of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented, including full interconnection and unbundling offers, tariff rebalancing, carrier pre-selection, wholesale broadband access and fixed number portability. However, local loop unbundling is rarely used (about 2 per cent of the incumbent operator's loops) and wholesale broadband access is almost unused. Wholesale line rental is not available.

ECA has imposed regulatory obligations on Elion with regard to its NGA network. Fibre unbundling is imposed (without price regulation) and used in practice. Wholesale broadband access over NGA is mandated since 2009.

Interconnection charges are still regulated on the basis of historic costs. The call termination charges on the incumbent's fixed network are around the EU average.

Regulatory conditions for services requiring frequency spectrum

Spectrum is managed by ETSA.

Estonia has three mobile network operators (EMT, Elisa and Tele2) which each use spectrum in all available bands (900MHz, 1800MHz, 2GHz and 2.6GHz. The Progroup Holding (Bravocom) has a licence in the 2GHz band and Elion acquired some spectrum in the 2.6GHz band.

The licences in the 900 and 1800MHz bands have been made technology neutral. Elisa and Tele2 have deployed 3G in the 900MHz band.

Estonia was one of the first EU member states to award the 2.6GHz band. In December 2010/January 2011 ESTA awarded licences to EMT, Elisa, Tele2 and Elion. EMT is using the band for LTE in all major cities.

Analogue broadcasting switch-off was completed in 2010, but neighbouring Russia is using the 800MHz band for aeronautical navigation. In August 2011 Estonia and Russia signed an agreement that will allow Estonia to use the band for mobile broadband.

Mobile termination rates are set by benchmarking and are currently €0.7 per minute, which is twice the EU average. In January 2012 ECA proposed to delay implementation of the European Commission recommendation on fixed and mobile termination rates until 2014.

Payments required from Operators

There is no special tax imposed on electronic communications networks or services.

The regulator has not yet established universal service net costs and operators therefore do not have to pay into a universal service fund.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU acquis.

Summary and outlook

In 2011 good progress was made towards the goals of the Estonian broadband strategy, EStWin, aiming to build a country-wide broadband network capable of delivering 100 Mbps connections to the majority of Estonian households and businesses by the year ending 2015.

Fixed infrastructure–based competition continues to be based on alternative infrastructures rather than the use of the regulated wholesale products of the fixed incumbent. Cable operators, which were mainly present in cities, were able to offer the highest speeds of up to 150 Mbps at Mobile broadband subscriptions are increasing at a high rate and IPTV has been successfully introduced and demonstrated substantial growth. The mobile voice retail market continues to be characterised by growing traffic, highly competitive retail prices and innovative services, while in contrast, the fixed voice telephony market remained stable.

There is generally good alignment with the EU regulatory framework and Estonia has been a forerunner in several aspects. However, the market remedies applied by ECA as a result of the first round of market analyses did not fully address competition problems in the regulated markets, in particular in the broadband access markets. The regulator has focused on the second round of market analyses, which should improve competitive conditions, particularly for legacy networks. There is good coverage with NGA networks and ECA has already implemented competitive safeguards for wholesale fibre access.

Both a national broadband plan and a digital dividend plan have been approved by the government.

Spectrum policy is well aligned with the EU policy. Estonia was one of the first countries to award the 2.6GHz band and has made preparations to award the 800MHz “digital dividend”, following successful cross-border negotiations with Russia.

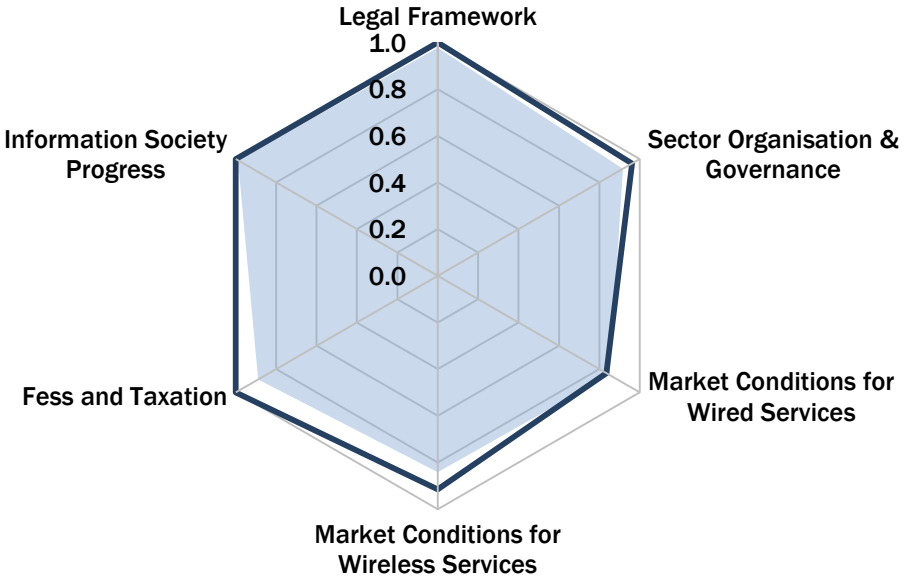
Mobile termination rates are relatively high and the implementation of the European Commission recommendation on fixed and mobile termination rates has been delayed until 2014.

The Estonian Information Society Strategy 2013 can be accessed on: www.riso.ee/en/information-policy/policy-document/Estonian_Information_Society_Strategy_2013.

A full market report on the electronic communications sector in Estonia is published by the European Commission on: http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/2012/EE_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Estonia with international practice and regional performance

Estonia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Estonia = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 94 (100 is the lowest risk)

HUNGARY

At a glance

Market penetration	
Population	10.0m
Fixed penetration*	31.1
Mobile penetration*	110
Broadband penetration*	39.3

*Per 100 population

Key Institutions	
Policy and legislation	Ministry for National Development
National regulatory authority	National Media and Communication Authority

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming	✘
MVNOs	✔

Information society	
Internet penetration per 100 population	66
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Hungary is a member state of the European Union. The electronic communications markets have been fully liberalised.

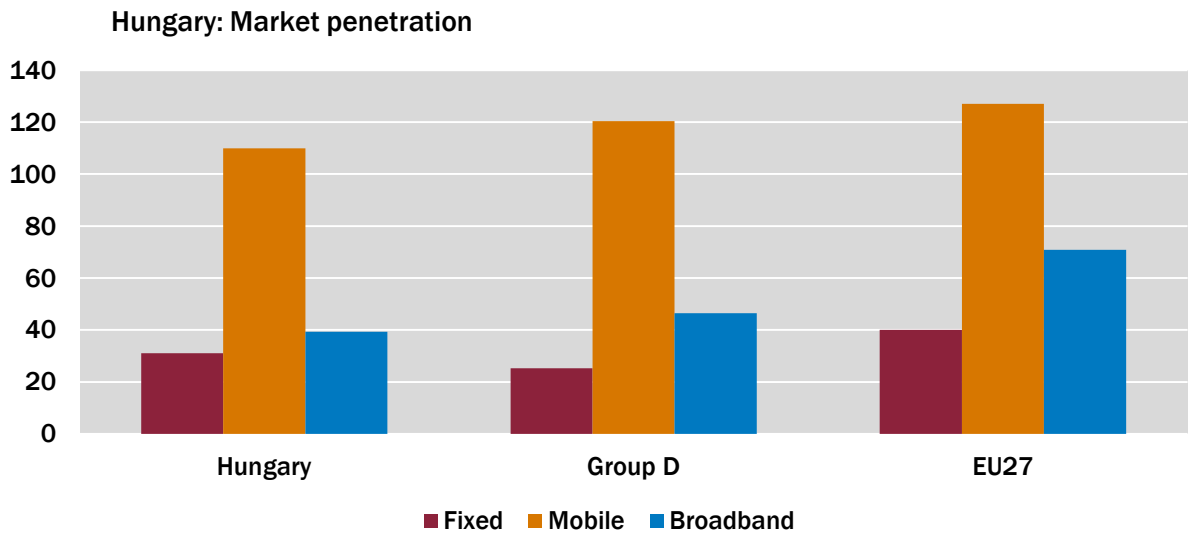
Fixed-line penetration is 31.1/100 population, which is above the EU average of 25.2. Mobile penetration, at 134/100 population is also higher than the Group D average.

The penetration rate of fixed broadband is 22.1/100 population which is above the Group D average. Mobile broadband penetration has grown from 7.8/100 population to 17.2, but this is still well below the Group D average of 28.6.

During 2011 increasing platform-based competition and convergence has seen high growth in triple-play offerings, giving a strong market position to cable operators in broadband and broadcasting. This particular year also saw the emergence of MVNO offers.

In 2011 66 per cent of the population use the internet regularly, up from 60 per cent in 2010. The take-up of eCommerce is low, with 22 per cent of the population buying online, up from 18 per cent in 2010. eGovernment usage among citizens is still below EU27 average at 38 per cent. eGovernment usage by enterprises has made good progress, up from 71 per cent to 83 per cent in 2011, putting it close to the EU27 average of 84 per cent.

Chart 1: Market penetration of main services per 100 population in Hungary, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Law on Electronic Communications. Amendments to transpose the EU 2009 regulatory framework were adopted in July 2011. The European Commission initiated infringement proceedings for non-communication of transposition measures on 18 July 2011 and closed the proceedings on 22 March 2012. In May, 2012 the European Commission referred Hungary to the Court of Justice, asking to impose a penalty for non-transposition of the EU 2009 framework.

Sector organisation and governance

In 2010 the electronic communications regulator and the media regulator were merged to become National Media and Communication Authority (NMHH). Most of the regulator's top management has been

replaced in the course of the merger and the legislation extended the term of the new President to nine years.

Under the new structure the NMHH President has a more powerful role. The main decision-making body for electronic communications regulation is the Acting Committee, which consists of the President and two other members who are appointed by the President. The President also appoints the Director General.

The ministry responsible for the sector is the Ministry for National Development (NFM). Following the recent frequency auction, where a fourth mobile licence was issued to a state-owned entity, the European Commission is looking into the consequences of the ownership structure of the new entrant, as it appears that policy matters and the ownership of national corporations lie with the same ministry.

The Hungarian Competition Authority (GVH) executes the competition law.

Hungary had fully-privatised the incumbent operator by 2007, but in January 2012 a consortium of three 100 per cent state-owned companies acquired the fourth mobile licence. In addition, the state has again indirect control on slightly less than 5 per cent of Magyar Telekom's shares due to the nationalisation of pension funds.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

Hungary has a history of having several regional incumbent operators, which have significant market power in their respective operating area. Mergers and take-overs eventually reduced the incumbent operators to three: Magyar Telekom (60 per cent owned by Deutsche Telekom), Invitel and UPC. UPC is only considered as incumbent operator in a small region, where it acquired former Monortel. It is originally a cable operator, reaching about a third of the population with its DOCSIS 3.0 network.

Hungary has 49 per cent of fixed-lines providing speeds of 10 Mbps and above and 12.2 per cent of lines provide speeds between 30Mbps and below 100Mbps, plus 1.5 per cent of fixed-lines provide speeds equal or above 100 Mbps.

Most of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented including interconnection and infrastructure access, tariff rebalancing, carrier pre-selection, wholesale broadband access, fixed number portability. Wholesale line rental is not available. Local loop unbundling is rarely used (about 1 per cent of the incumbent operators' loops).

NMHH has addressed the emerging NGA networks in its market analyses. Fibre unbundling has been mandated, but is not yet used in practice. In 2011 NMHH imposed wholesale broadband access over NGA networks. In the case of Magyar Telekom this obligation includes the fibre access network and the cable TV network.

Call termination charges on the incumbent fixed networks are based on modern cost modelling and are significantly below the average rates for the EU.

Regulatory conditions for services requiring frequency spectrum

Since 1999 Hungary has had three mobile network operators: Magyar Telekom (T-Mobile), Telenor (formerly Pannon) and Vodafone. Each are using spectrum in the 900 and 1800MHz band, and since 2004, in the 2GHz band.

Several attempts to award a fourth mobile licence failed, but in 2012 NMHH awarded a licence to a consortium of three state-owned companies (the post office, the major electricity provider and the development bank). The new player holds a similar amount of spectrum as the other three operators in all three bands.

The 900MHz band will be reshuffled following the recent licence award to allow all four players contiguous blocks of spectrum. NMHH has also announced that it will make the 900 and 1800MHz licences technology neutral.

The analogue broadcasting switch-off has been delayed. Legislation changed the deadline several times. Currently it is expected that analogue switch-off will be completed by the year ending 2014. It is yet unclear when the 800MHz "digital dividend" band will be released.

Mobile termination rates are around €0.03 per minute, which is below the EU average. This is set on the basis of a new cost models. NMHH intends to reach the level of the European Commission's recommendation on fixed and mobile termination rates in 2014, one year after the deadline.

Payments required from operators

In October 2010 Hungary adopted a "crisis tax" imposed on three sectors of the economy – retail commerce, telecommunications and energy. The tax imposed on electronic communications operators is between 0 per cent and 6.5 per cent of revenue, depending on gross annual revenues. An additional tax is charged per minute per SMS message, with a cap per mobile subscriber.

The European Commission initiated infringement proceedings against Hungary in March 2011, considering that this tax infringes the provisions on administrative charges in the Authorisation Directive. In March 2012 the European Commission decided to refer the case to the Court of Justice of the European Union.

The regulator has not yet established universal service net costs and operators therefore do not have to pay into a universal service fund.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU acquis.

Summary and outlook

The regulatory practice of NMHH is generally well aligned with the EU regulatory framework and best practice in Europe, but some of the government measures like the "crisis tax" or the new structure and management of the regulator have been surprises for operators and investors. It also was a surprise that state-owned utility companies recently acquired a fourth mobile licence.

The Hungarian electronic communications sector is performing better than the overall trends of the Hungarian economy. In particular mobile broadband services are growing fast. The market is characterised by infrastructure based competition as, with significant moves by cable operators with bundled offers including TV services increasing their market share.

Despite regulatory actions in the past, the take up of local loop unbundling remains low and the current preparatory regulatory activities with regard to next generation networks (NGN) should aim at giving appropriate incentives for network investment. Full adoption of this strategy is required to promote regulatory certainty and to meet current demands of the sector.

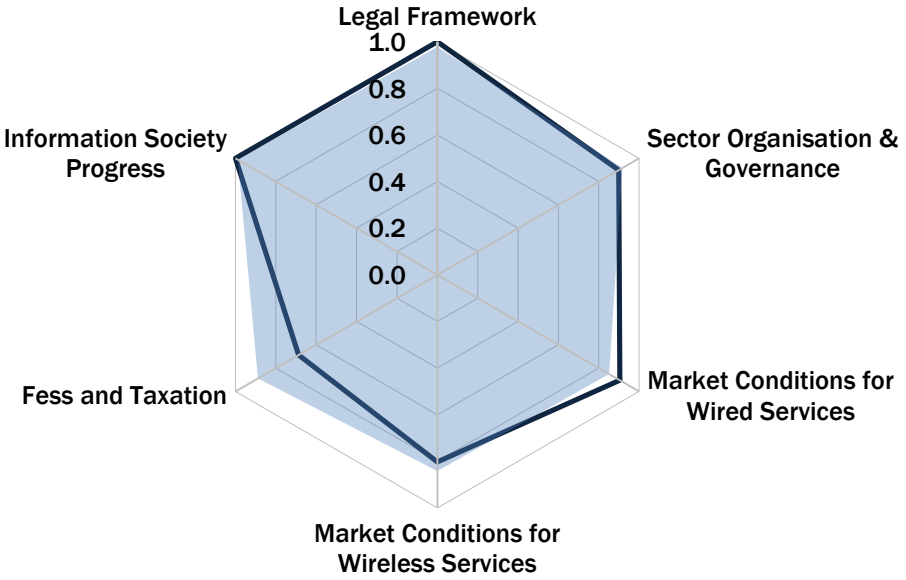
Following the reorganisation in autumn 2011, in November 2011 the Ministry published a draft call for projects to finance broadband backhaul network developments.

The Digital Strategy for Hungary is available on: www.kormany.hu/download/7/0d/30000/Digitalis_Megujulas_Cselekvesi_Tervull.pdf.

A full market report on the electronic communications sector in Hungary is published by the European Commission on: http://ec.europa.eu/information_society/digital-agenda/scoreboard/countries_2012/information_society/_bin12/pdf/HU_Country_Chapter_17th_Report.pdf

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Hungary with international practice and regional performance

Hungary: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Hungary = Solid line
Regional average = Shaded area

Overall legal/ regulatory risk = 89 (100 is the lowest risk)

LATVIA

At a glance

Market penetration	
Population	2.2m
Fixed penetration*	28.7
Mobile penetration*	157
Broadband penetration*	67.9

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Environmental Protection and Regional Development
National regulatory authority	Public Utilities Commission

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming	✘
MVNOs	✔

Information society	
Internet penetration per 100 population	66
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Latvia is a member state of the European Union. The electronic communications markets have been fully liberalised.

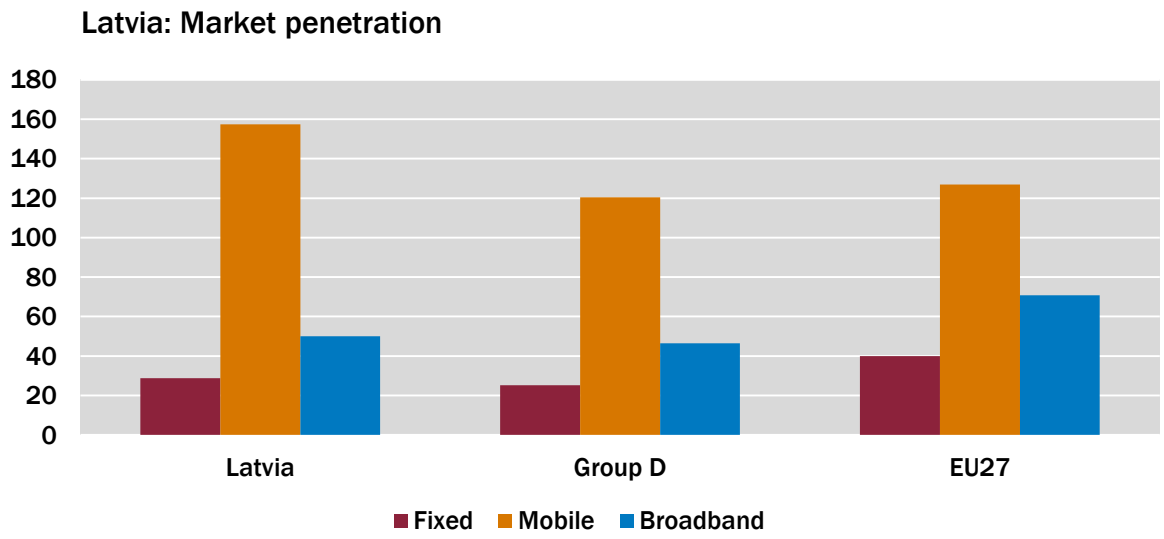
Fixed-line penetration is 28.7/100 population, which is slightly higher than the Group D regional average. Mobile penetration is the highest in the Group D region at 157/100 population.

The penetration of fixed broadband has reached 20.3/100 population, which is above the Group D regional average of 17.8 and below the EU average of 27.7. Mobile broadband penetration is around the Group D average at 29.7/100 population, but remains significantly below the EU27 average of 43.1.

The fixed network incumbent Lattelecom continued its network upgrading programme focused on fibre access network rollout in cities. It also continued to increase its broadband market share, which increased further to 55 per cent by the year ending 2011.

In 2011 66 per cent of the population use the internet regularly up from 62 per cent in 2010. Take-up of eCommerce is low, with 20 per cent of the population buying online. The percentage of citizens using online public services in Latvia has increased to 41 per cent, in line with EU27 average. The percentage of eGovernment users among businesses has seen an increase from 74 per cent to 89 per cent putting Latvia above the EU27 average.

Chart 1: Market penetration of main services per 100 population in Latvia, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Law on Electronic Communications Act. Amendments to transpose the EU 2009 regulatory framework were adopted in May 2011, but some amendments did not come into force before 1 January 2012.

The European Commission initiated infringement proceedings for non-communication of transposition measures on in July 2011 and closed the proceedings in October 2011.

Sector organisation and governance

The Public Utilities Commission (PUC, in Latvian: SPRK) is a multi-sector regulator overseeing energy, telecommunications, postal and railways regulation.

At government level two ministries have a role in the electronic communications sector. The Ministry of Transport holds 51 per cent of the shares of the incumbent operator Lattelecom. It also had some regulatory functions, which caused the European Commission to initiate infringement proceedings. Latvia transferred the regulatory functions to the Ministry of Environmental Protection and Regional Development and the European Commission closed the proceedings in April 2011.

The Competition Council (KP) is the Latvian competition authority.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

Latvia is one of the EU member states with the highest fibre connectivity. The incumbent operator Lattelecom reaches about half of the population with its fibre access network. Other significant players are the alternative operator Baltcom and the cable operator Izzi.

Latvia has 57.5 per cent of fixed-lines providing speeds of 10 Mbps and above. With regards to high and ultra fast speeds, 15.6 per cent of lines provide speeds between 30Mbps and below 100Mbps and 15.4 per cent of fixed-lines provide speeds equal or above 100 Mbps.

Most of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented, including interconnection and infrastructure access, carrier pre-selection and fixed number portability. However, tariffs have not been rebalanced. The basic fixed-line rental charge is €4.23 per month, one of the lowest retail monthly charges in Europe.

The NRA also has not taken measures yet to enable competition in NGA networks. Duct sharing, sub-loop unbundling and fibre unbundling have not been mandated yet. Wholesale broadband access is available in Lattelecom's legacy network (although local loop unbundling and wholesale broadband access are almost unused in practice) but is not available in the fibre network.

Competition in the fixed networks is therefore largely based on infrastructure competition between different operator's own networks.

Call termination rate on Lattelecom's fixed network are set a single rate of €0.0097 per minute, which is significantly higher than the average for EU27 countries. This rate is still regulated on the basis of historic costs. Implementation of the European Commission recommendation on fixed and mobile termination rates is not foreseen before 2014.

Regulatory conditions for services requiring frequency spectrum

Latvia has three mobile network operators (LMT, Tele2 and Bite Latvija) operating in the 900MHz, 1800MHz and 2GHz bands. The 2.6GHz band was auctioned in 2011/12 and will become available from 1 January 2014. The three mobile operators and the fixed alternative operator Baltcom acquired spectrum in this band.

The licences in the 900 and 1800MHz bands have been made technology neutral. LMT uses 3G in the 900MHz band and has started to deploy LTE in the 1800MHz band. Tele2 and Bite are also testing LTE in the 1800MHz band. In August 2011 Latvia and Russia signed an agreement that will allow Latvia to use the 800MHz "digital dividend" band for high speed broadband in about 96 per cent of its territory.

Mobile termination rates are still regulated on the basis of historic costs. The current rate is €0.037 per minute, which is around the EU27 average rate. Implementation of the European Commission recommendation on fixed and mobile termination rates is not foreseen before 2014.

Payments required from operators

There is no special tax imposed on electronic communications networks or services. The costs of universal service are currently carried by the state budget.

In 2009 the European Commission initiated infringement proceedings concerning administrative charges for radio spectrum. The European Commission sent another letter of formal notice in March 2011, but has not yet taken further steps.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU acquis.

Summary and outlook

Regulation of fixed networks is not yet fully aligned with the EU regulatory framework and best practice in Europe. In particular regulation of fixed interconnection rates and rebalancing of monthly retail charges have not been addressed.

Latvia has very well-developed NGA networks, similar to its neighbours Estonia and Lithuania. However, other than in these neighbouring countries, Latvia has not yet taken steps to ensure access to NGA networks.

The competitive environment for wireless networks is better aligned with EU regulatory framework. Latvia has aligned its spectrum policy with the EU policy and has completed analogue broadcasting switch-off and awarded the 2.6GHz band to telecommunications.

The availability of fixed broadband connectivity remains limited in rural areas. On the other hand, thanks to the strong activity of operators' in upgrading the networks in densely populated areas Latvia continues to perform significantly above EU average as regards high speed fixed broadband lines. Lattelecom is continuing to grow its market share in fixed broadband.

