

Chapter 16

LUXEMBOURG

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I INTRODUCTION

The Luxembourg TMT sector has evolved from being predominantly a provider of voice services into a diverse, competitive and interconnected industry using terrestrial, satellite and wireless transmission systems.

Traditionally the sector was limited to very few players. Telecommunication and postal services were operated over several decades as a public monopoly of the state-owned *Entreprise des Postes et Telecommunications* ("EPT"). The radio and television sector was controlled and developed from its early years by a privately owned company. Indeed, the first radio broadcasting in Luxembourg was initiated by the founders of the current broadcaster CLT-UFA. The privately held operator ensured a leading role in the national and international development of the radio and television sector and today ranks as the top television and radio broadcaster in Europe. Luxembourg has also been a pioneer in non-terrestrial communication technology. SES-Astra, a Luxembourg-based company created in 1985, was Europe's first private satellite operator and now has global standing.

The presence of certain important market players in the TMT sector in Luxembourg and the related know-how and experience has led the Luxembourg government to make efforts to maintain, create and further develop its electronic telecommunication technologies with the aim of being among the best places in Europe and abroad to do business within the sector.

Luxembourg combines certain features that are beneficial to the development of a local ICT sector, including the diversity and multilingual skills of the population and workforce, a geographical location within the heart of Europe and the importance of a financial industry in need of highly performing communication technologies. In addition, Luxembourg has gradually developed an excellent infrastructure, international

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telecommunication connections, efficient national communication networks, data centres and an IT services industry, which all contribute to Luxembourg's increasing attractiveness to technology organisations and electronic communication services, but also to financial institutions and other businesses.

The government follows a markedly pro-business policy and is keen to further develop the TMT sector in line with the major industry trends. Luxembourg is very present at European-level discussions and negotiations and stout in its defence of its position in the global process of harmonisation and liberalisation, while supporting the direction of European regulation. At a national level, research and development in the ICT¹ sector is conducted by certain government-promoted institutions.²

In developing its communication networks in the context of the investment realities and opportunities in the telecoms and media sector, the challenge is to direct investment in a way that ensures that the right type of network is built and that public investment works in cooperation with the private sector so as to promote a more competitive telecoms environment. The government has also been very active in negotiating and defending the interests of Luxembourg in the adoption process of the new Telecoms Package to be implemented through Directives 2009/140/CE of 25 November 2009 and 2009/136/CE of 25 November 2009 ('the New Regulatory Framework').

The development of the information society is one of the current key priorities of the government. In addition to the aforementioned policies, it has created an action plan called 'e-Luxembourg' with the ultimate goal that Luxembourg administrations, corporations, education personnel and individuals may efficiently use and have access to electronic communication means and to help improve their quality of the life. At present many filings, registrations, requests to public administrations such as tax, social security and energy sector can be made online.

Convergence has been achieved by creating rules and regulations, regulatory authorities, consulting entities at national, European and international level, which embrace the diversity, interconnectivity and interrelatedness of the various industries. The *Paquet Telecom* has opened this route and the New Regulatory Framework is pushing forward toward that aim.³ The increasing convergence between telecommunications, information technology and media has called for further adjustment of the current legislation and regulations, which led to the adoption of the New Regulatory Framework, which is in the process of being implemented in Luxembourg. In the same way as the existing national framework, the new *Paquet Telecom* will be designed to provide for one set of rules for the entire electronic communication services and networks.

As a result of convergence, it is extremely important that interconnectivity and free access to all operators and service providers within the TMT sector is ensured in an equal manner. The use of one infrastructure for different types of services is of

1 Information and communication technologies.

2 For instance, CRP Henri Tudor and the University of Luxembourg, which has a computer science and communications research unit.

3 *La lettre diplomatique* No. 77.

particular importance and it is crucial that the operators and owners of the infrastructure or networks make these available to the other participants in the TMT sector. This is particularly true in Luxembourg because of the small size of the market.

Importantly, the government supports the principle of network neutrality (i.e., keeping a free architecture, open and non-discriminatory, guaranteeing access without unjustified conditions on electronic communication networks).

