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Chapter 17

LUXEMBOURG

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I OVERVIEW

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. Today Luxembourg has first-class infrastructure and telecommunication networks and counts among the top locations for electronic communication services and infrastructure.

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 Télécommunications* (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 RTL Group 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 today SES has global standing.

The presence of important market players in the TMT and TMT-related sectors in Luxembourg and the associated 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 and becoming a hub for e-services in Europe.

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Luxembourg combines many features that are beneficial to the development of an ICT sector, including the diversity and multilingual skills of the population and workforce, a geographical location in the centre of Europe and an important financial industry in need of high performance communication technologies. In addition, Luxembourg has gradually developed a state-of-the-art digital infrastructure, international telecommunication connections (offering fast and reliable connectivity to other European cities at very low latency rates), efficient national communication networks, performant data centres, a comprehensive legal framework, cutting-edge research, safety and security, all of which contribute to Luxembourg's increasing attractiveness to technology organisations and electronic communication services, but also to financial institutions and other businesses. Luxembourg has become one of the top locations for ICT infrastructures (data centres, high speed connectivity and internet traffic) and it offers specialised expertise to keep data safe. The presence of regulated ICT 'support' professionals in the financial sector, who are subject to the same confidentiality obligations as banks, provides considerable comfort and security to clients in the financial sector in areas such as the outsourcing of IT functions.

The quality of the communication infrastructure has led numerous actors in the gaming sector (online video games) and gambling sector to set up their headquarters in Luxembourg or even to locate their technological centre for the European area in Luxembourg.² As the new European online gambling hotspot, Luxembourg is an attractive location for low-latency internet providers. Global brands in the media and internet world such as Amazon, eBay, iTunes, PayPal, Vodafone Procurement, RTL Group, tigo, and Skype all have European headquarters or major operations in Luxembourg.³ The recent establishment of Level3 in Luxembourg (one of the most important operators of telecommunication services at the level of the backbone internet) confirms Luxembourg as a center of excellence in the internet sector.

The government encourages the establishment of new businesses (notably through 'Luxembourg for Business – proud to promote ICT')⁴ and is keen to further develop the TMT sector in line with the major industry trends. Efforts are also made in ICT research with a focus on the security, reliability and trustworthiness of ICT systems and services.⁵ In a context of increasing influence of digital technologies on every aspect of our lives and throughout all business areas and with the recent development in cloud computing and e-archiving, digital security is a key element of the success of the digital economy. Important improvements are made to the legislation in order to adapt the national

2 Onlive Inc, having implemented a cloud gaming platform and chosen Luxembourg to locate all its servers for the European distribution of its services, Big Fish Games, Agapiet, Bigpoint, Kabam-Europe, Nexon Europe Sàrl and Innova.

3 In 'Luxembourg an e-Hub for Europe'.

4 New video available on www.investinluxembourg.lu/ict/clip-luxembourg-your-gateway-europe.

5 Interdisciplinary Center for Security, Reliability and Trust, Computer Science and Communications.

legal framework to overcome the barriers related to the use of the new technologies⁶. Eurocloud Europe, a European non-profit organisation, established its headquarters in Luxembourg at the beginning of 2013, which emphasises the willingness to position Luxembourg as the European hub for cloud computing services

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 ICT sector is conducted by a number of government-promoted institutions.⁷ 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 been very active in negotiating and defending the interests of Luxembourg in the adoption process of the European Telecoms Package. Similarly the government is actively taking part in the discussions regarding the forthcoming Data Protection Reform⁸.

The development of the information society is one of the 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 life. At present many filings, registrations, requests to public administrations such as tax, social security and energy sector can be made online. The government has adopted a GED system (electronic document management), banning the use of paper. By a new law of 19 June 2013 Luxembourg has introduced electronic identity cards which shall be available starting from July 2014. An action plan for the period 2010 to 2014 regarding the introduction of information technologies within the Luxembourg state administrations has been adopted.