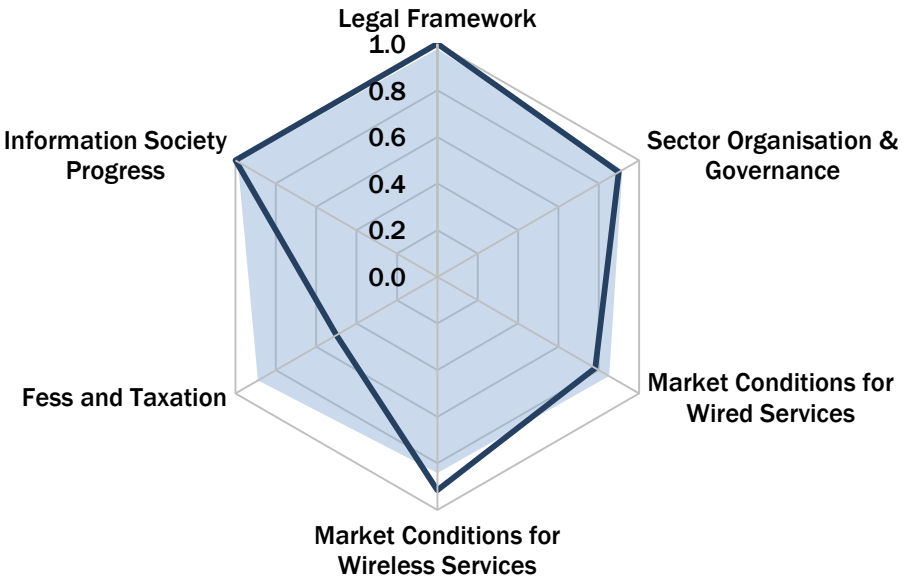
An EU-funded rural broadband development project for the construction of infrastructure in rural areas was approved in 2011 with the aim to reduce the cost of broadband roll-out by retail operators.

Latvia's Digital Strategy document is available on: http://polsis.mk.gov.lv/view.do?id=2005.

A full market report on the electronic communications sector in Latvia is published by the European Commission on http://ec.europa.eu/information_society/digital-agenda/scoreboard/countries_2012/information_society/_bin12/pdf/LV_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Latvia with international practice and regional performance

Latvia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Latvia = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 88 (100 is the lowest risk)

LITHUANIA

At a glance

Market penetration	
Population	3.3m
Fixed penetration*	22.5
Mobile penetration*	148
Broadband penetration*	59.9

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Transport and Communications
National regulatory authority	Communications Regulatory Authority

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming	✘
MVNOs	✔

Information society	
Internet penetration per 100 population	66
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

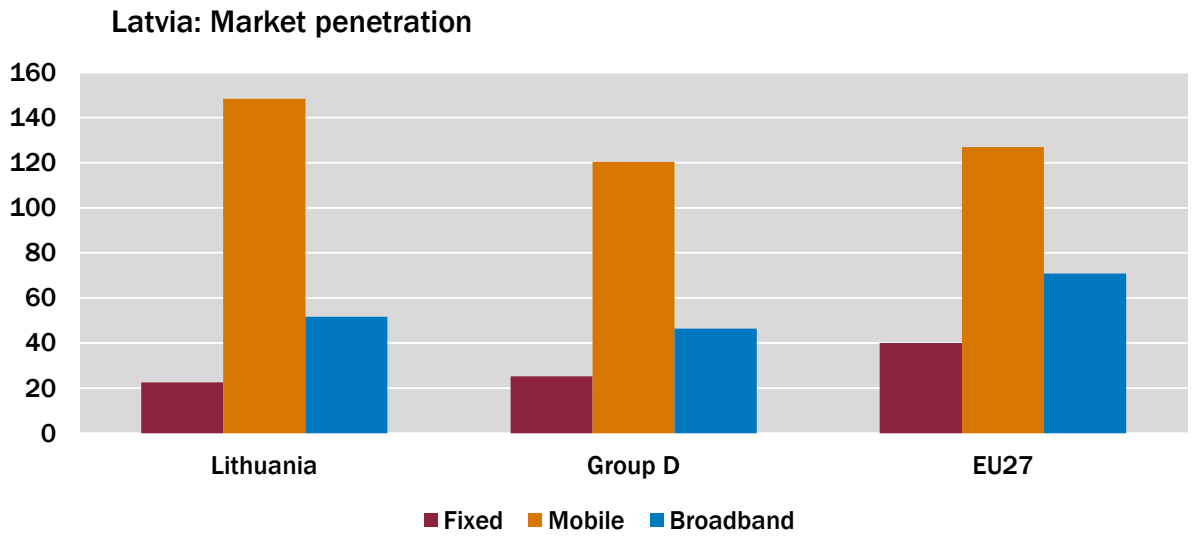
Lithuania is a member state of the European Union. The electronic communications markets have been fully liberalised.

Lithuania continues to be a front-runner in the EU as regards fibre broadband deployment, leading to offers of high quality and speeds. In January 2012 almost half of fixed broadband lines were fibre lines. Fixed broadband penetration, at 20.3/100 population and mobile broadband penetration at 29.7/100 population are around the Group D averages, but both remain significantly behind the EU27 averages. Mobile broadband is growing very fast, with penetration doubling during 2011.

IPTV is becoming increasingly popular but penetration of bundled broadband offers remains also well below the EU average.

In 2011 61 per cent of the population use the internet regularly, up from 57 per cent in 2010. Take-up of eCommerce is low with 16 per cent of the population buying online. Citizen use of eGovernment has seen a substantial increase in 2011 ending at 30 per cent. Business use is the highest in the EU at 98 per cent.

Chart 1: Market penetration of main services per 100 population in Lithuania, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Electronic Communications Law. Amendments to transpose the EU 2009 regulatory framework were adopted in June 2011.

The European Commission initiated infringement proceedings for non-communication of transposition measures in July 2011 and closed the proceedings in January 2012.

Sector organisation and governance

The Communications Regulatory Authority (RRT) is the Lithuanian regulatory authority for electronic communications.

The Ministry of Transport and Communications (MITC) is responsible for policy making. It also holds the ownership rights of the 100 per cent state-owned Lithuanian Radio and Television Centre. In 2010 the European Commission referred Lithuania to the Court of Justice of the European Union, because the Ministry has some regulatory functions and administrates ownership of this operator.

However, the incumbent operator TEO has been privatised. The state still holds 0.05 per cent of the shares, but these shares are administrated by the tax authority and not by the MITC.

The Competition Council (KT) is the Lithuanian competition authority.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

The incumbent operator is still playing a highly dominating role on the fixed market with a market share of 97 per cent. It is also increasing its market share in broadband, following significant fibre investments. Lithuania continues to enjoy strong infrastructure-based competition in broadband, with access to ducts playing a key role.

Lithuania is one of the EU member states with the highest fibre connectivity, with several operators deploying fibre access networks. The NGA network of the incumbent operator TEO covers more than half of all households.

Lithuania has 51.7 per cent of fixed-lines providing speeds of 10 Mbps and above. With regards to high and ultra fast speeds, 30.6 per cent of lines provide speeds between 30Mbps and below 100Mbps and 9.4 per cent of fixed-lines provide speeds equal or above 100 Mbps.

All of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented including interconnection and infrastructure access, tariff rebalancing, carrier pre-selection, wholesale broadband access, wholesale line rental and fixed number portability. However, local loop unbundling and wholesale broadband access are rarely used and wholesale line rental has never been used.

RRT has imposed regulatory obligations on TEO with regard to its NGA network in 2011 including fibre unbundling. RRT has also imposed duct access. The obligation to provide wholesale broadband access has not yet been extended to NGA networks.

Call termination charges on the fixed incumbent's network are at the EU27 average for local termination, but at €0.0095 per minute are above the EU27 averages for transit. RRT plans to implement the European Commission recommendation on fixed and mobile termination rates by the deadline of end 2012.

Regulatory conditions for services requiring frequency spectrum

Lithuania has three mobile network operators (Bite, Omnitel and Tele2), each using spectrum in the 900MHz, 1800MHz and 2GHz bands. All three operators also acquired 2.6GHz spectrum in an auction in 2012.

RRT made the 900 and 1800MHz licences technology neutral and redistributed spectrum in these bands. Now all three operators each hold equal amounts of the 900 and 1800MHz bands. Omnitel has deployed LTE in the 1800MHz band.

The analogue broadcasting switch-off is scheduled for October 2012. In 2011 Lithuania signed agreements with the neighbouring countries Russia and Belarus that should allow Lithuania to use the 800MHz "digital dividend" band for high-speed broadband.

Mobile termination rates at €0.017 per minute are the lowest in the Group D countries and significantly below the EU27 average of €0.035 per minute. The rates are already based on modern cost models and RRT plans to implement fully the European Commission recommendation on fixed and mobile termination rates by the deadline of end 2012.

Payments required from operators

There is no special tax imposed on electronic communications networks or services.

The universal service provider TEO has never applied for compensation of universal service net costs and operators therefore do not have to pay into a universal service fund.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU acquis.

Summary and outlook

Regulation of electronic communications networks and services is generally very well aligned with the EU regulatory framework and best practice in Europe.

The regulator RRT has implemented all the competitive safeguards for legacy networks and has started to address regulation of NGA networks. Lithuania is the only Group D member state where the regulator is planning to align the regulation of termination rates with the relevant European Commission recommendation by the deadline set in this recommendation (end-year 2012).

Spectrum management is also aligned with the EU spectrum policies, including the award of the 2.6GHz band and the preparations for awarding the 800 MHz band.

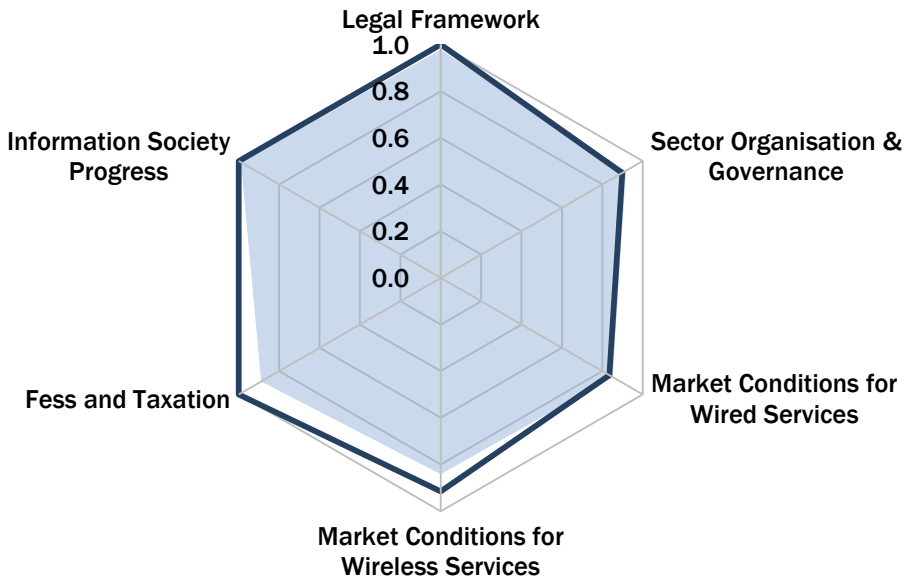
The country has a high coverage with NGA networks, similar as Latvia and Estonia.

The Lithuanian national Digital Strategy is available on: www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=425996.

A full market report on the electronic communications sector in Lithuania is published by the European Commission on http://ec.europa.eu/information_society/digital-agenda/scoreboard/countries_2012/information_society/_bin12/pdf/LT_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Lithuania with international practice and regional performance

Lithuania: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Lithuania = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 94 (100 is the lowest risk)

POLAND

At a glance

Market penetration	
Population	38.2m
Fixed penetration*	22.2
Mobile penetration*	120
Broadband penetration*	58.7

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Administration and Digitalisation
National regulatory authority	Office of Electronic Communications

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔*
Wholesale broadband offers	✔
Mobile national roaming	✘
MVNOs	✔

*Fixed only

Information society	
Internet penetration per 100 population	89
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Poland is a member state of the European Union. The electronic communications markets have been fully liberalised.

The market is very competitive with seven mobile network operators (Polkomtel, PTC, PTK, P4, Mobyland, CenterNet, Aero2) and the number of alternative operators competing with the incumbent (Telekomunikacja Polska – TP) in fixed telephony and broadband.

Fixed-line penetration at 22/100 population is the lowest of the Group D countries and significantly below the EU27 average of 40. Mobile penetration is at the Group D average.

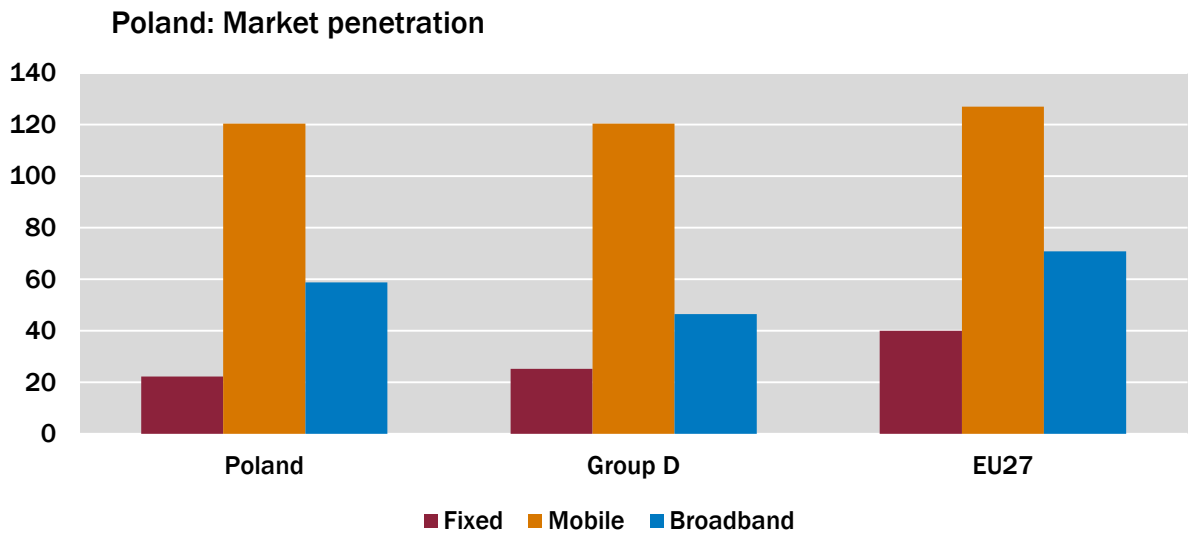
Fixed broadband penetration is 17.3/100 population is around the Group D average, but mobile broadband is significantly higher at 41.4/100 population, which is nearing the EU27 average.

In the cable sector, consolidation continued with the biggest cable operator (UPC) increasing its market share to 33 per cent by taking over its competitor (Aster). This has also increased UPC's market share in fixed broadband to 27 per cent. The total market share of new entrants in fixed broadband market is 70 per cent, with the fixed incumbent reducing to 30 per cent.

LTE services have been commercially launched in some urban areas.

In 2011 58 per cent of the population use the internet regularly, up from 55 per cent in 2010. Take-up of eCommerce is low, with 30 per cent of the population buying online. The percentage of citizens using online public services in 2011 was 28 per cent. The percentage of businesses using eGovernment services was 92 per cent.

Chart 1: Market penetration of main services per 100 population in Poland, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Telecommunications Act.

The law has not been amended yet to transpose the EU 2009 regulatory framework. A draft law was published for consultation in February 2012.

The European Commission initiated infringement proceedings for non-communication of transposition measures in July 2011 and adopted a reasoned opinion in November 2011. In May, 2012 the European Commission referred Poland to the Court of Justice, asking to impose a penalty for non-transposition of the EU 2009 framework.

Sector organisation and governance

The Office of Electronic Communications (UKE) is Poland's regulatory authority for electronic communications. The National Broadcasting Council (KRRiTV) is responsible for media regulation.

The ministry responsible for the sector is the Ministry of Administration and Digitalisation (MAC).

The Office of Competition and Consumer Protection (UOKiK) is the Polish competition authority.

The state does not hold any shares in fixed or mobile operators. Telekomunikacja Polska (TP) is the incumbent operator. It is fully privatised and traded on the Warsaw Stock Exchange. France Télécom controls slightly less than 50 per cent of the shares and rebranded TP to 'Orange' in April 2012.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

All of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented, including interconnection and infrastructure access, tariff rebalancing, carrier pre-selection, wholesale broadband access, wholesale line rental and fixed number portability. About 2 per cent of the incumbent operator's loops have been unbundled and about 8 per cent are used for wholesale broadband access.

The positive trend in local loop unbundling continued, despite the UKE criticising the incumbent with regard to its abusive practices5 (refusal to supply) in providing access to its networks and to supply wholesale broadband access and local loop unbundling. A fully unbundled local loop has the lowest wholesale charge in the EU27 of €5.34 per month compared to the EU27 average of €9.70.

In 2011 coverage of basic broadband networks was 78.3 per cent and broadband of NGA networks was 37.8 per cent. UKE has already extended regulatory obligations on the incumbent's fibre network, mandating fibre unbundling, sub-loop unbundling, duct access and wholesale broadband access over NGA networks. Duct sharing and wholesale broadband access over NGA are already used in practice.

Poland has 23.8 per cent of fixed-lines providing speeds of 10 Mbps and above. With regards to high and ultra fast speeds, 2.9 per cent of lines provide speeds between 30Mbps and below 100Mbps and 0.7 per cent of fixed-lines provide speeds equal or above 100 Mbps.

UKE's draft decisions on market analysis have been repeatedly criticised by the European Commission. UKE found it necessary to analyse markets beyond the scope of the European Commission recommendation on relevant markets, including the wholesale market for IP traffic exchange. UKE's appeal of the European Commission's veto decision is still subject to court ruling. In 2010 the Court of Justice of the European Union ruled that UKE was not allowed to regulate the retail broadband market without conducting a market analysis.

Call termination charges on the incumbent's fixed network are around the EU27 averages. Implementation of the European Commission recommendation on fixed and mobile termination rates is not expected before 2014.

Regulatory conditions for services requiring frequency spectrum

Poland has a large number of operators using the frequency spectrum:

- PTK Centertel (Orange) and PTC (T-Mobile) each use spectrum in the 900MHz, 1800MHz and 2GHz bands.
- P4 (Play) started as 3G only provider in the 2GHz band and later also acquired spectrum in the 900MHz band.
- The remaining operators Aero2, CenterNet, Mobyland and Polkomtel are all controlled by Zygmunt Solorz-Zak, the owner of the satellite TV platform Cyfrowy Polsat and the largest commercial TV channel. Together, these four operators control about twice as much spectrum as any other operator, in all available bands (900MHz, 1800MHz, 2GHz and the entire unpaired spectrum in the 2.6GHz band).
- Poland also makes use of other bands like 420MHz, 450MHz and the 800MHz band.

UKE made the licences in the 900 and 1800MHz bands technology neutral. A consortium of the companies held by Mr Solorz-Zak launched LTE in the 1800MHz band in 2011. P4 (Play) uses its spectrum block in the 900MHz band for 3G.

Mobile termination rates are €0.036 per minute, close to the EU27 average. UKE is planning to implement the European Commission recommendation on fixed and mobile termination rates by the deadline of end 2012. UKE has originally proposed a later implementation, but changed this plan after the European Commission raised objections.

Payments required from operators

There is no special tax imposed on electronic communications networks or services.

The law foresees a universal service fund. However, this mechanism has not yet been used in practice, although UKE approved compensation for TP's costs in the years 2006 to 2010. TP's designation as universal service provider expired in 2011 and the procedure for a new designation is pending.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU *acquis*.

Summary and outlook

The legislation has not yet been aligned with the EU 2009 regulatory framework.

The regulator UKE is well staffed and has implemented all of the competitive safeguards foreseen in the EU regulatory framework. However, some of UKE's decisions or draft decisions follow an unusual approach. The European Commission has raised serious doubts or vetoes more often than in other EU member states.

Both in the fixed and the wireless markets there is a large number of relevant players. In fixed networks, NGA has begun to emerge with the networks of alternative operators reaching a higher coverage than the NGA deployment of the incumbent operator. In the mobile sector a Polish entrepreneur controls several operators, which together have more spectrum than the traditional operators Orange and T-Mobile.

In the course of 2011 the national regulatory authority (UKE) entered into agreements with mobile operators (PTC, PTK, Polkomtel, P4) with a view to boosting investment in exchange for a slower glide path towards lower mobile termination rates. In January 2012 plans to reduced rates by 2013 were eventually confirmed in a common declaration of the President of UKE, BEREC and the European Commission.

Spectrum policy has not yet been fully aligned with the EU policies. The 800MHz band and the paired frequencies in the 2.6GHz band have not been awarded and the timing of those awards is unknown. With the rapid increase in broadband demand, the future allocation of remaining spectrum became crucial for operators.

The three largest mobile operators (PTK, Polkomtel and PTC) sustain a joint market share of over 90 per cent. Most of the remaining market share is owned by P4, which by extending systematically its position since its entry in 2007, reached over 8 per cent market share in 2011. In 2011 Vodafone's stake in Polkomtel was purchased by a private Polish investment vehicle.

Poland's broadband plans are currently based on the 2008 government “Strategy for the Development of the Information Society in Poland until 2013” and the long-term strategy "Poland 2030". Neither of these documents set clear broadband targets. As a key enabler, the Broadband Law introduced the requirement for placing duct infrastructure along new and rebuilt roads. The law also helped to remove local restrictions encountered by infrastructure investors.

As a further enabler, the National Institute of Telecommunications and the Ministry of Administration and Digitization continued developing the mapping of infrastructure of telecommunications networks to provide an updated electronic tool assisting network providers.

The use of European Union structural funds has accelerated. The 'Eastern Poland' project (€350 million) has commenced implementation (see Poland case study in section 4 of this report).

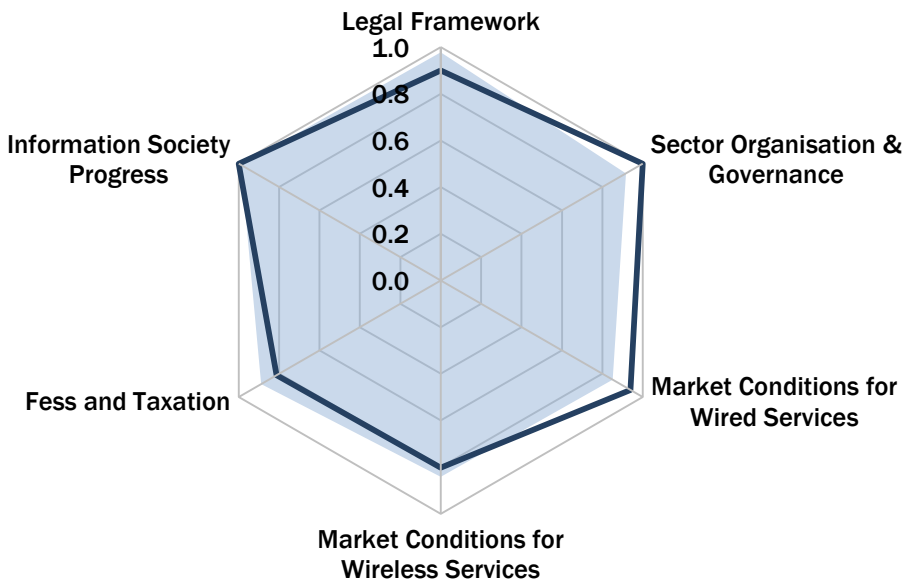
Ministry launched the 'systemic project' intended to speed up the implementation of specific broadband projects and promote Internet facilities.

The "Digital Poland" document is available on: http://dl.dropbox.com/u/9595576/090512_2Tom_DSRK.pdf.

A full market report on the electronic communications sector in Poland is published by the European Commission on http://ec.europa.eu/information_society/digital-agenda/scoreboard/countries_2012/information_society/_bin12/pdf/PL_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Poland with international practice and regional performance

Poland: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Poland = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 89 (100 is the lowest risk)

ROMANIA

At a glance

Market penetration	
Population	21.4m
Fixed penetration*	24.7
Mobile penetration*	110
Broadband penetration*	29.3

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Communications and Information Society
National regulatory authority	National Authority for Management and Regulation in Communications

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔*
Wholesale broadband offers	✘
Mobile national roaming	✘
MVNOs	✔

*Fixed only

Information society	
Internet penetration per 100 population	87
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Romania is a member state of the European Union. The electronic communications markets have been fully liberalised.