II REGULATION

TMT services cover an extremely wide scope of technology and services, with different laws and regulations applicable that entail various regulatory authorities to supervise different services and related technology. The competent ministry in Luxembourg for the telecommunication and media industry is currently the Ministry for Communication and Media.

i Telecommunication, radio frequency, energy, railway service and postal service

The Law of 1997 created the Luxembourg Institute of Telecommunications ('the ILT'), whose duty it is to supervise and regulate the telecommunications sector. In 2000, the competence of the ILT was widened to encompass the Luxembourg energy sector and postal services and, as a consequence of the Law of 1997, was renamed the Luxembourg Institute of Regulation ('the ILR').⁴ The competences of the ILR were again modified by the *Paquet Telecom*.⁵ The ILR is an independent regulator and not funded out of the public state funds paid for by tax payers, but is financed by the operators of the sector supervised and regulated by the ILR.

Although its competences in the different sectors seem to be clearly set by the Electronic Communication Law, there remains uncertainty as to the ILR's competence in the domain of radio spectrum. The Spectrum Law refers to the Minister for Communication and Media ('the Minister') as the competent authority in relation to the granting of concessions or licences, whereas in practice and along the policy that has been adopted since 1997, the ILR has managed this sector by way of delegation of powers from the Minister to the ILR. In order to avoid criticism on absence of the transparency and discussion on fees relating to spectrum allocations, Bill of Law No. 6180, amending the Spectrum Law, explicitly splits the competence between the ILR and the Minister.

The ILR is entitled to set rules in accordance with European Directives and national law. Additionally, it controls the efficient use of infrastructure for the benefit of the consumer. It is entitled to determine the fees and conditions at which communication networks are operated and services rendered so as to allow the formation of a competitive market. It has the authority to also draw up reports and proposals, which it must submit to its board and the government. It gives advice, and prepares statistics and regulations.

4 www.ilr.lu.

5 See Section II, *infra*.

The ILR is competent to receive notifications and grant authorisations or licences in relation to the provision or operating of electronic communication network services. It is also in charge of updating public registers required by law for the various TMT sectors.

The ILR has the power to decide administrative sanctions against operators that breach laws or regulations. It may also act as a dispute settlor between competing operators.

The ILR is not empowered to monitor and regulate abuse of dominance. It is however responsible for ensuring that dominant players do not exclude other competitors from the sector. It may take measures and dictate rules to re-ensure a competitive market if in its opinion proper competition is no longer warranted.

ii Media

The Media Law (as defined hereafter) creates several governmental commissions, the first of which is the Audiovisual and Media Service ('AVMS'), which assists the competent minister in the determination and the execution of the Luxembourg media policy. Its main responsibilities are to:

- a* promote the development of the programmes viewable by the Luxembourg population;
- b* promote, in concert with other commissions and committees, Luxembourg as European centre for audio-visual and communication activities;
- c* assist government representatives responsible for the supervision of the beneficiaries of licences or authorisation, the CIR;⁶ and
- d* ensure communication with international organisations responsible for the supervision of the audio-visual sector and ensure representative function within certain European committees.

The AVMS does not have any regulatory or supervisory functions, but merely has consultative and recommending powers.

The Independent Radio Broadcasting Commission ('the CIR') has three main functions: (1) implementing of provisions relating to authorisations of low power transmitters, (2) advising the government in authorisation matters and (3) arbitration of specific potential disputes. The CIR will ensure that legal and regulatory provisions are complied with. It is empowered to grant or withdraw authorisations.

The CIR is composed of five members, nominated by Grand-Ducal regulation, for five years. The CIR may ask for assistance from the Audio-Visual and Media Service and technical support from the ILR.

The National Programming Council ('the CNP'), is an independent body advising the government on matters of surveillance of certain specific television and radio programmes and proposes a balanced content for socio-cultural radio-programmes. The CNP's mission is to ensure that legal and regulatory provisions applicable to the content of the programmes are complied with.

6 See *infra*.

The National Commission for Data Protection ('the CNPD'), created by the law of 2 August 2002 on the protection of individuals with regard to the processing of personal data, is the authority in charge of the supervision of the electronic communication market, as far as data protection issues are concerned.

The CNPD controls the processing of personal data in Luxembourg and ensures compliance with the data protection regulations, in particular those relating to the confidentiality and security of processing operations. In addition, it has advisory competence towards the government. Although the CNPD is a public institution, it enjoys independence in order to carry out its mission.

