



OFFICE FOR COMMUNICATIONS
PRINCIPALITY OF LIECHTENSTEIN

Analysis of the market for access to the public telephone network at a fixed location (M1)

**Narrowband access service to
the public telephone network at a fixed location
for residential and non-residential customers (retail market)**

(Final version)

Vaduz, November 2009

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1 Introduction

1.1 Legislative basis

By virtue of Art. 20 of the Law concerning Electronic Communication (KomG)¹ the Office for Communication is required to examine whether effective competition obtains upon the electronic communication markets in Liechtenstein. If effective competition does not exist, that is, one or more providers possesses significant market power, the Office will apply such measures of special regulation (under Art. 23 et seq. KomG) as are needed in order to remove the problems for competition that have been determined to exist. This procedure is termed market analysis.

The Office for Communication has defined, and the Government has published in the Official Gazette,² the scope of the service and/or product markets that are to be investigated in accordance with Art. 21(1) KomG. This was done taking into consideration the markets recommended by the EFTA Surveillance Authority.

The existence of significant market power – corresponding to a position of dominance in a market under general EEA competition law – has to be determined by taking into account in particular the criteria laid down in Art. 31 VKND.³

If the Office for Communication determines that one or more providers have significant market power in a defined market, the Office has the power to impose such measures of special regulation under Arts. 34 to 43 VKND as are necessary and proportionate and suited to removal or mitigation of the problems for competition obtaining on the market in question.

The following market analysis investigates in first place the question of whether self-sustaining competition exists in an economic sense in the market for *“access to the public telephone network at a fixed location for residential and non-residential customers”* (retail market) or, as the case may be, whether self-sustaining competition would prevail in an economic sense without regulation. Such factors and problems as may stand in the way of such self-sustaining competition will be identified. The presence of economic market power will be investigated in this connection; in particular the criteria of Art. 31 (1) to (3) VKND will be considered according to their relevance for the market in question. Proceeding from a determination of providers having significant market power and the identification of relevant problems for competition on the two access markets, the necessary measures of special regulation will be imposed that are suited to remedying the problems for competition that have been determined.

¹ Law of 17 March 2006 concerning electronic communication (Kommunikationsgesetz; KomG), LGBl. 2006 No. 91.

² Announcement of 3 February 2009 on the determination of relevant material and geographical electronic communications markets (market definition), LGBl. 2009 No. 69.

³ Ordinance of 3 April 2007 on electronic communication networks and services (VKND), LGBl. 2007 No. 67.

1.2 Market analysis process

The procedure for the market analysis and the imposition of measures of special regulation is made up of the following steps:

Process of special regulation in general	Market analysis in its broad sense	1	Collection and analysis of the necessary data on the market and from undertakings.
		2	Definition of the relevant markets in a national context from a material and geographical point of view.
		3	Determination of (any) SMP undertakings.
		4	Identification of any current and potential problems for competition.
		5	Elaboration of any measures of special regulation that are to be imposed.
		6	Consultation of interested groups nationally, i.e. undertakings which will be affected by planned measures.
		7	Submission of the market analysis for review by the EFTA Surveillance Authority and the regulatory authorities in the EEA.
		8	Imposition of any necessary measures by means of administrative decision.
		9	Surveillance over the implementation and observance of the measures which have been imposed.

Figure 1: Overview of the overall process of special regulation

The above overview presents the process of special regulation as a whole. Market analysis in its broad sense here⁴ is understood to include adoption of any necessary regulatory measures, and so extends across steps 2 to 8 in the above overview.

1.3 National and EEA-wide consultation

To the extent that the Office for Communication foresees adoption of measures of special regulation that are likely to have significant effects on the market concerned, it is obliged to announce this to interested parties in conformity with Art. 24 (1) KomG and to give such parties the opportunity to make their position known within a reasonable period. The Office is for this purpose empowered in particular to hold public consultations (Art. 46 KomG).

⁴ One can define market analysis in its narrow sense as relating to steps 2 to 4.

The Office for Communication therefore on 7 April 2009 published, under Art. 40 KomG, its analysis of the market for access to the public telephone network at a fixed location. Interested parties were invited to submit comments on the analysis and in particular on the measures of special regulation proposed in it during a public consultation period in accordance with Art. 24 (1) in conjunction with Art. 46 (1) KomG and Art. 24 (1) RKV.⁵

The following undertakings submitted comments by the end of the national consultation period on 29 May 2009: Cablecom GmbH; Liechtensteinische Kraftwerke (LKW); Mobikom (Liechtenstein) AG; Orange (Liechtenstein) AG; Swisscom (Schweiz) AG; Telecom Liechtenstein AG; UPC Austria GmbH; Wasserversorgung Liechtensteiner Unterland (WLU). The comments are, in so far as they are not subject to confidentiality, published on the Office's website.⁶

The comments were considered when preparing the present final version of the market analysis in so far as they were in the Office's view of importance and/or entailed consequences.

The Office for Communications has formally notified TLI of the planned regulatory measures in M1 by letter dated 24 August 2009. By response letter dated 31 August 2009 TLI opposed the inclusion of voice over broadband voice accesses in the relevant product market as well as the proposed CPS obligation in respect of its VoB product "Connecta". In view of the associated implementation costs and the current market phase, it deems such an obligation to be disproportionate. AK has subsequently reconsidered these two objections and conducted, between 3 and 13 November 2009, an additional limited consultation on these issues. The comments received from Telecom Liechtenstein AG and Mobikom Liechtenstein AG have, however, not provided any new arguments in substance and maintained the positions previously made, which have already been drawn into consideration by the Office.

If the Office for Communication intends to adopt measures of special regulation which are likely to have effects on trade between EEA States, the Office has then in addition to the national consultation exercise to consult the EFTA Surveillance Authority and the other NRAs in the EEA beforehand in conformity with Art. 7 of the Framework Directive 2002/21/EC (Art. 24(2) KomG).^{7,8} This EEA-wide consultation serves transparency and the consolidation of the single market.

⁵ Ordinance of 3 April 2007 on the responsibilities and powers of the Regulatory Authority in the field of electronic communication (RKV), LGBl. 2007 No. 68.

⁶ <http://www.llv.li/amtstellen/llv-ak-marktanalysen/llv-ak-marktanalysen-konsultationen.htm>.

⁷ Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("Framework Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cl.01).

⁸ For the details of the procedure for submission according to Art. 7 of the Framework Directive see also: Recommendation of the EFTA Surveillance Authority No. 193/04/COL of 14 July 2004 on notifications, time limits and consultations provided for in Article 7 of Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 113, 27.4.2007, p.10.

During a first phase, the EFTA Surveillance Authority is given a period of one month to make comments upon the analysis submitted to it and on any planned measures. If the Authority expresses a reasoned doubt as to the compatibility with EEA law of measures that have been submitted, it can extend this period by two months in order to allow further investigation of the matter. If no such doubts exist, the Office for Communication can adopt the measures that were submitted. On the other hand, if the EFTA Surveillance Authority comes to the conclusion within the extended period that the market definition or the analysis of significant market power is contrary to EEA law, it may forbid the Office for Communication from bringing the planned measures into force.

As concerns the form of particular measures of special regulation in itself, that is, the obligations which are imposed upon providers, the EFTA Surveillance Authority has solely the competence to comment upon them, not to reject them. If the EFTA Surveillance Authority does comment upon a draft measure, then the Office for Communication has to take its comments into utmost account.

All relevant documents and published information relative to the submission of measures of special regulation by the Office for Communication are accessible via the electronic portal⁹ of the EFTA Surveillance Authority. All public documents relative to national consultations are viewable on the Office for Communication's website.¹⁰

1.4 Composition of the market analysis

The market analysis is composed as follows: Chapter 2 provides an introduction to the subject-matter under investigation and describes the market to be investigated. Alongside performing market definition in accordance with the 2009 Announcement on market definition¹¹ this chapter also contains a description of products and services as well as of the present regulatory situation. The analysis of competition itself is to be found in chapter 3, where the questions of the effectiveness of competition and the presence of significant market power are answered. All indicators relevant to an assessment of market power will be investigated in this connection. Chapter 3.5 undertakes the overall assessment of whether competition prevails from an economic perspective on the market under investigation or whether self-sustaining competition would exist without regulation or again which problems of competition and factors may stand in the way of such competition. Chapter 4 investigates the main ways in which there is scope for abuse of market power and problems for competition. This analysis is preliminary and provides the transition to Chapter 5, which is devoted to measures of special ex ante regulation. Its sections 5.1 and 5.2 introduce the regulatory instruments under the KomG and the

⁹ <https://eea.eftasurv.int/portal/>

¹⁰ <http://www.ak.lv.li/>

¹¹ Announcement of 3 February 2009 on the determination of relevant material and geographical electronic communications markets (market definition), LGBI. 2009 No. 69.

principles for their application. Chapter 5.3 discusses the regulatory measures that are appropriate for remedying the problems for competition that have been determined.

1.5 Time frame

The time frame for the present market analysis is two to three years ahead. The Office for Communication will continue to keep the market concerned under further observation during this period and, if necessary, will initiate a fresh market analysis. Art. 21 (2) KomG lays down that the conditions for competition in the markets identified in the Announcement on market definition are to be reviewed at least once every four years.

1.6 Sources of data

The essential data that provided the basis for the following market analysis were collected by the Office for Communication by means of an annual questionnaire to operators over the years 2004-2008. The collection of market data takes place each year in the summer in relation to the preceding calendar year. Collection of the sampled data between such intervals is normally only conducted additionally if this seems indicated by a rapid change in market conditions or by other special reasons, because to do otherwise would be excessive.

To supplement the data gathered through the yearly questionnaires, data obtained under the previous legal framework have been used as necessary. No further reference will be made in the following market analysis to these data or to the data collected during the survey of operators; only other, external, sources of data will be referred to specifically as necessary. Additionally, the Office for Communication keeps the market in question, like other relevant markets, under constant observation. The present analysis therefore, further, relies on the Office's current information and data.

1.7 Competition authority

Liechtenstein has no national competition law beyond the rules of competition applicable under the EEA Agreement. Nor does Liechtenstein have an independent competition authority at present. Legal recourse in competition cases is therefore to be sought in accordance with the applicable EEA law before the ordinary national courts or by reference to the EFTA Surveillance Authority or the European Commission. The exception to this is the Office for Trade and Transport by virtue of Art. 2 (1) of the Law of 23 May 1996 on the Implementation of the Rules of Competition in the European Economic Area, LGBI. 1996 No. 113, under which that Office has responsibility for the implementation of competition rules where the courts do not have jurisdiction. This responsibility is, however, essentially directed towards support to the EFTA Surveillance Authority and the undertaking of actions by the State, and not towards the material application and enforcement of EEA competition rules.

Cooperation with or consultation of a competition authority in the sense of the second sentence of Art. 16(1) of the Framework Directive 2002/21/EC¹² is, for these reasons, not possible in the case of the present market analysis in Liechtenstein.

¹² Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("Framework Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cl.01).

2 The market under investigation

2.1 On the Liechtenstein fixed network sector in general

The fixed network sector in Liechtenstein was characterized until the end of 2007 by three undertakings which were originally independent of each other but ultimately became the property of LTN Liechtenstein TeleNet: LTN Liechtenstein TeleNet itself (LTN; for wholesale services), Telecom FL (TFL; for retail services) and Lie-Comtel (for CATV services).¹³ On 1 January 2008 all three enterprises were merged into Telecom Liechtenstein AG (hereafter „TLI“) and now exist only under this name.

Before then, provision of telecommunications in Liechtenstein took place up to 1998 under the PTT Treaty of 1978 between Liechtenstein and Switzerland. The network in Liechtenstein was an integral part of the Swiss telephone network (of Swisscom). The network components situated in Liechtenstein, including the access network, were provisioned, maintained and operated by Swisscom in the name and on the account of the Liechtenstein State. Their owner was the Liechtenstein State. In 1998 separation from the Swiss telephone network took place upon the liberalization of the telecommunications sector and with the founding of LTN as a State-owned company.

LTN was only entrusted with the operation of the network. The retail customer relationship was transferred to Telecom FL, which belonged to Swisscom, following an invitation for tenders in relation to basic service provision. Telecom FL was then 100% taken over by LTN in 2003 following an increase in LTN's capital. The full merger of the two undertakings as „Telecom Liechtenstein AG“ took place on 1 January 2008. TLI remains 100% State-owned.

Before integration into TLI at the beginning of 2008, Lie-Comtel, the cable television (and internet) provider for the majority of Liechtenstein,¹⁴ belonged to Liechtensteinische Kraftwerke (LKW) until the end of 2006. LKW, which equally is 100% State-owned, is responsible for the deployment of the copper, optical fibre and CATV network in Liechtenstein.¹⁵

In 2006, LTN and LKW signed a „consolidation agreement“. The agreement's purpose is to concentrate all retail customer relationships and „intelligent“ network components in LTN's hands and to combine all passive network components, including in particular the

¹³ Lie-Comtel was originally founded by LKW as a self-standing enterprise but existed at the time of the transfer to LTN only as a brand name and business that was part of LKW. The CATV network stayed with LKW also after transfer of the services platform and customers to TLI.

¹⁴ LKW operates and constructs the physical cable TV network (CATV) in nine of the eleven Liechtenstein municipalities: Balzers, Triesen, Triesenberg, Vaduz, Schaan, Planken, Gamprin-Bendern, Ruggell and Schellenberg. The CATV network in Schellenberg belongs to the municipality but is operated by LKW. LKW is below always regarded as being inclusive of the municipality of Schellenberg's CATV network.

¹⁵ See <http://www.lkw.li/cfdocs/cmsout/admin/index.cfm?GroupID=159&MandID=1&meID=256&>.

access network, transmission lines, cable ducts, etc., in LKW's hands. LKW should henceforth no longer be active on the electronic communications retail market, but rather only on the wholesale service market. The agreement was put into effect on 1 January 2007 through handover of LTN's passive network infrastructure to LKW. At the same moment Lie-Comtel was integrated into LTN (handover of customer relationships and taking over of the services platform as well as active network components; passive (and a few¹⁶ active) CATV network components stayed in LKW's hands).