Convergence has been achieved by creating rules and regulations, regulatory authorities and consulting entities at national, European and international level, which embrace the diversity, interconnectivity and interrelatedness of the various industries and players. The increasing convergence between telecommunications, information technology and media has led to the adoption of the regulatory framework which was introduced into Luxembourg law by two laws of 27 February 2011 (the Paquet

6 Such as the amendment of Article 567 of the Commercial Code (See Section VII.i, *infra*).

7 For instance, CRP Henri Tudor (CRP) and the University of Luxembourg, which has a computer science and communications research unit. Centre Gabriel Lippmann (which is expected to merge with the CRP) is active in applied scientific research and technological development.

8 The European data protection reform proposed by the European Commission in January 2012 for the purpose of satisfying the modernisation of the data protection frameworks will entail amendments to the existing data protection laws. Luxembourg does not currently envisage legislating on network neutrality at the national level unless this is recommended at EU level.

Telecom). The Paquet Telecom is designed to provide for one set of rules for all electronic communication services and networks. The continuing development in the ICT sector constantly calls for adjustment of the current legislation and regulations at national and European level (see Section II.iii, *infra*).

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 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. Efforts are constantly undertaken to ensure competitiveness amongst the players in the TMT sector. Ensuring Luxembourg's international connectivity is at the top of the agenda for the coming years with the aim to ensure the lowest latency rates with major capitals, the lowest prices and the presence of the most important carriers.

Importantly, the government supports the principle of network neutrality (i.e., keeping a free architecture, an open and non-discriminatory network, guaranteeing access without unjustified conditions on electronic communication networks). Competition amongst incumbent operators and alternative operators remains an important element for the e-industry players.

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 Communications and Media.

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

The Law of 1997 created the Luxembourg Institute of Telecommunication, whose duty it is to supervise and regulate the telecommunications sector. In 2000, the remit of the Institute was widened to encompass the Luxembourg energy sector and postal services and, as a consequence of the Law of 1997, it was renamed the Luxembourg Institute of Regulation (ILR).⁹ The scope of the ILR's tasks was modified on several occasions and for the last time by the Laws of 27 February 2011 and 26 July 2011. The ILR is an independent regulator and not funded out of the public purse, but is financed by the operators of the sector supervised and regulated by the ILR.

Its competences in the different sectors are set by the Electronic Communications Law and the Spectrum Law. The recent amendment of the Spectrum Law has introduced clarifications on the allocation of competences between the Minister for Communications and the ILR. 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

9 www.ilr.lu.

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.

The ILR is competent to receive notifications and grant authorisations or licences in relation to the provision or operation of electronic communication network services and is assisting the competent minister in the allocation of licences for radio spectrum. It is also in charge of establishing the plan of frequencies, updating public registers required by law for the various TMT sectors.

The ILR has the power to issue administrative sanctions against operators that breach laws or regulations. It may also act to settle disputes between competing operators. The ILR in addition acts as mediator between customers and operators.¹⁰

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 issue rules to stimulate competition if, in its opinion, proper competition is no longer in operation.

ii Media

The Media Law (as defined hereafter) creates several governmental commissions, the first of which is the Communications Media Service (CMS), which assists the 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;¹¹ 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 CMS 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.

10 ILR Regulation 11/151/ILR of 4th April 2011. See annual report 2012 on www.cnpd.public.lu/fr/actualites/national/2012/05/rapport_annuel_2011/.

11 See *infra*.

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

The National Programming Council (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.

A new bill of law (see subsection iii.a, *infra*), which is about to be adopted aims at centralising the competence of the three existing commissions (CNP, CIR CMS) into one single authority, the Luxembourg Independent Audio-visual Authority, which shall receive disciplinary powers and shall adopt the status of a public institution.

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 investigative 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 their interrelatedness on the other, it appears that laws and regulations apply to more than one specific service within the TMT sector, resulting in a large amount of applicable legislation and regulations.