The CNPD has investigative competence that allows it direct access to data of processing operations. As an investigation body, the CNPD is allowed to issue administrative sanctions.

iii Main sources of law

The TMT sector is extremely broad and diversified. Due to the specifics of the various industries on the one hand and the interrelatedness on the other hand, it appears that laws and regulations apply to more than one specific service within the TMT sector, resulting thus in a large number of applicable legislation and regulations.

The main laws are:

- a* Law of 27 July 1991, as amended, on electronic media ('the Media Law');
- b* Law of 11 April 2010 on freedom of expression in electronic media, amending Law 8 June 2004 (as amended) on the freedom of expression in the media sector;
- c* Law of 30 May 2005 on electronic communication services and networks ('the Electronic Communication Law');
- d* Law of 30 May 2005 on organisation and management of radio spectrum ('the Spectrum Law');
- e* Law of 30 May 2005 regarding the organisation of the ILR;
- f* Law of 30 May 2005 on the specific provisions regarding the protection of individuals as to the processing of personal data in the electronic communication sector and amending Articles 88-2 and 88-4 of the Criminal Instruction Code as amended by the law of 27 July 2007 and the law of 24 July 2010 ('the Electronic Data Protection Law');
- g* Law of 14 August 2000 on electronic commerce;
- b* Law of 18 April 2001 on copyrights ('the Copyright Law');
- i* Law of 18 December 2006 on distance selling of financial services;
- j* Law of 2 August 2002 as amended regarding the protection of individuals as to the processing of personal data ('the Data Protection Law');
- k* Luxembourg Constitution; and
- l* Law of 11 August 1982 on privacy ('the Privacy Law').

7 Laws (c)–(f) form part of the *Paquet Telecom*.

General laws are applicable for all aspects not specifically regulated by specific laws or regulations, in particular the provisions of the Luxembourg Criminal Code (e.g., in relation to pornography, discrimination, racism, violence, theft and piracy).

In addition, a large number of Grand-Ducal regulations and other regulations (particularly from the ILR) have been adopted in relation to the implementation of the various laws.

iv Ownership restrictions

Luxembourg rules and regulations do not, in principle, impose ownership restrictions within the TMT sector, except for certain specific sectors. Regarding telecommunications services, the previous authorisation regime has even been replaced by a less stringent notification regime.

There are no ownership restrictions for being granted a concession to operate Luxembourg satellite systems or broadcast a Luxembourg programme via satellite or cable except that for the latter a broadcasting licence may only be granted to a legal entity incorporated under Luxembourg law.

To the extent that spectrum counts as a rare resource, its management and use is reserved for the Luxembourg state. Licences to use spectrum may, however, be granted to third parties subject to the conditions of national legislation, related regulations or international or European agreements and treaties.

There is no specific national regulation on cross-ownership of media companies. However, general laws on competition still apply.

v Mergers and acquisitions

There is no specific Luxembourg authority regulating mergers or acquisition in the TMT sector. The ILR's competences are to guarantee competitiveness on the Luxembourg TMT market and thus it will monitor acquisitions and mergers in the sector so as to evaluate their position on the market *ex post*.

The Law of 17 May 2004 on competition, which prohibits restrictive agreements and abuses of dominant position, created the Investigation Division for Competition Affairs and appointed it to be in charge of the investigation of cases, while the Council for Competition Matters ('CCM') is the decision-making body. Decisions by the ILR in relation to regulation of competition must be taken in agreement with the CCM. None of the relevant authorities has *ex ante* powers nor may they prevent mergers or acquisitions.

III INTERNET AND IP-BASED SERVICES

i Internet and Internet protocol regulation

Internet services were regulated, prior to the Electronic Communication Law, by the law of 21 March 1997 relating to telecommunication services and the operating of telecommunications networks ('the Law of 1997').

Even though the Law of 1997 did not provide for specific Internet or Internet protocol regulations, but covered telecommunications services and networks more generally, in the absence of the express exclusion of Internet services and in the light

of the definition of ‘telecommunication services and networks’,⁸ Internet services were considered to be governed by this law.

The Electronic Communication Law introduced certain changes and widened the scope of existing regulation to a larger range of communication technologies and introduced the definitions of ‘electronic communication network’ and ‘electronic communication services’ as opposed to ‘telecommunication services’. The new terminology reflected the increased scope of the services and networks that are regulated. Express reference to Internet services is made.