LKW has thus been the holder of all fixed access networks in Liechtenstein since 1 January 2007. These comprise alongside copper-pair based subscriber connections also optical fibre (fibre access) and CATV (coaxial access). LKW operates in addition copper and fibre-optic based infrastructure for the core network and leased lines (dark copper and dark fibre). LKW employs this infrastructure to provide wholesale services to carriers and providers. By contrast, only TLI comes to the fore on the retail market.¹⁷

Matt Antennentechnik AG is active in Liechtenstein as a CATV operator, in parallel to LKW, in the municipalities of Mauren/Schaanwald and Eschen/Nendeln). There is no overlap between the area supplied by Matt Antennentechnik AG and that of LKW's CATV network. Both firms taken together cover practically all households in Liechtenstein.

2.2 Preliminary remarks concerning market definition

Under the Guidelines of the EFTA Surveillance Authority on market definition and the assessment of significant market power (hereafter the "SMP Guidelines"),¹⁸ the basis for the definition of the materially relevant market is a test of substitutability on the demand and supply sides of the product or service in question. Products will all belong to the same market when both users and providers see them as sufficiently interchangeable. A generally acknowledged procedure for determining this is provided by the so-called SSNIP test (small but significant non-transitory increase in price – SSNIP) or the test of the hypothetical monopolist.

The EFTA Surveillance Authority in its Recommendation on Markets¹⁹ identified in accordance with Art. 15 of the Framework Directive 2002/21/EC those materially relevant product and service markets that are susceptible to ex ante (anticipatory) regulation on the basis of the following three cumulative criteria:

¹⁶ „Karin“, nodes, amplifiers.

¹⁷ See the implementing arrangement to the merger agreement of 05.10.2007 (not public).

¹⁸ Guidelines of the EFTA Surveillance Authority of 14 July 2004 on market analysis and the assessment of significant market power under the regulatory framework for electronic communications networks and services referred to in Annex XI of the Agreement on the European Economic Area, OJ C 101, 27.04.2006, p. 1.

¹⁹ EFTA Surveillance Authority Recommendation of 5 November 2008 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with the Act referred to at point 5cl of Annex XI to the EEA Agreement (Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services), as adapted by Protocol 1 thereto and by the sectoral adaptations contained in Annex XI to that Agreement, OJ C 156, 9.7.2009, p. 18.

- The presence of high and non-transitory barriers to entry (structural and/or of a legal or regulatory nature);
- The market does not tend over the longer term towards effective competition (in the absence of sector-specific regulation);
- Application of competition law alone would not adequately address the problems of competition concerned.

It is assumed that for these markets – because the EFTA Surveillance Authority has already examined whether the applicable criteria are fulfilled – ex ante regulation will also come into consideration in Liechtenstein. Because of this, the Office for Communication does not have to repeat this examination as competent regulatory authority, unless it has reasonable doubt as to the criteria's specific concordance with the national context or the definition of the relevant national product market deviates from that which has been recommended.²⁰

2.3 Narrowband access services at a fixed location

Narrowband access to the public telephone network at a fixed location is understood to mean provision of the possibility to make and receive telephone calls and related services²¹ at a fixed location.

Access to voice telephony can be offered on the basis of various technologies and with a wide range of different functionalities. The fact that these different kinds of access all allow making and receiving telephone calls gives rise to their being more or less mutually substitutable. The technological forms of access for bridging the „last mile“ to the retail customer can be based in this regard on either wireless transmission or a fixed line.

Access to the public telephone network at a fixed location is realized, however, predominantly over conventional twisted copper-pair cable. Alternative forms of cable access that currently come into consideration are in particular connections over CATV²² lines (hybrid fibre coax network: HFC network). The following remarks will describe the market definition considerations that arise at a conceptual level from the existence of alternative access technologies. Concrete empirical instances are treated in the relevant analytical sections of chapter 3.

Both twisted copper-pair and CATV lines in principle permit the provision of retail customers with, on the one hand, analog connection (PSTN)²³ for the fundamental functions of voice telephony and narrowband data carriage as well as a basic set of related

²⁰ Cf. The comments of the EFTA Surveillance Authority of 6 September 2005 on the draft of the first Norwegian decision on mobile termination markets, chapter 3.2.

²¹ E.g. Sending and receiving fax transmissions or internet dial-up connections.

²² Cable television.

²³ Public Switched Telephone Network.

services and, on the other hand, digital connection (ISDN)²⁴ for obtaining a range of additional performance features (e.g. having two or more simultaneous voice connections on a single line). In order to examine whether connections based on twisted copper pairs and CATV both belong to the same market, the question needs to be posed how retail customers would react if a hypothetical monopolist were to increase the prices for connections based on copper pairs by 5-10%. Since connections by cable provide a functionality that is virtually indistinguishable, and to the extent that no significant differences in prices exist between the two access technologies, one would expect a greater switch-over on the part of customers to CATV-based connections as consequence of the price increase (i.e. on the part of customers who have the actual possibility to do so, meaning that they fall within both the copper-pair access network and the CATV network areas), so that the hypothetical monopolist would not be able to implement the price increase profitably.

Leased lines, optical fibre connections and unbundled subscriber connections represent further forms of supply-side access to the public telephone network at a fixed location.²⁵ While these forms of connection are used only rarely for the exclusive purpose of providing voice telephony services (from the point of view of connecting private extension equipment), the conditions on the supply side are such (technically and in terms of regulation) that they could certainly also be resorted to (at competitive prices or after a price increase by a hypothetical monopolist) for the provision of voice telephony services, whereupon they would also qualify as potentially indistinguishable substitutes from the customer's point of view.

As concerns cable-based connections, one can make a further differentiation according to VoIP²⁶ based connections. A broadband connection to the internet is a basic requirement for VoIP, without which it cannot be used to the full. Distinguishing between its two forms is fundamental in this regard:

- **Voice over Internet (VoI):** The characteristic which defines VoI is that the VoIP provider makes its services available on the basis of the (public) internet. These services are, however, generally not bundled together with the retail customer's (broadband) internet access. Access to the retail customer is realized over a customer's already existing (broadband) internet connection; the VoIP provider hence uses the internet and existing internet access as a kind of „access network“. The customer's internet access, that is, the physical connection including internet access, is normally made available by an independent third provider. In other words, broadband access lies outside the control of the VoIP provider and it cannot

²⁴ Integrated Services Digital Network.

²⁵ Wireless local loop (wireless subscriber connection) and powerline communication (use of the existing electricity distribution network for electronic communication) are not currently made use of in Liechtenstein and are consequently not considered further below.

²⁶ Voice over Internet Protocol.

therefore influence its quality. VoI is offered in several variants: some facilitate full connectivity with the public telephone network (i.e. the subscriber receives a subscriber number from the public telephone numbering space for incoming calls); others offer only outgoing calls to the public telephone network or are limited to calls between internet users.

- **Voice over Broadband (VoB):** By distinction with VoI, VoB is employed over twisted copper pairs in the form of Voice over DSL²⁷ (VoDSL) and in CATV networks as “Voice over CATV”.²⁸ VoB is characterized by the fact that the VoIP provider makes its services available in combination with a (broadband) internet connection that it provides and by use of VoIP technology for voice data carriage in the access network. VoB services generally allow full connectivity to the public telephone network and represent in terms of product features in general a broad equivalent and thus functional substitute to the classical telephone service. This is the case not least because the provider can control the quality parameters in the access network by combining VoIP service with (broadband) internet access. VoB providers are in addition able in principle to meet the conditions for use of geographical telephone numbers.

2.4 Definition of the relevant product market

In accordance with the EFTA Surveillance Authority’s Recommendation on Relevant Markets, the relevant material market is defined in Part A, item 1 of the Annex to the Announcement on market definition as follows:

„Access to the public telephone network at a fixed location for private and business customers“.

This market corresponds to Market No. 1 in the EFTA Surveillance Authority’s Recommendation on Relevant Markets.^{29,30} The market in question is a retail market.

Analog and digital means of realizing access to the public telephone network over a provider’s own twisted copper-pair or fibre-optic network, over unbundled lines, over leased lines and over cable systems (CATV connections) all belong to the access market for the public telephone network at a fixed location. Establishing access by means of Voice over Broadband (VoB) likewise forms part of the market in question, but access by Voice over Internet (VoI) does not. Access comprises connection and accessibility for incoming

²⁷ Digital Subscriber Line.

²⁸ Voice over CATV is not currently on offer in Liechtenstein.

²⁹ Cf. Footnote 19.

³⁰ The European Commission has described the product markets in its explanatory remarks to the Recommendation on Relevant Markets, *Explanatory Note* (Commission staff working document SEC2007/1483) to Commission Recommendation 2007/879/EC of 17 December 2007 on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ, L 344, 28.12.2007, p. 65.

communications. Mobile wireless forms of access to the public telephone network do not (at present) form part of this market.

So far as VoB voice access is concerned, as for example in the case of TLI's product „Connecta “, this form of access must be considered to be a complete substitute from the customer's point of view as well as the provider's to subscriber connections based on other technologies due to the product features in question, as explained in the preceding section; this service is accordingly to be classed as a publicly accessible telephone service in the sense of Art. 3(1), item 11, KomG. The fact that in the instance of „Connecta “ one may be speaking of a bundled product does not detract from these findings. The part of the product bundle which can be classified as voice access to the public telephone network is to be regulated as such and to be subject in principle to the same obligations by reason of the principle of technological neutrality embodied in Art. 5(2)(c) KomG.

In the fixed network retail market a distinction can in principle be drawn between consumers and other retail customers which are not consumers, or between private and business customers. The two sets of terms will be used interchangeably below. Art. 3 (1)(7) KomG defines a „consumer“ as „any natural person who uses or requests provision of a publicly accessible electronic communication service other than for commercial or professional purposes“. In accordance with Art. 3 (1)(6) KomG an „end-user“ is „a user who does not provide public communications networks or publicly accessible electronic communication services“, whereby item 4 of the same provision defines a „user“ as anyone „who utilizes or requests a publicly accessible electronic communication service or uses communications terminal equipment“.

In Liechtenstein this distinction has no significance for the present retail market for access to the public telephone network at a fixed location in as much as operators – in particular TLI – do not apply a systematic distinction between these two categories of customer. Fixed network access products are offered essentially in an indifferent manner to both categories of end-users, although naturally certain access products like ISDN primary rate connections are due to their dimensioning as a rule sought only by (larger) business customers. There are no significant and systematic differences in the contractual terms for both groups' access. Likewise, the operator survey has shown that operators do not differentiate between these two types of customer systematically, while a distinction is not always feasible easily; differentiated data collection and distinguishing between them are hence not possible without further steps being taken. An example to be cited in this connection is the constantly growing number of small and micro enterprises and of so-called home offices.

The Office for Communication therefore does not consider it justified to segment further the access market at a fixed location in Liechtenstein between private and business customers. Apart from this, any segmentation that were attempted would not alter

anything in terms of the final outcome of the market analysis, as will be shown by the analysis of market power.

2.5 On the issue of inclusion of "Connecta" in the product market

TLI expresses reservations in its response of 31 August 2009 about the inclusion of VoB - and especially its product "Connecta" - in the same product market for fixed-line voice accesses as traditional PSTN and ISDN lines, and believes this to be inconsistent with existing EEA law and practice developed thereto. AK subjects in what follows the inclusion of VoB voice accesses in the relevant product market to an additional examination of its compliance with the existing practice of the EFTA Surveillance Authority and the European Commission.

Connecta is a bundled product which provides the customer both with a narrowband access to the public telephone network for the origination and reception of telephone calls as well as with broadband internet access at fixed locations. TLI provides the voice access and internet access from one source and is thereby in a position to ensure the quality and reliability of the voice access in its own network (so called managed VoIP service or VoB).

According to the product information available to AK, Connecta provides the same features as traditional PSTN / ISDN connections. TLI markets Connecta as "the first choice" for new voice connections and as a replacement for traditional PSTN / ISDN connections. Connecta is promoted by TLI in ways that are designed to entice in particular existing customers - especially those who already have both a separate voice connection and broadband connection – to switch to an integrated product. To this end, TLI maintains ongoing marketing campaigns offering free switching and installation and terminal equipment subsidies. Customers can continue using their existing telephone subscriber numbers and analog devices, or replace them, if so desired, by modern IP phones. If the subscriber line has already been provisioned for an existing DSL broadband connection, there is generally no need for any adjustments to the connection on the customer's premises side. Hence, there exist no or only negligible barriers to switching for customers. For these reasons, the objection maintained by TLI in its response must be rejected as evidently unfounded, in as far as it maintained that Connecta was (still) not a functional substitute for traditional voice connections and that Connecta was still at a development stage. AK is not disputing that Connecta may still undergo further development and extension as a bundled product. At any rate, however, the voice access product included in the bundle is already currently providing a complete functional substitute for traditional voice connections. The VoB voice access does furthermore not constitute an emerging product/market, especially since the same functionality – the origination and reception of

voice calls – is only provided by using a new technology.³¹ This corresponds to the principle of technologically neutral regulation as stipulated by Article 5(2)(c) KomG.

Regarding the pricing of Connecta, the same or (slightly) heightened performance levels can be bought at comparable or lower cost for the bundled product in comparison to the purchase of a separate ISDN / PSTN voice connection and a broadband connection.

In the view of the AK, in particular the following reasons speak for the definition of a single product market for voice accesses which also includes VoB connections such as Connecta: VoB (and especially the product "Connecta") constitute a complete functional substitute to traditional voice connections and are marketed by TLI accordingly. The costs for such an all-IP connection are comparable or cheaper than the costs of obtaining a separate voice and broadband connection. There are no barriers to switching from a conventional to a VoB-based voice connection.