The main laws are:

- a* Law of 27 July 1991 as amended by Law of 17 December 2010 and the Law of 8 April 2011 on electronic media (the Media Law);¹²
- 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 27 February 2011 on electronic communication services and networks (the Electronic Communications Law), abrogating Law of 30 May 2005 on electronic communication services and networks (the Former Electronic Communications Law);
- d* Law of 30 May 2005 as amended by Law of 27 February 2011 on the organisation and management of radio spectrum (the Spectrum Law);

12 A bill of law No. 6487 is about to be voted by the parliament.

- e* Law of 30 May 2005 regarding the organisation of the ILR as amended by the Law of 26 July 2010;
- 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 and more recently by the Law of 28 July 2011 (the Electronic Data Protection Law);¹³
- g* Law of 14 August 2000 on electronic commerce as amended (the Electronic Commerce Law);
- h* Law of 18 April 2001 on copyrights, as amended (the Copyright Law);
- j* Law of 2 August 2002 as amended (most recently by a law of 28 July 2011) regarding the protection of individuals as to the processing of personal data (the Data Protection Law);¹⁴
- k* Luxembourg Constitution;
- l* Law of 11 August 1982 on privacy (the Privacy Law);
- m* Articles L222-12 to L222-23 of the Consumer Code regarding distance contracts on financial services, abrogating the Law of 18 December 2006 on distance selling of financial services; and
- n* Articles L222-2 to L222-11 of the Consumer Code.

Laws not yet enacted include the Bill of law No. 6543 on electronic archiving, which is expected to be adopted by the end of 2013 and Bill of law No. 6478 amending, *inter alia*, the Consumer Code, the Electronic Data Protection Law and the Electronic Commerce Law.

General laws are applicable for all aspects not specifically regulated by particular laws or regulations, in particular the provisions of the Luxembourg Criminal Code (e.g., in relation to pornography, discrimination, racism, violence, theft and piracy) and the Commercial Code with the amended Article 567 (See Section VII, *infra*).

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 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

13 A bill of law has been adopted by the government council.

14 The European data protection reform proposed by the European Commission in January 2012 for the purpose of satisfying the modernisation of the data protection frameworks will entail amendments to the existing data protection laws.

cable except that for the latter a broadcasting licence may only be granted to a legal entity incorporated under Luxembourg law.

Because spectrum is considered a scarce resource, its management and use is reserved to 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 acquisitions 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 23 October 2011¹⁵ on competition, which prohibits restrictive agreements and abuses of dominant position, provides for an independent authority which is the Council for Competition Matters (CCM) appointed to be in charge of the investigation of cases, consultative missions and sectorial inquiries (or by types of agreement). The former Investigation Division for Competition Affairs has been abolished. The CCM is also the decision-making body and exercises various powers for the execution of its mission (i.e., the finding and sanctioning of violations of the law, drafting of opinions, market studies, information of companies and execution of missions allotted to the national CCM). 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 Communications Law, by the law of 21 March 1997 relating to telecommunications services and the operation 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',¹⁶ internet services were considered to be governed by this law.

15 Amends and replaces the Law of 17 May 2004.

16 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.'

The Former Electronic Communications 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 Communications 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 Communications Law provides for certain specific obligations applying to publicly available telephony services and public telephone networks.¹⁷ 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 Former Electronic Communications Law, the operation or provision of electronic communication services or networks is no longer subject to licence but only to notification to the ILR.¹⁸ No distinction is made between traditional telephony and internet or IP-based services.

The Electronic Communications 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, ensuring however 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 top priorities of the governmental programmes in the field of the information and communication technology. The government has been developing the broadband infrastructure for approximately 10 years.

Since the end of 2011, Luxembourg has a 100 per cent standard broadband coverage (DSL up to 25Mb/s) available to all Luxembourg households.¹⁹ VDSL (25Mb/s and over) transmitted over conventional telephone lines reached close to 88 per cent of households in 2012. DOCSIS 3 reaches 60 per cent of households. The percentage of households with broadband access in 2011 was 68 per cent. In January 2012, 64.8 per cent of active users took a up a mobile broadband.²⁰

17 Articles 11 and 12 of the Electronic Communications Law.

18 Article 5.

19 Luxembourg 2011 Telecommunication Market and regulatory Developments.

20 Source: Digital Agenda for Europe Scoreboard 2012.

HSPA (the upgrade of the 3G mobile networks) reaches almost 100 per cent of households in Luxembourg. LTE services were available to 64 per cent of households in Luxembourg in 2012.