Neither the Law of 1997 nor the current Electronic Communication Law provide for any specific rules applicable to Internet services or IP-based services as opposed to traditional telephony services, except that due to the specific nature of the telephony services, certain additional rules apply to the provision of telecommunication services that are offered to the public. The Electronic Communication Law provides for certain specific obligations applying to publicly available telephony services and public telephone networks.⁹ These specific regulations are due to ensure a universal service to the resident population and apply only to traditional telephony.

As previously noted, the ILR is the competent regulator in charge of the supervision of the services rendered both in relation to Internet services and traditional telephony services. With the adoption of the Electronic Communication Law, the operation or provision of electronic communication services or networks is no longer subject to licence but only to notification to the ILR.¹⁰ No distinction is made between traditional telephony and Internet or IP-based services.

The Electronic Communication Law provides for a global legal framework applicable to all electronic telecommunication services and networks, with certain specifics depending on the type of service or network. Bill of Law No. 6149, relating to the implementation of the New Regulatory Framework, introduces references to the new available communication, technology and services so as to ensure that the whole sector is consistently governed by the same legislative and regulatory national framework.

ii Universal broadband service

The development of communication infrastructure in Luxembourg is among the priorities of the governmental programmes in the field of the information and communication technology. The government has been actively developing the broadband infrastructure service since 2004.

8 The abrogated Law of 1997 provided for a definition of ‘telecommunication services’ and ‘telecommunication networks’, with ‘telecommunication’ having been defined as ‘each transmission, issue or reception of signals, images, sounds or data of any nature, by wire, radio, by optical or by electromagnetic means’.

9 Articles 11 and 12 of the Electronic Communication Law.

10 Article 5.

In 2005, 100 per cent of the country was covered by a broadband infrastructure with 33.4 per cent of households being connected to it. Of the remaining 64.6 per cent households, 51.7 per cent have an Internet connection.¹¹

In 2009, 87.2 per cent of households were connected to the Internet, mobile broadband penetration ranged up to 67 per cent and fixed broadband penetration amounted to 32.91 per cent.¹²

Today, Luxembourg counts itself among the world leaders in terms of broadband coverage and penetration, although the government feels that efforts still need to be made on the quality of the broadband and speed level. Luxembourg has been pursuing the installation of the fibre-optic infrastructure since 1997, and as of today benefits from an extremely developed FTTH architecture.

The ultimate aim of the government is to provide households and businesses with access to ultra-high-speed broadband within a short time frame, to become the first European country to have total ultra-high speed broadband coverage. Ultra-high-speed broadband is subject to the installation of the optical fibre, which is in progress.

In the meantime, before the optical fibre has been deployed throughout the country, efforts are also being made on the existing networks so as to increase the broadband speed (see also Section V, *in, infra*).

iii Content regulation and protection

Pursuant to the Electronic Data Protection Law, ISPs and operators of electronic communication services and networks are compelled to ensure the confidentiality of the communications exchanged by way of electronic communication means. The general rule is that other than the user, no person is allowed to listen, intercept or store communications and data relating to the traffic and location without the agreement of the user.

This prohibition does not apply to (1) communications relating to emergency calls, (2) commercial transactions to the extent that they constitute proof of the transactions, (3) authorities investigating and acting in relation to a *flagrante delicto* or within the scope of criminal offences in order to ensure national and public security, and (4) cookies. In relation to data resulting from commercial transactions and cookies, the user or parties to the transaction must be informed that their data may be processed, the conditions (in particular the duration) and aim of the storage, and the possibility of the user opposing such data processing. For the purpose of criminal law enforcement, specific conditions must be met to be able to have recourse to intercepted communications data.

In addition, for the purpose of research, monitoring and pursuit of criminal offences and with the sole aim to provide relevant information to the judicial authorities, each ISP or operator must store traffic information and locational data for a period of six months. The recent law of 24 July 2010 has amended the scope of criminal offences by limiting the possibility of only consulting the data in relation to criminal offences resulting in penal sanctions of more than one year's imprisonment. A Grand-Ducal Regulation

11 Source: *Stratégie nationale pour les réseaux à ultra haut débit «L'ultra haut» débit pour tous* (Luxembourg April 2010).