In its latest manifestation on the question of whether voice connections provided through VoB form part of market M1, the European Commission commented on 17.04.2009 in case DE/2009/897, p.4, as follows regarding its agreement on the inclusion of all-IP connections (*Komplettanschlüsse*) in the retail access market in Germany:

Referring to its 2007 Recommendation on relevant markets and its accompanying explanatory memorandum³², the Commission noted that access for residential and business users to the public telephone network at fixed locations, which provide for the facility to make outgoing and incoming telephone calls and related services, could be provided through different technologies or means. Although broadband connections also enable the provision of telephone services, a customer would not normally switch from a narrowband connection to a broadband connection solely for the purpose of availing himself of the use of a voice telephony service. In the view of the Commission, such a switch would occur because the user desires a faster internet service. So far, switching customers would as a rule keep the existing narrowband access, which in turn would indicate that in fact we are dealing with an additional product rather than a substitute. However, this relationship was now to be assessed anew by national regulatory authorities in a forward looking manner in light of the availability of naked DSL products.

The Commission's assertions in the past have therefore to be re-evaluated in as far as, on one hand, many EEA countries did not have any naked DSL products available in the past which would have allowed switching customers to relinquish their existing narrowband connection. This situation is, however, gradually changing with the introduction of regulatory requirements to provide separate broadband connections without an underlying narrowband voice connection, i.e. with the introduction of naked DSL offerings.

³¹ This is without consideration of any potential nomadic use, given that TLI undertakes no quality assurance for this type of use and we are dealing in fact with Vol.

³² Cf. Footnote 30.

On the other hand, fully functional VoB products were not available everywhere in the past. But both limitations hold, in light of the envisaged obligations to provide naked DSL products in the broadband market M5 as well as due to the actual product characteristics of Connecta, in a forward looking manner – as is the nature of the analysis at hand - no longer true for Liechtenstein. The regulatory remedies to be imposed in the broadband market M5 provide for an obligation on TLI to offer naked DSL, i.e. an offer of a DSL broadband connection without simultaneous narrowband voice connection. It will thus be thenceforward possible for alternative operators to provide all-IP connections, as are currently provided by TLI itself with its Connecta product offering. This will further facilitate and accelerate the substitution of conventional voice connections by VoB connections.

As part of its consent to the inclusion of VoB connections (called "*Komplettanschlüsse*" or "all-IP connections") in the market for narrowband access services in Germany, the Commission considered the following additional criteria: the comparability of connection tariffs, the functional substitutability of the connections and the lack of barriers to switching, the dynamic development of VoB connections on the market.

The functional substitutability of the connections and the lack of barriers to switching and cost barriers have already been demonstrated above. The dynamic growth of Connecta is - given its only recent launch – considerable with a total of 485 connections by the end of 2008. As for the comparability of retail tariffs for the bundled product Connecta and the separate tariffs for a PSTN / ISDN voice connection and a comparable DSL broadband offering, these are in a similar price range or the price of the bundled offer is more advantageous.

By the end of 2008 approximately 81%³³ of households in Liechtenstein had a broadband connection and thus can potentially switch without obstacles to an all-IP or VoB connection. Considering only the number of DSL-based broadband connections, the penetration rate is 57%. Thus, already 57% of all voice lines³⁴ are simultaneously used for a DSL broadband connection and there are consequently no impediments to switching to a VoB product from the perspective of the user. Consequently, they can simply switch to a bundled product – i.e. the move occurs not from a narrowband connection to a broadband connection, such as criticized by the European Commission in its (previous) comments, but rather the user only avails himself of the advantages of a product bundle over a separate broadband and a narrowband voice connection. This switching behaviour is confirmed empirically by the connection statistics for 2008 which show a similar corresponding decrease in PSTN / ISDN connections and simultaneous increase in VoB connections.

³³ Based on 13'667 households according to the 2000 general census and 11'048 broadband connections (of which 7'808 are based on DSL).

³⁴ Assuming that DSL-based broadband connections are provided using the existing voice access line and no additional line is used.

In the future, due to the availability of a regulated naked DSL offering, even those users who want only a voice connection can potentially switch to an all-IP product. The number of potential users that can switch without obstacles to an all-IP connection therefore predominates and is further strongly growing in line with the overall growth of the broadband connections. For these reasons, the objections adduced by TLI with reference to cases PL/2006/0518 and PL/2006/0524 must be rejected as unfounded for Liechtenstein.

Concerning the specific issue of inclusion of a bundled product like Connecta in the relevant market definition, the European Commission states in its comments on cases FR/2005/221 to FR/2005/226 the following: "In particular, the fact that certain products are bundled with other products as such does not exclude that they are in the same market than similar products offered alone." The Commission referred the matter further to the conclusion that in the given case broadband product bundles that include a VoB voice access component exert competitive pressure on traditional voice connections and, therefore, a market definition encompassing both products appeared to be justified.

In summary, it must therefore be concluded, that the inclusion of VoB connections in general and of the product "Connecta" in particular in the market for access to the public telephone network at fixed locations is in accordance with EEA law and current practice, and is correct in a material way. TLI's significant market power is therefore to be considered on the entire market for voice accesses and not only – as incorrectly criticized by TLI in its written response – with regard to VoB connections alone.

2.6 Business models and providers on the market

Different business models can be discerned depending upon kind and extent of the take-up of wholesale services and on where the emphasis may lie at the access level:

The „classical“ model – according to which a former vertically integrated monopolist (the incumbent) is the only one offering a local access network covering the whole country and so concomitantly narrowband access services – does not apply in Liechtenstein due to the historical circumstances specified in chapter 2.1. A further special characteristic of the Liechtenstein fixed network sector consists in the fact that – as already explained – ownership of subscriber access networks (twisted copper-pair and CATV) has since 2007 been separated from provision of subscriber access services on the retail market: LKW is the owner of the access networks as well as of further passive network elements; TLI offers retail products based on the corresponding infrastructure wholesale services. LKW is only active on the wholesale and not the retail market.

TLI therefore continues to play a special role, because it is the only telecommunications company – even though it no longer holds the twisted copper pair access network and is obliged to obtain access to it through LKW as a wholesale service – able to offer

narrowband fixed network access services across the country (cf. remarks on this in chapter 3.2.2).

One would in principle expect that competitive stimuli would be imparted to the access market at a fixed location by, alongside CATV networks, the activities of unbundlers in particular. Up to now, however, demand for unbundled subscriber connections is minor in Liechtenstein and, apart from this, those lines that have been unbundled are not employed for providing narrowband access services.³⁵ Moreover, the CATV network – with the exception of the municipalities supplied by Matt Antennentechnik AG – similarly belongs to LKW, with access to it offered under TLI's retail offering, which is why no competitive stimulus has arisen to date from the side of CATV networks. TLI has furthermore not offered any voice telephony access over the CATV network.

As a matter of principle, the „mobile communications sector“ as a whole must also be seen as being to a certain extent a substitute for the fixed network. An assessment of competition of mobile radio products that are non-relevant according to the market definition is given in chapter 3.4.4.

Based on the operator survey and the Office's current information, only TLI is active on the access market at a fixed location by means of an operator's own narrowband access provision.

A further operator having a country-wide access network infrastructure does exist in the form of Liechtensteinische Kraftwerke; however, it only operates on the wholesale and not the retail market. LKW hence offers no retail access services, nor has it any intention of doing so in the foreseeable future on the basis of the consolidation agreement³⁶ between LTN/TLI and LKW of 11 July 2006 and its publicly stated strategy.

A further CATV operator exists in the form of Matt Antennentechnik AG but lacks a country-wide access infrastructure and does not provide its own narrowband access at a fixed location. Only TVCable.li Anstalt, which provides internet access services on the basis of Matt Antennentechnik AG's CATV network, offers VoI connections, in cooperation with Montan Telecom.³⁷ Telephone numbers are available in the numbering range 70x xxxx (personal numbers) but not in the fixed network range. Neither Montan Telecom AG nor TVCable.li Anstalt has reported customers having any active connections in the operator survey for 2004-2007.

The relevant product market at present therefore covers analog (PSTN) and digital (ISDN basic rate and primary rate) connections as well as TLI's Voice over Broadband (VoB) connections. Further substitutable kinds of connection that have been discussed under

³⁵ Cf. Chapter 2.3 of the Analysis of the physical access market (M4).

³⁶ The agreement is not public.

³⁷ <http://www.look4.li/index.php?id=34> (last consulted on 11.03.2009).

chapter 2.3 and their providers will form part of the market if and when they are actually offered in Liechtenstein.

2.7 Development of the fixed network access market

At the end of 2008 there were a total of 19,611 active fixed network connections in Liechtenstein. The development and composition of the market is as follows according to the type of fixed network subscriber connection:

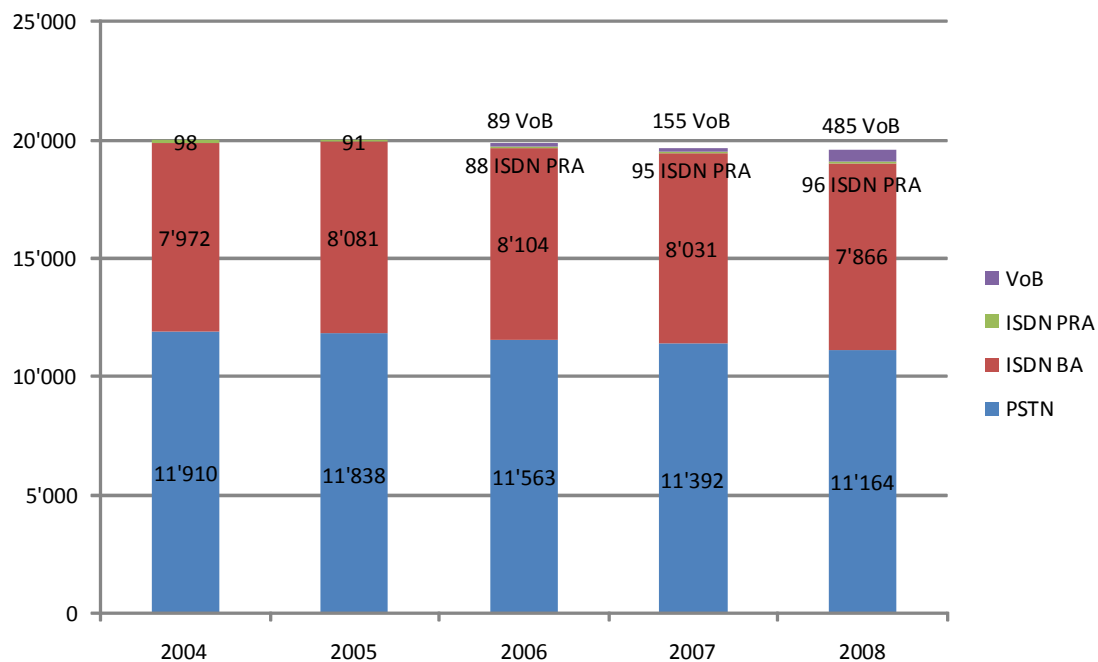


Figure 2: Development of fixed network connections 2004-2008

The total number of all fixed network connections fell slightly overall (by < 2%) over the period considered. The decline in PSTN connections was not evened out by a small increase in ISDN basic rate connections that occurred at the same time (and which since 2007 has again gone into decline). ISDN primary rate connections remain essentially unchanged with slight yearly fluctuations. VoB connections have been on offer since 2006, but their number is still of minor importance in comparison to the existing PSTN and ISDN connections (at < 3% at the close of 2008). This might perhaps change with more intensive marketing of corresponding broadband packages by TLI or by any new competitors. There continue to be no fixed network connections offered commercially over CATV networks currently.

2.8 Interdependence between and connection with other markets

To aid comprehension, this section provides a portrayal of the interdependences existing between the retail and wholesale markets for services at a fixed location (vertical relationships) as well as a description of instances of dependence occurring within both of

the two levels of the value chain (horizontal relationships). These descriptions will take us beyond discussion that is in part abstract and normative in nature towards formal market definition or delimitation by revealing more closely the factual logic of the connections between individual relevant markets or (non-relevant) market segments. Doing so will thus furnish the necessary basis for understanding the analysis performed in the chapters that follow.

It is desirable to pay regard to these mutual linkages by contradistinction to an investigation that were to treat aspects relevant for competition in each individual market quite separately, which would thereby fail to give due attention to the substantive logic the linkages exhibit.

2.8.1. Horizontal relationships

Substitutive relationships between markets on the same level of the value chain: The extent of a substitutive relationship has already been determined upon in the definition of markets established by the EFTA Surveillance Authority and the European Commission. If substitution operates to a high enough degree (i.e. it is substantial and swift temporally) to discipline a hypothetical monopolist (applying the SSNIP test), then the products under investigation are to be assigned to the same market. As a consequence, the extent of substitution in question here need not be substantial (in the sense of the market definition), but it may still be relevant for the economic assessment being made. A significant example is the competitive stimulus, already examined, that is lent by the mobile radio communication sector. This has been classed as being as yet insufficient in terms of the market definition but it does all the same produce non-negligible effects on the fixed network markets currently being considered.

Bundling of complementary products on different markets on the same level of the value chain: This occurs at the retail level by offering connections bundled with services for making calls. Retail markets for public voice telephony at a fixed location can generally be described as being for access provision (the physical connection including for incoming calls) together with providing a connection (at a fixed location) for outgoing calls to the telephone network. Although many retail customers obviously prefer to obtain access and outgoing calls services from the same firm, others decide to obtain outgoing calls services from another operator than that which provides access. This is due to the fact that customers of the former monopoly operator (the incumbent) are able to opt for alternative providers by carrier (pre-) selection (CS/CPS)³⁸. If the firm tries to increase the price of outgoing calls above the competitive level it must for this reason reckon with retail customers turning to alternative providers of communications services (perhaps only for certain destinations). In consequence, provision of access to the public telephone

³⁸ Carrier Selection (CS); Carrier Pre-Selection (CPS).

network, on the one hand, and providing a connection for outgoing calls, on the other, therefore represent different services which different providers may only be able to provide thanks to sector-specific regulation. When a retail customer obtains telephone services this necessarily³⁹ implies taking up both service elements. Since (contrary to mobile radio services) the retail customer does not compare and buy these service elements as bundles (at least not generally) one must assume the existence of separate retail markets for access and outgoing calls.