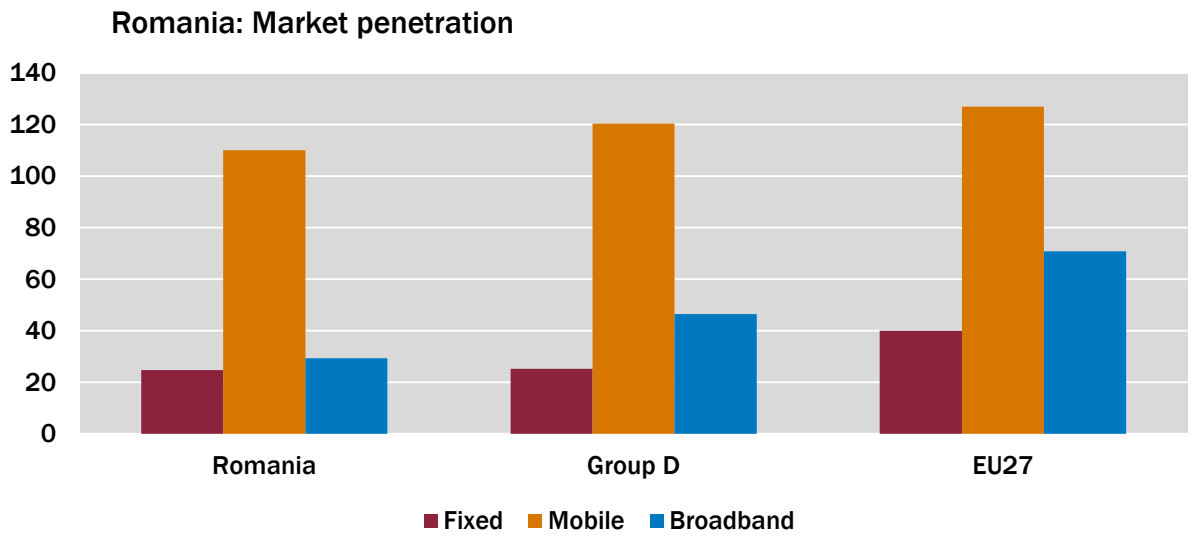
Fixed-line penetration at 24.7/100 is around the Group D average, but significantly below the EU27 average of 40. Mobile penetration, at 120/100 population is lower than the Group D average of 120 and the EU27 average of 127.

In January 2012 the penetration rate of fixed broadband reached 15.2/100 population compared to the Group D average of 17.7. Mobile broadband has only reached 14.1/100 population, making Romania the country with the lowest penetration of broadband services in the EU, and showing poor growth.

Romania has 64.8 per cent of fixed-lines providing speeds of 10 Mbps and above. With regards to high and ultra-fast speeds, 29.1 per cent of lines provide speeds between 30Mbps and below 100Mbps and 16.1 per cent of fixed-lines provide speeds equal or above 100 Mbps.

In 2011 37 per cent of the population use the internet regularly up from 34 per cent in 2010. The-up of eCommerce is very low, with only 6 per cent of the population buying online. eGovernment take-up is still low both for citizens (7 per cent) and for businesses (55 per cent)

Chart 1: Market penetration of main services per 100 population in Romania, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Government Emergency Ordinance 79/2002 on the general regulatory framework for communications, amended by several laws and government emergency ordinances.

The European Commission initiated infringement proceedings for non-communication of transposition measures in July 2011 and adopted a reasoned opinion in November 2011. Romania has adopted the EU 2009 framework in the meantime by emergency ordinances - the main one came into force on December 31, 2011 and another one on e-privacy on April 26, 2012. One of the two infringement procedures for not transposing the framework was closed on February 27, 2012. The other one (on the Citizens' Rights Directive is still pending and it is expected to be closed before the end of 2012.

Sector organisation and governance

Romania has reorganised sector governance many times.

The National Regulatory Authority for Communications (ANRC) was established as the national regulatory agency in 2002. In 2006 it became the National Regulatory Authority for Communications and Information Technology (ANRCTI). A separate body, the Inspectorate General for Communications and Information Technology (IGCTI), was responsible for spectrum management and merged into ANRCTI in 2007. In 2008 the authority became responsible for internet domain name management and was renamed to National Authority for Communications (ANC). In 2009 the authority was reorganised again and became the National Authority for Management and Regulation in Communications (ANCOM).

The Ministry of Communications and Information Society has some regulatory functions as well and also controls 45.99 per cent of the incumbent operator Romtelecom and 100 per cent of Radiocom (SNR). The Greek operator OTE controls the other 54 per cent of Romtelecom.

The European Commission conducted infringement proceedings due to the lack of ANCOM independence resulting from the frequent reorganisations. These proceedings were closed in 2010 after legislation strengthened the independence of ANCOM. Other infringement proceedings with regard to the lack of separation between regulatory and ownership functions in the ministry are still pending.

The Competition Council is the Romanian competition authority.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

The incumbent operator Romtelecom has been designated as having SMP in its main retail as well as wholesale markets, including call termination and access to infrastructure. The market for wholesale broadband access is effectively competitive.

In mid-2011 there were 32 alternative fixed operators using their own infrastructure to provide access to fixed telephony services while four operators provide services through RomTelecom's unbundled local loops. Romania has for one of the highest percentage of subscribers using an alternative provider for direct access, both for national (43 per cent) and international (44 per cent) calls.

According to ANCOM in 2011, there were 12 operators providing carrier selection and two operators providing carrier pre-selection services. In addition, there were over 40 operators offering VoIP services. The market share by traffic volume of VoIP operators on fixed calls has reached 25 per cent.

NGA fibre networks are mostly deployed by RCS&RDS and UPC (DOCSIS 3.0), whereas Romtelecom does not yet have significant NGA coverage.

Most of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented, including interconnection and infrastructure access, tariff rebalancing, carrier pre-selection and fixed number portability. However, local loop unbundling is almost unused in practice.

Competition in the fixed markets is largely based on infrastructure competition between operators' own networks. ANCOM found the broadband markets effectively competitive and therefore did not need to impose wholesale broadband access on any operator. ANCOM also did not impose duct sharing, considering that most of Romtelecom's ducts are in areas where Romtelecom's market share is below 40 per cent or in areas where Romtelecom has at least three competitors at retail level.

The call termination charges for Romtelecom's fixed network are €0.0084 for local termination and 0.0097 for transit. These are significantly above the average EU rates. In 2011 The European Commission invited ANCOM to aim for a cost-efficient target rate to be reached at the beginning of 2013 in order to comply with the EC Recommendation on termination rates.

Regulatory conditions for services requiring frequency spectrum

Orange, Vodafone and Cosmote have licences in the 900 and 1800MHz bands. Spectrum in the 2GHz band has been awarded to Orange and Vodafone and later to RCS&RDS and Telemobil. The fixed incumbent operator Romtelecom uses some spectrum in the 420MHz band.

ANCOM plans to auction the 800MHz and 2.6GHz bands in 2012, together with the entire 900 and 1800MHz bands, where the existing licences will expire in 2014.

Analogue broadcasting switch-off is significantly delayed and scheduled for the year ending 2014. However, the 800MHz band is not used by broadcasting, but by the Ministry of National Defence. The band will be auctioned in 2012 and will become available in April 2014.

ANCOM has already made the existing 900MHz and 1800MHz licences technology neutral. Vodafone has started to deploy 3G in the 900MHz band.

Mobile termination rates are €0.05 per minute, significantly higher than the EU average rate. ANCOM is preparing a modern cost model in line with the European Commission recommendation on fixed and mobile termination rates, but it is unclear when termination rates will be aligned with the recommendation.

Payments required from operators

There is no special tax imposed on electronic communications networks or services.

The regulator has not yet established universal service net costs and operators therefore do not have to pay into a universal service fund yet.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU *acquis*.

Summary and outlook

Aligning the legislation with the EU *acquis* has often been often delayed and only done by government emergency ordinances instead of regular laws.

The Romanian shows good competition both in fixed and in mobile networks and a relative large number of players with significant market share. Most providers rely on their own infrastructure. Broadband networks are unregulated as ANCOM found the relevant markets effectively competitive, but regulatory intervention may be needed to ensure access to the various emerging NGA networks. Rights of way and facility sharing should be addressed more efficiently and consistently by the long overdue law on electronic communication infrastructure.

Spectrum policy is generally aligned with the EU policies and ANCOM plans a large auction of four spectrum bands (800MHz, 900MHz, 1800MHz and 2.6GHz) in 2012; the outcome will have a major impact on the success of the mobile market players over the next decade.

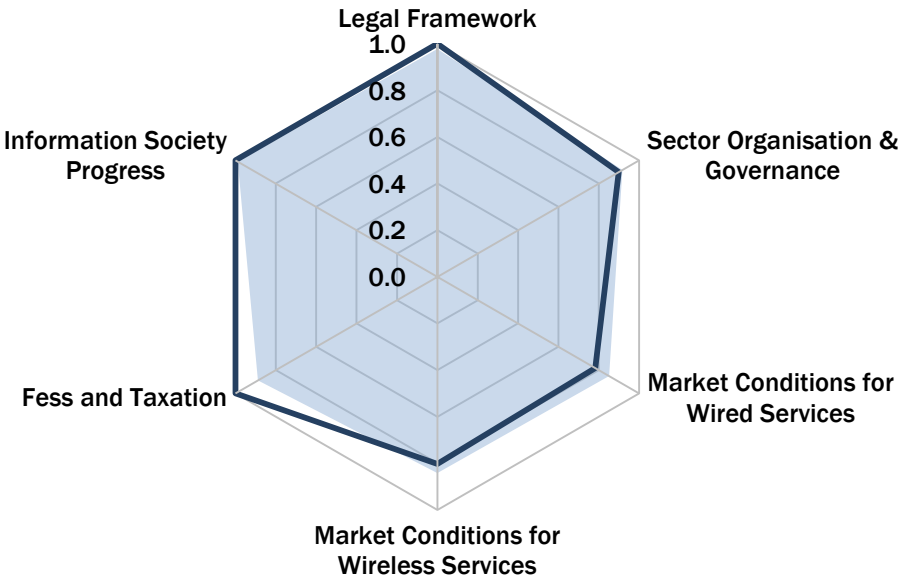
The national strategies on the development of broadband and the digital broadcasting switchover (which were adopted in 2009) have not been followed up with implementation plans. The strategy on digital switchover was amended by the government to postpone the analogue switch-off deadline until 2015.

For the last two of years Romania has proposed to use €84 million of the EU structural funds to finance an infrastructure project which would have the aim of deploying broadband networks in underserved areas. While the European Commission supports the goals of the project, it expressed concerns on the delays in presenting a fully documented project with a clear implementation model. Despite the intensified efforts reported by the Ministry for Communication and Information Society the project proposal is still not finalised in order to be notified to the European Commission. The Romanian authorities were repeatedly informed on the risk of delaying the project past the timeframe in which it would still be eligible for EU funding under the current financial programming period, leading to the failure to absorb the dedicated EU structural funds.

A full market report on the electronic communications sector in Romania is published by the European Commission on http://ec.europa.eu/information_society/digital-agenda/scoreboard/countries_2012/information_society/_bin12/pdf/RO_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Romania with international practice and regional performance

Romania: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Romania = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 90 (100 is the lowest risk)

SLOVAK REPUBLIC

At a glance

Market penetration	
Population	5.4m
Fixed penetration*	22.5
Mobile penetration*	117
Broadband penetration*	50.1

*Per 100 population

Key Institutions	
Policy and legislation	Ministry of Transport, Construction and Regional Development
National regulatory authority	Telecommunication Office of the Slovak Republic

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming	✘
MVNOs	✔

Information society	
Internet penetration per 100 population	87
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

Slovak Republic is a member state of the European Union. The electronic communications markets have been fully liberalised.

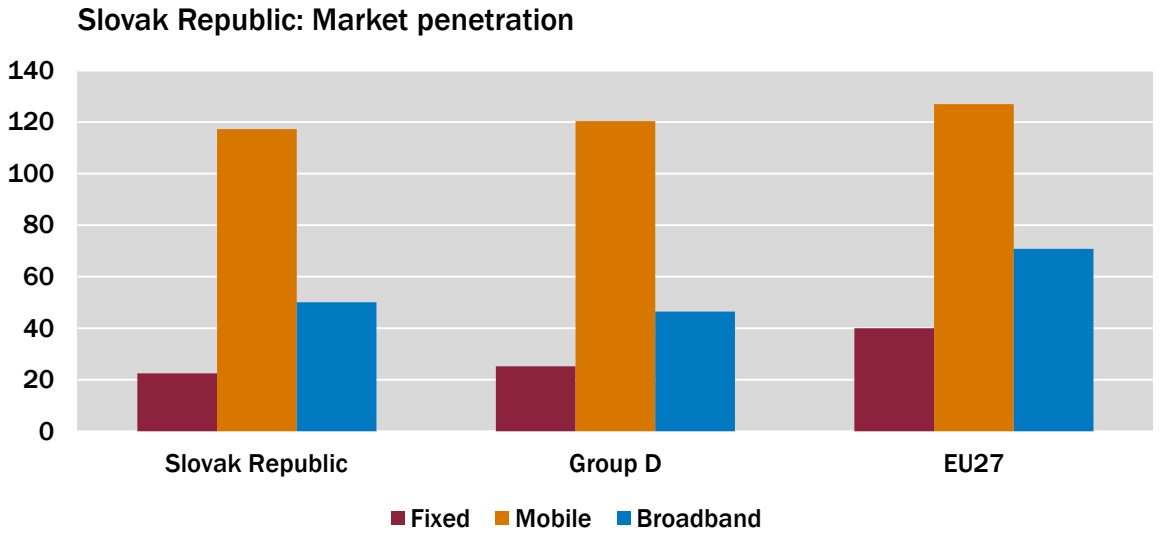
Fixed-line penetration at 22.5/100 population is one of the lowest of the Group D countries and significantly below the EU27 average of 40. Mobile penetration at 117/100 population is around the Group D and EU27 averages.

In 2012 the penetration rate of fixed broadband is 17.8/100 population, which is the same as the Group D average. Mobile broadband penetration increased from 27.7 to 32.3/100 population during 2011, putting Slovak Republic above the Group D average, but still below the EU27 figure of 43.1.

Slovak Republic has 29.1 per cent of fixed-lines providing speeds of 10 Mbps and above. With regards to high and ultra fast speeds, only 15.2 per cent of lines provide speeds between 30Mbps and below 100Mbps and 1.9 per cent of fixed-lines provide speeds equal or above 100 Mbps. Most of broadband lines in Slovak Republic are in the speed range of 2 Mbps and below 10 Mbps (60.3 per cent).

In 2011 72 per cent of the population use the internet regularly, with no increase since 2010. Take-up of eCommerce is below average, with 37 per cent of the population buying online. The eGovernment usage by citizens decreased slightly in 2011 to 48 per cent. The percentage of businesses using online public services increased from 88 per cent to 96 per cent, the second highest value in the EU27.

Chart 1: Market penetration of main services per 100 population in Slovak Republic, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the new Act on Electronic Communications, which was adopted in September 2011 to transpose the EU 2009 regulatory framework. It replaced the previous Act on Electronic Communications of 2004.

The European Commission initiated infringement proceedings for non-communication of transposition measures in July 2011 and closed the proceedings in January 2012.

Sector organisation and governance

The Telecommunication Office of the Slovak Republic (TUSR) is the regulatory authority for electronic communications.

The responsible ministry overseeing the sector is the Ministry of Transport, Construction and Regional Development (MDVRR).

The Anti-Monopoly Office of the Slovak Republic (AMO) is the Slovak Republic competition authority.

The incumbent operator Slovak Telekom has been partly privatised. The Ministry of Economy still holds 34 per cent of the shares and the National Property Fund 15 per cent.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

The incumbent operator Slovak Telekom, the alternative operator Orange and the cable operator UPC Slovak Republic all deploy NGA fibre networks, each with around 15 to 20 per cent of households.

Slovak Republic has 29.1 per cent of fixed-lines providing speeds of 10 Mbps and above. With regards to high and ultra fast speeds, only 15.2 per cent of lines provide speeds between 30Mbps and below 100Mbps and 1.9 per cent of fixed-lines provide speeds equal or above 100 Mbps.

The new entrants' market share in the fixed broadband market reached 58 per cent in 2011.

Most of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented, including interconnection and infrastructure access, tariff rebalancing, carrier pre-selection, wholesale broadband access and fixed number portability. However, local loop unbundling is almost unused and only about 4 per cent of the incumbent operator's loops are used for wholesale broadband access. Wholesale line rental is not available.

TUSR is planning to impose duct access, fibre unbundling and wholesale broadband access over NGA networks.

Call termination charges on the incumbent's fixed network are around the EU27 averages. It is unclear when termination rates will be aligned with the European Commission recommendation on fixed and mobile termination rates.

Regulatory conditions for services requiring frequency spectrum

Slovak Republic has three mobile network operators (T-Mobile, Orange and Telefónica O2 Slovak Republic) each having equal amounts of spectrum in the 900MHz, 1800MHz and 2GHz bands. The licences for the larger mobile operators were recently renewed for a period of 10 years.

The TUSR launched a public consultation on the future tendering of the 800 MHz, 1800 MHz and 2.6 GHz frequency bands. Under the current Act on Electronic Communications frequencies can be assigned only through a tender competition; the use of the auction procedure is not possible.

The National Table of Frequency Allocation has been amended to allow 3G services in the 900 and 1800MHz bands. However, the existing GSM licences in those bands have not been amended yet.

Mobile termination rates are €0.05 per minute, significantly above the average for EU27 countries. It is unclear when termination rates will be aligned with the European Commission recommendation on fixed and mobile termination rates.

Payments required from operators

There is no special tax imposed on electronic communications networks or services.

Operators do not have to pay into a universal service fund. TUSR has established net costs, but eventually decided that the net costs did not represent an unfair burden.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU *acquis*.

Internet domain name registration has not been liberalised yet, SK-nic is both registry and registrar.

Summary and outlook

The legislative and regulatory framework for electronic communications networks and services is generally well aligned with the EU regulatory framework.

Slovak Republic has several operators deploying NGA networks and TUSR is in the process of adopting the regulatory obligations for such networks. The regulator has already implemented most of the competitive safeguards that are necessary for legacy frameworks.

With regard to spectrum policy, TUSR is preparing an award of the 800 MHz and 2.6 GHz bands, but has not yet made the existing licences in the 900 and 1800MHz bands technology neutral.

Implementation of the European Commission recommendation on fixed and mobile termination rates is delayed.

Slovak Republic has launched a national public broadband development to bring access to broadband infrastructure in underserved areas. For this purpose, the National Agency for Network and Electronic Services carried out a detailed mapping over the national territory, to identify the areas which may receive support. Following mapping and a consultation with the sector, it was concluded that the national programme would cover 729 municipalities representing around 6.6 per cent of the Slovak population living outside the Bratislava region. The programme will consist of the construction of a high capacity wholesale infrastructure, which will be put to tender. The network will remain the property of the National Agency for Network and Electronic Services. The access network will then be built on a commercial basis. The overall amount of the measure is €113 million (mostly from EU funds).

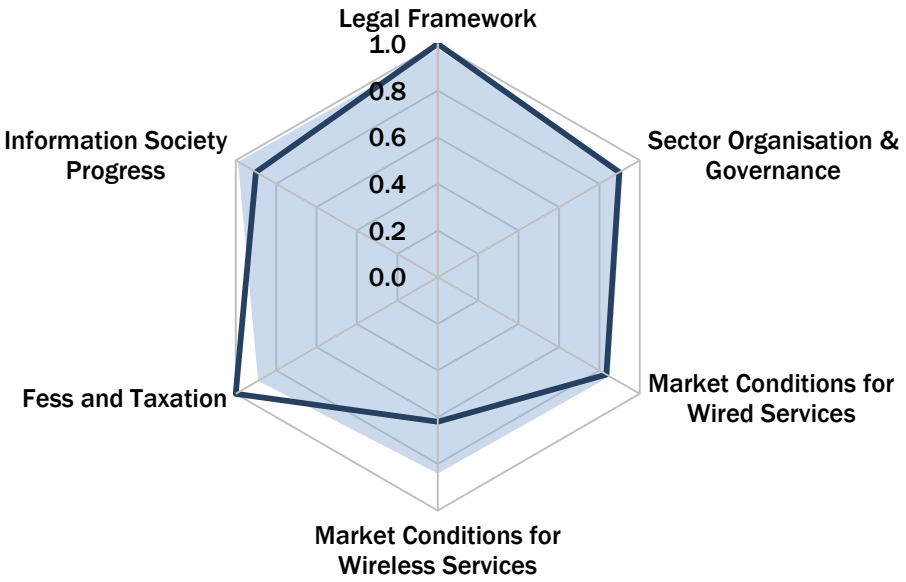
An example of the use of EU state funding is given in the Poland case study included in section 4 of this report.

Slovak Republic's Digital Strategy document is available on www.informatizacia.sk/aktualne-/11146s#Stratégia informatizácie spoločnosti na roky 2009 – 2013.

A full market report on the electronic communications sector in Slovak Republic is published by the European Commission on http://ec.europa.eu/information_society/digital-agenda/scoreboard/countries_2012/information_society/_bin12/pdf/SK_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Slovak Republic with international practice and regional performance

Slovak Republic: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Slovak Republic = Solid line
Regional average = Shaded area

Overall legal/regulatory risk = 86 (100 is the lowest risk)

SLOVENIA

At a glance

Market penetration	
Population	2.1m
Fixed penetration*	46.1
Mobile penetration*	105
Broadband penetration*	53.6

*Per 100 population

Key Institutions	
Policy and legislation	Ministry for Infrastructure and Spatial Planning
National regulatory authority	Post and Electronic Communications Agency

Market access	
General authorisation	✔
Technological neutrality	✔
Rights of way	✔
Infrastructure sharing	✔
Granting of spectrum	✔

Competitive safeguards	
Number portability	✔
Interconnection offers	✔
Wholesale broadband offers	✔
Mobile national roaming	✔
MVNOs	✔

Information society	
Internet penetration per 100 population	79
Ease of setting up internet business	✔
Legal basis for electronic documents and signatures	✔
Safeguards against cybercrime	✔

Market liberalisation

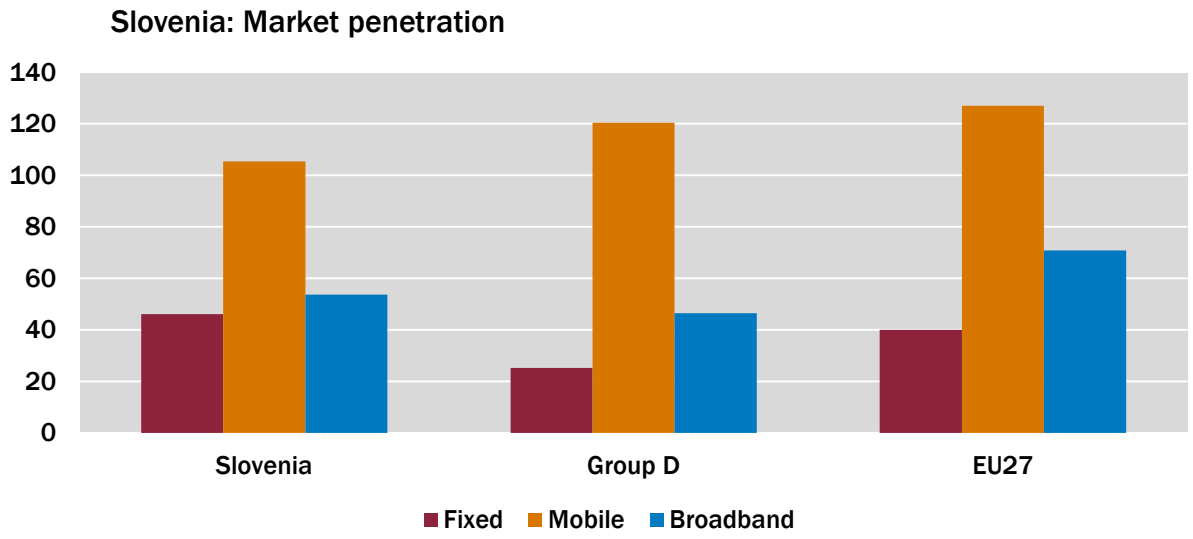
Slovenia is a member state of the European Union. The electronic communications markets have been fully liberalised.