12 ITC.

determines the category of traffic data that may be useful for the research, observation and prosecution of criminal offences, as well as the manner pursuant to which such information is made available to the authorities.¹³

Intellectual property theft and piracy are regulated by:

- a* the Copyright Law;
- b* the Luxembourg Criminal Code;¹⁴
- c* the Privacy Law; and
- d* the Electronic Data Protection Law and the Data Protection Law.

There is no public authority in Luxembourg that exercises a global supervisory or monitoring power on the content and traffic data of network operators, ISPs and users as this would violate the essential privacy principles.

Similarly, and for the same reasons, network operators may not control the content, application and services accessed by their network users.

The practice of deep packet inspection is prohibited in Luxembourg as it infringes confidentiality rules and constitutes an invasion of privacy, in complete violation of the aforementioned legislation. The same analysis would apply to filtering of data processed by means of electronic communication means.

However, network operators are obliged, in order to comply with the secrecy or confidentiality requirements, and avoid invasion of privacy, piracy or intellectual property theft, to take appropriate technical and organisation measures and have systems and procedures (firewalls, encryption, secured and restricted access, etc) in place that render the network and the data processing via their network secure.

iv National security

The Electronic Communication Law, the Electronic Communication Data Protection Law and the Data Protection Law provide for specific applicable measures to ensure national interests.

In certain circumstances, where national security (including public health and public order) is endangered, the government may requisition the entire electronic communication network established in Luxembourg, as well as the connected equipment, or prohibit the provision of some or all electronic communication services.

The government may also, in order to maintain access to the emergency services, dictate special conditions for the use of electronic communication services and networks. Although storage of personal data is generally prohibited, the Electronic Communication Law provides an exception in relation to storage of traffic data relating to emergency calls or inspection of false alerts or attacks or abusive calls.

13 Grand-Ducal Regulation of 24 July 2010.

14 Articles 309, 460, 488, 505, 509-1 and following of the Luxembourg Criminal Code.

IV SPECTRUM POLICY

i Development

The increasing development of wireless communication, media and information technology also affects spectrum policy in Luxembourg.

The need for radio spectrum has increased significantly over the past few years and Luxembourg actively participates in the elaboration of a pan-European spectrum policy and favours a more flexible and efficient use of spectrum.

Luxembourg has, in its contribution paper to the European Commission of 15 April 2010 ('the April 2010 Contribution'), indicated that it is in favour of a more flexible use of spectrum, emphasising however that it is crucial that the more flexible use will not negatively impair the current quality of services or entail harmful interferences. Luxembourg has expressed its concern that a more flexible use would need to take into consideration the characteristics of more specific and sensitive technology, which would be more prone to harmful interference than others.

The new European Regulatory Framework, which is currently in the process of being implemented into national law,¹⁵ will bring changes to the current national legal framework. During the negotiations that led to the adoption of the European Regulatory Framework, Luxembourg explained that one of its top priorities was to maintain national competence in relation to the management of the spectrum and a full subsidiarity in this area.

ii Flexible spectrum use

Currently, allocated licences are personal and may not be sold. This will change with the implementation of the New Regulatory Framework into Luxembourg law, as the relevant bill of law¹⁶ provides for the possibility of transferring or subleasing allocated spectrum, thus enhancing the flexibility of spectrum use. The Spectrum Law also provides for the possibility of spectrum sharing.

The mobile use of spectrum dedicated to fixed use is possible as a matter of applicable law and regulations and is in line with the principle of technological neutrality. However, the technical implementation of this type of solution is not satisfactory at present.

iii Broadband and next-generation mobile spectrum use

Luxembourg aims towards the objective of broadband for all by 2013. As described in Section III, *supra*, the government is actively developing the terrestrial broadband infrastructure. In order to achieve this aim, a mixture of technologies must be put in place to take into account both topographic and demographic facts; so in addition to the terrestrial infrastructure, wireless terrestrial systems and satellites will be used.

15 Bills of Law No. 6149 and No. 6180.

16 Bill of Law No. 6180 amending the Spectrum Law.

In Luxembourg, the increasing need for spectrum for use by the offer of increasing broadband services is partly solved by opening additional frequencies or release of spectrum for the use of broadband and next generation mobile services.