2.8.2. Vertical relationships

Where vertical relationships are concerned, a demarcation occurs by definition throughout the value chain, i.e. the respective products cannot be substitutive. The vertical relationships involved can best be described by following the logic associated with completion of a telephone call:

In order to be able to make a telephone call (and more generally to establish a connection), the retail customer needs first to obtain network access, which is made available in the form of a connection at a fixed location. This (direct access) can in principle be made available in two ways: 1) the provider itself sets up access to the subscriber concerned, or 2) it uses means of access that another provider (a subscriber network operator) has in place.

The situation is similar with respect to outgoing calls the retail customer wishes to make. These can either be offered to the retail customer by an integrated operator (over its own infrastructure) or be provided by a third party (indirect access) using the infrastructure that is in place for offering service to customers (connectivity network operator).

Of central importance is finally the further circumstance that one is concerned here with end-to-end telecommunications services, i.e. a connection has to be established at the same time between subscribers including on different networks (as the case may be). This requires mutual access for termination on all other networks (and to their subscribers). Corresponding origination and termination services are hence – from a provider's point of view – a precondition for establishing retail products in any case.

³⁹ If one disregards hypothetical use to obtain purely passive accessibility.

Retail markets (private and non-private customers)	Wholesale markets / infrastructure
Access	Provision of own twisted copper-pair line or rental (unbundling), ⁴⁰ coaxial cable, terminating segments of leased lines, optical fibre
Domestic connections	Origination, termination, transit services
International connections	Origination, termination (international), transit services (domestic and international)

Table 1: Relationships between relevant fixed network markets

The kind of relationship that exists between wholesale and retail markets is critically dependent upon on parameters such as quality, tariffs and scheduling of provision and (other) competitive factors. The technical quality of retail products that is feasible depends, for instance, directly on the quality of the wholesale services that are provided. The most significant cost parameters for retail tariffs are for their part the services bought on the wholesale markets. Providers that are active on both retail and wholesale markets thus have in principle different possibilities (integration and development of new services etc.) open to them in establishing their offerings than do providers which are exclusively reliant upon purchase of wholesale products for the establishment of their retail products.

2.9 Definition of the relevant geographic market

The geographically relevant market is that area in which the relevant product is offered and bought under sufficiently similar or homogeneous conditions of competition.

TLI is the only provider of narrowband access services at a fixed location. It provides these access services nationwide and under uniform price and other conditions.

In accordance with Part B of the Annex to the Announcement on market definition, the relevant geographic market for the purposes of the present market analysis is therefore defined as the entire national territory of Liechtenstein. This is in line with the small size of the national territory and the homogeneous conditions for supply and demand that arise therefrom and it also corresponds to the geographical extent of the access network on Liechtenstein territory.

⁴⁰ The subscriber connection has to be (owing to a regulatory requirement) rented out (i.e. unbundled) by the access network operator (the incumbent as the undertaking subject to the regulatory requirement) to another provider (the unbundling partner) so that it can operate the connection between the subscriber and its alternative infrastructure.

2.10 Earlier regulation relevant for fixed network access

As part of the liberalization and restructuring of the Liechtenstein telecommunications sector, Art. 23 of the licence for basic service provision granted on 30 June 1998⁴¹ to the former Telecom FL AG (and now TLI) imposed a price cap for local basic services (including fixed network access). In accordance with Art. 73 (3) KomG, the licence, and thus too the price cap contained in it, remain „*in being up to publication of the market analysis' final outcomes*“. The price ceilings for fixed network access services that are regulated and have been approved by the Office for Communication continue to this day. Their amounts are as follows:

Type of connection	Price ceiling per month (including VAT)
PSTN (analog)	CHF 25.25
ISDN Light ⁴²	CHF 39.80
ISDN Basic ⁴³	CHF 53.75
ISDN primary rate connection	CHF 532.15

Table 2: Retail price ceilings for fixed network access services

The current obligation to provide access through CS/CPS applies pursuant to the requirement contained in Art. 14(2) of Telecom FL AG's basic service licence: to facilitate „*carrier selection for both local and outgoing international calls [... in] cooperation with LTN*“. Art. 16 of LTN's 1998 infrastructure licence⁴⁴ contains the obligation to implement or assure „*carrier pre-selection as well as call by call override upon instruction by AK and in accordance with EEA law in particular*“. Such indirect access must be provided on a cost-oriented basis under Art. 8a of the infrastructure licence. These obligations equally remain „*in being up to publication of the market analysis' final outcomes*“.

The existing licence obligations have passed to TLI as the legal successor in all respects to LTN Liechtenstein TeleNet AG and Telecom FL AG.

LTN's cost accounting has to date been submitted at regular intervals to the Office for Communication for examination as to cost orientation and for approval of access charges. Approval of the charges took place on the basis of activity-based full cost accounting. The validity of the cost accounting as well as of the former LTN's reference offer of 1 April

⁴¹ Licence for the provision of basic local and international services over the public telecommunications infrastructure in the Principality of Liechtenstein (combined basic service licence - ITT/GVD/ISP/1&ITT/GVD/LSP1), 30 June 1998, in its currently valid version.

⁴² The difference between ISDN Light and ISDN Basic is that three telephone numbers are provided instead of five. Both kinds of connection offer two voice channels simultaneously.

⁴³ ISDN Basic is also marketed as ISDN Businessline. Additional sets of numbers can be subscribed for under the latter.

⁴⁴ Licence for the provision of telecommunications infrastructure in the Principality of Liechtenstein (infrastructure licence – Licence for the support and realization of functions for the basic international service), 1 December 1998, in its currently valid version.

2005 was last extended up to 30 June 2007 by a decision of the Office for Communication of 7 July 2006. From 1 January 2008 onwards the company has, now as TLI, been offering the same prices as those earlier approved for LTN but under a new Reference Interconnection Offer (RIO)⁴⁵.

The price for „origination in the national fixed network“ for carrier pre-selection is CHF 0.02 per minute under Annex 5 to TLI's RIO. The price for setting up carrier pre-selection is CHF 20 per subscriber connection.

In addition, TLI provides a wholesale offer for the resale of subscriber connections in Part 2 of the same RIO Annex, under the heading „prices for services“. The monthly tariff it contains is CHF 20 for a PSTN connection, CHF 31 for an ISDN connection and CHF 450 for an ISDN primary rate connection. One-off charges for new connections, alterations and other related services are also given there. The basic regulatory requirement to make a wholesale resale offer of fixed subscriber connections is to be found in Art. 30a, in conjunction with Annex C (Part A), of the former LTN's infrastructure licence. However, Art. 30a(1)(a) of the licence specifies only „providers of the basic local and international service“ as beneficiaries of the offer and being entitled to access.

The reader is referred, for further aspects of regulation relevant to the market for fixed network access currently under consideration, to the separate procedures conducted by the Office for Communication in relation to the market for physical access (M4) and that for wholesale broadband (M5).

⁴⁵ <http://www.telecom.li/cfdocs/cmsout/admin/index.cfm?GroupID=171&meID=1065>, last consulted on 11.03.2009.

3 Market power

3.1 Undertakings with significant market power

3.1.1. Single dominance

Under Art. 3(1)(3) KomG an „undertaking having significant market power” is “an undertaking that either individually or jointly with others enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers”. Art. 3(1)(3) KomG is coextensive with the applicable requirements of EEA law under Art. 14(2) of the Framework Directive.

In connection with the assessment of whether an undertaking individually enjoys a position of significant market power (single dominance), the Office for Communication is required to consider „in particular” the following criteria according to Art. 31(1) VKND:

- The size of the undertaking, its size in relation to the relevant market, as well as changes in the relevant positions of market players over time;
- The magnitude of barriers to market entry as well as the degree of potential competition as a result;
- The degree of countervailing buying power;
- The degree of demand and supply elasticity;
- The maturity of the market;
- Technological advantages or superiority;
- Any advantages in organization of sales and operations;
- The existence of advantages resulting from economies of scale, scope and concentration;
- The degree of vertical integration;
- The degree of product diversification;
- Access to capital;
- Control over infrastructure not easily duplicated;
- Market behaviour in general, such as pricing policy, marketing approach, bundling of products and services or the establishment of barriers.

The national as well as the EEA legal framework address the dichotomy between „significant market power” in Art. 3(1)(3) KomG and „effective competition” in Art. 20(1) KomG by means of the so-called „thesis of equivalence”: no effective competition prevails

if at least one undertaking having significant market power is found to be present. Thus the EFTA Surveillance Authority in its Guidelines⁴⁶ states that the conclusion that genuine competition exists on a relevant market is equivalent to the finding that on this market there is no operator that has a dominant position individually or jointly with others. „Effective competition” is defined to the effect that on the relevant market there is no undertaking that enjoys a position equivalent to dominance individually or jointly with others (cf. Recital 27 of the Framework Directive).

The above-mentioned Guidelines on Market Analysis and the Assessment of Significant Market Power are pertinent in rendering the market analysis operative: In contrast to general competition law, sector-specific regulation pursues an *ex ante* approach – the assessment of competitive relationships proceeds from the premise that no regulation exists (the „green field approach”). The EFTA Surveillance Authority hence states the following in its Guidelines: *„[W]hen assessing ex ante whether one or more undertakings are in a dominant position in the relevant market, NRAs are, in principle, relying on different sets of assumptions and expectations than those relied upon by a competition authority applying Article 82 of the Treaty and Article 54 of the EEA Agreement ex post, within a context of an alleged committed abuse. Often, the lack of evidence or of records of past behaviour or conduct will mean that the market analysis will have to be based mainly on a prospective assessment. [...]The fact that an NRA's initial market predictions do not finally materialise in a given case does not necessarily mean that its decision at the time of its adoption was inconsistent with the Framework Directive.”*⁴⁷ Footnote 74 in the Guidelines states in addition that *„NRAs do not have to find an abuse of a dominant position in order to designate an undertaking as having SMP”*.

If an undertaking has significant market power on a particular market, it can then also be considered as an undertaking having significant market power on a closely related market horizontally and vertically or geographically, where the links between the two markets are such as to allow the market power held in one market to be leveraged on to the other market, thereby strengthening the overall market power of the undertaking (on „leveraging”, see Art. 22(2) KomG).

3.1.2. Collective market power (joint dominance)

Two or more undertakings can be assumed to have significant market power jointly if they – even in the absence of structural or other links between them – are active in a market whose character displays incentives for coordinated behaviour (Art. 31(2) VKND).

⁴⁶ Cf. SMP Guidelines of the EFTA Surveillance Authority, paras. 19 and 113.

⁴⁷ Cf. SMP Guidelines of the EFTA Surveillance Authority, paras. 71 and 72.

To assess whether two or more undertakings together enjoy significant market power (joint dominance or collective dominance), the Office for Communication has to consider „in particular” the following criteria:

- The extent of market concentration, the distribution of market shares and their change over time;
- The level of market entry barriers and the resulting degree of potential competition;
- The degree of countervailing buying power;
- The market transparency that exists;
- The maturity of the market;
- The homogeneity of products;
- The basic cost structures;
- The degree of demand and supply elasticity;
- The degree of technological innovation and the level of maturity of the technology;
- The presence of unused capacity;
- The existence of informal or other links between market players;
- The mechanisms for counter-measures;
- The degree of incentive for price competition.

The formulation „in particular” clearly indicates that the list of criteria in Art. 31(1) VKND is not exhaustive; Annex II of the Framework Directive states explicitly that its list of *„Criteria to be used by national regulatory authorities in making an assessment of joint dominance in accordance with Article 14(2)”* is *„not an exhaustive list, nor are the criteria cumulative”*.

In assessing whether two or more undertakings have joint dominance on a market, the national regulatory authorities have in particular to act in accordance with EEA law and in this connection are to take utmost account of the EFTA Surveillance Authority’s Guidelines on Market Analysis and the Assessment of Significant Market Power that have been published under Article 15 of the Framework Directive.

The legal character of collective market power is – at any rate according to present case-law – to be equated with the economic concept of „tacit collusion”. Under this, it is understood that undertakings’ „parallelism” – without an explicit accord, but in awareness of their mutually responsive behaviour and at the cost of the other side of the market (consumers) – aims at pursuing an offensive competition strategy by sacrificing short-term individual increases in turnover because this will be profitable over the longer term for all the vendors involved.

The ECJ Court of First Instance in its decision in the *Airtours Case*⁴⁸ formulated, respectively confirmed, in the context of a merger review the following three criteria as a test for determining collective market power:

- The existence of sufficient market transparency to determine deviations from coordinated behaviour;
- The presence of credible retaliatory mechanisms in case of such deviations;
- The ability of current or potential competitors or customers to undermine the coordinated behaviour.

The core element of collusion resides in the tension between the collective rationality of undertakings (raising common gains through parallelism) and individual rationality (short-term gains through deviation from a collusive arrangement). A strategy of deviating from the collusive arrangement or of veering away from parallelism constitutes cheating. Collusion is only possible on markets having sufficiently narrow market structures (oligopoly markets) and witnessing accompanying correspondingly strong responsive behaviour. But the market outcome on such markets is also dependent upon a series of other market factors which tend to promote (e.g. by creating an „incentive to collude” for undertakings) or to impede (e.g. by creating an „incentive to cheat” for undertakings) collusion.