In terms of fast broadband and ultra-fast broadband the deployment is less advanced in terms of coverage and take-up. The government is however committed in the NGA²¹ deployment and pursues its ambitious strategy initiated in April 2010 aiming to be the first fully fibred country in Europe. In 2011, Luxembourg achieved a score of 75 per cent.²² The installation of optical fibre has been constantly progressing since 1997 and Luxconnect²³ is joining the efforts to cover the whole territory with optical fibre. FTTH is further progressing and was usable by close to 31.8 per cent of all Luxembourg households (compared to around 26 per cent in 2011).²⁴ While working on the deployment of optical fibre throughout the country, efforts are also being made on the existing networks so as to increase the broadband speed.

16.2 per cent of the broadband subscriptions in Luxembourg were NGA connections.²⁵ In 2012, 81 per cent of the Luxembourg population connected to the internet on a daily basis.²⁶

In Luxembourg a notable market trend towards bundled offers (broadband mobile or fixed telephony and TV) continues. As of today Luxembourg 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 by 2015 (100Mb/s) and reach a capacity with downstream speeds ranging to 1GB/s and upstream speeds of 500 Mb/s in 2020.²⁷ The EPT have launched offers for ultra-high-speed internet access under the name of 'Lux Fibre'. Other alternative operators²⁸ have also launched their offers.

iii Content regulation and protection

Pursuant to the Electronic Data Protection Law and the 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

21 Next Generation Access (VDSL, DOCSIS 3 cable and FTTP).

22 Source: European Commission, DG INFSO, Report Broadband coverage in Europe in 2011.

23 Luxconnect has been created at the initiative of the government.

24 Luxembourg and ICT: A snapshot.

25 OECD Broadband Portal.

26 Eurostat (online data code).

27 End 2011, depending on the operator, capacity with downstream speeds ranged to +20Mb/s and upstream speeds of 50Mb/s.

28 Among others, Tango, Cegecom.

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. Moreover in relation to the cookies, a specific consent to the storage (opt-in) is required as a result of the recent change of law. Discussions on exemption to the opt-in principle are taking place at a European level. 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 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 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.²⁹

Intellectual property theft and piracy are regulated by:

- a* the Copyright Law;
- b* the Luxembourg Criminal Code;³⁰
- c* the Privacy Law; and
- d* the Electronic Data Protection Law and the Data Protection Law.

There is at present 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.

²⁹ Grand Ducal Regulation of 24 July 2010.

³⁰ Articles 309, 460, 488, 505, 509-1 et seq. of the Luxembourg Criminal Code.

iv National security

The Electronic Communications Law, the Electronic Communications 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 Communications 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.

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.

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

As a result of the Law of 27 February 2011 amending the Spectrum Law, allocated licences are no longer personal.³¹ On that account it is currently possible to sell, transfer or sublet allocated spectrum, thus enhancing the flexibility of spectrum use. The Spectrum Law also provides for the possibility of spectrum sharing.

31 Article 2 of the Law of 27 February 2011 amending Law of 30 May 2005 on organisation of the management of electronic waves.

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.

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 (in particular rural versus urban); so in addition to the terrestrial infrastructure, wireless terrestrial systems and satellites will be used.

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, replaced by DTTV. The released spectrum (generally referred to as ‘the first digital dividend’) is used for next-generation mobile services.

The ILR has adopted a new frequency plan which came into force in May 2013. Frequency bands 900MHz and 1,800MHz have been made available for various mobile communication technologies. Frequency bands 800MHz and 2.6GHz have also been opened. In that respect in October 2011, Luxembourg concluded an agreement with its neighbouring countries to reduce the risks of interference due to overlapping coverage in the frequency band 790–862MHz.

In 2012, the ILR launched a public consultation regarding two licences in the 900MHz frequency and two in the 1,800MHz frequency which expired in 2012. The licences within the 900MHz band have been renewed to the existing operators and one new operator and the use thereof has been expanded to different technologies. These licences allow the introduction of 4G technology in Luxembourg specifically (LTE). In addition the three operators have been allocated additional spectrum in the 1,800MHz band allowing flexibility for the introduction of innovative new technologies. Certain operators³² have spread out an operational 4G network covering a large number of the Luxembourg population and offer 4G services. According to the ILR, 64 per cent of the population is covered by the 4G network (as of December 2012).³³