Luxembourg completed the switch-off of analogue television broadcasting on 31 August 2006, to be replaced by DTTV. The released spectrum (referred to generally as ‘the digital dividend’) is proposed to be used for next-generation mobile services.

Luxembourg also favours the currently contemplated opening up of the 800MHz frequency (recommended by the EU Commission) in addition to that of the 900MHz frequency for the use of wireless broadband services subject, however, to reservation as to the risk of harmful interference, the need for ancillary cable network and bilateral coordination. The Luxembourg frequencies plan allows this frequency to be used by wireless broadband services.

Luxembourg has advised in its April 2010 Contribution, that in its view it is too early to decide on the necessity of an additional digital dividend. It believes that the current market would need to provide evidence of its interest at present for the current available digital dividend.

Generally, as regards the development of 4G or LTE activity, the ILR is observing the evolution of this market and may decide to launch a consultation on this subject.

iv Auction of spectrum and user fees

Given the small size of the market and the limited number of operators, the experience of the authorities shows that allocations of spectrum through auctions or ‘beauty contests’ does not produce satisfactory results. Hence, although theoretically possible as a matter of law, auctions are not currently practised.

The Spectrum Law provides for various procedures for the allocation of spectrum licences such as competitive selection, comparative selection or by a public bidding procedure for the best offeror. The competent minister will determine on the applicable procedure on a case-by-case basis and publish this decision in the Luxembourg Official Gazette and in the EU Official Journal at least one month prior to the launch of the procedure.¹⁷

The fees payable to the Luxembourg state (as owner of the national spectrum) for the allocated spectrum are determined by Grand-Ducal Regulation. These fees comprise administrative management taxes as well as user rights fees. Public services and authorities are not subject to the payment duty to the extent that spectrum is used for the provision of services within the scope of national defence, public security or emergency services. Bill of Law No. 6,180 provides for a revised allocation of the fees payable in relation to spectrum licences in favour of the ILR.

17 Article 8 of the Spectrum Law.

V MEDIA¹⁸

Throughout 2009, Luxembourg made significant efforts in the negotiation of the New Regulatory Framework, which is accelerating broadband access. Expectations are that the reform will help in overcoming the ‘digital divide’ by an improved management of radio spectrum and by making spectrum effectively available for wireless broadband services. The reform puts a strong emphasis on technology and service flexibility in spectrum use, making it easier for operators to introduce innovative technology and services. This increased flexibility is expected to yield important economic gains. In particular, it will allow the digital dividend to work for the economic recovery as also stressed in the Commission’s recent Communication on transforming the digital dividend into social benefits and economic growth.

i Digital switchover

Luxembourg took the decision not to develop a switchover plan with specific target dates for terrestrial broadcasting because the government favoured a market-driven approach.

Luxembourg’s penetration rate of cable as a means of receiving television programmes is among the highest in Europe: some 80 per cent of households subscribe to cable networks. The digital switchover from cable is in progress. EPT launched an IPTV service entitled ‘La Télé des P&T’ in March 2008. Initially offered in nine locations, the service now covers a large part of the country. The basic offer includes more than 70 channels. The complete switch-off of the analogue channels in the cable network will not take place before 2011. The government has asked the cable operators who have accepted to plan a transition period and to continue to offer between 20 and 30 of the most important analogue channels until the end of 2011.

Since 2008, a growing number of households have been able to receive television through ADSL and to choose between two competing offers to receive a complete range of TV programmes.

The switchover to DTTV was completed in Luxembourg in 2006, when CLT-UFA moved the main channels used for terrestrial broadcasting to the digital spectrum. Luxembourg holds sufficient spectrum for programme distributors other than CLT-UFA, as well as for new applications such as mobile television or HDTV.

The evolution of digital terrestrial radio transmission in Europe is being followed by the government and the ILR. In Luxembourg, the Broadcasting Centre Europe has set up different DRM short and middle-wave transmitters allowing international coverage. CLT-UFA now broadcasts its German-speaking RTL programme digitally.