3.2 Market shares

3.2.1. The indicator’s significance

Market shares provide a natural point of departure for the investigation of competitive relations on a market and are regarded especially in case-law as an essential indicator for market power.⁴⁹ The economic significance of this indicator flows above all from the theory of monopolies and oligopolies as well as from empirical evidence for the linkage between market shares and profitability (in the form of price-cost margin). There is thus both theoretically and empirically a positive connection between an undertaking’s individual market share and its price-cost margin. Neither the empirical nor the theoretical literature, however, sheds light on from which level of market share onwards „significant market power” may be suspected (or even proven) to exist. In the case law, the following thresholds have established themselves: With a market share below 25% it can be presumed that the undertaking in question does not have a position of (individual) dominance. A market share of 40% will raise, according to the practice established by the European Commission and EFTA Surveillance Authority, suspicions about the existence of a dominant position, while in some cases market dominance will exist also below this

⁴⁸ Case T-342/99, *Airtours/First Choice*, ECJ Reporter. 2002, II-2585.

⁴⁹ Art. 31(3)(a) VKND as well as the SMP Guidelines of the EFTA Surveillance Authority, paras. 75-78.

threshold (because of other factors). The consistent case law of the European Court of Justice has held that at 50% – leaving extraordinary circumstances to one side – market power can be taken as proven.⁵⁰

A high market share on its own does not, however, mean the existence of a dominant market position; in reaching a judgement an essential aspect is also the development of market shares: It is therefore important, for example, to observe the market share of an undertaking not only at a particular point in time but also to look at the change in market shares over time. If the market share is high and stable over a long period of time (or even growing), the existence of market power is more likely to be assumed than when the market share is sinking or subject to significant fluctuations. Beyond this, the market share has also to be placed in relation to the market shares of competitors. If the undertaking in question has a markedly higher market share than even the largest of its rivals, the finding of a dominant market position is then more probable than in cases in which several undertakings have high market shares. It goes without saying that – in order to obtain a comprehensive picture – even in cases of very high market shares still further indicators must be examined; in particular the causal factors underpinning the high market share must be investigated.⁵¹

The structure of the market and thus the number of market players as well as their market shares depends on economies of scale, sunk costs and the minimum efficient scale⁵² of an undertaking. If for instance there are high economies of scale, then *ceteris paribus* a higher concentration is also to be expected. In extreme cases the industry will be a natural monopoly, i.e. costs will (from a static perspective) be optimal if only one undertaking is in production. Since high economies of scale can thus lead both to high concentration and to high market entry barriers, market power can fairly be assumed where significant economies of scale exist.

Finally, market share – like all indicators – is only one of several criteria (although an important one) for assessing market power and thus only becomes meaningful in combination with other indicators. Market shares nevertheless remain a special indicator underlying market analysis inasmuch as they constitute a necessary but not sufficient condition for determining market power.

3.2.2. Assessment of the indicator

The market shares present an unambiguous picture in that it is only TLI which actually offers narrowband access services currently:

⁵⁰ Cf. SMP Guidelines of the EFTA Surveillance Authority, para. 76.

⁵¹ By way of example, a higher market share on an innovative market in a very early stage of the market would be differently assessed than in an already saturated market with switch-over costs.

⁵² MES – Minimum Efficient Scale.

	PSTN	ISDN BA ⁵³	ISDN PRA ⁵⁴	VoB
Telecom Liechtenstein AG	11,164	7,866	96	485
<i>Total fixed network connections</i>	19,611			

Table 3: Connections (own lines) in the fixed network at 31 December 2008

No intermodal competition takes place at present because, on the one hand, TLI also controls access to the CATV network in most municipalities and provides no narrowband voice services over it, while, on the other hand, Matt Antennentechnik AG does neither currently provide such connections in the few municipalities it covers.

Instances of unbundling are likewise of very small importance per se in Liechtenstein to date (by comparison with the total number of connections): In 2008, there were 288 unbundled subscriber lines. This corresponds to a share amounting to 1.5%.⁵⁵ Nor are these few unbundled lines used for provision of narrowband voice connection services, according to the Office's current information.

TLI thus has up until now a constant market share of 100% on the retail market for narrowband access services at a fixed location in Liechtenstein.

Because TLI is currently the only provider of narrowband fixed network access services in Liechtenstein, one may hence dispense with investigation of the existence of joint market dominance in the sense of chapter 3.1.2.

3.3 Relevance of further SMP indicators

Analysis of market shares and their development provides a natural point of departure for the investigation of market power but is on its own not yet sufficient. The further indicators mentioned in chapter 3.1.1 may also be of relevance. This list of criteria is, however, not exhaustive; neither are all of its criteria always relevant for purposes of examination in a particular instance. Rather, those criteria are to be considered that are suitable for use in the concrete case so as to confirm or rebut a presumption of an undertaking's dominant market position resulting from analysis of market shares.

The Office for Communication considers it to be useful in investigating TLI's possible market dominance to examine these further indicators:

- Market entry barriers and potential competition;
- The control over infrastructure not easily duplicated;

⁵³ Basic rate connection (Basisanschluss).

⁵⁴ Primary rate connection (Primärratenanschluss).

⁵⁵ For further details the reader is referred to the Analysis of the market for physical access (M4).

- High sunk costs;
- The existence of economies of scale and scope.

The presence of market barriers over the longer term as well as the absence of potential competition are necessary conditions for the existence of a dominant market position.

The other indicators for significant market power under Art. 31(1) VKND are, in the Office's view, of lesser importance with respect to the present market.

3.4 Market barriers

3.4.1. The indicator's significance

Barriers to market entry (Art. 31(1)(b) VKND and paras. 79 and 81 of the SMP Guidelines) can be defined as any factors that permit undertaking(s) active on a market to raise their prices above costs without thereby facing additional instances of market entry. From an economic point of view, the presence of long-term market entry barriers is a key criterion for the evaluation of a dominant market position. The excess profits of a dominant undertaking would, were market entry free of barriers, induce entry by further undertakings and thereby erode the excess profits (or the dominant market position). This mechanism is disabled when entry is denied to potential new market entrants. The higher the market barriers therefore are (i.e. the more difficult market entry becomes), the higher – *ceteris paribus* – will potentially be the degree of market power the established undertaking has. Against this background the existence of long-term market barriers is to be interpreted as a necessary condition for the absence of effective competition. What is decisive for the assessment of market power is, however, not merely the existence of such barriers but also the level of competition that occurs behind them. Market power can particularly be supposed to exist where the market concentration is high and at the same time high barriers to market entry prevail.

In its Recommendation on Markets the EFTA Surveillance Authority distinguishes between two kinds of barriers to market entry, namely structurally and legally determined barriers:

A structurally determined barrier to access is present if, at a given level of demand, the state of technology and the corresponding cost structure are such that asymmetries between established operators and market entrants are produced which hinder market entry. High structurally determined barriers to market entry can arise in particular in connection with significant economies of scale, scope and concentration (see Art. 31(1)(h) VKND and para. 78 of the SMP Guidelines) as well as with high sunk costs. Although economies of scale do not form barriers to market entry per se, they have the effect that operators must have a high output volume when they enter the market in order not to be at a cost disadvantage vis-à-vis the established undertaking.

Sunk costs are taken to mean such parts of fixed costs that an undertaking cannot, by reason of lack of alternative uses or a significant loss of value in case of reuse, recover in the event of its leaving the market. If uncertainty exists about the success of a business on a market, the level of sunk costs will affect the decision to enter the market. The higher the component of fixed costs that sunk costs represent, the higher becomes the risk in market entry.

Legally determined barriers arise not from economic conditions, but from legislative, administrative or other institutional factors that have a direct impact on the conditions of access and/or the position of operators on the market in question.

All those aspects that affect openness to additional market entry in relation to the fixed network markets that are relevant for investigation will be described below in general terms. Because an analytical distinction often cannot be made between the different kinds of market barrier, this side of the question will be dealt with in a relatively broad fashion.⁵⁶ Market barriers will accordingly be understood as being generally asymmetries between the incumbent and new market entrants, for the purposes of the market analysis.

3.4.2. Infrastructure not easily duplicated

One can speak of control over infrastructure that is not easily duplicated (Art. 31(1) VKND) if certain infrastructure necessary for the provision of services is in the hands, exclusively or to a large extent, of a single undertaking (for which the indicator is market share) and high barriers exist to the establishment of alternative infrastructure (for which the indicator is market entry barriers). Such control may allow the undertaking (in the absence of countervailing buying power) to exercise market power because it is the only provider of the service and neither actual nor potential competition exists. It may in addition be possible for the undertaking to leverage its market power onto downstream or neighbouring markets.

The former LTN's passive network infrastructure was transferred to LKW on 1 January 2007. LKW has thus from that time onwards been the sole company to have a country-wide access network in Liechtenstein. LKW is, however, not active on retail markets and thus does not itself offer fixed network access. The former LTN and now TLI hence remains the only operator in Liechtenstein to have available to it a country-wide fixed network that is difficult to replicate. This is because TLI continues to be the holder of the collocation facilities, exchanges and backhaul components across the country that are required,

⁵⁶ One must proceed – by virtue of the criteria for relevance (which also contain the criterion of „height of market barriers “: see chapter 2.2) underpinning the EFTA Surveillance Authority's Recommendation on markets – upon the basis of the presence of market barriers having a certain magnitude. This chapter therefore has in this respect the task of further clarifying what that magnitude is and its concrete extent.

alongside the subscriber line (now supplied to it by LKW as a wholesale service), for provision of access to voice telephony services at a fixed location.

Alternative operators could also provide marketable country-wide alternative fixed network access, but solely through use of forms of unbundling (imposed by regulation). Yet this business strategy would also imply making major upfront investment in infrastructure components (collocation, backhaul trunks, switching technology etc.); this would be substantial in relation to the market potential. Existing regulatory obligations to unbundle have not succeeded in curtailing TLI's control to an extent that it would be unable to exercise its market power on the markets for access. Out of the unbundled 1.5% of all subscriber lines at the end of 2008, none of these lines is used to provide a narrowband fixed network connection. No alternative provider in Liechtenstein has offered fixed network access. Equally, it is currently only TLI itself that has been offering, from the second half of 2006 onwards, VoB voice telephony access as part of its „Connecta“ broadband package product and of the „FlexNet“ product (a virtual subscriber switching system based on VoB for business customers). The share of these VoB connections was, however, under 3% of all connections at the end of 2008.

Other access technologies, such as electricity networks or alternative radio-based services (wireless local loop, WiMax, WLAN) are either not yet sufficiently mature technically to attain the point of marketability or are (still for the time being) of minor significance for the market. As to the potential for substitution by means of access to the mobile telephone network (GSM or UMTS), one must as a matter of principle refer to the consideration given to and the guidance given in the EFTA Surveillance Authority's Recommendation on Relevant Markets and to the explanations furnished by the European Commission in relation to its parallel Recommendation on Relevant Markets. It becomes clear from this that – even though these mobile forms of access are of much greater importance than alternative wireless forms of access – they nevertheless do not at present exercise a sufficiently restraining effect on quasi-monopolistic market structures in the fixed network access field. Thus, it was only in 2007 that the total number of fixed network connections fell slightly for the first time after having still been growing the year before (see Figure 2).

Conclusion: TLI is the only firm to have at its disposal a country-wide network that is not easily replicated for providing narrowband access for voice telephony services at a fixed location; it thus controls infrastructure that cannot easily be duplicated. This applies notwithstanding the fact that TLI has since the beginning of 2007 – when it sold the passive access network to LKW – to obtain unbundled subscriber lines and, as necessary, further passive network components from LKW on a wholesale basis in order to generate a fixed network access product.

3.4.3. Existence of economies of scale and scope and of sunk costs

If market shares show that a firm's service output far outstrips that of potential competitors quantitatively, this raises the question: Can this firm, because of its higher quantitative output, provide its services on the market at lower unit costs and so obtain a competitive edge over its potential competitors, so making their entry on to the market more difficult? This will tend to be the case for any services that have a cost structure with a high proportion of fixed costs that are spread across volume. Such returns to scale secure not only a competitive advantage vis-à-vis existing competitors, but make potential competitors' market entry more difficult, who must first sell a minimum quantity in order to trade on the market profitably (minimum efficient scale). The dominant firm's higher margins additionally expose existing and potential competitors to the danger that they will not be able to match short-term price reductions made by the market-dominant firm and thus will no longer be competitive. The presence of a high proportion of fixed costs suggests that TLI is able to provide access services under more favourable conditions than potential competitors can and that it can thus obtain and maintain a competitive edge due to its higher quantitative output. In an unregulated environment it would hence be in a position to achieve higher profits on the basis of economies of scale and possibly to abuse its market power.

Sunk costs are fixed costs of production that, once incurred, are irreversible, that is, they cannot be recovered. Local area networks are characterized by the subadditivity of their cost structure and the associated high sunk costs of the true core of the – remaining – natural monopoly, which represents the most substantial source of all market power in the fixed network domain and of its leveraging potential. It is thus the high expenditure on infrastructure which is predominant and also, as distinct from long-distance transmission lines, to be classified as sunk costs: Network industries (network infrastructure in general and access networks specifically) are typified by high sunk costs. In the fixed network access field, the establishment of collocation facilities must be ranked as a sunk cost. Major investments are involved, in the form of excavation works and the restoration of surfaces and they cannot be reused nor hence be resold in the case of shut-down. It will also seem hardly sensible in the case of a shut-down or reduction in capacity to dig up cable that has already been laid. Nevertheless, entire networks or self-standing parts of them are resalable. However, because this situation is so specific („asset specificity”, a „hold-up” problem), there will be no market price that can be ascertained of, if one can, it will be fixed at a correspondingly low level. Only a competitor would come into question as a potential buyer and it would at most only be prepared to pay a price that corresponds to the equivalent of the discounted return. In regard to such an investment decision the question would have to be asked why it would not be possible for the current owner of the network to continue business on a profitable basis. If it cannot, that is, it is revealed that a shut-down is more advantageous, then no one else would be prepared to pay a price that would cover the sunk investments.