Following the public consultation in July 2012, regarding the allocation of licences in the 800MHz and 2.6GHz frequencies, licences were allocated in relation to those frequencies to 3 operators by the Communications and Media Minister. Another consultation has been launched in March 2013 on part of the spectrum in the frequency bands 800MHz and 2.6GHz which were not yet allocated after the July 2012 consultation (i.e., 2,680–2,690MHz (FDD mode) and 2,570–2,620MHz (TDD mode). The purpose of the new consultation being to allow the competent Minister to determine the criteria of selection and allocation procedures for the additional licences

32 Orange, Tango and EPT.

33 Luxembourg and ICT: a snapshot (June 2013).

to be granted. The three existing operators and one new operator – Join Wireless – have responded to the consultation.³⁴

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 after having made a public consultation 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.³⁵

The fees payable to the Luxembourg state (as owner of the national spectrum) for the allocated spectrum are determined by Grand Ducal Regulation.³⁶ These fees comprise administrative management taxes as well as user rights fees. The law of 27 February 2011 amending the Spectrum Law has modified the allocation and recovery of the fees payable in relation to spectrum licences in favour of the ILR. 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.

V MEDIA³⁷

The Media Law has been amended by a law of 17 December 2010 and 8 April 2011. The amendments are deemed to adapt themselves to the newest sorts of audiovisual and sonorous media. More importance is attributed to content regulation. Rules are set related to enhance the protection for children and non discriminatory content and the form and the content of commercials advertising are more regulated.

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 95 per cent of households subscribe to cable networks. The average household catches around 46 channels. EPT launched an IPTV service (in particular VOD) 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

34 At the time of writing, no information on the outcome of the consultation is available.

35 Article 6 of the Spectrum Law.

36 Grand Ducal regulation of 21 February 2013.

37 Information in this section has been largely drawn from the government’s annual report 2011 and 2012.

offer includes more than 80 channels. By the end of 2012, five providers³⁸ offered VOD services.³⁹ The complete switch-off of the analogue channels in the cable network, although intended to have been achieved by the end of 2011 is not yet fully completed but only the principal channels remain available through analogue broadcasting. A growing number of households are 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 terrestrial 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.

About 50,000 households watch TV via satellite with SES being the principal operator.

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 long-standing 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.

38 EPT, iTunes, Netflix, Numéricable and Tango SA.

39 Annual governmental report 2012.

VI SECURITY

i Privacy and consumer protection

Privacy and consumer protection in the electronic communication domain is guaranteed by various laws. The adoption of the Consumer Code by the Law of 8 April 2011 has to be noted. The Media Law set guidelines and restrictions in relation to commercial advertisements and includes specific provisions for the protection of children.

Information about consumers must be treated confidentially and may not be made 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 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 give 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, unless the concerned person can simply request such actions to be stopped.

ii Protection for children

There is no specific legislation or regulation that ensures the protection of children online.

In 2011, Luxembourg ratified the United Nation Convention on the Rights of the Child and the Convention of the Council of Europe on the protection of children against exploitation and sexual abuse and is involved in their implementation.

Moreover, 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 'Bee Secure' has been drawn up in the context of the EU Safer Internet Programme, 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 (LCC). Further to the adoption of the Law of 21 February 2013 amending Articles 372 and 377 of the LLC, the LLC provides for enhanced sanctions in relation to sexual child abuse matters. The 'LISA Stoptline' is a project that provides a structure to report illegal information transmitted over the internet anonymously. The e-Commerce Law requires ISPs to withdraw or render inaccessible any illegal content they become aware of. The Media Law includes specific child-protection provisions.

The Luxembourg University is an active member of the project 'EU Kids Online'.

The CNP is in relation to the adoption of the bill of Law No. 6478 lobbying to introduce appropriate visual warning obligation.

iii Cybersecurity

The digital economy is dependent on a secured infrastructure. Cybersecurity is therefore one of the priorities of the Luxembourg government.

Individuals and companies are encouraged to take appropriate technical measures to defend themselves against cyberattacks. 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 cyberattacks that are inherent to internet use and advises on how to identify potential cyberattacks. Network operators and ISPs are required by applicable law to comply with stringent security measures.

As a response to the increasing frequency of cyberattacks the Luxembourg Criminal Code has been amended so as to include offences in the electronic communication sector.