18 Information in this section has been largely drawn from the government’s ‘*Service des Médias et des Communications*’ activity report for 2009

ii Internet-delivered video content

It is difficult to measure the importance of Internet video distribution in Luxembourg given the absence of surveys or statistics on this phenomenon. The only indicator is the fact that, as in most other western countries, people watch less traditional TV, which seems to indicate that Internet video is becoming more popular, particularly with the younger public. Given the general availability of cable and satellite TV, the impact so far has been minimal. Also, based on the high connection rates of Luxembourg residents to the Internet, it should be expected that this move will not pose dramatic problems for consumers.

iii Globalisation and foreign investment

Luxembourg has made important steps towards providing the type of infrastructure demanded by ICT companies and has a longstanding official policy of welcoming pan-European companies in addition to creating the appropriate framework for the development of local businesses.

With regard to foreign investments, given the small size of the market, global media companies have so far shown little interest in acquiring interests in local media players or in building up a presence in Luxembourg. As Luxembourg is a market economy, however, foreign investments are not restricted and neither is foreign control over Luxembourg companies. The size of the Luxembourg stake in SES is linked to the state concession pursuant to which SES operates orbital slots allocated to Luxembourg. Any direct impact on local programming or national culture is very limited if not non-existent.

iv Mobile services

The digital dividend debate and the growing demand from mobile network operators for additional spectrum freed up by traditional broadcasters has been less pressing than in other jurisdictions, given the continued availability of spectrum in Luxembourg.

In order to accelerate the roll-out of high-speed mobile networks in Luxembourg, the government decided in 2009 to use the digital dividend and to make available the freed-up spectrum (780–862MHz) to operators of mobile electronic communications. In addition, to encourage the development of innovative new technology, while at the same time respecting the principle of technological neutrality, the national frequency plan has been amended to open the frequency of 900MHz to technologies other than GSM.¹⁹

VI SECURITY

i Privacy and consumer protection

Privacy and consumer protection in the electronic communication domain is guaranteed by various laws. Information about consumers must be treated confidentially and may not be rendered accessible to third parties and the processing of consumer data is allowed only if it falls within the criteria defined by the relevant laws. Processing of data

19 Source : Government paper on a national strategy for ultra-high debit, April 2010, p11.

is subject to the principle of legitimacy of processing. Each data processor located or using physical means located in Luxembourg to process data is subject to a notification or prior authorisation procedure addressed to the CNPD depending on the nature of the data processed and the purpose for doing so.

Sharing of consumers' personal data is strictly prohibited by law, unless the consumers gives their express consent. Where locational data is being stored and processed by an operator, a user must be informed thereof and must be able to oppose any such action (the process of which must be clearly set out and communicated to the user). Luxembourg law prohibits the addressing of advertisements or other unrequested communication to persons by electronic means.

ii Protection for children

There is no specific legislation or regulation that ensures the protection of children online. However, the government is issuing a number of recommendations and is supporting various projects to render children and their parents aware of the risk related to the use of the Internet. The project 'LuSI.lu' was drawn up (Luxembourg Safer Internet), which gives directions for the use of the Internet to children, parents and educational staff.

Generally, the policy is to familiarise children with new technology rather than filtering or blocking access to various types of information (which might, however, be an alternative); the intention is to teach children how to use the Internet safely and to always be aware of the risks related to such use.

Children's rights are protected by provisions of the Luxembourg Criminal Code. The 'LISA Stopline' is a project that provides a structure to report illegal information transmitted over the Internet anonymously.

iii Cybersecurity

Individuals and companies are encouraged to take appropriate technical measures to defend themselves against cyber attacks. Similarly, as for children, the government has created 'CASES Luxembourg', which is a project accessible by all Internet users whose purpose is to make the public aware of potential cyber attacks that are inherent to Internet use and advises on how to identify potential cyber attacks.

Network operators and ISPs are required by applicable law to comply with stringent security measures. As a response to the increasing cyber attacks the Luxembourg Criminal Code has been amended so as to include offences of the electronic communication sector.

iv Emergency response networks

Luxembourg first responders and other emergency responders (such as police, customs and civil protection) benefit from a dedicated network. This network is still analogue and ensures total territorial coverage; however, a group of experts composed by representatives of the main concerned administrations, the ILR, government and Ministry of Finance is contemplating the switch to a higher-performance digital network for these services. At an EU level, harmonisation of the digital frequency relating to these services has been achieved permitting interoperability. The European Conference of Postal and

Telecommunications Administrations ('CEPT') is also considering the possibility of dedicating broadband frequencies to these services and whether harmonisation would be necessary. CEPT is also analysing the possibility of sharing broadband frequencies with commercial networks.