The fixed-line penetration of 46.1/100 population is the highest in the Group D countries and is also higher than the EU27 average. Mobile penetration, at 105/100 population is significantly below both the Group D and EU27 average.

The penetration rate of fixed broadband at 24.6/100 population and mobile broadband at 29.1/100 population are both higher than the Group D averages, but lower than the EU27 averages of 27.7 and 43.1 respectively.

In 2011 64 per cent of the population use the internet regularly, with no increase since 2010. Take-up of eCommerce is below average, with 31 per cent of the population buying online. Citizens' take-up of eGovernment services is at 46 per cent. Usage is much better for businesses at 93 per cent, among the highest in the EU27.

Chart 1: Market penetration of main services per 100 population in Slovenia, compared with the Group D regional averages



Group D average is for Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

Legal framework

The main legal basis for electronic communications regulation is the Electronic Communications Act. Amendments to transpose the EU 2009 regulatory framework came into force in January 2010 and May 2011, but did not fully align the legislation with the EU 2009 regulatory framework. In November 2011 the responsible ministry consulted on a new draft Electronic Communications Act that will complete transposition.

The European Commission initiated infringement proceedings for non-communication of transposition measures in July 2011 and adopted a reasoned opinion in November 2011.

Sector organisation and governance

The Post and Electronic Communications Agency (APEK) is the regulatory authority for electronic communications.

The Ministry for Infrastructure and Spatial Planning (MZIP) is responsible for policy making.

The state still holds a majority of the incumbent operator Telekom Slovenije, 52.54 per cent by the Ministry of Finance and 19.84 per cent indirectly by the Slovenian Reimbursement Fund and the Capital Corporation of Pension and Disability Insurance.

The Competition Protection Office (UVK) is the Slovenian competition authority.

The European Commission initiated infringement proceedings in 2009, because the government dismissed the AKEP director. The proceedings were closed in September 2011, after Slovenia had amended the provisions on appointment and dismissal.

Regulatory conditions for wired networks

Market access has been fully liberalised and is subject to a general authorisation scheme.

All of the competitive safeguards that are foreseen in the EU regulatory framework have been implemented, including interconnection and infrastructure access, tariff rebalancing, carrier pre-selection, wholesale broadband access, wholesale line rental and fixed number portability. Around 8 per cent of the incumbent operator's loops have been unbundled and about 3 per cent are used for wholesale broadband access.

Telekom Slovenije and the alternative operator T-2 are deploying fibre access networks. There is good coverage and take-up and each of the two operators have achieved about 5 per cent of Slovenian households.

Slovenia has 38 per cent of fixed-lines providing speeds of 10 Mbps and above. With regards to high and ultra fast speeds, only 2.4 per cent of lines provide speeds between 30Mbps and below 100Mbps and 1.6 per cent of fixed-lines provide speeds equal or above 100 Mbps.

APEK has addressed NGA networks and obliged Telekom Slovenije to offer wholesale broadband access over fibre networks, which is actively used in practice. APEK also imposed duct access and fibre unbundling.

Call termination charges for the incumbent's fixed network are around the EU27 averages. It is unclear when termination rates will be aligned with the European Commission recommendation on fixed and mobile termination rates.

Regulatory conditions for services requiring frequency spectrum

Slovenia has four mobile network operators (Mobitel, Si.mobil, Tušmobil and T-2). The first three use spectrum in the 900MHz, 1800MHz and 2GHz bands, but T-2 is solely using the 2GHz band.

APEK amended the existing licences in the 900 and 1800MHz bands to allow 3G, which is now used by Si.mobil and Tušmobil. APEK plans to award the 800MHz, 900MHz and 2.6GHz bands in 2015.

Slovenia is one of the few countries in the European Union where competition in mobile markets is so low that the regulator found significant market power in the market for access and call origination. APEK imposed regulatory obligations on Mobitel in 2005 and 2009. Two mobile service providers enjoy access in Mobitel's network due to these obligations. Mobitel has also been obliged to offer national roaming.

The mobile termination rate of €0.039 is above the EU27 average. It is unclear when termination rates will be aligned with the European Commission recommendation on fixed and mobile termination rates.

Payments required from Operators

There is no special tax imposed on electronic communications networks or services.

The regulator has not yet established universal service net costs and operators therefore do not have to pay into a universal service fund.

Information society safeguards

Legislation on provision of information society services, electronic contracts and electronic signatures, protection of personal data and measures against cybercrime is generally aligned with the EU *acquis*.

Summary and outlook

Legislation has not yet been fully aligned with the EU 2009 regulatory framework.

The regulator APEK has generally implemented all competitive safeguards that are required by the EU regulatory framework and has started to extend the regulatory obligations to the fibre network that is being deployed by the incumbent operator.

The Slovenian electronic communication market remains concentrated with Telekom Slovenije maintaining overall leadership. Competition is strengthening with alternative fibre networks and with Telekom Slovenije now obliged to offer broadband market access on its fibre.

In the mobile market the leading mobile operator (Mobitel) has merged into the incumbent's company (Telekom Slovenije), giving it a market share of over 59 per cent, leading the regulator to impose access obligations to the other mobile operators.

Uncertainties in the frequency strategy and the delayed allocation of available spectrum resources are slowing down the development of LTE in Slovenia and affecting decisions on investments. Slovenia is particularly lagging behind in terms of mobile broadband take-up.

Progress in the deployment of high-speed (>30 Mbps) and very high-speed broadband (>100 Mbps) has so far been slow. Although fibre assess penetration in Slovenia is relatively high compared to other countries, there are only 4 per cent broadband lines with a speed of more than 30 MBps.

The Slovenian Broadband strategy was adopted in July 2008 and defined quantitative broadband targets:

- Basic broadband coverage for 100 per cent of Slovenian citizens by 2010.
- Broadband coverage of a minimum speed of 2 MBps for 98 per cent of the population by 2012.
- Broadband coverage at 20 MBps and availability of triple-play for 90 per cent of the population by 2015.

In addition, a longer-term objective was defined, targeting the availability of fibre to the home or comparable broadband connections of greater capacity for 90 per cent of the population by 2020.

A revised strategy is under preparation, since the targets for 2010 and 2012 will not be reached.

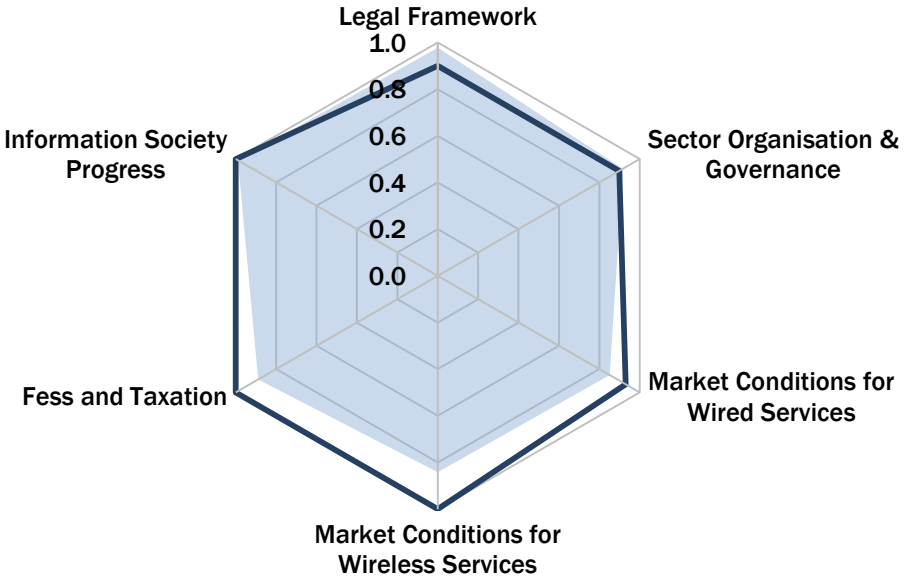
The European Fund for Regional Development invested in Public Private Partnership (PPP) projects in "white spot" areas, with the aim of achieving 100 per cent coverage. The process is driven by municipalities and the total amount of €82.3 million (of which approximately €70 million comes from ERDF co-financing). Contracts have been signed for all the resources available, with €36.7 million signed in 2011 for five additional projects. The European Agricultural Fund for Rural Development (EAFRD) provided €4.26 million under the Recovery Package (€3.842 million of which is co-financed by EAFRD) for broadband projects in rural areas.

The results of these initiatives are now being reflected in the market, with operators starting to offer new ultra-fast services in rural areas through connections to the publicly financed fibre open networks. In many cases the open networks are in competition with the upgraded incumbent's infrastructure, following investments in rural areas where the incumbent upgraded its copper network.

A full market report on the electronic communications sector in Slovak Republic is published by the European Commission on: http://ec.europa.eu/information_society/digital-agenda/scoreboard/countries_2012/information_society/_bin12/pdf/SI_Country_Chapter_17th_Report.pdf.

Chart 2: Comparison of the overall legal/regulatory risk for telecommunications in Slovenia with international practice and regional performance

Slovenia: Overall legal/ regulatory risk



Key: Extremities of the chart = International best practice
Slovenia = Solid Line
Regional average = Shaded area

Overall legal/ regulatory risk = 95 (100 is the lowest risk)

4: CASE STUDIES

Case study: MOLDOVA

Regulator ANRCETI's performance in consumer rights and complaint handling

The National Regulatory Agency for Electronic Communications and Information Technology (ANRCETI) devotes special attention to users' rights and meeting their expectations with regards to electronic communications services. ANRCETI responds to complaints and provides objective, unbiased solutions to the issues raised.

In 2011 ANRCETI examined 170 complaints (136 from end-users and 34 from providers of electronic communications services). In addition, ANRCETI received 169 requests for access to information and 193 requests concerning technical, legal and economic matters from service providers or consumers. The requests from service providers typically involved the authorisation procedure and the issuance of licences for the use of limited resources. Consumer requests concerned information about the service providers in the market, on the work of ANRCETI and about general market data. The Agency provided prompt responses to the requests.

ANRCETI also examined 37 complaints made via the "green line" telephone helpdesk - 0800 80080. In the responses to these complaints, explanations and recommendations were provided on how to solve problems as well as information to provide a better understanding of the services and offers on the market.

Most of the complaints (85 per cent) were examined in ANRCETI's office; the remainder required an on-site visit. The largest number of complaints concerned fixed telephony (40) and mobile service (39). There were 27 complaints about internet service, 22 concerning Cable TV service and 16 regarding operator access and interconnection. As in previous years, most of the complaints came from the customers of the major providers, such as JSC Moldtelecom (87 complaints), Moldcell (13 complaints), Sun Communications (11 complaints), Orange Moldova (eight complaints), and Starnet" (eight complaints).

In 46 out of the 170 cases, the complaints proved to be justified and six complaints were referred to other responsible agencies. Using standard procedures, following the verification of the facts described in each proven complaint, ANRCETI warned the operators against the committed violations and demanded their elimination within the timeframes required by law.

ANRCETI's open approach has become a regular activity to improve the relationship with the market and contribute to increasing awareness by consumers of their rights and obligations, as well as of services and offers available on the electronic communications market.

Analysis of requests and complaints to ANRCETI 2010 and 2011		
	2010	2011
Total number of requests and complaints	590	569
Requests for information	167	169
Complains of legal, economic or technical nature	289	193
"Green Line" (0800 80080 hotline)	12	33
Complaints during legal hearings	5	4
Complaints	117	170
By service		
Fixed telephone service	16	40
Mobile service	18	39
Internet service	24	27
Cable TV service	37	22
Interconnection, access and infrastructure	11	16
Content services	1	3
Radio broadcasting	1	2
General aspects	9	21
By topic		
Breaches of contract terms	64	76
Service quality and malfunction	25	23
Billing accuracy	12	21
Illegal disconnection	0	17
Tariff increases	6	16
Discrimination in service provision	1	6
Electromagnetic radiation hazard	3	5
Abusive clauses in contracts	5	5
Damages	1	6
By customer type		
Consumers	91	118
Businesses	26	52
By complainant		
Service users	91	136
Service providers	26	34
By results		
Justified complaints	33	46
Unjustified complaints	60	72
Referred to other entities	2	6
Pending complaints	8	13

Case study: RUSSIA

Is cooperation on network infrastructure the way forward for the next wave of investment?

In 2011 Russia saw a very significant increase in the demand for broadband services. Leading operator VimpelCom reported a 12 per cent increase in mobile broadband subscriptions and a 42 per cent increase in fixed broadband. Market leader MTS saw the data usage of the average broadband customer leap from 75MB to 455MB per user per month. Broadband already connects 25 per cent of Russian households, with demand for retail triple-play and IPTV services booming.

Faced with this significant market growth, all market players are considering their investment plans to reach out to more households and to cope with the dramatic increase in data traffic. The Russian regulatory body RosComNadzor has previously issued new licences for mobile 3G and fixed wireless frequencies and has more recently released major spectrum for national LTE broadband services[47].

Faced with huge investments, the operators started to consider infrastructure sharing as an option. This represents a major change in attitude for Russian telecommunications operators, who have always been fiercely protective of their own networks. In many countries, including EU member states and increasingly in Central, Eastern and Southern Europe, infrastructure sharing obligations such as local loop and fibre unbundling, wholesale broadband access and dark fibre leasing have become standard regulatory practice, with significant market benefits giving greater choice to consumers and better competitive safeguards for new market entrants.

The infrastructure sharing debate in Russia has involved large and small operators and the regulator. A very significant development occurred last year when the big three operators (VimpelCom, MTS and Megafon) plus national broadband operator Rostelecom, agreed to unite behind the LTE network being built by former WiMAX player Yota, avoiding the need for the participants to build-out their own networks. Yota was one of the first carriers in the world to launch commercial 4G, and is planning to provide high-speed mobile broadband services across 180 Russian cities, covering a total population of more than 70 million citizens, by 2014.

The big four Russian operators reportedly signed a deal with Yota to build a nationwide LTE network that will work across the board. Rather than forcing each operator to do their own thing, the four big operators will now have the option to buy 25 per cent stakes in Yota. According to Prime Minister Vladimir Putin at the time, this unified effort will enable Russia's economy to reap the benefits of a widespread 4G/LTE network.

However, the project reportedly ran into problems regarding the perceived high prices the operators would need to pay to buy a stake in the joint venture as well as a regulatory enquiry that questioned the exclusion of smaller players such as Tele2. This led to MTS and VimpelCom reportedly striking a deal last year that would allow them to build a shared LTE network outside of the Yota arrangement. Meanwhile, MegaFon proceeded with the Yota deal in February 2012 to use Yota's LTE spectrum, enabling it to become the first of the big three mobile operators to launch commercial 4G services (Yota has access to MegaFon's network for its own operations in return).

MegaFon subsequently launched LTE services in Moscow, Krasnodar and Novosibirsk, and last month in Sochi, the venue for the Winter Olympics in 2014. It plans to go live in at least four more cities by the year ending 2012. MTS secured an LTE licence covering the Moscow area in February 2012, but is also thought to be close to finalising a deal with Yota. Rostelecom is due to launch as an LTE virtual mobile service (via Yota) in Moscow in September, while Yota has already launched LTE networks in Moscow, Novosibirsk, Samara, Sochi and Krasnodar, and makes its frequencies available to Megafon in those cities.

Megafon and Scartel (which owns the Yota brand) are now expected to merge their assets. The combined group is expected to deploy LTE networks to improve its competitive position in the Russian mobile market, using Megafon's advanced 3G network and infrastructure and Scartel's LTE frequencies across the country. Scartel is already required to make its LTE frequencies and infrastructure available to other operators on a non-discriminatory basis. To date, Scartel has only reached agreement with Rostelecom.

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47 See also Case Study "Russia: Specrum for broadband expansion using LTE services" also included in this section.

Megafon and Rostelecom are both expected to expedite launch of LTE service by providing virtual mobile network services over Scartel's Yota network.

In another significant infrastructure sharing deal, MTS and Rostelecom agreed to allow each other access to their respective cell towers, fibre-optic lines and other equipment. The agreement will give MTS favourable access to Rostelecom's 500,000 km fibre-optic trunk network, a valuable resource for MTS in regions such as Siberia and the Far East, where it does not have full backbone infrastructure. Meanwhile, Rostelecom is reportedly interested in the opportunity to utilise MTS' mobile network, with more than 6,000 cell towers, as well as 117,000 km of its own fibre-optic backbone.

Fresh LTE spectrum auctions were awarded by RosComNadzor in July 2012[48]. However, local operators are already adapting models to move toward a value share (rather than market share) approach as they prepare for LTE. Meanwhile, the Yota arrangement was hailed as one of the world's largest network-sharing deals when it was unveiled last year. With reports emerging that operators are unhappy with the costs involved and also concerned about capacity on the fledging network, many seem to be looking at alternative routes to market, including alternative infrastructure sharing deals.

48 See also Case Study "Russia: Spectrum for broadband expansion using LTE services" also included in this section.

Case Study: RUSSIA

Spectrum for broadband expansion using Long Term Evolution services[49]

In July 2012, The Russian regulatory body RosComNadzor awarded Long Term Evolution (LTE) spectrum licences for no fee to four operators using a competitive tendering process. Each operator was awarded spectrum in the 800MHz "digital dividend" band and will later obtain additional spectrum in the 700MHz, 2.5GHz and 2.6GHz bands. Russia's objective is to encourage rapid rollout of LTE networks nationally in order to promote internet usage and stimulate the economy. Paying no initial licence fees, the operators can invest their available capital in the network infrastructure.

With this tender, Russia's initial LTE services are expected to exploit the 800MHz band in rural areas with later enhancement using the 700MHz band. The operators' capacity will also need enhancement to cope with high demand for wireless broadband services in the major cities using the higher frequency bands.

The winning bidders were Russia's three national mobile operators plus the national fixed operator Rostelecom, after eight bidders submitted bids. Megafon, MTS, VimpleCom and Rostelecom, each won four lots of 2 x 7.5 MHz spectrum in the 800-MHz band, and also later will receive paired spectrum in the 2.500–2.570MHz and 2.620–2.690MHz bands and also the vacated 720–750MHz and 761–791MHz bands. In total, each operator obtained 25 MHz of paired spectrum for nationwide use from the government.

The auction results provided Rostelecom with nationwide mobile spectrum for the first time. The losing bidders were TTK, Summa Telecom, and two divisions of Tele2's Voronezh and Omsk subsidiaries. Losing operators such as Tele2 must now hope that the Government permits it to re-farm its existing 1,800-MHz spectrum so that it can be exploited for LTE.

Although no fee was paid for the licenses, the four operators are required to launch LTE services in the 791-862MHz spectrum by June 1, 2013 and each to invest a minimum of RUB15bn (€350m) annually to satisfy coverage obligations with the LTE networks (a total investment in the range of €10 billion over seven years). They must launch service in six regional markets in 2013, and meet further coverage obligations each year to provide full national LTE service availability by year end 2019. The operators are expected to build shared network infrastructure to reduce costs and obtain nationwide LTE coverage more rapidly[50].

The move by Russia aims to seek a balance between the huge investment involved in providing national coverage and the need to promote a competitive market.

49 Sources: Reuters, LTEWorld, Ovum: Russia offers free LTE spectrum to bridge the digital divide, July 17, 2012. 4G Trends, Fierce Wireless Europe.
50 See also Case Study "Russia: Cooperation on network infrastructure" also included in this section.

Case study: CROATIA

Regulation of the "Multiple-play" market[51]

"Triple-play" services are bundled offerings to consumers using retail broadband access (fixed or mobile) with customers typically receives voice, internet access and TV channels as a service package from a single service provider, often at a fixed price per month. In the EU, the penetration of bundled services has already reached 22/100 population.

In Croatia, the retail market for triple-play offerings to consumers (voice, internet and IPTV access via a retail broadband connection) is dominated by Hrvatski Telekom (HT) which has 75 per cent of the market with its own offering, plus a further 7 per cent market share through its fully owned subsidiary Iskon Internet. The other market players each have 8 per cent market share or less. The question the Croatian regulator (HAKOM) wanted to ask was – does the consumer have sufficient choice in an effective competitive market?

The retail broadband market

HAKOM uses the EU regulatory framework for electronic communications, and therefore analyses the markets defined by the EU that are susceptible to ex-ante regulation. The EU does not define a retail broadband market; instead it currently relies on regulation of the upstream wholesale markets. This is because, generally in EU countries, the market for retail broadband services and the related IPTV services are sufficiently competitive. Only those operators that are found (by market analysis) to have significant market power in the relevant upstream wholesale markets for broadband are regulated. Typically this requires an obligation on dominant operators to supply wholesale broadband access and access to passive infrastructure including local loop unbundling). Because retail broadband EU markets are generally competitive and therefore effective for consumers and service providers, then there has been no need to regulate "triple-play" offerings to consumers in EU countries.

HAKOM suspected a weakness in competitive markets in Croatia and wished to define and analyse the market for retail broadband and the closely related market of transmission of TV channels with monthly payment (PayTV). Since 2009 HAKOM had already applied price regulation to HT's local loop unbundling service, reducing the charge alternative operators have to pay to HT by about 16 per cent. (The full LLU charge in Croatia is currently around €6 per month, which is below the average in EU countries at €9.70 per month.) HAKOM had also applied a "Retail minus 60 per cent" obligation on HT for its wholesale bitstream access service, so that the wholesale price paid by alternative operators for HT's bitstream access was never more than 40 per cent of HT's equivalent retail tariff. Even after applying these wholesale obligations, it does not appear that the market has become sufficiently competitive at the retail level.

HAKOM wanted an ex-ante approach to make the Croatian retail "triple-play" market more competitive, so it decided to try to define and analyse the market to see if any other regulatory interventions could be applied. Broadband access is provided to consumers in a number of ways – ADSL on copper loop, mobile service (EDGE, UMTS, HSDPA), fixed wireless access (Homebox, WiMax, Wifi), Cable access networks (Cable TV), leased lines, fibre access (FttH) and satellite. HAKOM started by applying the "3 Criteria Test[52]", to see if the retail broadband market should be susceptible to ex-ante regulation:

Question 1: Is there an absence of barriers to entry (structural, legal or regulatory)?

Question 2: Will the market tend towards effective competition in a reasonable without regulation?

Question 3: Is competition law sufficient to address current or potential market failures?

The conclusion was that all these tests were fulfilled (the answer to every question was "no"). HAKOM therefore decided that it should proceed to define the market (by listing what exactly the market includes and does not include), then to analyse the market and determine if any operator has significant market power. A successful market analysis process will determine all existing and potential barriers to effective

51 Full details of the Case Study can be obtained from the Croatian Post and Electronic Communications Agency.
52 European Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex-ante regulation in accordance with Directive 2002/21/EC

competition and indicate reasonable and justifiable obligations (market remedies) to apply to operators who are found to have significant market power.

HAKOM determined that the retail broadband market in Croatia included xDSL access over copper pairs, cable network access and fibre access (FttH) regardless of whether access is offered as a stand-alone service or as an integral part of a larger services bundle. It was also clear that as far as competition law is concerned, Iskon Internet and HT should be considered as a single service supplier.

The market analysis work studied relative market shares of the players, control of infrastructure, level of vertical integration, access to finance, economies of scale and scope, sales and distribution networks. The market analysis concluded, after a full public consultation, that HT (which included Iskon) has significant market power in the retail broadband market of Croatia.

The market for monthly-paid TV channels

HAKOM then decided to define and study the closely related retail market for transmission of TV channels with a monthly payment. In Croatia this market is served by IPTV over copper and fibre, TV channels over cable networks (CATV) and satellite TV, regardless of whether it is offered as a stand-alone service or as part of a services bundle. Again, HAKOM found that HT and its associated company Iskon Internet has significant market power in the closely related market in which IPTV service is offered. This is a demonstration of article 14.3 of the EU Framework Directive, which states that: "Where an undertaking has significant market power on a specific market, it may also be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking."