The government pursues efforts to prevent and fight against cybercrime and in July 2011 created two new structures: the Luxembourgish Cybersecurity Board (CB), whose mission is to work on a strategy against attacks via the internet, and the governmental body, the Computer Emergency Response Team (CERT), which is the competent body to deal with incidents of cybercrime in public information systems. The CB has in November 2011 determined five priorities (on a national and international scale) on which Luxembourg will focus its efforts.⁴⁰ Furthermore, the Luxembourg government has signed a letter of intent with Belgium and the Netherlands to cooperate in the fight against cybercrime. Luxembourg regularly hosts conferences on cybersecurity that are mainly dedicated to experts in security matters.

In June 2012, the CB in its fourth meeting decided that in the future it will act as a centralising point of information and contact for users to report cybersecurity incidents. This should allow the CB to supply businesses with information putting them in a position to take appropriate action to fight the risk against security. Having delayed the implementation of the European Council Convention on Cybersecurity and the expected adoption of the directive relating to attacks on cyber-criminality, a bill of law was filed in December 2012 for the purpose of transposing the relevant provisions of the European Convention on Cybersecurity into Luxembourg law.

The Luxembourg government, through specialised and dedicated agencies constantly works at developing cybersecurity measures.

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 working towards the switch to a higher-performance digital network for these

40 Ministère d'État – Stratégie nationale en matière de cyber sécurité.

services in the short term. Articles and conditions are currently being established by the Luxembourg state to which an operator may apply in order to provide and operate the dedicated network to emergency responders. At an EU level, harmonisation of the digital frequency relating to these services has been achieved permitting interoperability.

VII THE YEAR IN REVIEW

i Key legislation

The Law of 9 July 2013 which amends Article 567 of the commercial code, ensuring the ownership of data stored by a third party (i.e., cloud computing service provider) in case of insolvency proceedings of a data controller in favour of the data subject shows Luxembourg's aim to create a secure environment for cloud computing services. Luxembourg is the first country having adopted a law addressing this specific legal concern in relation to cloud-computing services.

The introduction of the e-archiving in the legislative framework, which is scheduled to be approved by the end of December 2013 is further evidence of the importance that Luxembourg allocates to e-services.

Considering the increasing importance of international transactions carried out by electronic means, Luxembourg is also favourable to the implementation of a uniform framework on electronic identification and electronic authentication which should help to increase the security and trust in online transactions and electronic commerce proposed to be achieved at EU level through the adoption of the EU Regulation proposal filed in June 2012 (COD 2012/0146).

The adoption of the EU Roaming Regulation has lowered the price caps for data downloads making it much cheaper to use maps, watch videos, check e-mails and update social networks while travelling across the EU. This will enhance competition between operators and create attractive offers for consumers. This is of particular importance to Luxembourg residents given the small size of the Luxembourg territory.

Luxembourg is cooperating with other European countries on the data protection reform. Further bills of law are in process of being filed or are in the adoption process. A new frequency plan has been adopted in May 2013.

Key policies still 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. Government policy aims at further promoting the ITC sector and related infrastructure as one of the pillars of the Luxembourg economy. The government is continuing to invest heavily into the security of the networks and infrastructures as one of the main pillars of the development of the electronic communication systems. The creation of various structures at national level evidences the government's priority to prevent and combat cybercrime and other attacks on the electronic communication services and infrastructures. The creation of the Cybersecurity Board and the CERT and the adoption of a national strategy in cybercrime matters shows the government's absolute determination to fight against and prevent cyber-criminality.

In the field of spectrum policy, the main developments of the past year are the availability of the 900 and 1,800MHz frequencies (and the 800MHz and 2.6GHz) to mobile telecommunication services which opened the path to the 4G development technologies. Many other decisions and policies taken in this field have been in line with European policy. During the ITU World Radio Conference in January 2012, one of the important decisions made was the intention to open up additional spectrum for mobile telecommunications services in the 694–790MHz frequencies (the ‘Second digital dividend’). This point will be one of the important agenda items of the WRC 2015. However, the opening of additional frequency will need to be discussed at the national level with regards to its technical implementation and Luxembourg’s need for additional spectrum.