VII YEAR IN REVIEW

i Key legislation

The main legislative landmarks of the past year were the adoption of the New Regulatory Framework at European level in November 2009, and the finalisation of the Bills of Law implementing the New Regulatory Framework into Luxembourg law (with the exception of the amendment to the Electronic Data Protection Law).

Key policies include the April 2010 government paper on a national strategy for high-speed networks, which defines the priorities and means of the government in enhancing high-speed Internet for households and businesses in Luxembourg. Generally, government policy over the past few years have been aimed at promoting the ITC sector and related infrastructure as one of the new pillars of the post-crisis Luxembourg economy.

In the field of spectrum policy, the main developments of the past year are the digital dividend decisions and Bill of Law No. 6180 prescribing a shift of powers from the competent Ministry to the ILR. Many other decisions and policies taken in this field have been in line with European policy. Also important for Luxembourg in relation to spectrum policy is the forthcoming ITU World Radio Conference in Mexico, where the pressure from mobile operators for obtaining additional spectrum will need to be reconciled with Luxembourg's clear interests in safeguarding the interests of its satellite operators. Luxembourg's new frequency plan of 19 May 2010 should also be mentioned in this context.

ii Key mergers and takeover activity

In October 2009, Voxmobile, the third mobile telephone operator in Luxembourg, was rebranded as Orange. Voxmobile had been acquired by Mobistar, a subsidiary of Orange, in 2007.

A division of Rovi, a US and global player in digital entertainment technology solutions, has recently set up offices in Luxembourg through its subsidiary Rovi International Solutions Sàrl, which trades as Infomedia, a supplier of TV listings data serving all of Europe.

VIII CONCLUSIONS AND OUTLOOK

The expectation of the government and of economic commentators is that Luxembourg, building on an attractive legislation and infrastructure and on the presence of global leaders such as SES, should increasingly be able to attract new international ICT business, and to build a new niche in this field along the same lines it managed to build local industry and its financial sector, even though this may happen at a slower pace than has happened in the past.

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LIST OF ABBREVIATIONS

3G	Third-generation (technology)
4G	Fourth-generation (technology)
ADSL	Asymmetric digital subscriber line
BWA	Broadband wireless access
CATV	Cable TV
CDMA	Code division multiple access
DAB	Digital audio broadcasting
DDoS	Distributed denial-of-service
DoS	Denial-of-service
DSL	Digital subscriber line
DTH	Direct-to-home
DTTV	Digital terrestrial TV
DVB	Digital video broadcast
DVB-H	Digital video broadcast – handheld
DVB-T	Digital video broadcast – terrestrial
ECN	Electronic communications network
ECS	Electronic communications service
EDGE	Enhanced data rates for GSM evolution
FTNS	Fixed telecommunications network services
FTTC	Fibre to the curb
FTTH	Fibre to the home
FTTN	Fibre to the node
FTTx	Fibre to the x
FWA	Fixed wireless access
GSM	Global system for mobile communications
HDTV	High-definition television
HITS	Headend in the sky
HSPA	High-speed packet access
ICT	Information and communications technology
IPTV	Internet protocol television
ICP	Internet content provider

List of Abbreviations

ISP	Internet service provider
LAN	Local area network
LTE	Long Term Evolution (a next-generation 3G and 4G technology for both GSM and CDMA cellular carriers)
MMS	Multimedia messaging service
MMDS	Multichannel multipoint distribution service
MSO	Multi-system operators
MVNO	Mobile virtual network operator
MWA	Mobile wireless access
NGA	Next-generation access
NIC	Network information centre
NRA	National regulatory authority
PNETS	Public non-exclusive telecommunications service
PSTN	Public switched telephone network
RF	Radio frequency
SMS	Short message service
STD-PCOs	Subscriber trunk dialling-public call offices
UASL	Unified access services licence
UHF	Ultra-high frequency
UWB	Ultra-wideband
UMTS	Universal mobile telecommunications service
USO	Universal service obligation
VDSL	Very high speed digital subscriber line
VHF	Very high frequency
VOD	Video on demand
VoB	Voice over broadband
VoIP	Voice over Internet protocol
WiMAX	Worldwide interoperability for microwave access