It is just this circumstance of high sunk costs in network industries (network infrastructure) that poses a major risk to the potential investor, which must be compensated for through higher returns. For an investor that has already made the investment, high sunk costs mean that it will wish to recover the highest possible marginal return over the longest time possible, even if a more current decision to invest would be negative. This leads in a situation of (buried) over-capacity to the operator also selling at prices that come to be below the (historical) full costs. Entry on to the market by new operators will as a result be made unattractive or impossible, while established operators will neglect investments to expand the network and will apply stricter criteria for upgrades relative to what they can save. Network industries are in this regard substantially different from other industries where over-capacity occurs due to the higher sunk costs and the long (technical) lifetime of such investments, which means that the process of consolidation lasts much longer (optimization as to the reduction of exit costs).

The above general assessment of the high sunk costs associated with access networks and the problems for competition that they entail characterizes the situation prevailing in Liechtenstein up to the end of 2006 in respect of LTN (now TLI). Since the sale at the beginning 2007 of the access network and additional passive network infrastructure to LKW the problems that have been discussed with regard to TLI apply in an altered or weakened form: On the one hand, LKW, and no longer TLI, now assumes a substantial part of the effects of scale and of the sunk costs, since the former now operates the access network. On the other hand, TLI remains the only undertaking which operates a country-wide network for fixed network access in Liechtenstein. Economies of scale and sunk costs are likewise associated with provision of the remaining infrastructure elements necessary for operation of fixed network access alongside the access network (e.g. collocation facilities, backhaul, switching equipment etc.), even if this is not to the extent that is true for the access network. In summary, it can thus be determined that TLI has continued, also after 1 January 2007, to enjoy economies of scale and was subject to sunk costs associated with the country-wide fixed network access infrastructure, even if this took place on the basis of LKW's wholesale unbundling products.

3.4.4. Market barriers and potential competition

Particularly CATV networks and unbundling solutions come into question as possible sources of substitution over the coming 2-3 years that could act as a competitive constraint on the incumbent in the medium term. Apart from this, potential competition is possible above all from mobile radio.

Currently, CATV networks are the only access networks that could serve alongside LKW's twisted copper-pair access network as an alternative to the fixed network and which have the possibility of exploiting economies of scope through offering telecommunications services. Establishing an alternative access network only for voice telephony would be unthinkable without such economies of scope and such bundling of activities – that is, by

offering access to television and additional communications services over the same infrastructure. The CATV networks that in the past were established parallel to the copper-pair access network were originally constructed solely for transmission of television signals and not for the provision of telecommunications services. Although almost 100% of households in Liechtenstein have a CATV connection this nevertheless cannot result in potential (country-wide) competition developing because, on the one hand, the CATV access networks in 9 of the 11 municipalities in Liechtenstein belong to LKW, which already possesses the copper-pair access infrastructure, while, on the other hand, Matt Antennentechnik AG's CATV network in the remaining municipalities only covers around 20% of the population or households. In addition, Matt Antennentechnik AG has to date not used this limited potential to provide fixed telephony connections.⁵⁷ But even if it were to exploit this potential to the full this would only result in a competitive alternative for around a fifth of all current access lines.

	Number of active connections
Telecom Liechtenstein AG / Liechtensteinische Kraftwerke	11,711
Matt Antennentechnik AG	2,650

Table 4: CATV connections at the end of 2008

A further important reason why potential competition cannot be expected from the CATV network for the foreseeable future is that TLI also controls access to the CATV network at the retail level alongside that to the copper-pair access network and offers no voice telephony services over the CATV network. For all of these reasons TLI's market shares will hence remain at a high level also over the medium term.

A more important role in providing access services at a fixed location could be played beyond this timeframe by VoB by means of unbundling. VoB allows the retail customer to conduct calls over its broadband connection without needing a dedicated line for voice telephony. VoB lowers the barriers to market entry because the customer-facing infrastructure can be used not only for voice telephony but also for broadband applications so that greater economies of scope and scale can be obtained than with infrastructure used only for voice telephony. It will in particular become of interest thereby for ISPs, for example, to offer product bundles on the basis of a broadband connection and VoB. VoB therefore does represent a possible alternative to voice telephony over the PSTN and would strengthen competition on the markets for access at a fixed location.

⁵⁷ Altogether omitted are the few VoI connections provided by Montan Telecom over Matt Antennentechnik's network (no fixed/geographic network numbers are employed but rather personal numbers, while the number of commercial connections is currently negligibly small).

In the period surveyed only TLI had begun to use VoB for voice telephony. No other alternative provider has so far offered VoB, which is why no real competition is at present offered (still) through VoB; VoB does, however, remain a potential substitute. TLI has been offering its VoB „Connecta“⁵⁸ package since the second half of 2007 and has since then undertaken intensive marketing. By mid-2008 less than 2% of fixed network connections were provided on the basis of VoB.

One must also mention the mobile radio communication sector's significance for competition including the potential for intermodal competition it may exert. As opposed to hypothetical threat potential in the context of contestability models, which regard potential competition as already exerting an inhibiting competitive force, there has already for years actually been meaningful intermodal competition from the side of mobile radio in Liechtenstein to the extent that mobile radio products as such impart disciplining competitive pressure. The growth rates in the last years have been accompanied by a correspondingly high mobile radio penetration rate of over 80%.⁵⁹ As can be seen from Figure 2 there has at the same time been a decline in the total number of fixed network connections since 2006. This ought to be attributable, among other things, to the competitive stimulus being given by mobile radio.

Nevertheless the question of whether this development is of substance with regard to the market analysis procedure can only be answered categorically – i.e. in view of the fundamental methodology for analysis within the legal framework that applies – by reference to the market definition valid for each case. This is because it is this (and, from a legal point of view, only this) that finally gives the answer to the question of to what extent the substitution that is partly ascertainable will also be sufficient under the definition of combined fixed/mobile markets for providing connections and access. In accordance with the EFTA Surveillance Authority's Recommendation on Markets, this is not, however, at present the case, as shown in chapter 2.4. The Office for Communication agrees with this assessment as concerns the timeframe covered by the present market analysis. The in part substantial competitive stimuli which are coming from the mobile radio sector towards the entire fixed network sector can nevertheless not be ignored. The market analysis procedure must therefore take account of these developments in an appropriate way when designing any regulatory instruments that ensue (chapter 5).

⁵⁸ The „FlexNet“ product for business customers need not be mentioned here separately because with this product the subscriber connection is bundled with the service features of a virtual private branch exchange.

⁵⁹ Cf. The Office for Communication's Analysis of the mobile access and origination market of 20 December 2007.

3.5 Conclusion

It can in summary be determined that TLI has a market share on the fixed network access market of 100% and is in fact therefore the only provider of narrowband access services at a fixed location. One can hence dispense with examining whether two or more firms together have significant market power.

TLI operates as a full service provider and is partially integrated. It has available to it a country-wide access network for voice calls at a fixed location. The barriers to market entry and exit are considerable in this market, by reference to the economies of scale and the sunk costs which characterize it and to the market potential. TLI as a result exercises control over an infrastructure that is not easily duplicated.

CATV networks and activity undertaken by unbundling entities come into question when considering potential competitors. However, TLI also controls access to the CATV network at the retail level in most of the country, while the sole alternative cable network operator covers less than a fifth of households and in addition does not currently offer voice telephony access. The potential for competition from CATV networks must hence be classed as slight in relation to the fixed network access market. While the Office for Communication is aware of plans for offering alternative broadband services over the CATV networks, these plans do not include narrowband network access according to the information available; this is why, even if these plans were to materialize within the period considered for this analysis, they will exert no competitive pressure in the market presently under investigation. It is also the case that the total number of lines unbundled to competitors has been minor to date and that the unbundled lines themselves are not being used to provide narrowband access services. Nor has any alternative provider to date made use of VoB's potential.

It must hence be concluded from the results of investigating these SMP criteria that TLI has significant market power on the market for narrowband access services at a fixed location.

4 Actual and potential competition problems

With a view to imposition of measures of special regulation, it is of central importance to consider which specific market failures and which actual or potential problems for competition would be expected (including their implications from the point of view of public welfare economics) in the case of unregulated narrowband access services at a fixed location – a „green field” approach. Reference is made in this connection to the ERG’s *Common Position on Remedies (2006)*⁶⁰, which provides the basis for this chapter.

In the absence of special regulation the following (potential) problems for competition must be expected:

4.1 Risk of anti-competitive pricing

Owing to the *de facto* monopolistic market structure and the substantial barriers to market entry there is a risk in the absence of suitable regulation of prices that TLI will, as a profit-seeking enterprise, apply its market power to set excessive prices to the detriment of retail customers. Such excessive pricing generally leads to a lower demand and thus to reduced public welfare than under conditions of competition. This aside, TLI would apply such excessive prices because it would achieve a higher profit than by pricing at the competitive level.

4.2 Product bundling and leveraging

It is only TLI that is effectively in a position to offer the retail customer a package simultaneously offering access and call services. Owing to the fact that in the (technically) homogeneous market for voice telephony it is price which clearly represents the pre-eminent factor in business strategy, and having regard as well to the monopolistic market share prevailing on the access market, this imbalance in product design possibilities is of major importance from the point of view of competition policy. This situation therefore gives rise to the possibility for market power to be leveraged from monopolistic areas into potentially competitive call market segments. In the absence of corresponding price regulation TLI would be in a position to leverage its market power by means of product bundling.

Beyond this, TLI has the opportunity to engage in forms of bundling that include products other than simple voice telephony. Such packages might thus also include broadband services and so offer a „complete package” to the retail customer, possibly combined with significant bundling discounts. In both cases, TLI’s access domain serves horizontally as an anchor for potential means of leveraging market power both within and outside the fixed

⁶⁰ ERG Remedies 2006: *Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework*, Final Version May 2006, ERG (06) 33, http://www.erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf.

network cluster. TLI has already been offering such a bundled product for some time with „Connecta“.

TLI has declined in the case of its VoB packages „Connecta“ and „Flexnet“ to provide the relevant subscribers and alternative providers with access to CPS services. TLI in this way leverages its market power in the access domain on to the markets for making connections and thereby renders effective competition more difficult on these markets, or prevents it. Even in regard to PSTN and ISDN connections, one must assume that TLI would not offer CS/CPS in the absence of the existing regulatory obligations and that it would leverage its market power on to the neighbouring calls markets.

The issue of where cross-subsidization may impinge is directly connected to the forms of horizontal market abuse just described. One can generally say that cross-subsidization will always occur if the revenue from a product fails to cover the costs of production associated with it. The ERG's *Common Position on Remedies* describes how this operates by including the notion of cross-subsidization and by saying as follows in line with the distinctions made above:⁶¹

„Leveraging by cross-subsidisation as discussed above [...] may also occur between two non vertically related markets. Here, the SMP undertaking may attempt to drive its competitors out of the market by setting a price below costs in the potentially competitive market, while the losses are covered by profits from the SMP market. Thus, cross-subsidisation may – in the same way as a predation strategy – lead to a restriction of competitors' sales in the potentially competitive market.“

But it is often the case that matters do not end with simply identifying a firm making an internal reconciliation out of its revenue streams for areas (temporarily) in deficit. Rather, it is particularly in fixed-cost intensive network industries where cross-subsidization will also occur on the costs side through strategic allocation of overhead costs and common costs.

⁶¹ Ibid, pp. 32-33.

5 Regulatory instruments

5.1 Regulatory instruments under the KomG

Under Art. 20 KomG the Office for Communication is to take the necessary measures to remove or reduce the negative consequences of a lack of effective competition in the electronic communications markets. For this purpose it imposes upon operators with significant market power – in accordance with Art. 23 KomG in conjunction with Arts. 34 to 42 VKND – one or more of the following measures of special regulation:

- The obligation of non-discrimination (Art. 34 VKND);
- The obligation of transparency (Art. 35 VKND);
- The obligation of accounting separation (Art. 36 VKND);
- The obligation to grant access to network facilities and network functions (Art. 37 VKND);
- Price control and cost accounting obligations related to access (Art. 38 VKND);
- Obligations regarding services for retail customers (Art. 39 VKND);
- Obligations regarding the provision of leased lines (Art. 40 VKND);
- Obligations regarding retail customer tariffs (Art. 41 VKND);
- Obligations regarding carrier selection and carrier pre-selection (Art. 42 VKND).

According to Art. 43 VKND the Regulatory Authority can impose other obligations of interconnection and access than those laid down in Arts. 34 to 42 VKND on undertakings having significant market power where there are extraordinary circumstances. In such a case the Regulatory Authority must make a corresponding request to the EFTA Surveillance Authority. The EFTA Surveillance Authority's decision then forms the basis for that of the Regulatory Authority.

5.2 Principles for the application of regulatory instruments

So far as adoption of regulatory instruments for the regulation of competition is concerned (measures of special regulation), the Office for Communication is obliged to consider the goals for regulation under Art. 1(2) KomG as well as the principles contained in Art. 5(2) KomG.

As in the pertinent provisions of the EEA legal framework (Art. 8(1) of the Framework Directive 2002/21/EC, Art. 8(4) of the Access Directive 2002/19/EC⁶² and Art. 17(2) of the

⁶² Directive 2002/19/EC of the European Parliament and the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cj.01).

Universal Service Directive 2002/22/EC⁶³), the principle of proportionality is explicitly referred to as one that must be complied with. The principle of proportionality states that the means used to achieve a particular goal are not to exceed that which is necessary and appropriate for doing so. In order for a measure of the Regulatory Authority to conform to the principle of proportionality, there must firstly be a goal laid down in Art. 1 KomG (or the applicable principles under EEA law) which the measure pursues. The measure used to achieve this goal has secondly to be necessary for so doing. It may not, thirdly, represent an unreasonable burden for the operator concerned. The measure taken should thus be the minimum needed to achieve the relevant goal.