The continuing development in the online video games sector in Luxembourg and the establishment of internationally known companies, encourages LU-CIX to develop its services. Lu-CIX had organised the Luxembourg gaming exhibition in November 2012. The government has renewed its prior intention to establish efficient technical infrastructures and a business-friendly legal environment to assure these companies a good development in Luxembourg. This forum had a positive impact and has propelled Luxembourg’s status as a hotspot for new ICT-related companies, such as the gaming businesses that are now moving into Luxembourg on a massive scale.

In 2012 the Luxembourg government made visits to various countries such as Israel, the United States and Japan in order to promote Luxembourg as a destination for ICT business. Luxembourg has also been present at various conferences organised in Luxembourg and throughout the world.

Luxembourg hosted the Spring Conference on data protection at which more than 38 countries were present.

The partnership between Hibernia and Luxconnect aiming to leverage high capacity links from LuxConnect’s facility in Luxembourg City to Hibernia Atlantic’s PoPs and secure connectivity throughout key European and US cities shows that Luxembourg strategy and connectivity investments bear fruit.

Luxembourg also hosted the ICT Spring conference in June 2013, where the government representative expressed his intention to develop Luxembourg as a centre for ‘big data’ and for electronic payment services. He has also referred to cybersecurity as an ‘element of trust which is essential for the citizens and the entire economy’.

In the satellite sector, SES has continued to expand its fleet of satellites offering a global connectivity covering 99 per cent of the world population. It is investing in new infrastructures on-site. A new entity ‘Luxspace’ has been granted a concession to launch microsattellites and the first launch was in October 2011 with a second launch in January 2012.

ii Key mergers and takeover activity

Sony has chosen Luxembourg as its European platform for its digital library in Europe.

Skype has been taken over by Microsoft in 2011 (being Microsoft’s largest acquisition). Following the acquisition it has been decided that Skype will remain in Luxembourg.

No major takeover activity has taken place over the past six months, but the actors in the ICT sector have taken the opportunity to develop their activities and services in the respective areas of operation in the light of the new technologies (cloud computing, e-archiving, roaming, etc.).

VIII CONCLUSIONS AND OUTLOOK

The digital economy is one of the important pillars of Luxembourg and is a top priority of the Luxembourg government. Luxembourg is considered to be located in the middle of the 'Golden Ring'.⁴¹ Continuing efforts are made to favour the development of new communication and information technologies. The development of international connectivity and security remain among the key priorities.

Luxembourg has become one of the European leaders in terms of broadband penetration. Luxembourg has attracted a number of new companies active in the online gaming sector, which evidences the interest in Luxembourg not only for its general ICT business but also in the context of the technological challenging gaming sector.

The fast development of cloud computing services and e-archiving will continue to be a driving force in the development of data protection legislation and the internet security sector. The ultimate aim is to instill a feeling of trust in the online environment, which is essential to the development of this sector of the economy.

Luxembourg is keen to take opportunity of the growing demand for high performance infrastructure bandwidth capacity and connectivity needs of the e-economy. Its geographical location close to the major European cities is a clear advantage.

Luxembourg will continue to develop high standard data-centre services and facilities. It has opened the first green centre worldwide, showing its commitment to research and development of new infrastructures and technologies. Many Luxembourg data centres offer Tier IV and design most of the others are classified as Tier III. Luxembourg is actively working on cybersecurity matters and is participating in the negotiations on the data protection reform that will presumably be adopted in the summer of 2014.

Besides the importance of developing the networks and guaranteeing security, the Luxembourg government and its partners are aware that the long-lasting and efficient development of the digital economy requires e-skills and is thus active in promoting the ICT business to the students. Awareness of the training opportunities and carriers in the ICT sector is one of the areas of development of the digital economy in Luxembourg.

41 Luxembourg and ICT: a snapshot.

Appendix 1

ABOUT THE AUTHORS

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Linda Funck is a partner with Elvinger, Hoss & Prussen, which she joined in 2000 when she became a member of the Luxembourg Bar.

Her principal fields of activity are mergers and acquisitions, banking, financial and securities laws, corporate restructuring and IT law. In the field of TMT, Linda Funck regularly advises local and international companies on all IT aspects and is a regular adviser to clients seeking to establish or develop their TMT activities in Luxembourg.

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