The links between retail broadband market and the market in which IPTV service is offered enable HT and its associated company Iskon Internet, as SMP operator on the retail broadband market, leveraging the market power from one market to another. There is also the possibility that if HT had an imposed obligation and Iskon Internet did not, HT could simply use Iskon as its retail arm to avoid the obligations.

Market remedies for the Regulator to apply

The possible ex-ante remedies include the following obligations on HT and its associated company:

- Obligation not to unreasonably bundle.
- Obligation for cost oriented retail tariffs (using the cost of each component plus a profit element).
- Obligation not to show undue preference to specific end-users.
- Obligation not to restrict market entry or restrict competition (for example, by predatory pricing).

A fundamental part of the chosen regulation, from the above possible remedies will be the use of cost calculations for the individual services (A, B and C) in the triple-play bundle:

(Service A costs + Service B costs + Service C costs) = Total cost of the bundle

The regulated retail price should be governed by the formula:

$$\frac{(\text{Retail price of the bundle} - \text{Total cost of the bundle}) \times 100 \text{ per cent}}{\text{Total price of the bundle}} > \text{WACC \%*}$$

(* WACC is the Weighted Average Cost of Capital of the service provider (equivalent to a regulated profit margin).

This methodology is being implemented in Croatia in order to ensure that the market for "triple-play" services delivered over broadband access services is made more effective for consumers and service providers. Unless this happens, there is a danger that one service provider will remain dominant and this important market will not develop into a fully competitive one.

Case study: MOROCCO

Investing in rural areas[53]

The traditional approach to funding of telecommunications infrastructure in areas where network investments are not economically viable is to define a "universal service fund (USF)" mechanism, whereby a special fund is created to encourage telecommunications operators to invest. These funds can work in several ways. Contributions can come from national or regional budgets or from yearly contributions from existing telecoms operators. The government or regulatory agency can designate a universal service provider to receive the funds as compensation for existing loss-making services, or it can auction funds to bidders who are interested in making new investments.

In Morocco, an innovative "Pay or Play" mechanism has been used to incentivise existing and new investors. It leaves the decision to operators – either they can contribute financially to the universal service fund, or they invest directly in projects themselves. The overall strategy is defined by a Universal Service Management Committee, chaired by the Prime Minister. The other members of the Committee are the Director of ANRT (the Moroccan regulator) and representatives of the home affairs, finances, telecommunications, country planning and defence administrations. This committee defines the projects that are required to meet the rural infrastructure objectives.

If they decide to pay, telecommunications operators contribute 2 per cent of their net turnover, excluding revenues from interconnection services. The USF is reserved only for the universal service projects that are agreed by the Committee. If an operator elects to invest directly by itself in one of the defined projects, then the amount of money it invests will be deducted from their contribution to the universal service fund.

Operators can also decide to submit a project in connection with the universal service strategy to the Committee, which will then validate the project and define under what conditions it can be carried out. Operators can offer to participate in projects that have already been defined by the Committee. In this latter case, the operators in charge of the project will be selected through a public tender mechanism.

An example of a project defined by the Committee is PACTE (*Programme d'accès généralisé aux télécommunications*). The objective of the PACTE program is to bring telephony and internet access to 9,263 rural municipalities located in an area not yet covered by any telecommunications networks. Access can be provided through a fixed or a mobile network. To realise this project the Committee allocated around €125 million from the universal service fund to four operators over a four-year period (from 2008 until mid-2012). It is estimated that 2 million citizens will benefit from the programme, representing 17 per cent of the rural population, 7 per cent of the national population.

Other projects have been defined by the Committee, mainly to provide schools, teachers, and students with IT equipment and internet connectivity. These include:

- The "GENIE" and "GENIE-SUP" projects, providing multimedia equipment for around 9,000 schools and universities.
- The NAFID@ project provides computer with mobile broadband to 150,000 teachers.

New plans for the universal service fund are being defined for the period 2012-2016.

- The "GENIE" and "GENIE-SUP" projects, providing multimedia equipment for around 9,000 schools and universities.
- The NAFID@ project provides computer with mobile broadband to 150,000 teachers.

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53 For further information see www.anrt.ma/missions/service-universel/presentation.

Case study: EUROPEAN UNION

2020 Digital Agenda

Key performance target 1a: The entire EU to be covered by broadband by 2013.

The coverage of fixed broadband networks was stable in 2011 at around 95 per cent of the European population.

State aid measures notified to the European Commission in the course of 2011 concerned: Greece (a €250 million measure for unserved rural areas), Poland (a €350 million aid scheme to deploy a fibre backhaul network in sparsely populated eastern Poland, serving around 8 million persons[54]); Latvia (a budget of €119 million to build a passive and open Next Generation Access (NGA) networks in rural areas); Portugal (public funding of €106 million for NGA networks in rural areas, about 70 per cent of the total cost); and Slovak Republic (an aid measure with €113 million to support a backhaul network for 330 000 unconnected citizens).

Key performance targets 1b and 1c: The entire EU to be covered by broadband above 30 Mbps by 2020 and 50 per cent of the EU to subscribe to broadband above100 Mbps by 2020

High-speed broadband coverage is growing. In 2012 49.8 per cent of households have access to fast or ultra-fast internet access, up from 28.7 per cent last year. The wider availability of high-speed connections is also reflected in uptake patterns. Indeed, while growth in the overall number of broadband connections is slowing down, the trend towards higher speeds is clear and speeds have increased significantly, with almost half (48 per cent) of all fixed broadband connections providing speeds of 10 Mbps and above. Although the deployment and take-up of ultra-fast broadband is still low, the share of all fixed-lines delivering speeds of 30 Mbps and above rose from 5.1 per cent to nearly 8.5 per cent in a year. Super fast connections above 100 Mbps remain very scarce, but have nearly doubled from 0.8 per cent to 1.3 per cent.

Key performance target 2a: 50 per cent of the population to buy online by 2015

Progress towards achieving the target of 50 per cent of the population using the internet to purchase goods and services is steady: after rising from 37 per cent to 40 per cent last year the share is now 43 per cent.

Progress in eCommerce is a bit faster than progress in internet use, with the share of internet users engaging in eCommerce edging up from 57 per cent to 58 per cent. The main items sold online are films, music, books, software, travel and accommodation, clothing and sports goods, each being purchased by more than half of those shopping online. On current trends, the EU target could be reached before 2015.

Key performance target 4a: 50 per cent of citizens to use eGovernment by 2015

The proportion of citizens using the internet to interact with public authorities has stagnated at 41 per cent over the last year, after rising by 3 percentage points the year before. Further stagnation in the coming years would jeopardise achievement of the target by 2015.

54 For more details of the Polish project see the Case Study included in the country summary for Poland in section 4 of this report.

Case study: POLAND

Accelerating broadband investment

EU State funding of broadband

Since the beginning of 2010, The European Commission has taken over 30 decisions regarding broadband projects involving public funding[55]. All of these were found to be compatible with the Treaty (article 4(3) decision types). The total amount of the aid approved is approximately €3.7 billion. The majority of the cases concerned next generation network and access deployment.

The public funding is in line with the policy of the European Union. The Flagship Initiative: "A Digital Agenda for Europe" has the aim to deliver sustainable economic and social benefits based on fast and ultra-fast internet and interoperable applications. The EU's specific targets are broadband access for all by 2013, access for everyone to much higher internet speeds (30 Mbps or above) by 2020, and 50 per cent or more of European households subscribing to internet connections above 100 Mbps."

Broadband infrastructure project in Eastern Poland

In 2010 the European Commission took 19 decisions regarding broadband projects involving public funding. The total amount of the aid amounted to about €2 billion. Only one of these projects has involved investment in the Group D countries. This project[56], in a low-population density area of Eastern Poland with 8.2m inhabitants provides €350 million investment, €255 million from the European Regional Development Fund and the remainder from Polish State aid. This will provide residential customers, business users, government and public administration bodies, with the ability to access the electronic communication service provider of their choice and to have access to fast broadband services provided on high capacity networks. The European Commission defined in its Europe 2020 strategy of 3 March 2010.

The Polish authorities have designed the measure with the objective to minimise any non-competitive impacts on the market and to exploit the investment plans of existing electronic communication operators. Wherever possible, the new network will use existing infrastructure, whether owned or leased. In this way, the Polish authorities avoid the unnecessary and wasteful duplication of existing networks and also minimise the overall costs of the project. In particular, it will be possible to hold a separate open tender for purchasing existing telecommunications infrastructure, or it will be possible that during the procedure for design and construction of new infrastructure, the contractors will be allowed to procure existing infrastructure if it is economically reasonable.

The selected operator will offer wholesale services and access to the subsidised network to other operators in an open, transparent and non-discriminatory manner for at least seven years. This will represent in fact the core business model of the winning bidder, given that the operator of the infrastructure will not be allowed to provide retail services. The access obligations will be supervised by the Polish national regulatory agency for electronic communications markets (the UKE).

55 Regularly updated information on all Broadband State aid decisions can be found here: http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf

56 See "State Aid: Broadband Project in Eastern Poland" http://ec.europa.eu/competition/state_aid/cases/241551/241551_1282401_111_2.pdf

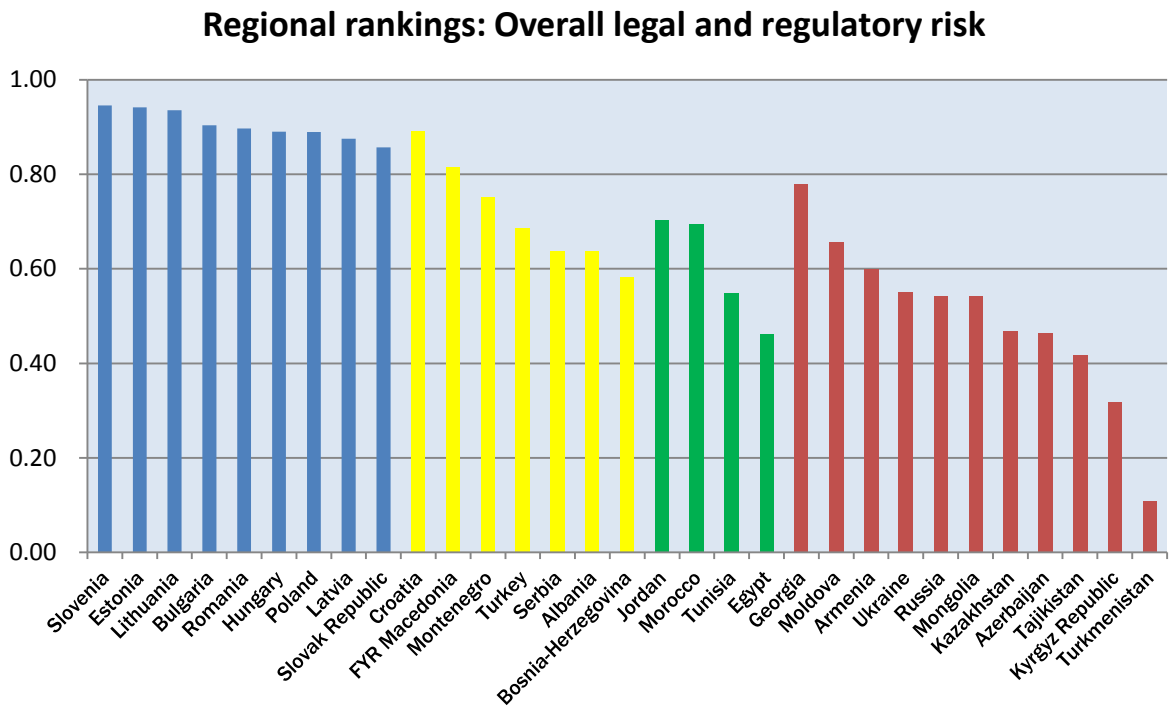
5: CONCLUSIONS FROM THE ASSESSMENT

The overall ranking of legal/ regulatory risk for the 31 participant countries is shown in the following 7 charts.

- Regional rankings: Overall legal/regulatory risk
- Regional rankings: Legal framework
- Regional rankings: Sector organisation and governance
- Regional rankings: Market conditions for wired services
- Regional rankings: Market conditions for wireless services
- Regional rankings: Fees and taxation
- Regional rankings: Information society progress.

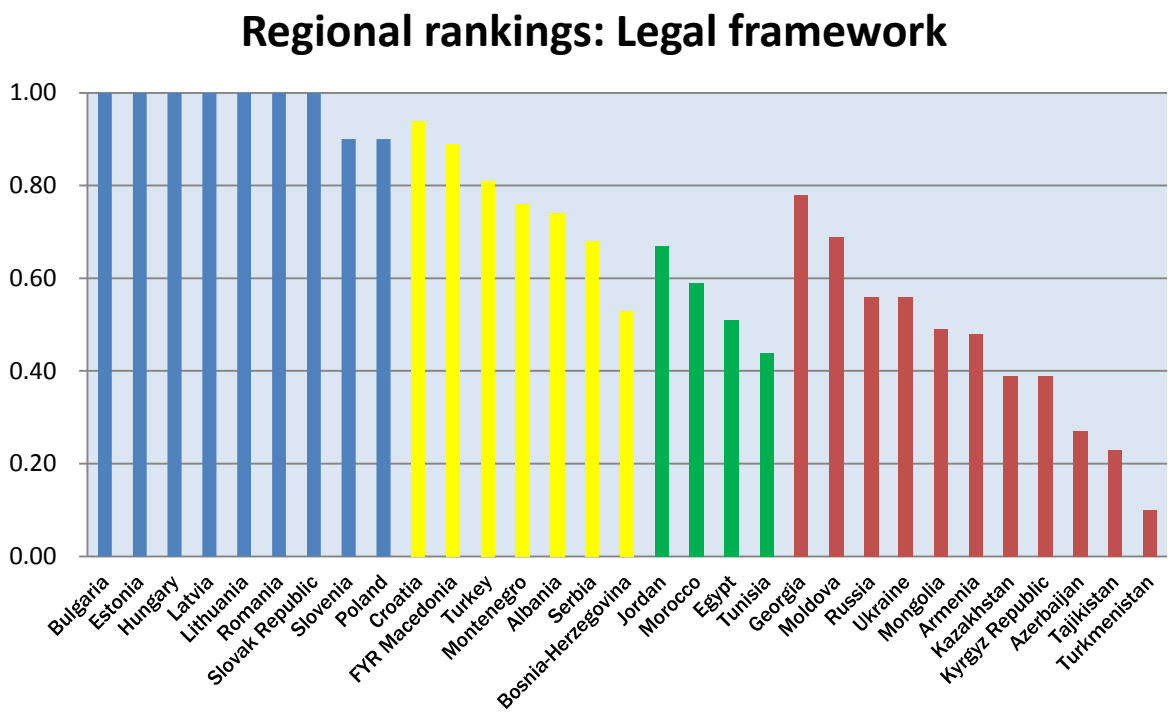
In this section, some broader conclusions are firstly drawn from the Assessment results, as shown in the regional rankings, with more specific conclusions regarding the improvement of conditions for investment in the electronic communications sector then following.

The criteria that were used to arrive at the ranked scores in the Assessment are described in section 2 of this report and are summarised at the foot of each chart below.



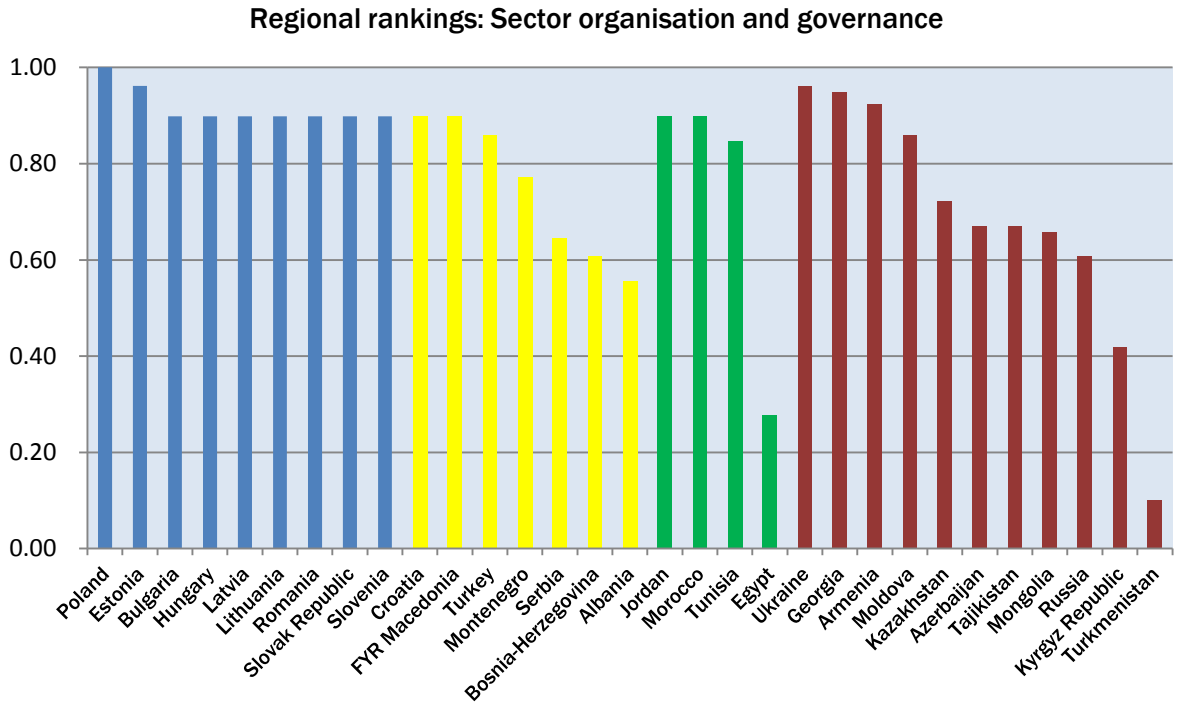
The Overall Legal/Regulatory Risk Index is a summation of a number of components, as defined in section 2 of this report.

1) **Legal Framework**. This component assesses if the degree of conformity with a modern legislative framework for an efficient competitive market for electronic communications. (Weighting = 30 per cent)
2) **Sector organisation and governance**. This relates to the structure of the electronic communications sector including ownership, regulation and the main regulatory procedures. (Weighting = 10 per cent)
3) **Market conditions for wired networks and services**. This relates to the market entry conditions faced by operators and service providers who base their services on metallic, as opposed to wireless (spectrum) based methods. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 20 per cent)
4) **Market conditions for wireless networks and services**. These relate to market entry by operators and service providers who base their services on wireless (spectrum) methods. This includes mobile services and fixed wireless services. It also explores the competitive safeguards in the market - what the new entrant is and is not allowed to do. (Weighting = 25 per cent)
5) **Fees and taxation on electronic communications services**. This relates to the types of payments required from operators/service providers to the state and/or regulatory agency in order to start and continue providing services. (Weighting = 10 per cent)
6) **Progress towards implementation of Information Society**. This relates to the country's environment for conducting business and providing services electronically. (Weighting = 5 per cent)



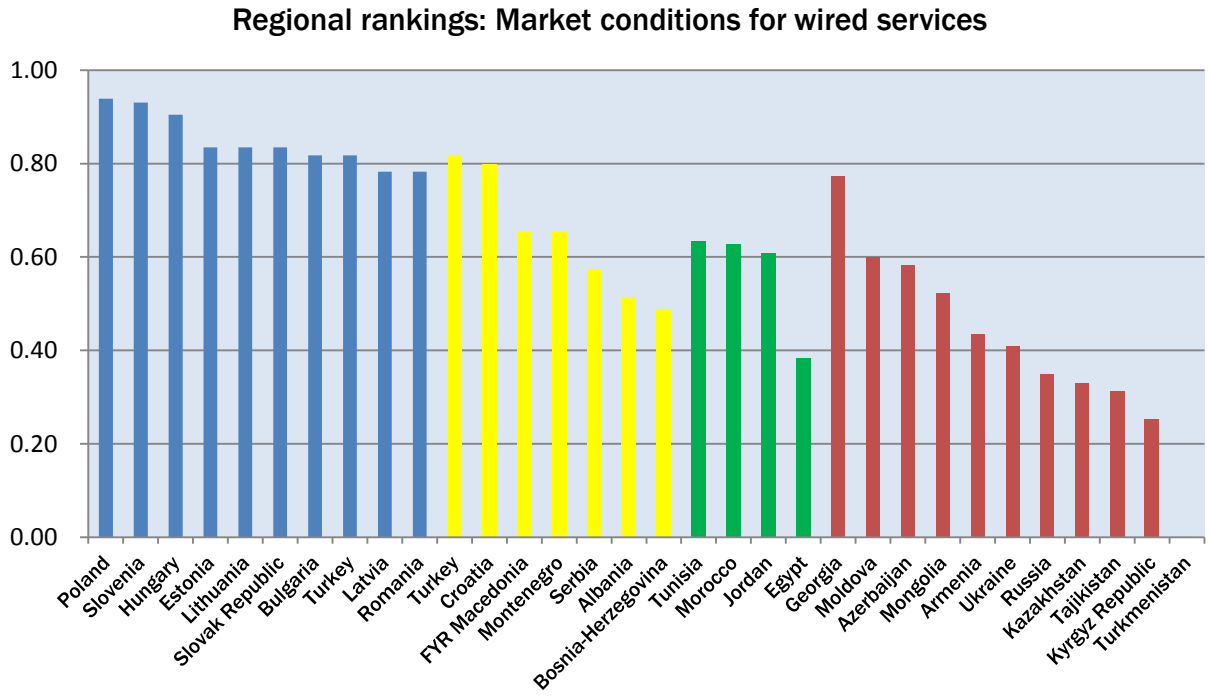
The **legal framework** score is a summation of a number of components, as defined in section 2 of this report. The legal benchmarks together contribute 30 per cent of the overall legal/regulatory risk assessment. The key components are:

1) **Regulator independence and structure**. This examines the legal basis for separation of policy, regulatory and operational functions, plus the structure and operation of regulator. (Internal weighting 20 per cent)
2) **Authorisation regime**. This examines the legal basis for authorisation and licensing powers and where relevant, includes interim provisions transitioning from old to a modern legislative framework. (Internal weighting 10 per cent)
3) **Interconnection and infrastructure access**. This examines the legal basis for a well-defined interconnection, access, facilities sharing, and for unbundling rights and obligations. (Internal weighting 10 per cent)
4) **Market analysis and enforcement**. This examines the legal basis for market analysis and other processes for the designation of significant market power, the effective regulatory powers to impose and enforce additional obligations on dominant operators to prevent discrimination and abuse of dominance, plus effective dispute resolution powers and procedures and the powers for the regulatory authority to enforce the law, impose fines or other effective penalties. (Internal weighting 20 per cent)
5) **Spectrum management**. This examines the legal basis for a fully defined and effective spectrum management regime. (Internal weighting 10 per cent)
6) **Universal Service**. This examines the legal basis for an effective universal access/universal service regime and enabling framework. (Internal weighting 10 per cent)
7) **Consumer protection**. This examines the legal basis for effective consumer protection using international best practice. (Internal weighting 10 per cent)
8) **Numbering**. This examines the legal basis for effective numbering administration. (Internal weighting 10 per cent)



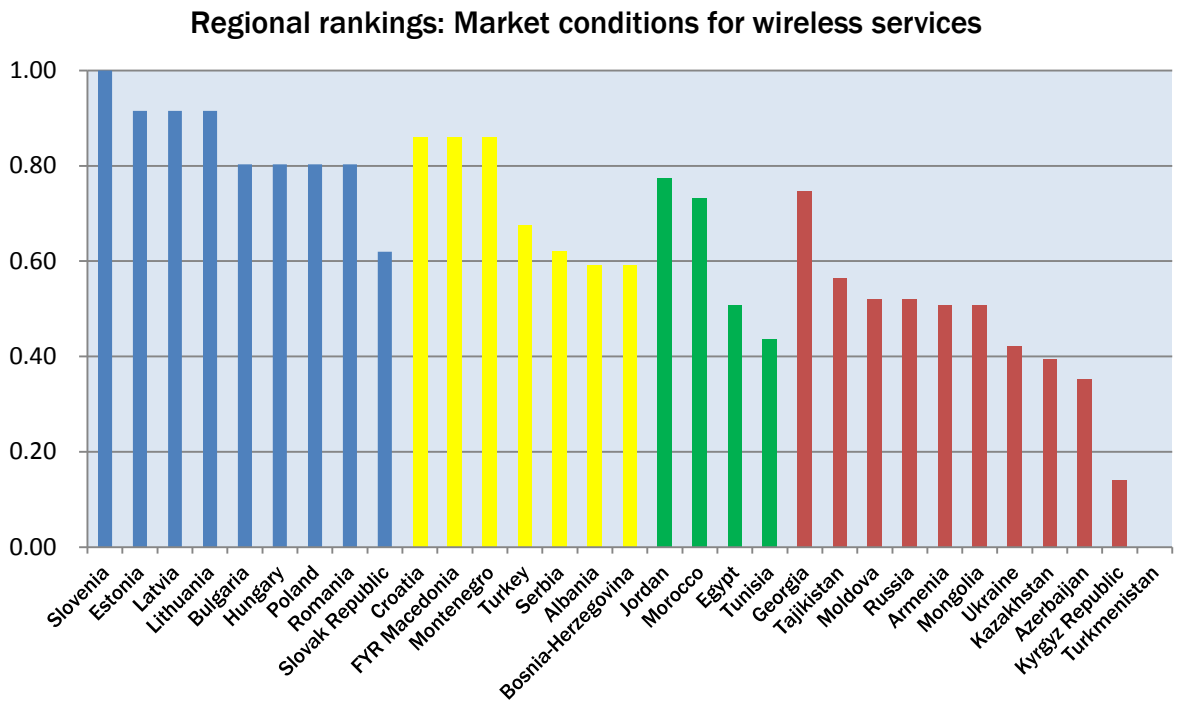
The **sector organisation and governance** score involves a total of 13 individual elements (as defined in Section 2 of this report). The assessment considers the structure of the electronic communications sector including ownership, regulation structure, funding and the regulatory procedures enabling competitive market development. The individual factors include a clear division of policy and regulatory functions, remaining state ownership or retained rights, appointment of regulatory officials, dispute resolution, appeals procedures, public consultations, publication of regulatory decisions, the relationship between the sector regulator and the competition authority, resources of the regulatory agency, funding, plus the country's membership of WTO.