On the basis of the goals contained in Art. 8 of the Framework Directive and in conjunction with further provisions in the relevant Directives (especially Art. 8 of the Access Directive and Arts. 10 and 11 of the Authorisation Directive 2002/20/EC⁶⁴) the ERG⁶⁵ has in cooperation with the Services of the European Commission (Directorates-General Competition and Information Society) established four principles that should be observed in the selection and application of regulatory instruments:⁶⁶

- Decisions of national regulatory authorities need to be well reasoned and in line with the goals and obligations of the Directives (*Principle 1*);
- Where the infrastructure of the market-dominant undertaking cannot be duplicated, the exercise of market power vis-à-vis consumers must be prevented (*Principle 2*);
- If replication of the incumbent's infrastructure is viewed as feasible, the available remedies should assist in the transition process to a sustainable competitive market based on infrastructure competition (*Principle 3*);
- Remedies should be designed to be incentive compatible, i.e. the incentive to comply should be greater than the incentive to cheat (*Principle 4*).

5.3 Choice and assessment of the regulatory options

The starting point in selecting appropriate regulatory instruments is the competition problems that have been identified in the market analysis (cf. chapter 4). The first step will be to identify those regulatory options that are suited to remedying the problems for competition that have been determined.

⁶³ Directive 2002/22/EC of the European Parliament and the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services ("Universal Service Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cm.01).

⁶⁴ Directive 2002/20/EC of the European Parliament and the Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5ck.01).

⁶⁵ European Regulators Group: It was established as an advisory body to the European Commission under Decision 202/627/EC of the European Commission of 29 July 2002 (OJ L 200, 30.07.2002. p. 38; EWR-Rechtssammlung: Anh. XI – 5ci.01). The Office for Communication and the EFTA Surveillance Authority regularly attend ERG meetings.

⁶⁶ ERG Remedies, 2006, pp. 51-67

Firstly, the regulatory instrument (or combinations of instruments) will be identified that corresponds to the nature of the problems of competition that have been found to exist and is suited to eliminating them. If several alternative instruments (or combinations of instruments) are suited to eliminating the problems for competition, that instrument (or combination) will be chosen in a second step – according to the principle of proportionality – which represents (in a cost-benefit sense) the mildest means (Principle 1). The second step can be overlooked if in the first step only one regulatory instrument (or combination) is identified as being suitable.

Art. 33 VKND lays down, in an explicit embodiment of the general administrative law principle of proportionality, that measures of special regulation must correspond to the kind of problem that has emerged, be appropriate in light of the regulatory principles of Art. 5 (2) KomG, and be justified.

In respect of the choice of instruments for the present market (and its problems for competition that have been identified) Principle 2 must be applied (*where the infrastructure of the market-dominant undertaking cannot be duplicated, the exercise of market power vis-à-vis consumers must be prevented*) and not Principle 3 (*if replication of the incumbent's infrastructure is viewed as feasible, the available remedies should assist in the transition process to a sustainable competitive market based on infrastructure competition*). The underlying infrastructure leading to the subscriber is scarcely replicable, meaning that the cardinal objective in imposing regulatory instruments cannot be to promote the duplication of infrastructure or infrastructure-based competition on the markets for access at a fixed location themselves.

5.3.1. Obligations at the wholesale level

The aim of the following discussion is to clarify how far wholesale regulatory instruments are suited to resolving the problems for competition that have been presented. Those regulatory obligations that are imposed on markets for access at a fixed location will be discussed first, and then such regulatory instruments that, whilst they are not imposed on markets for access and relevant fixed networks, may still produce a certain competitive effect on these markets.

5.3.1.1 Carrier (pre-)selection

Carrier (pre-)selection (CS/CPS) enables alternative operators not having direct access to the subscriber to offer call services on the retail market (indirect access). Imposition of the legislative obligation to offer carrier (pre-)selection under Art. 23(1)(c) KomG in conjunction with Art. 42 VKND is dependent upon the competitive situation on the markets for access at a fixed location.⁶⁷ The obligation does not per se promote

⁶⁷ This provision is to be interpreted in an obligatory sense against the background for transposition contained in Art. 19 of the Universal Service Directive 2002/22/EC: If a regulatory authority determines that an undertaking has significant market power on the market for access to the public telephone network, then it is obliged to impose CS and CPS.

competition on the markets for access, meaning that the problems for competition on these markets are unaffected by such an obligation, but it does interdict use of opportunities to leverage market power onto the related calls markets and thereby supplies a central precondition for effective competition on these markets. The obligation to provide carrier (pre-)selection under Art. 42 VKND (which actually represents a wholesale obligation on the market for call origination) is thus an adequate and suitable instrument to prevent TLI from leveraging its market power on to the calls markets. The fact that monopolistic structures essentially prevail on the access market currently under consideration and that the access domain today as before must be regarded as being non-replicable induces a continuous dependence from the side of operators of connecting networks upon local interconnection services, for which reason the regulatory obligation to provide CPS and CS remains as before an indispensable and basic regulatory arrangement at the wholesale level. If it were to disappear, those competitive structures which have in the past grown up on the neighbouring service level (calls markets) would wither. This obligation must therefore be regarded as being necessary on the markets for access in order to create the prerequisites for competition on the calls markets. Carrier (pre-)selection, however, has no direct effect itself on the markets for access services and is therefore unsuited to removing the problems for competition that have been identified therein.

For the above reasons, one must therefore envisage imposing on it an obligation to provide carrier selection and carrier pre-selection by means of access number. This obligation is a flanking measure on the wholesale level, whose aim is to prevent TLI as an undertaking having significant market power from leveraging its market power on to the calls services markets. The obligation is based on Art. 23(1)(c) KomG in conjunction with Art. 42(1) VKND. It is to apply in principle to all connections on the public fixed telephone network. A corresponding obligation is not foreseen in regard to the fixed network market for call origination (M2). It must therefore be imposed in the framework of the present regulation of the market for fixed network access.

So far as TLI's „Connecta“ product in particular is concerned, this VoB connection provides an equivalent public connection for voice service alongside ISDN and PSTN connections and must therefore in principle also be subject to the obligation to provide CS/CPS. Apart from this, the principle of technological neutrality enshrined in Art. 5(2)(c) KomG requires undifferentiated regulatory treatment of this form of voice access.

In contrast to the traditional PSTN and ISDN connections, the necessary technical and administrative arrangements enabling CPS on VoB connections do currently not exist. TLI expressed in its response of 31 August 2009 for this reason significant concerns about the proportionality of any obligation to ensure carrier pre-selection (CPS) on Connecta connections, in light of estimated implementation costs for the CPS obligation of around 800,000 CHF.

The obligation to ensure indirect access via CS/CPS in accordance with Art. 23(1)(c) KomG and Art. 42 VKND have been formulated as discretionary provisions by the Liechtenstein legislator. The basis for their transposition in Art. 19 of the Universal Service Directive 2002/22/EC seems to indicate in its wording, however, that the provision is mandatory. In the view of AK this inherent contradiction is to be resolved as follows: a national regulatory authority is in principle free to choose amongst the regulatory measures provided by the framework in order to address an identified problem of competition; however, if it find the presence of market power in the fixed line access market, it must at least impose a wholesale obligation for CS/CPS. Nevertheless, and despite the mandatory nature of the choice of this regulatory instrument, any applicable general requirements for the imposition of regulatory measures must still be met concurrently. In particular, it follows from Article 8(1), second sentence, of the Framework Directive 2002/21/EC that in addition to the aforementioned existence of significant market power, any regulatory measures to be imposed must be proportionate to the tasks and goals laid down in the Framework Directives and the other Directives - and this includes evidently the Universal Service Directive. The obligation to ensure the proportionality of any measures is also to be found in Article 17(2) of the Universal Service Directive itself. The requirement of proportionality is embedded at the national level in Article 5(2)(b) KomG, according to which all regulatory measures adopted in pursuance of that law – thus including the imposition of a CPS/CS obligation pursuant to Art. 23(1)(c) KomG at issue here – must comply with the requirement of proportionality.

From the wording as well as the systematic and internal logical context of the KomG and VKND respectively the underlying EEA Directives it follows therefore clearly that the requirement of proportionality also applies to any obligation to ensure carrier pre-selection in accordance with Art. 23(1)(c) KomG and Art. 42 VKND. This holds true even if with regard to the actual choice of this regulatory instrument as such there is no or only a limited discretion. For these reasons and in application of Art. 5(2)(b) KomG and Art. 33 VKND the proportionality of the contemplated imposition of any such regulatory measure must be examined in what follows.

Art. 5(2)(c) KomG and Art. 33 VKND require that the regulatory measures imposed by AK be "proportionate" and "reasonable". It follows from the systematical and logical context of the KomG and VKND as well as the underlying EEA directives that the criterion of proportionality also applies to the obligation to ensure carrier pre-selection in accordance with Art. 23(1)(c) KomG and Art. 42 VKND.

At the end of 2008 there were 485 Connecta connections. This is equivalent to 2.5% of all 19,611 voice connections at fixed locations. Although the number of VoB connections is therefore growing relatively strongly (at the end of 2007 there were 155 connections), it constitutes – currently and over the forward-looking horizon of this analysis of the next 2-3 years – only a small percentage in absolute terms of all voice connections.

By the end of 2008 existed 3,052 CPS services contracts on voice connections. Thus, 15.5% of all voice connections had a pre-selection service enabled. It is therefore to be expected that there would be, if at all, only a comparable percentage of CPS services on Connecta connections. If one were to apply the current figures, this would result in a grand total of 75 potential Connecta connections with CPS service. A comparison with other countries further shows that the number of CPS customers is subject to a sharp decline.⁶⁸ In addition, it is likely that as a result of newly established flat rate offerings for national calls on Connecta, the appeal of CPS – which at present has no such comparable flat rate offerings – is likely to further diminish.

It must therefore be concluded that, on the one hand, the number of Connecta lines compared to the total number of voice connections is still very small – albeit growing – and that, on the other hand, the potential for CPS on these connections is similarly low in absolute terms and additionally declining in general. In examining the proportionality of the imposition of an obligation to ensure CPS on Connecta, the relationship between the expected implementation costs and the potential number of expected CPS costumers must be considered. The results show that the costs associated with the technical and organizational implementation of the CPS obligation on Connecta are clearly out of relation to the likely number of CPS subscriptions at this stage and over the course of the next 2-3 years. Such a measure must therefore be considered to be disproportionate and TLI can not be made to bear the resulting costs alone. In reconsideration of its previous stance on this issue, AK therefore abstains from imposing an obligation to ensure CPS on VoB connections for the time being for reasons of proportionality.

However, AK will keep this market under particular scrutiny and will, when appropriate, re-evaluate the imposition of an obligation to provide CPS on VoB connections. To support this process, AK will submit the technical and administrative solutions and their anticipated costs put forward by TLI to a public consultation. TLI is required for this purpose to document the anticipated solution and its associated costs in detail. The aim of the consultation will be to assess the effectiveness of the proposed implementation measures and to develop appropriate alternative and less costly solutions, if any. AK will without delay and in compliance with the relevant procedures amend the regulatory measures in place, should it emerge that proportionate alternative approaches do exist.

In the meantime, however, the obligation to ensure CS on Connecta connections shall stand, given that to this end there are no complex technical implementation measures required and that in fact CS is already available on these connections at present. AK assumes in this regard that to fully exploit the VoB connection's service features typically IP phones will be used. It therefore appears not unreasonable to rely on users to make

⁶⁸ Cf. e.g. the (provisional) telecoms statistics 2008 of 30.09.2008 for Switzerland, p. 5, according to which the number of CPS customers is declining yearly since 2006 by between 9% to 19%; available at: <http://www.bakom.admin.ch/dokumentation/zahlen/00744/00746/index.html?lang=de>. Similarly also the 14th Implementation Report of the European Commission, COM(2009)140, 24.03.2009, Staff Working Document – Vol. 1, p. 54.

appropriate use in the meantime of any facilities provided by this type of terminal equipment in the form of least cost routing or dialing plans to achieve similar functionality to a “fixed” call-by-call prefix. Many IP phones provide such features by default according to the knowledge of AK. The (technical) barrier to the Clients’ acceptance of such a solution appears therefore considerably lower than in the case of conventional voice connections, the older terminal equipment used for which does generally not support such functionalities.

Art. 42(2) VKND further provides that *„access charges and installation fees related to carrier selection and carrier pre-selection [...] are to be determined on a cost-oriented basis“*. The same obligation of provision on a cost-oriented basis is to be found in Art. 23(1)(c) KomG. TLI must therefore, in accordance with Art. 23(1)(c) KomG, Art. 42(2) VKND, Art. 38(1) VKND and Art. 19(3) of the Universal Service Directive 2002/22/EC, be subjected to the obligation to provide CS/CPS access and interconnection under cost-oriented conditions and not to set any direct fees to be borne by retail customers in a manner that would deter them.

5.3.1.2 Unbundling and „Naked DSL“

From the point of view of alternative operators – if one disregards CATV operators – unbundling remains the most important alternative means for establishing their own connections. As has been seen, an obligation to unbundle as a regulatory instrument for the market for physical access (M4) cannot, because of its minor impact on the market in reality – in general and in regard to voice telephony over the fixed network in particular – to date provide a (country-wide) substitute for corresponding regulation at the retail customer level. Nor can any major change be anticipated in the near future.

Any measures that are necessary to impose on the wholesale broadband market (M5), in the shape of „naked DSL“⁶⁹ (in conjunction with VoB), would have no effective impact within the applicable timeframe for this analysis and its prognosis. Even these measures – as indicated by experience elsewhere – would also have first gradually to take root in the market.

5.3.1.3 Wholesale line rental – WLR

The Regulatory Authority can, under Art. 23(1)(d) KomG, oblige undertakings with significant market power to grant access to, and use of, particular network components and related facilities. Under Art. 37(1)(b) VKND an undertaking with significant power may have imposed upon it the specific obligation of offering particular services under wholesale conditions for the purpose of their being marketed by third parties.