The organisation and governance benchmarks together contribute 10 per cent of the overall legal/regulatory risk assessment.



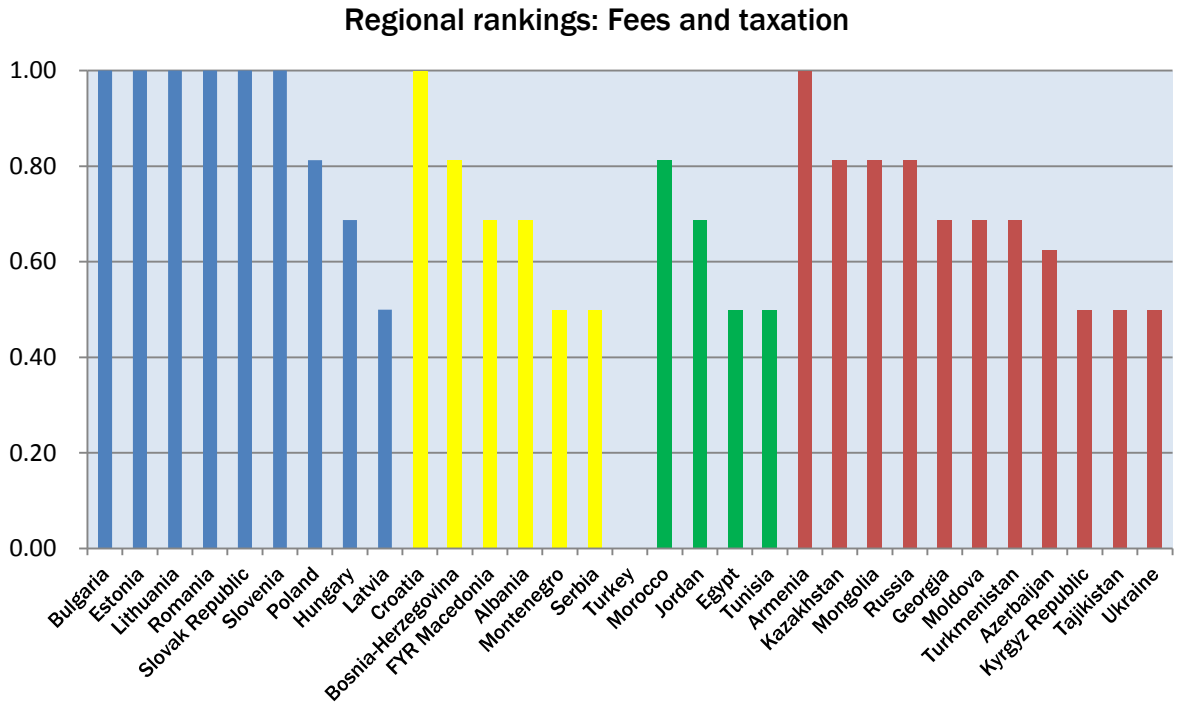
The score for **market conditions for wired services** involves a total of 17 individual elements (as defined in Section 2 of this report). This part of the regulatory assessment looks at the competitive conditions in the market for operators and service providers who base their services on metallic, as opposed to wireless (spectrum) based methods. The assessment focuses on the implementation of good market entry conditions and normally expected competitive market safeguards. The list of includes the implementation of a general authorisation regime, with simple notification procedures eliminating any requirement for explicit decision by the regulator, technology neutrality, reasonable timeframes for obtaining rights-of-way permits from private or public property owners, the mandating of passive infrastructure sharing (ducts, poles, towers, masts, buildings and other facilities), alternative operator access to passive network elements owned by an existing operator at fair, cost-related charges, completion of fixed-line retail tariff rebalancing, implementation of fixed number portability, carrier selection, carrier pre-selection and wholesale line rental, access to the fixed incumbent's international gateways, the publication of reference interconnection and unbundling offers, the regulation of interconnection charges, the regulation of local loop unbundling charges and the existence of a significant number of the incumbent's unbundled local loops, the availability and extent of wholesale broadband access, the existence of a competitive triple play market.

The benchmarks regarding market conditions for wired services together contribute 30 per cent of the overall legal/regulatory risk assessment.



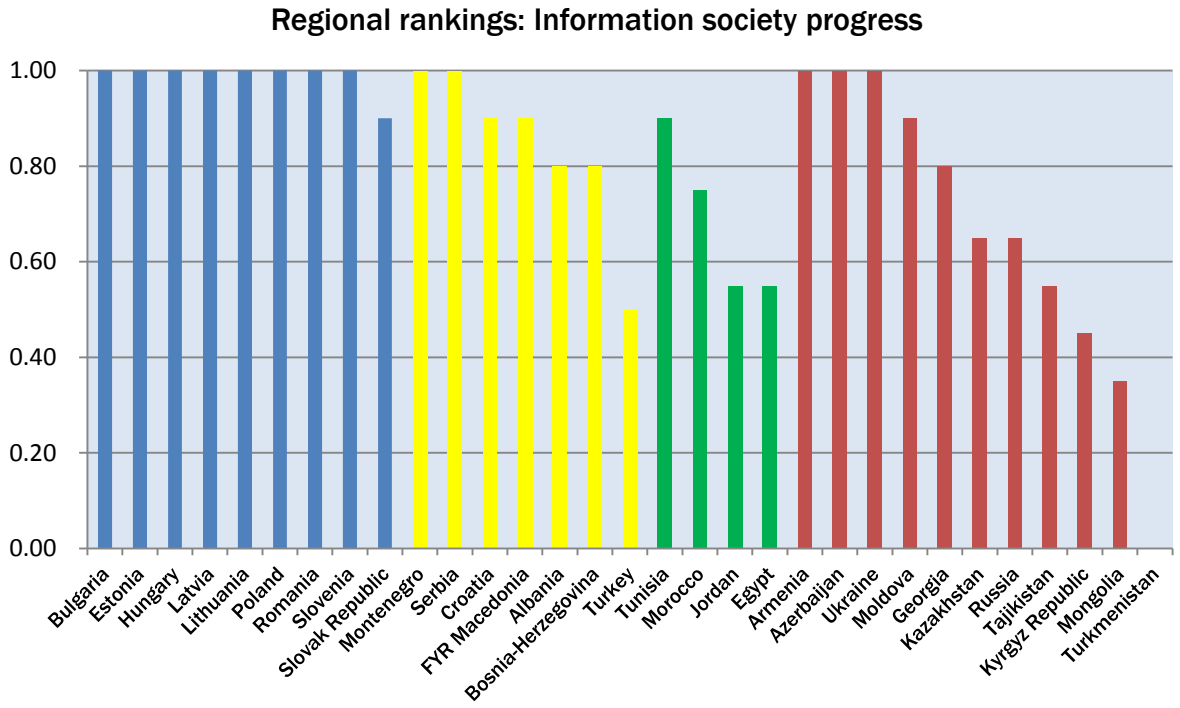
The score for **market conditions for wireless services** involves a total of 10 individual elements (as defined in Section 2 of this report). This part of the regulatory assessment looks at the competitive conditions in the market for operators and service providers who base their services on wireless (spectrum) based methods, including mobile and fixed wireless services. These factors consider the implementation of good market entry conditions and normally expected competitive market safeguards. The list includes the granting of spectrum to applicants on a first-come-first-serve basis or, if spectrum in particular bands is scarce, by a transparent public contest (for example, public auction or beauty contest), the technologically-neutral use of spectrum, the allowance and existence of mobile virtual network operators, the re-farming of the 900 and 1,800MHz frequency bands, the allowance of secondary spectrum trading, interconnection charges regulation (mobile call termination and origination), publication of reference interconnection offers by mobile operators, the requirement for national roaming.

The benchmarks regarding market conditions for wireless services together contribute 35 per cent of the overall legal/regulatory risk assessment.



The score for **fees and taxation** involves a total of 4 individual elements (as defined in Section 2 of this report). This part of the regulatory assessment looks at the types of payments required from operators/ service providers to the regulatory authority or ministry in order to start and continue providing the operators' services. The individual factors include the cost basis of the administrative fees to be paid to the regulator or ministry, the arrangements for operators/ service providers to pay into a universal services fund, the imposition of any special taxes for electronic communications services (besides the normal corporate or VAT taxes) plus the clarity, stability and transparency of the full system of payments required from operators/service providers.

The benchmarks regarding market conditions for wireless services together contribute 10 per cent of the overall legal/regulatory risk assessment.



The score for **information society progress** involves a total of 4 individual elements (as defined in Section 2 of this report). This part of the regulatory assessment looks at the country's environment for conducting business and providing services electronically. The individual factors include the ease of starting a wide range of internet services without any prior authorisations, a liberalised approach to the freedom of expression and information, the legal framework for recognising electronic contracts and signatures, liberalised domain registration (i.e. not limited to a single domain registrar), a functioning legal framework for protection of personal data plus adoption of an internationally recognised convention on cybercrime.

The benchmarks regarding market conditions for wireless services together contribute 5 per cent of the overall legal/regulatory risk assessment.

General conclusions from the Assessment results

The regional rankings show that there are varied levels of implementation of legal and regulatory best practice across the 31 countries included in the Assessment. In general:

- Group A countries (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine) display higher overall legal/regulatory risk, though the levels of that risk vary widely amongst those countries.
- Group B countries (Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey) are increasing harmonisation with EU member states thereby reducing the overall legal/regulatory risk.
- Group C countries (Egypt, Jordan, Morocco and Tunisia) also have varying though declining levels of overall legal/ regulatory risk.
- Group D countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia) have already reduced the overall legal/regulatory risk significantly by largely adopting best practice.

The following paragraphs describe the main areas where key aspects of legal/regulatory best practice remain to be implemented amongst the country groupings. A summary of the recommendations for each country is given in section 6 of this report.

Group A countries (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine)

The main areas where best practice remains to be implemented to reduce the overall legal/ regulatory risk are:

- The **legal frameworks** in a number of Group A countries require better provision for independent decision-making for sector regulatory agencies in terms of structure, source and sustainability of funding and decision–making procedures. The legal frameworks for licensing need to introduce general authorization regimes (removing the need for specific types of licence) and remove the need for a regulatory decision before market entry becomes possible (unless genuinely scarce resources are involved). The legal frameworks of many Group A countries also need to better ensure a more internationally consistent methodology is used for market analysis and determination of operators with significant market power, and follow-up with appropriate and proportionate market-based remedies to provide normally expected competitive safeguards. In general, the legal frameworks for spectrum management, universal service, consumer protection and numbering administration need further modernising to better incorporate up-to-date best practice. Georgia and Moldova are notably closer to best practice in these areas, ranking first and second in the Group A countries, while significant revision of sector and related legal frameworks is required in Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan and Turkmenistan to better ensure alignment with best practice.
- **The movement of sector organisation and governance** more towards best practice requires the creation of improved regulatory structures in Azerbaijan, Kazakhstan, Kyrgyz Republic, Russia, Tajikistan and Turkmenistan. Legal and regulatory risk would also likely improve if state shareholdings in sector operators were reduced in all countries (except Armenia, Georgia and Ukraine where full privatisation has already been achieved). In general in Group A countries, regulatory capacity needs strengthening to deal with more dynamic and increasingly competitive markets, and regulatory procedures need to become more transparent and predictable. Among the Group A countries, Armenia, Georgia, Moldova and Ukraine have achieved higher levels of implementation of best practice in sector organisation and governance, whilst significant changes will be necessary in Kyrgyz Republic and Turkmenistan to bring those countries closer to the higher ranked members of the group.
- **Market conditions for wired services operators generally** appear least promising in the Group A countries, with significantly greater levels of legal/regulatory risk when compared with countries that have done more to implement best practice. Georgia appears to have the easiest market entry conditions and implemented the most competitive safeguards. Notably, the remaining countries still lack number portability in fixed services. All the Group A countries (apart from Georgia and Moldova) maintain some form of fixed licensing requirement and have yet to move to the more progressive general authorisation scheme seen in more advanced regulatory environments (such as the EU member or candidate countries), with some still requiring separate

types of licences and permission from the regulator to enter wired markets. Additionally, access to public and private rights of way could be improved in all Group A countries, while interconnection and infrastructure access regulation has yet to match best practice, with better enforcement necessary in most countries to remove discrimination and to make use of modern cost models to set interconnection and access charges. The remaining barriers to access caused by ineffective wholesale markets in infrastructure appear to contribute significantly to lower than expected broadband penetration. Fixed line retail charges remain unbalanced in all Group A countries except Armenia.

- **Market conditions for wireless services**. Growth and competition remain strong in mobile markets, filling the gap caused by generally low fixed network coverage. To ensure this growth continues, and capacity matches demand, the transition to more a market-led spectrum management regime needs to be accelerated. Recent moves in Russia that have made significant new spectrum available to meet the growth of broadband are notable in this respect. In the other Group A countries, provision needs to be made for spectrum re-farming and trading, national roaming and for virtual mobile operators to enter the market (Russia alone amongst Group A countries has MVNOs). Increased flexibility as to the uses allowed for spectrum is also a key aspect of modern regulatory practice. However, in the Group A countries, spectrum usage is understood to be technologically neutral only in Armenia, Mongolia and Tajikistan. While making available further spectrum for exploitation by wireless services through the analogue to digital broadcasting switchover process is a key regulatory task, the switch off of analogue broadcasting appears to be being left to the last possible date (June 2015) in many Group A countries, thereby delaying valuable spectrum redeployment for broadband expansion, which is especially important in rural areas..
- **Fees and taxation**. Special taxes are imposed on operators or consumers in Georgia, Kazakhstan, Moldova, Tajikistan, Turkmenistan and Ukraine, arguably reducing the incentive to invest and reinvest. Where there is a legacy system for subsidising low-priced basic services from operators' universal service contributions (for example in Kazakhstan) or (in some Group A countries) an informal requirement that the incumbent operator provide certain universal services without specific reimbursement, this should be replaced with an incentive-based funding system to support co-operative investment in broadband infrastructure into rural areas. In Armenia, Azerbaijan, Kazakhstan, Russia, Tajikistan and Turkmenistan the regulatory function is still directly reliant on state budget funds. The introduction of a system of sector-funded administrative fees would likely reduce the overall regulatory risk. In all cases, the overall transparency and predictability of operators' fees and taxes needs to be improved.
- **Information society progress**. Azerbaijan and Ukraine appear to have already implemented the main safeguards for ease of internet service provision, electronic documents and signatures, personal data protection, liberalised domain name registration and protection against cybercrime. The other Group A countries need to complete the implementation of these information society safeguards to give the required confidence to investors. This is particularly the case in Mongolia and Turkmenistan.

Group B countries (Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey)

- **The legal framework** in most Group B countries has been significantly overhauled in recent years to incorporate best practices, through adopting the EU 2009 framework (Croatia) or the EU 2003 framework (Albania, FYR Macedonia, Montenegro, Serbia and Turkey). Notably, Bosnia and Herzegovina has, so far, only implemented the EU 1998 framework. Consumer protection provisions in particular need strengthening in most Group B countries to the level now adopted by Croatia from the EU 2009 framework.
- **Sector organisation and governance**. Apart from Croatia and Montenegro, there is still some state ownership in main operators in the Group B countries. Although all countries have structural separation of policy, ownership and regulatory functions, further improvements to the financial or operational independence of the sector regulator are needed generally to improve the independence of regulatory decision making.
- **Market conditions for wired services** are moving towards best practice for Group B countries, with only Bosnia and Herzegovina yet to implement a general authorisation scheme with simple notification for market entry. Fixed number portability has been implemented, except in Albania and Serbia. Fixed-line retail tariff rebalancing has yet to be achieved in any Group B country. Rights of way into public and private property do not appear strong enough in the Group B

countries. With respect to measuring the competitiveness of markets, all countries use the EU best practice for market definition, analysis and determination of significant market power. However, the remaining competitive market safeguards need to be enforced/re-enforced, in particular through stronger infrastructure access and sharing provisions and cost oriented wholesale charging based on modern cost models.

- **Market conditions for wireless services** with best practice is increasing in Group B countries, with evident strong competition and growth in mobile markets. Mobile number portability is fully implemented in all Group B countries, except Bosnia and Herzegovina. National roaming is present in all countries, and although the regulatory enablers for virtual mobile operators to enter the market are generally in place, MVNOs exist only in Albania and Montenegro. The switch off of analogue broadcasting is being left to 2015 in Albania, FYR Macedonia, Serbia and Turkey, delaying valuable spectrum redeployment for broadband expansion, especially in rural areas.
- **Fees and taxation**. A special tax is imposed in Turkey and operators also have to pay a contribution to a universal service fund. In other countries, the fees paid are generally low, although the level of transparency and predictability of operators' required payments needs to be improved to give better confidence that operators only pay the true administrative costs of the regulatory function.
- **Information society progress**. Good progress has been made in Group B countries in implementing the required information society safeguards. Bosnia and Herzegovina still needs to implement adequate cybercrime protections, Albania and FYR Macedonia have not yet liberalised domain name registration.

Group C countries (Egypt, Jordan, Morocco and Tunisia)

- The **legal frameworks** in Group C countries are currently under active modification, using the EU legal and regulatory framework to provide the general direction towards best practice. Notably, amongst all Group C countries, there is a need to better provide the key competitive and market entry benefits that a general authorisation framework provides (as understood from the EU framework). While this cannot happen immediately, there should be provision for the transition from individual licensing to a general authorisation framework in order to simplify market entry and reduce legal risk. Other areas where more legal clarity is generally required are market analysis, to ensure that the regulator has clear powers including enforcement of market remedies, consumer protection and universal service.
- **Sector organisation and governance**. There remains some form of state ownership in all Group C countries. Although all four countries have defined separate policy, ownership and regulatory functions, the strengthening of independence of the regulatory decision-making is needed generally to reduce overall legal/regulatory risk.
- **Market conditions for wired services** continue to improve in Group C countries although, notably, none have yet completed the transition to a general authorisation regime. Fixed number portability and fixed line retail tariff rebalancing has been implemented only in Morocco. Rights of way into public and private property should be strengthened generally, and the remaining competitive market safeguards need to be enforced, in particular infrastructure sharing and cost oriented wholesale charging based on modern cost models. Fixed-line retail tariff rebalancing has so far only been completed in Morocco.
- **Market conditions for wireless services**. Growth in mobile markets has been strong in Group C countries and market regulation is moving towards best practice. Mobile number portability has been implemented in Egypt and Morocco. The transition to more a market-led spectrum management regime needs to be accelerated to meet the growth of broadband. Spectrum authorisations are already technologically neutral and national roaming is in place (except in Tunisia), although provision needs to be made for spectrum re-farming and trading and for virtual mobile operators to enter the markets. Plans for the switch off of analogue broadcasting need to be finalised in order to provide valuable spectrum for broadband expansion, especially in rural areas.
- **Fees and taxation**. Special taxes are imposed in Egypt and Jordan. The situation is particularly complex in Jordan, where the overall burden on mobile operators includes revenue sharing and special taxes. Morocco and Tunisia use development fund contributions from the sector to finance infrastructure expansion.
- **Information society progress**. Good progress has been made in Group C countries in implementing the required information society safeguards. Egypt and Tunisia still need to implement adequate

cybercrime protections and Jordan has not yet liberalised domain name registration. Adequate data protection provisions appear in place in the Group C countries, except in Egypt.

Group D Countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia)

These countries have already adopted the best-practice legal and regulatory framework used to make this Assessment, as defined in section 2. Poland, Romania and Slovenia have yet to implement all the full provisions of the EU 2009 framework for electronic communications, but this process is expected to be completed during 2012.

Improving conditions for investment

The continuing high demand for broadband services will attract investment, provided that the enabling legal and regulatory frameworks provide the easy market entry and competitive safeguards now expected by investors, following the reforms introduced throughout the EU. The best practice legal and regulatory conditions are already in place in Croatia, which will join the EU in 2013. In total, 25 of the 31 countries assessed in this report have either adopted substantial components of the EU regulatory framework for electronic communications, or have committed through their agreements with the EU to its adoption. The remaining 6 countries (Kazakhstan, Kyrgyz Republic, Mongolia, Russia, Tajikistan and Turkmenistan) have implemented some reforms, but the overall legal/regulatory risk will remain higher in these countries until the best practices that are features of the EU framework are adopted. The speed at which a country adopts legal and regulatory best practice is critical to investment confidence.

The following features of the EU framework are a priority with respect to the attraction of investment, especially in building the high capacity network infrastructures required to meet the very high growth in broadband demand from consumers.

Spectrum liberalisation:

Key aspects of spectrum which the countries of the region should focus on are:

- Spectrum should be made available to meet demand, as determined by the market. To achieve this, spectrum management needs to be better coordinated across the telecommunications and broadcasting markets and the regulatory process needs to be independent, fair and transparent in order to ensure that the economic value of the national spectrum resource is optimised.
- At the moment, most countries use a legacy process of spectrum management, which is over-reliant on analogue technology methods and political considerations. The planned switchover from analogue to digital broadcasting is already underway. The analogue switch-off must be completed by mid-2015, at the latest, to comply with international obligations. In some cases (for example Croatia and Georgia) suitable spectrum for is already available but the necessary cross-border co-ordination will delay the exploitation for broadband expansion because the same frequencies are used for analogue broadcasting in neighbouring countries. In parallel with the digital switchover plans, spectrum management must be modernised, in order to ensure the best economic outcomes that are available from the “digital dividend” made possible by the release of the spectrum previously used by analogue terrestrial broadcasting.
- The release of this analogue broadcasting spectrum will make available a very large amount of valuable “digital dividend” spectrum that can be exploited by electronic communications providers to the expected growth in broadband services. If this challenge is met in all countries over the next 2-3 years, then the demands of rural, as well as urban citizens can be met with more cost-effective investment, giving better quality and value for money to consumers.

Infrastructure sharing

Since market liberalisation, new entrants have generally invested in separate telecommunications infrastructures to bring their services to local and national markets. In the mobile sector, each country has (typically) three network operators that have built three separate networks each with its own switches and transmission masts. There has been some exploitation by mobile companies of the existing network infrastructures generally controlled by the incumbent fixed operator. However, where these legacy networks have used older technologies, or where the network has insufficient capacity, the mobile companies have invested in their own dedicated transmission network infrastructures.

New entrants to the fixed access markets (telephony and broadband) have also generally built alternative network infrastructures, starting in the larger cities where the higher demand can justify these new investments. Although investors should have the freedom to invest in their own infrastructures, in many cases, the costs associated with this duplicative infrastructure deter investment, especially in areas where demand has yet to develop, or where the costs of building the infrastructure are currently high.

Overreliance on separate duplicative infrastructures (the "infrastructure competition" model) results in the expansion of modern services being generally slower and more expensive than necessary, due to the construction of redundant network infrastructure. This leaves many geographical areas underserved, because the investment case for separate infrastructures is not sufficient to create good market conditions. To ensure that network investment is more responsive to demand, operators should be allowed and encouraged to exploit infrastructure sharing options, to improve the commercial case. This issue will be particularly important in meeting the demand for new broadband services (fixed and mobile). The commercial case for multiple investments in urban areas is already strong, with high consumer and business demand. The commercial case for expansion of high capacity infrastructure to meet the demand in more rural areas is greatly improved when options for infrastructure sharing are considered,

Key aspects of infrastructure sharing which the countries of the region should focus on are:

- Modern digital technologies allow several channels to use the same infrastructure, for example the Asynchronous Digital Subscriber Line (ADSL) technology can provide two services over one copper loop. In many countries, the regulatory conditions have been slow to adapt to provide for new market entrants to share the existing infrastructures that are in place in order to give the end consumers a choice of retail service provider under fair competitive market conditions.
- Many of the barriers to infrastructure sharing have come from the incumbent fixed operators, with their legacy of monopoly markets often under state control. Although the building of separate network infrastructure investment may make commercial sense in high density urban areas, it becomes less attractive as the network expands. This results in poorer service and lack of choice for rural citizens.
- In most of the countries assessed, fixed network penetration has been historically low, so substantial investment in access technologies (both fixed and mobile) will now be needed to meet the demands from consumers for new services. Where demand will justify investment in only one high-capacity infrastructure, as in most rural areas, the need for infrastructure sharing is most pressing.
- In all parts of the network, a fully open and competitive market needs the option of infrastructure sharing, so that investors can make a free choice between making new investments or leasing capacity from other existing networks. In this way, the introduction of new services in a competitive market can take place faster, in response to demand. Regulators in the EU have introduced market oriented obligations on existing network operators to make their capacity available on a fair, transparent basis at wholesale charges that are related to incremental costs and acceptable rates of return.
- These standard regulatory tools can and should be introduced in countries outside the EU to create effective wholesale markets that can bring faster introduction of competitive broadband services, especially in rural areas. The new wave of next generation networks and access (NGN and NGA) investments will be maximised if the best practice infrastructure access and sharing regulations are implemented. This will result in more choice to consumers without the added expense of (for example) multiple radio masts and multiple fibre investments where they are not needed.

Special tax burdens on operators

The Assessment has identified examples where special taxes are imposed on the electronic communications sector. Special taxes are imposed on mobile operators in Egypt, Georgia, Hungary, Jordan, Moldova, Tunisia, Turkey, Tajikistan and Ukraine. According to the mobile operators, the imposition of high taxes affects their investment plans with indirect repercussions on the country's GDP. A recent Global Mobile Tax Review report[57] stated that;

57 http://serving.webgen.gsm.org/5926DA9A-2DD6-48E7-BAD4-50D4CD3AF30A/assets/taxreview0607.pdf

Conclusions from the Assessment

"High taxes on mobile services run counter to government's commitments to improving access to communications. At the World Summit on the Information Society in 2003, 175 countries signed up to a commitment to give more than half the world's population access to information and communications technologies by 2015.....the direct impact of reducing mobile phone specific taxation is, in most cases, almost fully counterbalanced through indirect taxation and growth impacts."

Special mobile tax measures have also been condemned by the GSM Association[58] and the European Commission. The GSMA report concluded that;

"In some cases, lowering taxes on mobile communications could actually increase government's total tax revenue in the longer-term. Each new mobile phone user would generate an additional US$25 a year in service tax revenues at the current levels of taxation on usage.

"Eliminating all telecom-specific and other special taxes would boost the number of mobile users in the 19 affected markets by 34 million by 2010 and mobile voice traffic in these markets by 25%.

"Of the 50 countries in the study, Turkey levies the highest rate of taxes on mobile communications - nearly 44% of the cost of owning and using a mobile phone is made up of taxes. That represents an average of US$73 in taxes each year for each user."

The imposition of special taxes remains a significant investment risk for investors in telecommunications.

Summary of key priorities for improvement of the investment climate:

- Full spectrum liberalisation
- Analogue to digital broadcasting switchover
- Non-discriminatory access to rights of way
- Removal of existing market entry barriers
- Implementation of the normally expected competitive safeguards (including number portability, infrastructure access and sharing)
- Removal of special tax burdens on operators.

58 see www.cellular-news.com/story/14210.php

6: RECOMMENDATIONS

The following recommendations arise from the Assessment, in particular the conclusions related to the need to adopt legal and regulatory best practices. These recommendations therefore aim to indicate specific measures which, when introduced, can to reduce the overall legal/regulatory risk associated with investments in the electronic communications sector.

[Note: Group D countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia) are member states of the European Union and have already adopted the legal and regulatory best practices used as a benchmark for this Assessment, as defined in section 2. The recommendations that follow therefore relate to the Group A, Group B and Group C countries only.]

Group A Countries (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan and Ukraine)

The revisions recommended in this region arise in part as a result of the legislative tradition and practices prevalent in the former Soviet Union (of which all of the countries of Group A were members – except Mongolia, which itself was influenced by Soviet legal practice) and the fact that the governments of many countries in the region still have substantial ownership interests in telecommunications operators and service providers.

Many Group A countries have a legislative framework built on general multi-sector legislation, typically including a general licensing law, administrative violations code, anti-monopoly law and other laws that apply in a similar fashion across many sectors. Key components of the electronic communications legislative framework, such as licensing (that under best practice would be incorporated into the electronic communications law) are often addressed in the more general legislation of these countries. This approach does not recognise the rapidly changing, competition-oriented and technology-focused needs of the modern electronic communications sector. A regulatory function with the multi-disciplinary legal, economic, financial and technical capacity to manage the sector is necessary to cope with the special complexities of electronic communications markets.

The reliance on multi-sector legislation also makes it difficult to amend legislation impacting the electronic communications sector, as the support of many different ministries and interests is required. While the specific amendments required to align with best practice differ for each country, the key characteristics that such legislative revision should be aimed at remains similar in most Group A countries (though note that Georgia and Moldova, in particular, have already implemented many of these practices).

The main reforms required are:

- Clearer separation of regulation, policy and operations functions. Market regulation with sufficient legal certainty requires legal, structural and financial independence for the sector regulator, including sufficient powers to enforce its decisions in the best interests of the market, working transparently with full market and public consultation.
- A firm legislative basis for the national regulatory authority to conduct regular analyses of the electronic communications markets, and impose obligations on operators with significant market power when the regulator identifies market failures out of that analysis, or to prevent competitive abuses. The regulator should have clear authority to require dominant operators to grant access to their networks and services under non-discriminatory, transparent and cost-oriented wholesale conditions. The regulatory emphasis should be to enable more competitive market conditions, so that market investment and retail tariff decisions are left to the market.
- Provision for transition from an individual licensing regime to a framework of general authorisation and notification, in order to reduce barriers to new entrants.
- Adequate provision for management and administration of rights of use for spectrum and numbering resources. The legal framework should allow for decisions to be made quickly, transparently, in a non-discriminatory manner to support investment in new technologies, which will particularly aid the roll-out of services in rural areas.
- Provisions ensuring that an adequate range of affordable basic services are available to all residents, including functional internet (via universal service obligations)
- To the extent possible within each country's legislative framework, laws impacting the electronic communications sector should be consolidated into one electronic communications law framework rather than in numerous multi-sector laws.

Recommendations

Group B countries (Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, Serbia and Turkey)

Albania, Croatia, FYR Macedonia and Turkey already align closely with legislative best practice for the electronic communications sector. Croatia has already fully adopted the EU 2009 regulatory framework for electronic communications and all other Group B countries are working towards its adoption.

Although Turkey has introduced a general authorisation scheme, it did not abolish some old concessions (authorisations and licences) held by existing operators until expiry (up to 2029), annulment or termination (though the Turkish regulator has committed to align them with EU requirements). Full transition to the new authorisation regime is required in order to create equal competitive conditions. In addition, Bosnia and Herzegovina still applies an individual licensing regime rather than the general authorisation framework.

Specific recommendations for amendment to the legal and regulatory frameworks in each country are given in the table at the end of this section.

Group C Countries (Egypt, Jordan, Morocco and Tunisia)

The Group C countries vary significantly in their legislative frameworks, in part due to the particular legislative customs, practices and traditions in each country. The democratic movements in the region have provided the impetus to reassess existing legislation in each country in an effort to increase openness and accountability. Backed by cooperation agreements with the EU, this has resulted in a move to align electronic communications sector more closely with the EU regulatory framework.

The main amendments required to the legislative regimes in the Group C countries focus on improving the independence of the national regulatory authority, moving from individual licensing regime to general authorisation, and promoting better market analysis and spectrum management.

- Each of the four Group C countries has a separate national regulatory authority, with some provision for independence, however substantial further strengthening is needed to ensure the full structural, financial and operational independence of those regulators.
- All four countries apply an individual licensing framework, with key elements of the regulatory framework typically included in the licence conditions, rather than in general regulations. A move to the general authorisation and notification regime associated with best practice would reduce barriers to new entrants. This would require the introduction of a simple notification scheme and a transition of existing licences to general authorisations, supported by the overall legal and regulatory framework.
- The regulators in all four countries are authorised to conduct market analysis. However, revisions are required to align with best practice. Where necessary, the regulator's powers need to be clarified and further guidance issued on processes to be used for the determination of significant market power and the specific remedies that may be applied to improve competition.
- While spectrum management frameworks in most of these countries meet many best practice requirements, strengthening of the legal provisions is required to guarantee that open, objective, transparent, non-discriminatory and proportionate procedures are used to grant rights of use for spectrum. Specific and short time deadlines should be used for deciding on applications for spectrum.

A summary of the main recommendations arising from this Assessment is given in the tables below.

Recommendation Table I gives priority recommendations on revisions to improve the legal framework in each country

Recommendation Table II gives priority recommendations to improve regulatory implementation in each country.

Recommendation table I: Summary of priority recommendations to improve the legal framework in each country

Group A Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
Armenia	Improve financial independence of sector regulator	Transition from individual licensing to general authorisation framework	Improve infrastructure access provisions	Impose SMP criteria instead of dominance. Clearer market analysis procedures. More meaningful fines	Provide for spectrum transfers, trading, refarming	More explicit and effective universal service provisions	Enhance consumer protection provisions to meet EU 2009 requirements	Require non-discrimination in allocation and assignment of numbers
Azerbaijan	Improve structural, financial and operational independence of sector regulator. Move towards the creation of a separate and independent regulator	Transition from individual licensing to general authorisation framework	Require Reference Interconnection and Unbundling Offers	Provide market analysis and remedies framework based on SMP. Transfer tariff function to sector regulator	Consolidate spectrum management function Require assignment of spectrum on competitive basis	Require that universal services be affordable	Enhance consumer protection provisions to meet EU 2009 requirements	Require non-discrimination in allocation and assignment of numbers
Georgia			Provide further support for rollout of fibre networks, particularly fibre backbones to rural areas (for example by ensuring better access to long distance infrastructure such as roads, power lines, etc.) and cross-border backbones		Harmonise spectrum management with EU Spectrum Decision 676/2002/EC). Provide full technology and service neutrality Provide that regulator examine existing spectrum licences to determine if can be made	Provide universal service framework. Authorise regulator to define scope, minimum quality criteria and designate universal service providers e.g. via public tender	Enhance consumer protection provisions to meet EU 2009 requirements	

Recommendations

Group A Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
					technology / service neutral. Legislation to achieve digital switchover.			
Kazakhstan	Move towards the creation of a separate and independent regulator	Transition from individual licensing to general authorisation framework	Provide more effective infrastructure access regime in practice.	Define clearer separation of responsibilities between regulator and Anti-Monopoly Agency Provide clearer authority for regulator to impose market remedies backed up by meaningful and proportionate fines	Clearly define terms of spectrum allocation and use. Shorten deadlines for decisions. Require open, objective, transparent, non-discriminatory, proportionate procedures for granting rights and setting fees	Identify which agency is responsible for implementation of a universal service programme. Expand definition of universal services and establish a fund.	Enhance consumer protection provisions	Provide clear requirement for numbering plan
Kyrgyz Republic	Improve structural, financial and operational independence of sector regulator.	Transition from individual licensing to general authorisation framework		Provide clearer definition of SMP and roles of regulator and competition agency. Provide regulator with exclusive power to set tariffs Stronger enforcement powers.	Clearly identify roles of regulator and other agencies regarding spectrum	Provide universal services framework	Enhance consumer protection provisions	Require updates to numbering plan.
Moldova	Improve independence of sector regulator	Eliminate conflicts between Law on	Improve infrastructure access		Better identify spectrum management		Enhance consumer protection	

Recommendations

Group A Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
		Regulation of Licensing Activity and Electronic Communications Act	requirements		roles of regulator and ministry Improve procedures for spectrum awards. Provide for spectrum trading		provisions to meet EU 2009 requirements	
Mongolia	Clearer provisions in law for structure and procedures of regulator	Transition from individual licensing to general authorisation framework	Enhance interconnection and access requirements. Provide Clear regulator power to determine conditions	Provide market analysis and remedies framework based on SMP. Provide general rights of appeal from regulator decisions	Clarify roles of authorities in spectrum management	Improve universal service framework by providing more detailed requirements, processes and compensation mechanisms within law	Enhance consumer protection provisions.	Provide in law for development of national numbering plan
Russia	Improve structural, financial and operational independence of sector regulator. Move towards the creation of a separate and independent regulator	Transition from individual licensing to general authorisation framework	Provide clearer framework and obligations to ensure infrastructure access and sharing	Provide authority to regulator to set tariffs for all services of SMP operators	Clearly separate roles of authorities in spectrum management. Require open, objective, transparent, non-discriminatory procedures for granting rights and setting fees	Clarify USO reimbursement mechanism	Enhance consumer protection provisions	Require open, objective, transparent, non-discriminatory, proportionate procedures for assignment and fees. Require that numbering plan be published
Tajikistan	Improve structural, financial and operational	Transition from individual licensing to	Provide effective infrastructure access framework.	Provide market analysis framework based	Provide clearly defined term of spectrum rights.	Establish formal universal	Enhance consumer protection	Require national numbering plan and adequate

Recommendations

Group A Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
	independence of sector regulator. Move towards the creation of a separate and independent regulator	general authorisation framework	Enhance Reference Offer requirements.	on SMP Authorise regulator to conduct market analysis and impose remedies on SMP operators. Provide meaningful penalties	Shorten deadline for spectrum decisions. Require open, objective, transparent, non-discriminatory, proportionate procedures for granting rights and setting fees	service framework with compensation for net costs of operator Designate agency responsible for implementation	provisions	numbers. Require open, objective, transparent, non-discriminatory, proportionate procedures for granting rights and setting fees
Turkmenistan	Improve structural, financial and operational independence of sector regulator. Move towards the creation of a separate and independent regulator	Transition from individual licensing to general authorisation framework	Provide framework to ensure infrastructure access and sharing	Provide market analysis framework based on SMP. Authorise regulator to conduct market analysis and impose remedies on SMP operators. Provide meaningful penalties.	Provide clearly defined term of spectrum rights. Shorten deadline for spectrum decisions. Require open, objective, transparent, non-discriminatory procedures for granting rights and setting fees	Establish formal universal service framework with compensation for net costs of operator Designate agency responsible for implementation	Enhance consumer protection provisions.	Require open, objective, transparent, non-discriminatory, proportionate procedures for granting rights and setting fees

Recommendations

Group A Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
Ukraine	Further Improve structural, financial and operational independence of sector regulator	Transition from individual licensing to general authorisation framework	Expand infrastructure access and sharing obligations Authorise regulator to impose accounting separation	Confirm regulator has full powers to impose all appropriate remedies on SMP operators. Ensure fines are meaningful	Eliminate potential overlap in agencies regarding spectrum management. Provide for spectrum transfers	Expand definition of universal services. Require open transparent procedure in selecting operators Clarify compensate-ion mechanism	Enhance consumer protection provisions to meet EU 2009 requirements	Explicitly require national numbering plan Require open, objective, transparent, non-discriminatory, proportionate procedures for granting rights and setting fees

Recommendation table I: Summary of priority recommendations to improve the legal framework in each country

Group B Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
Albania	Improve structural, financial and operational independence of sector regulator	Remove last exceptions (cable operators)	Enhance legal framework for access to infrastructure (in particular roads), abolish exclusive rights for such access	Strengthen independence of the regulator in market analysis	Strengthen independence of the regulator Align spectrum policy fully with EU policy		Enhance consumer protection provisions to meet EU 2009 framework	
Bosnia and Herzegovina	Improve structural, financial and operational independence of sector regulator	Transition from individual licensing to general authorisation framework			Introduce comprehensive legislative regime for spectrum management, including requirement that spectrum be assigned on competitive basis	Provide comprehens-ive universal service framework	Enhance consumer protection provisions to meet EU 2009 framework	Require open, objective, transparent, non-discriminatory, proportionate procedures. Reduce deadline for number portability
Croatia				Authorise regulator to impose meaningful penalties				Reduce deadline for issuing numbers
FYR Macedonia	Review fee structure and provisions on sanctions		Enhance legal framework for access to infrastructure, in particular roads		Fully align spectrum policy with EU policy Review spectrum fees		Fully align legislation with EU 2009 framework	

Recommendations

Group B Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
Montenegro	Improve structural, financial and operational independence of sector regulator			Consolidate monitoring and enforcement authorities and transfer to regulator Authorise regulator to impose meaningful penalties	Consolidate spectrum management function and transfer to regulator		Fully align consumer protection provisions with 2009 EU framework	Fully align numbering with 2009 EU framework. Reduce deadline for number portability
Serbia	Improve structural, financial and operational independence of sector regulator			Consolidate monitoring and enforcement authorities and transfer to regulator Authorise regulator to impose meaningful penalties	Consolidate spectrum management function and transfer to regulator	Improve universal service framework, in particular for operator appointment and reimbursement of costs	Enhance consumer protection provisions, in particular for long term contracts and termination by operator	Fully align with 2009 EU framework
Turkey	Enhance regulator independence, including budget mechanisms	Concession agreements issued before 2008 telecom law remain in force until expiry (due in 2029), annulment or termination (though regulator has committed to align with EU requirements)			Eliminate uncertainty regarding potential ministry role in initiating spectrum tenders Specifically require open, objective, transparent, non-discriminatory procedures for		Adopt the draft law on electronic commerce	Shorten deadlines for number assignments

Group B Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
					granting spectrum rights and setting fees Shorten deadlines for spectrum assignments			

Recommendation table I: Summary of priority recommendations to improve the legal framework in each country

Group C Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
Egypt	Improve structural, financial and operational independence of sector regulator	Transition from individual licensing to general authorisation framework	Require that access prices must be based on cost plus reasonable return. Require Reference Access Offer and that collocation is included in RIO. Ensure that obligation to provide access requires that real access be provided	Enhance market analysis framework by imposing SMP criteria. Directly provide regulator with power to impose additional obligations on SMP operators (not just via licence conditions). Clearly provide for regulator's power to set tariffs. Ensure regulator has full power to set tariffs for all SMP services. Provide for meaningful and proportionate fines	Eliminate overlap between agencies in spectrum management. Shorten deadline for spectrum assignment	Require that regulator calculates net cost of universal service and decides whether if this imposes unfair burden on operators	Enhance consumer protection provisions. Adopt draft data protection and security law	Shorten deadline for number assignments
Jordan	Improve structural, financial and operational independence of sector regulator. Include more detail in law. Regulator is currently "answerable" to Minister and not an independent institution per constitution.	Transition from individual licensing to general authorisation framework	Expand definition of access	Include regulator's market analysis powers directly in telecom law, not just licence conditions. Improve regulator's enforcement powers. Provide for meaningful and proportionate fines. Require that	Require open, objective, transparent, non-discriminatory, proportionate procedures for granting spectrum rights and setting fees	Expand definition of universal services. Ensure tariff is affordable. Explicitly provide for compensate-ion to operator for net cost if it represents unfair burden	Enhance consumer protection and data protection provisions	

Group C Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
	Authorise regulator to adopt own bylaw for hiring, employment, compensation and equipment, instead of being subject to civil service laws. Limit budget review process			prices also include reasonable return on investment (in addition to existing cost – based requirement)				
Morocco	Ensure independence of executive appointments and dismissals. Eliminate requirement for Minister approval of regulator decrees. Regulatory decisions should be made by collegial body. Adopt the comprehensive amendments already drafted by regulator to better align Law 24/96 with best practice, particularly with respect to market analysis, rights of way, infrastructure access, national roaming, enhanced consumer protections,	Transition from individual licensing to general authorisation framework	Provide more detailed market analysis framework and guidance in the law Require operators to provide reference offers for infrastructure access Authorise regulator to resolve disputes Provide procedures in law to obtain rights of way. Provide for national roaming	Provide clear power to regulator to set tariffs for all services in which operator found to have SMP. Tariffs must be transparent and non-discriminatory. Provide power to impose graduated penalties. Introduce graduated meaningful sanctions	Confirm that open, objective, transparent, non-discriminatory, proportionate procedures must be used to grant spectrum rights and set fees Shorten deadlines for spectrum assignments. Provide deadlines for spectrum assignments and term of allocation	Define specific minimum services included in universal service package		Require adequate numbers for all services

Group C Countries	Regulator independence and structure	Authorisation regime	Interconnection and infrastructure access	Market analysis and enforcement	Spectrum management	Universal service	Consumer protection	Numbering
	meaningful sanctions.							
Tunisia	Improve structural, financial and operational independence of sector regulator. Adopt new comprehensive updated telecom law to eliminate conflicting provisions of various existing laws applicable to the sector. Provide regulator with full breadth of regulatory powers (including in licensing, spectrum administration, universal service, clearer power to adopt regulations).	Transition from individual licensing to general authorisation framework	Limit requirement for reference offers to SMP operators	Provide definition of SMP and guidance for conduct of market analysis Limit remedies so that they may be imposed only on SMP operators Authorise regulator to impose meaningful and proportionate fines	Provide role for regulator in spectrum administration	Provide role for regulator in universal service administration. Provide guidance for selection of operators. Provide for compensate-ion to operators based on net cost, if represents unfair burden	Enhance consumer protection, ideally through direct provisions in the law (currently many provisions are in licenses)	

Recommendation Table II: Summary of priority recommendations to improve regulatory implementation in each country

Group A Countries	Sector organisation and governance	Market conditions for wired services	Market conditions for wireless services	Fees and taxation	Information society safeguards
Armenia		Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability. Allow national roaming and MVNOs	Introduce funding mechanism to support universal broadband	
Azerbaijan	Move towards the creation of a separate and independent regulatory agency Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing.	Implement mobile number portability	Introduce system of administrative fees Introduce funding mechanism to support universal broadband	
Georgia	Build cooperation with newly established competition agency	Improve rights of way Complete tariff rebalancing	Implement further spectrum liberalisation measures including re-farming	Remove special tax on mobile services Introduce funding mechanism to support universal broadband	Liberalise internet domain name registration

Recommendations

Group A Countries	Sector organisation and governance	Market conditions for wired services	Market conditions for wireless services	Fees and taxation	Information society safeguards
Kazakhstan	Move towards the creation of a separate and independent regulatory agency Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability Apply cost-based interconnection charges Allow national roaming and MVNOs	Introduce system of administrative fees Introduce funding mechanism to support universal broadband	Further liberalise internet service provision Protection against cybercrime
Kyrgyz Republic	Move towards the creation of a separate and independent regulatory agency Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability Apply cost-based interconnection charges Allow national roaming and MVNOs	Introduce system of administrative fees Introduce funding mechanism to support universal broadband	Further liberalise internet service provision Liberalise internet domain name registration Protection against cybercrime
Moldova	Reduce state ownership	Implement fixed number portability Improve rights of way Complete tariff rebalancing	Implement mobile number portability Allow national roaming	Remove special tax on mobile services Introduce funding mechanism to support universal broadband	Liberalise internet domain name registration

Recommendations

Group A Countries	Sector organisation and governance	Market conditions for wired services	Market conditions for wireless services	Fees and taxation	Information society safeguards
Mongolia	Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability Allow national roaming and MVNOs		Further liberalise internet service provision Introduce electronic signatures Liberalise internet domain name registration Protection against cybercrime
Russia	Move towards the creation of a separate and independent regulatory agency Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability	Introduce system of administrative fees Introduce funding mechanism to support universal broadband	Further liberalise internet service provision Protection against cybercrime
Tajikistan	Move towards the creation of a separate and independent regulatory agency Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability Allow national roaming	Introduce system of administrative fees Remove special tax on mobile services Introduce funding mechanism to support universal broadband	Further liberalise internet service provision Protection against cybercrime
Turkmenistan	Move towards the creation of a separate and independent	Encourage new entrants into fixed markets	Issue new licences for competitive mobile operators	Remove special tax on mobile services	Liberalise internet service provision. Protect against

Recommendations

Group A Countries	Sector organisation and governance	Market conditions for wired services	Market conditions for wireless services	Fees and taxation	Information society safeguards
	regulatory agency Reduce state ownership	Extend licensing periods to at least 10 years Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Extend licensing periods to at least 10 years Implement mobile number portability Allow national roaming and MVNOs Implement cost-based interconnection charges	Introduce funding mechanism to support universal broadband	cybercrime Introduce electronic signatures Liberalise internet domain name registration
Ukraine	Further increase independence of regulatory agency	Introduce simple notification scheme and implement transition arrangements for existing licences Implement fixed number portability Implement all normally expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability Allow national roaming and MVNOs Further develop regulatory cost models to set cost-based interconnection charges	Introduce system of administrative fees Remove special tax on mobile services Introduce funding mechanism to support universal broadband	

Recommendation Table II: Summary of priority recommendations to improve regulatory implementation in each country

Group B Countries	Sector organisation and governance	Market conditions for wired services	Market conditions for wireless services	Fees and taxation	Information society safeguards
Albania	Reduce state ownership	Implement fixed number portability Implement all remaining competitive safeguards Improve rights of way Complete tariff rebalancing	Ensure independent decision making on spectrum liberalisation	Introduce funding mechanism to support universal broadband	Liberalise domain name registration
Bosnia and Herzegovina	Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Implement all remaining expected competitive safeguards Improve rights of way Complete tariff rebalancing	Implement mobile number portability		
Croatia		Improve rights of way Complete tariff rebalancing		Remove special taxes	
FYR Macedonia	Reduce state ownership	Improve rights of way Complete tariff rebalancing			Liberalise domain name registration
Montenegro		Improve rights of way Complete tariff rebalancing			
Serbia	Reduce state ownership	Implement fixed number portability Implement all remaining competitive safeguards Improve rights of way Complete tariff rebalancing		Introduce system of administrative fees Introduce funding mechanism to support universal broadband	

Recommendations

Group B Countries	Sector organisation and governance	Market conditions for wired services	Market conditions for wireless services	Fees and taxation	Information society safeguards
Turkey	Reduce state ownership	Implement all remaining competitive safeguards Improve rights of way Complete tariff rebalancing	Allow MVNOs	Introduce system of administrative fees Remove special taxes Introduce funding mechanism to support universal broadband	Further liberalise internet service provision

Recommendation Table II: Summary of priority recommendations to improve regulatory implementation in each country

Group C Countries	Sector organisation and governance	Market conditions for wired services	Market conditions for wireless services	Fees and taxation	Information society safeguards
Egypt	Reduce state ownership Establish clear division of responsibilities between regulator and ministry Regulator to adopt the draft regulations to clarify criteria and procedures for market analysis	Implement fixed number portability Introduce simple notification scheme and implement transition arrangements for existing licences Improve access to rights of way. Implement remaining competitive safeguards Complete tariff rebalancing	Allow MVNOs	Remove special tax on mobile services Introduce funding mechanism to support universal broadband	Introduce electronic signatures Provide data protection Protect against cybercrime.
Jordan		Implement fixed number portability Introduce simple notification scheme and implement transition arrangements for existing licences Implement remaining competitive safeguards Complete tariff rebalancing	Implement mobile number portability	Remove special taxes Introduce funding mechanism to support universal broadband	Further liberalise internet service provision
Morocco	Reduce state ownership	Introduce simple notification scheme and implement transition arrangements for existing licences Improve access to rights of way	Allow MVNOs		Protect against cybercrime
Tunisia	Reduce state ownership	Implement fixed number portability Introduce simple notification scheme and implement transition arrangements for existing licences Complete tariff rebalancing	Implement mobile number portability Allow national roaming and MVNOs	Adopt definition of universal service obligation and services and determine tariffs for these services	

APPENDIX

EBRD Regional Electronic Communications Conference, Amman, Jordan, 26th-27th September 2012

Conference background

Since the foundation of the EBRD in 1991, the electronic communication sector has been a key constituent of its portfolio. As both a significant investor and provider of technical assistance in the sector, the EBRD is an avid observer of the status and development of the electronic communications markets throughout its countries of operation. On the investment side, the EBRD assesses the legal and regulatory risks inherent in each country. While on the reform side, the Bank measures the effectiveness of its technical co-operation programmes and uses this to plan its technical cooperation efforts in the future.

The Bank last completed an assessment of the electronic communications sector in its countries of operations in 2008, leading to the publication of its December 2008 report "Comparative Assessment of the Telecommunications Sector in the Transition Economies[59]". This was presented at the 1st EBRD Regional conference in Tbilisi, Georgia in May 2009. For its 2012 Assessment, presented at the Amman conference in September 2012, four new countries have been added - Egypt, Jordan, Morocco and Tunisia - the four newest potential recipient countries of EBRD. This Amman Conference was hosted jointly with Jordan's Telecommunications Regulatory Commission (TRC).

The 31 countries of this 2012 EBRD assessment are Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Egypt, Estonia, FYR Macedonia, Georgia, Hungary, Jordan, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Morocco, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Tunisia, Turkey, Turkmenistan and Ukraine.

Conference proceedings

The conference presentations and accompanying report provide a comprehensive analysis and assessment of the level of compliance of the electronic communications legal and regulatory regime in each of EBRD's countries. The comparative assessment is based upon relevant benchmarks, including the WTO reference paper and the implementation of the EU legal and regulatory frame framework for electronic communications. The results are intended to assist investors in judging the legal and regulatory risks associated with the electronic communications markets in each of the 31 countries.

A key feature of the conference was a set of discussions involving panels of experts from the sector within the countries assessed. Each panel followed presentations and case studies by sector experts on each issue. Six panel discussions were held during the conference, where the key issues facing existing and new investors in the electronic communications market were debated. All the participants to the conference were involved through questioning of the panels. Representatives from sector regulators, ministries, investors and operators from a number of countries participated in each of the panels in order to ensure the many perspectives on each issue were addressed.

The six panel discussions highlighted key challenges facing the sector, specifically:

- Why invest in the sector?
- What are the barriers to investment
- How is broadband demand best satisfied?
- Optimisation of infrastructure investment?
- How is spectrum management optimised?
- What are the required policy and regulatory responses?

A further key objective of the EBRD conference was to provide a venue for sector ministries, regulators and investors from these important regions to meet informally to discuss and compare progress and solutions to address sector challenges and attract further investment.

59 http://www.ebrd.com/downloads/legal/telecomms/report.pdf

Who attended the conference?

Representatives from the sector in each country were invited to attend, including investors in the sector, plus the responsible ministries and regulatory agencies in each country. In addition representatives from the EBRD and the European Commission attended plus international consultants Premiere Dynamics, Great Village International Consultants and Cullen International plus other sector specialists. A total of 84 persons attended from 24 countries.

Date and venue

The conference took place at the Amman Marriott Hotel, Jordan on 26th and 27th September 2012.

Summary of the conference and panel discussions

Why invest in the electronic communications sector?

The first panel focused on the changing demand profile for services within the sector. Market demand is characterised by a decline in traditional voice services and the now significant growth in data services. Data growth is driven by broadband-enabled services including higher speed internet access, mobile broadband growth using smartphones, the explosion of social networking, the growth of digital broadcasting and interactive video services.

Customer demand for fixed broadband connections has started to replace traditional fixed network services in many countries, especially where there are competitive retail offerings including “multiple play” broadband bundles. Multiple play service bundles allow consumers to access voice, internet and broadcast services flexibly and within a transparent pricing structure. Mobile broadband is experiencing particularly high demand, adding significantly to data traffic growth. The overall growth picture is driven not just by the rapid addition of new fixed and mobile broadband subscribers, but also by their use of substantially higher data speeds to support the vast array of new internet-based applications. 8Mbps is already seen as a basic service offering and many consumers now demand very high speed services from 30Mbps to 100Mbps.

The presentation on “Investor perspectives” by Dr Gary Healy (Telefónica Ireland) showed how the competitive market is achieving results, even in a challenging macro-economic environment. He also illustrated how good co-ordination at all levels of policy, regulation and local government can work to provide modern competitive broadband services to rural areas. In particular, Dr Healy highlighted how policy, legislative and regulatory measures can reduce the cost of rolling out national broadband infrastructure. These measures include:

- Development of a national infrastructure database available to existing and new operators.
- Easier procedures to obtain rights of way.
- Requirements for infrastructure access and sharing to avoid duplicative investments.
- Standardisation of technologies and more flexible market-based management of spectrum.

The overall macro-economic climate is still uncertain, with economic and political stability affecting the overall investment climate generally. During the last decade, the electronic communications sector has become saturated with high penetration levels of mobile voice services compensating for the historically limited penetration of basic fixed lines, particularly in transitional economies. The market is now changing significantly into one of strong broadband services growth, leading to new investment models dominated by higher data access speeds and flexible consumer offerings. Traditional voice revenues (fixed and mobile) are now declining in most countries. The new investment challenge is to satisfy a wider range of competitive market demands characterised by converging voice, internet and broadcasting services. These are being delivered over both fixed and mobile broadband platforms based on next generation networks and access.

When considering the new investment needed to meet the high growth of broadband services, the investors now assess the effectiveness of the competitive market. Relevant factors include the strengths and weaknesses of the existing players and the geographical spread of urban and rural infrastructure. In addition, the policy, legal and regulatory framework relating to the investment conditions in meeting broadband growth are now critical in the overall investment decision processes.

Investors believe that the European Union has clear advantages as an investment region compared to other regions – there is a clear EU information society policy with a transparent regulatory framework

providing high levels of legal and regulatory certainty. Existing infrastructure is generally available for newer market entrants to share on a wholesale basis (for example through unbundled local copper loops and unbundled fibre access, leased lines, wholesale broadband access and passive infrastructure sharing).

The first panel focussed on the key policy, legal and regulatory enablers. The required investment conditions include:

- Good policy environment in the country, with positive approach to the information society.
- An enabling approach to infrastructure investment, an open competitive market with best-practice regulation, plus availability of spectrum on an open, transparent and non-discriminatory basis.

If these enabling conditions are not yet in place, the strong demand for broadband services (fixed and mobile) will remain unmet in many countries, particularly outside the main urban centres.

The first panel also noted that:

- Investment will be led by Next Generation Networks (NGN) and Next Generation Access (NGA) including optical fibre and spectrum Long Term Evolution (4G/LTE) technologies.
- Both the demand and supply sides will be driven by the convergence of voice, internet and broadcast services, as well as the convergence of the networks built to deliver those services.
- Operators face the challenge of developing new business models to capture part of the value created by content, rather than just relying on supplying high-speed networks.

The planned switchover from analogue to digital broadcasting has already happened in some countries and all countries are planning to complete the analogue broadcasting switch-off by mid-2015.

Spectrum management models must evolve to ensure that the "digital dividend" resulting from the changeover from analogue to digital technologies is exploited for commercial and economic optimisation, rather than to achieve the narrower objectives of the existing legacy spectrum management models.

What are the barriers to investment?

The second panel accepted that demand for modern electronic communications services is generally strong, although in some countries there is a need to stimulate demand for broadband services due to lack of awareness of the benefits of these services.

The presentation on "EU information society policy and implementation" by Petri Koistinen (from the European Commission Directorate-General for Electronic Communications Networks, Content and Technology) highlighted how the EU's clear policy objectives and harmonised legal and regulatory framework have reduced barriers to investment and are leading to very high levels of information society services in the EU. Mr Koistinen reviewed the main components of the EU framework and explained how these supported competition, investment and improvements in service choice and prices for consumers.

The EU is seen as an enabling framework with good legal and regulatory certainty, so demand for broadband services is (generally) being satisfied in the EU. Investors can enter markets without bureaucratic hurdles and the competitive market conditions are generally fair, with predictable and reliable regulatory rules that remove the distortions of incumbent operators having significant market power. In countries that have not adopted the EU legal and regulatory framework, there remain structural barriers to entry, including:

- Lack of legal and regulatory certainty.
- Unnecessarily bureaucratic licensing.
- Legacy spectrum management procedures that hold back the release of spectrum for growth
- Abuse of market power by incumbents.
- Lack of access to existing infrastructure which forces new entrants to invest in unnecessary and duplicative infrastructure, rather than getting new services to market quickly.

Outside the EU, the level of legal and regulatory risk facing investors varies considerably from country to country. This is largely because of the reluctance by policy makers and regulators to adopt best practice.

It is within regulators' power to remove market barriers and reduce investment risk, thereby supporting increased investment, more consumer choice and more rapid roll out of modern services across the country. Specific barriers mentioned during the panel discussion were:

- The high level and unpredictability of the taxation regime in every form (licence fees, spectrum fees, revenue sharing).
- Cumbersome procedures for obtaining rights of way over public and private property.
- Lack of legal and regulatory certainty, for example the decisions of ministries and regulatory agencies (including competition law authorities) are still susceptible to change due to political or vested interests (such as state ownership of operators).
- Lack of available spectrum for commercial.
- There are still unnecessary bureaucratic licencing regimes in place.

How is broadband demand best satisfied?

The third panel agreed that the majority of investment in today's networks must be private investment, driven by market demand. The state has an important role in bringing modern services to all citizens and therefore needs to promote enabling policies backed up by state support (including state funding where necessary to accelerate private sector investment).

Investment in a national high-speed infrastructure is a vital enabler to meeting broadband demand. Unless there is investment, there is a danger that existing networks will run out of capacity and not be able to meet demand from broadband users (fixed and mobile). The EU model is attractive because there is a joined-up policy and regulatory framework, backed up by state aid for infrastructure projects that accelerates investment into rural areas without unduly distorting or replacing private competitive investment.

The demand gap evidence is powerful. In the EU, around 72% of citizen use the internet regularly and 71% are served by broadband services, so the demand gap is negligible. In almost all other countries, however, the number of internet users is significantly higher than the supply of broadband, giving rise to a substantial demand gap and an opportunity to invest and plug the gap.

Demand is generally being met in urban areas by the competitive market. But there remain significant shortfalls in infrastructure roll-out into rural areas. This is because the level of required investment is high compared with the returns, as the demand is more distributed and the physical investment conditions are often more challenging than in urban areas. Therefore the problem of meeting broadband demand is largely a rural problem. The problem is being solved in the EU by allowing new entrants to use existing infrastructures and by large scale investments in fibre backbone networks that reach the more remote areas, assisted by state-aid where necessary. Investment efficiency is therefore higher in the EU, with its greater legal certainty and enabling policy and regulatory framework.

As the Poland Case Study "Accelerating broadband investment" confirms, state intervention can accelerate infrastructure development into rural areas by using an effective wholesale model without unduly distorting the competitive market at the retail level for consumers.

The presentation by Marko Čavlović (from the Croatian Post and Electronic Communications Agency) showed how regulators can improve the effectiveness of the competitive market to supply "multi-play" broadband services.

Specific points noted in this panel discussion were:

- Operators tend to underestimate the forecast growth in broadband demand and data traffic.
- Demand stimulation is needed, particularly in rural areas. At the moment, many citizens claim not to need broadband access.
- There is a lack of local content in many countries.

Optimisation of infrastructure investments

There is an emerging understanding that competing operators need to accept more co-operative models of infrastructure investment than have been adopted during the previous wave of investment. During the mobile market boom of the last 10 years, competing operators built their own separate infrastructures, fulfilling their drive for geographical coverage by erecting separate masts networked with separate back-haul and national infrastructures. This has been wasteful in investment terms, resulting in duplicative infrastructures. The additional money invested in unnecessary separate infrastructures could have been saved (leading to lower tariffs) or redistributed (leading to greater coverage).

Faced with the challenge of significant new investments to meet the large growth in broadband and data traffic demands, the operators have to find new models that do not waste investment. These models will be facilitated by changes in national supporting policies and regulatory frameworks to enable infrastructure sharing on a fair, transparent basis using modern costing methods to regulate wholesale charges. This will encourage joint use of infrastructure, providing better options for new entrants and reasonable rates of return for incumbents.

The scope for infrastructure sharing should include both active and passive infrastructure elements. Wholesale leased lines, copper and fibre unbundling, ducts, masts, buildings, street cabinets, poles and power plant sharing are all possible and already working effectively to optimise infrastructure investment in the EU. Active sharing such as radio access network (RAN) sharing and spectrum sharing, while not yet widely used, hold the potential for even further cost savings for operators.

Changes to operator behaviour are necessary, for example more co-operation on joint investments, on co-ordination with other services, for example joint trenching with water, electricity and road construction schemes.

Operators' shareholders and board members need to examine the case for developing wholesale services ("carriers' carrier" services) to improve overall returns in a competitive market. Mature incumbents in the EU have had to learn this lesson as a response to competition. Incumbent operators in other countries need to examine the commercial case for serving wholesale as well as retail customers in order to increase profits.

As discussed above, supportive national efforts to reduce the cost of infrastructure investment through appropriate policy, legislation and regulation, including development of a national infrastructure database and easier procedures to obtain rights of way.

The presentations on "Broadband markets; services and next generation infrastructure" and on "Co-operative models, infrastructure access, sharing and joint construction" by sector analysts Will Burnfield (of Great Village International Consultants) and Peter Lundy (of Premiere Dynamics) showed the emerging technologies and investment models will be used to satisfy broadband demand. With around 70% of investment costs taken up in physical construction (trenching, ducting and engineering costs) it makes strong commercial sense to optimise investment through joint co-operation with other investors. These presentations also highlighted the critical contribution that broadband penetration and broadband speeds make to increasing national GDP, productivity and jobs.

As Peter Lundy's presentation showed, mature incumbents such as British Telecommunications have responded to competitive markets by supplying highly effective wholesale services to their competitors. These wholesale services typically generate higher financial returns than their retail services. Incumbent operators in developing markets should study the experience from their more mature counterparts in the EU and consider changing their business models to fit the challenges of modern competitive markets.

The specific points noted in the panel discussion were:

- Faced with growing pressure on profit margins, telecommunications operators around the world are looking at possible network sharing agreements.
- More work is needed on a better understanding of the obstacles to such agreements (for example tax law).
- Advanced forms of network sharing that go beyond the sharing of passive elements, such as frequency pooling, and these may require a review of current competition law.

Optimisation of spectrum policy

The fifth panel discussion focussed on the modern approaches to spectrum management that are required to meet the changing needs of a converged and global electronic communications market. The modern approach involves:

Modern technology such as Dynamic Spectrum Access can exploit the spectrum in more ways, with more flexibility, and better capacity to serve consumers' more demanding needs.

Spectrum management should move more rapidly from administrative allocations and assignments in order to take full account of the need to optimise the economic use of a scarce resource, based on market demand for services, and not simply focus on technical optimisation.

More spectrum (or change of spectrum use) is required to enable the benefits of new technology to reach rural areas cost effectively.

Governments and regulators should not create artificial shortages – for example by holding back the release of spectrum in order to raise short-term auction revenues or continue inefficient use of spectrum by national defence and security authorities.

If spectrum is available it should be released on the market rapidly to be exploited by investors to improve economic usage, in a technologically neutral way.

The changeover from analogue to digital broadcasting will provide a valuable "digital dividend" for commercial exploitation in the telecoms sector. This opportunity must not be artificially delayed by political factors such as the government ownership of broadcasting interests.

Broadcasting spectrum and telecommunications spectrum need to be more closely co-ordinated

The presentation on "Spectrum liberalisation" by Will Burnfield (sector analyst from Great Village International Consultants) and the "Finland Case Study" presentation by Antti Kohtala (from the Ministry of Transport and Communications in Finland) highlighted the fact that spectrum demand is increasing exponentially, giving rise to the potential for spectrum deficits in some countries. Technology advances and best practice regulation can avoid spectrum deficits and ensure sufficient spectrum available to support broadband roll out.

Advanced spectrum management in countries like Finland is already making high speed broadband universally available to all citizens, bridging the urban/ rural digital divide.

Specific points noted in the panel discussion were:

- Technology neutrality and the re-farming of spectrum are principles universally agreed but their implementation is delayed by regulation and by technical constraints (for example availability of handsets).
- There is too often an inconsistency between the stated objectives of policy (rural coverage and universal service) and the terms of auctions (for example the maximisation of revenue for the treasury).

Required policy/regulatory responses

The final panel focused on the required responses from policy makers and regulators. By the time of this panel session, many of the conference participants had reached a common view on objectives as follows:

- Clear information society policy, regulation and state-support (for example the EU model).
- Best practice regulations for better competitive markets in the form of easier market entry, good competitive safeguards and access to available infrastructure.
- More spectrum to be made available to bring the benefits of new technology to rural areas more cost effectively.
- More co-operation within the sector (and between the sector and other utilities) to reduce the overall cost of expanding modern infrastructure into rural areas (co-operative investment models).

The specific points made by the final panel were:

- Countries need to establish policy objectives clearly and set their priorities accordingly. These priorities should be set in a published national plan with measurable targets.
- Such a plan should be developed in a dialogue between authorities, civil society and industry.
- Regulatory decisions should be taken according this plan to provide more certainty for investors.
- Regulators should be fully independent structurally, operationally and financially.

Extracts from national newspaper coverage of the conference

"During the Conference, which was opened by the Chairman of the Telecommunications Regulatory Commission, Engineer Mohammad Al Taani, presentations were given by key analysts and advisers from the sector of electronic communications in addition to interactive sessions held by a group of specialists. These sessions dealt with many of the key issues aimed at providing opportunities for investment in the sector of Information and Communications Technology.

Delegates emphasised the importance of the electronic communications sector and the information society and its role in advancing economic and social development. The Conference also highlighted the importance of investment in network infrastructure to support digital information society and to preserve the continuity of the flow of information to all citizens.

The Conference emphasised the importance of a competitive environment in the market to attract more investments and improve the quality of services provided. It also stressed the importance of policies and supportive legal and regulatory frameworks that do not hinder current and new investors.

The European Bank for Reconstruction and Development presented to the Conference an assessment of key sector indicators and benchmarks of compliance with international standards of best practice. The full results of this assessment will soon be available on the EBRD's website www.ebrd.com.

EBRD was founded in 1991 to foster transition from centrally planned to free market economies, investing across 29 countries from central Europe to central Asia. It is owned by 63 countries, including countries of operations, and two intergovernmental institutions.

In 2011 in the wake of historic changes sweeping across the Middle East and North Africa and in response to calls from the international community and from emerging Arab democracies themselves, the EBRD's shareholders gave unanimous backing to the expansion of the Bank's mandate, allowing future activities in the southern and eastern Mediterranean (SEMED) region – Egypt, Jordan, Morocco and Tunisia. The EBRD will apply over 20 years of experience that it has built up supporting the process of economic and democratic change in Eastern Europe. The first EBRD investments in Jordan, Tunisia and Morocco were approved earlier this month."

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