⁶⁹ „Naked DSL“ means obtaining a broadband internet product via the incumbent or a bit-stream ISP at the retail level without needing to obtain fixed network voice telephony services from the incumbent. Being able to obtain naked DSL products at the wholesale level thus makes it possible for alternative operators to offer, like the incumbent, access to and use of voice telephony services (VoB) as well as broadband internet from one source, without having to resort to unbundling.

Wholesale line rental (WLR) is understood to mean a package of services combined with the provision of PSTN and/or ISDN connections (access provision to the voice telephony service and related services) in a similar manner to that offered by the undertaking having significant market power to its retail customers. These services are generally paid for by the subscriber along with the basic subscription charge. Availability of such services under a wholesale offer should result in any competitor not having its own access network – and hence until then able to offer call services only by means of carrier (pre-)selection – becoming able to offer a complete package of access and call services to its retail customers in the fixed network voice telephony domain. An obligation to provide WLR is therefore directed at preventing the undertaking having significant market power from being able to deny obtention of its wholesale product on the present market for access and from being able thereby to leverage its market power on to other markets (ERG Principle 2), being in this case the calls markets.

The opportunities WLR opens up therefore strengthen the position of alternative operators, because their entry on to the market is facilitated in this manner and they will have at their disposal a comparable repertoire in terms of pricing and marketing planning to that of the undertaking having significant market power. Until now, alternative operators could usually only sell call services on the retail market through carrier (pre-) selection. Alternative operators will be able with WLR to create new tariff models (and two-tier tariffs) by use of their pricing policies and be able to establish their own branding vis-à-vis retail customers by means of customer care and innovative marketing and distribution activities. WLR also brings about the opportunity for the customer to have one-stop shopping (single point of contact / one face to the customer). This increases customer loyalty in contrast to merely marketing call services by means of carrier (pre-) selection, while the otherwise high costs of winning customers are reduced as a result.

TLI currently offers, under its published RIO⁷⁰, PSTN, ISDN and ISDN primary rate connections at the wholesale level. The basic regulatory obligation on TLI to provide WLR ensues from Art. 30a in conjunction with Annex C, Part A of the former LTN's infrastructure licence, for which TLI is the successor in title. Art. 30a(1)(a) of the licence only mentions, however, „*provider[s] of the basic local and/or international service*“ as beneficiaries of the offer and being entitled to access. But, leaving this aside, it must be said that a corresponding wholesale offer does actually exist at the present time.

Even though TLI has put a wholesale offer for access services in place, this product has until now not been taken up by any market player. Experience internationally shows that implementing a marketable resale offer is beset with problems and tedious. As a result one cannot, in the view of the Office for Communication, assume that WLR will be taken up in significant measure for the foreseeable future.

⁷⁰ See Annex 5, item 2, of TLI's published RIO, <http://www.telecom.li/cfdocs/cmsout/admin/index.cfm?GroupID=171&meID=1065>, last consulted on 08.08.2008.

Were significant utilization to take place, a marketable resale offering would, however, produce positive effects across the board for the state of competition on the retail market currently under consideration, alongside other competitive stimuli in the access domain. This would apply to the extent that alternative fixed network operators (in particular operators that only operate networks for call services) thereby became equally well placed to compose package offerings, that is, by acquiring corresponding pricing flexibility. In this way, the asymmetry between TLI and alternative fixed network operators would lessen as regards the scope for setting prices, just as would the associated problems of leverage of market power onto neighbouring calls markets. WLR could also, for the same reason, tackle the competition problems of anti-competitive pricing and product bundling that have been identified on the market currently under consideration. But, in light of the current irrelevance of this form of access in terms of its take-up on the market, it is clear from this that WLR will not become a substitute, within the regulatory horizon of the next two or three years, for imposing whatever forms of regulatory instruments may be necessary at the retail level.

It is also relevant that the obligation to provide naked DSL that has been foreseen by the Office for Communication in the context of the analysis of the broadband market (M5) ought to stimulate more innovation in future on the supply side; but this measure will have first gradually to take effect in the market in order to achieve a significant change in the competitive situation on the market currently under consideration.

Under the prevailing state of the market, where, as in the past, success of a WLR product on the market is not foreseeable, this form of wholesale regulation cannot in consequence be seen as furnishing an alternative having equivalent value to existing retail price controls and other obligations. Over time, these different forms of regulation may, however, engage with one another and the extent of resort to ex ante price controls may be reduced in function of the success on the market of a future WLR product. But this is today only a fairly hypothetical consideration given the applicable time horizon for regulation.

Essentially, two possible bases exist for pricing WLR: Under the first, pricing can follow the retail-minus approach whereby the wholesale price is oriented towards the existing retail prices with deductions made for avoidable costs. The alternative to the retail-minus approach is cost-based; one can for this purpose employ the cost accounting standard that has been established for accounting for interconnection services and unbundled network elements (historical full-cost accounting supplemented by benchmarking).

If competition is to be facilitated, the wholesale services provided by the undertaking having significant market power have to be provided under the same conditions as it provides to itself. Applying the retail-minus approach, this means that the undertaking having significant market power will have to provide the wholesale service at the retail price minus all costs that it will save by not having to market and distribute itself but plus

any potential additional costs that might arise by supplying the product at the wholesale level. If the wholesale purchaser is at least as efficient an operator in downstream parts of the value chain as the established operator (i.e. no more costs arise for it than do for the undertaking having significant market power itself), then it will be possible for it to offer the retail product at a competitive price. A margin squeeze should hence not occur, under comparable conditions, with such an equally efficient operator.

One must also pay regard in connection with pricing to the complementary effect upon investment in infrastructure: operators that buy an unbundled subscriber line as a wholesale service and which provide access services to their retail customers face a higher investment risk because they will be obliged to undertake considerable investment in collocation facilities and backhaul (their own backbone network); these in turn represent sunk costs and thus constitute high barriers to leaving the market. A simple reseller that can avail itself of the access services provided by the undertaking having significant market power faces in essence a much lower investment risk. The prices of both of these wholesale services, which are provided at different parts of the value chain, will have to take account of these different risks in such a way that the difference in price to an operator that purchases the wholesale service in the form of an unbundled subscriber line („the unbundling operator”) will be able to achieve a higher profit, in the sense of a fair market return on the capital invested for the purpose of covering risk, than will a simple reseller.

The above advantages, allied to good availability of information on prices, argue in favour of the relative desirability of using the retail-minus approach in the present case. The approach is thus suited to and appropriate for determining wholesale costs for WLR. The cost accounting standard described as an alternative should be reserved for the case of infrastructure that is more difficult to replicate – in respect of access, this applies to unbundling.

Determination of WLR charges is to be based on the weighted average of TLI's basic subscription charges billed to its retail customers. A distinction must be made between the PSTN and ISDN (basic connection) types of connection because they offer connection services with different functionalities. With regard to ISDN primary rate connections the view is held that the functionalities that can be offered to retail customers with this product can be realized by alternative providers in a more efficient and cost-effective manner on the basis of supply of leased line products. Implementation of a wholesale offer that included ISDN primary rate connections as well would lead to disproportionate expenditure in relation to potential demand owing to the comparatively higher costs with respect to other forms of access. Because leased lines are deployed as a primary product in setting up ISDN primary rate connections, introducing the relevant processes in the leased line domain would lead to an increase in the costs of implementation that would be out of kilter with the demand that could be expected. For these reasons no obligation to provide ISDN primary rate connections as part of the WLR offer shall be imposed.

Taken together, a WLR obligation is thus to be seen as being unsuited to resolving the problems for competition that have been determined to exist, not least because of the current unimportance in practice and its probable minor importance in the time horizon under investigation. Nevertheless, such an obligation does seem suited over the longer term to encouraging service competition on the access and thus the related calls markets. TLI already has a wholesale offer for WLR, for which reason continued maintenance of this measure must be judged as being in any case proportionate.

5.3.1.4 Interim conclusion – effectiveness of wholesale regulation

It can thus be determined that the competition problems of excessive pricing and that of leveraging of market power from the market for access on to the calls markets cannot be met adequately with the regulatory instruments that currently exist or are to be imposed at the wholesale level. Any obligations to be imposed in the wholesale markets for call origination (M2) and termination (M3) are aimed at call services (in similar manner to the obligation to provide carrier (pre-)selection), whereas the main concern in the access market is the prerequisites and conditions for access to the retail customer's connection. Nor do the specific wholesale obligations suffice when taken as a whole to redress adequately the problems for competition that have been identified. This is because their lack of empirical significance alone already makes them unsuitable to induce stronger competition on the markets for access in the timeframe under consideration. Corresponding retail regulatory measures must therefore, in accordance with Art. 39(1) VKND, be considered.

5.3.2. Obligations at the retail level

Because the regulatory instruments at the wholesale level will not be adequate – within the time horizon that is relevant here of the next 2-3 years – for countering in a suitable manner the competition problems that have been identified, supplementary retail regulation needs to be foreseen, in regard to which attention will be paid to the provisions of Arts. 39 and 41 VKND in particular. With respect to the problems for competition that have been identified, it must, among other things, be ensured that TLI does not charge excessive prices, that market entry is not impeded on the part of new players, and that TLI does not bundle services in an anti-competitive manner.

5.3.2.1 Price regulation

The remedy of price regulation under Art. 23(1)(a)(1) KomG and Art. 39 VKND will serve to tackle the competition problem identified with regard to excessive pricing. Concretely, this problem for competition can be dealt with most efficiently through cost-oriented prices by means of an obligation to seek prior approval of prices by application of Art. 23(1)(a)(1) KomG and Art. 39(2)(a) and 39(3)(b)(1) VKND. Direct incentives to anti-competitive pricing exist because of quasi-monopolistic market structures. This may take the form both of excessive pricing and of strategies to leverage market power, whether within a particular

cluster of services or across clusters. Because there have been only insignificant changes in the competitive structures on the market for access at a fixed location since the beginning of liberalization, price regulation in the form of an obligation to seek prior approval of prices is, from a regulatory point of view, justified and is of essential importance on the market for access at a fixed location.

In the context of imposing a retail obligation one would in principle also have the option of applying price-capping to retail prices in the sense of Art. 39(3)(a) and Art. 41(4) VKND. This approach may, however, only address the above mentioned problems for competition part-way (excessive pricing) in as much that price caps are primarily designed to pass on improvements in efficiency to the retail customer. However, it is not inefficiency that is the sole problem in later phases of liberalization; one must rather also reckon with – as mentioned – the leveraging of market power into areas that exhibit greater competition. For this reason, cost-based price regulation is the suitable approach for tackling the problems for competition that have been determined. The horizontal complexity of the markets for access and call services is already reason enough to evince the necessity of adopting a uniform investigative methodology and a corresponding regulatory approach.

Apart from this, price regulation according to the standard of cost-orientation offers the regulated undertaking greater pricing flexibility than does an approach based on price capping. The latter approach entails ex ante control of all tariffs that fall under the cap and, in doing so, will in any case foresee some direction in the movement of prices. Price regulation based on approval of prices individually, on the other hand, foresees regulatory intervention only at the initiative of the regulated undertaking when new tariffs are introduced or tariffs are changed. The obligation should cover all changes, because the Regulatory Authority is in first place obliged to estimate what the effects will be on the market and competition and to assure that the terms of Arts. 39 and 41 VKND are kept to.

Since prices and the general business terms and conditions (T&C) cannot sensibly be seen in isolation, prices and the T&C and changes to them must, pursuant to Art. 41(1) VKND, be submitted together in advance to the Office for Communication for its approval to the extent that changes in prices and/or the T&C in respect of access services are concerned. A general obligation to notify T&C and pricing terms is already provided for in any case under Art. 7(1) and (2) VKND (notification of changed terms). Along with tackling excessive prices, the obligation to submit prices and the T&C, and changes to them, for approval also fulfils the purpose of ensuring that the entry of new players on to the market is not impeded (for example through product bundling). The obligation placing prices and the T&C under price regulation together originates, on the one hand, in the fact that it would otherwise be possible to circumvent simple regulation of charges (contractual tie-in periods can for instance have considerable relevance for prices) and, on the other, in the possibility that action might otherwise be taken that would be capable of creating

significant barriers to switching provider (such as through excessively long contract duration periods).

TLI should therefore, on the basis of Art. 39(3)(a) to (e) in conjunction with Art. 41(1) VKND, be obligated to submit to the Office for Communication for prior approval all retail prices and all general business terms and conditions including service descriptions together with changes they bring to the basic subscription and set-up charges applicable on this market.

Retail prices must comply, in accordance with Art. 23(1)(a)(1) KomG and Art. 39(3)(b)(1) VKND, with the criterion of cost orientation. Cost orientation is to cover, as a minimum, basic subscription charges and charges for setting up connections, taking into account special (promotional) offers⁷¹, discounts and other benefits. Control over retail prices should basically follow the Office for Communication's previous practice and take this as the point of departure.

As a regulated company under Art. 23(1)(a)(1) KomG and Art. 39(4) VKND, TLI is required to implement a cost accounting system stipulated by the Regulatory Authority. The cost accounting methodology ought, in line with the practice until now, to be based upon the concept of fully allocated historical costs – those costs that arise directly for the provider through the establishment, operation and maintenance of the service concerned together with its marketing and billing, taking into account too those indirect costs that must be allocated to the service. The Office for Communication can also refer to prices prevailing abroad for purposes of comparison (benchmarking) in order to assure cost-effective delivery of access services.

5.3.2.2 Product bundling

The horizontal complexity of the markets for access and call services requires that, when imposing ex ante price control, account is taken of possible leveraging of market power horizontally through bundling access and call service prices. For this reason, the obligation to apply cost orientation shall apply also to each part of the bundled products that are offered on the access market currently under consideration if they fall within that market.

In order to prevent services from being bundled in a way that impedes competition and to prevent them from being implemented in an anti-competitive manner, it is necessary, in accordance with Art. 39(2)(e) and (b) VKND, to prohibit circumvention of the cost orientation regime for fixed network services through combining services under tariff options (bundling of regulated products within a service cluster). This also applies to the combination of basic (and set-up) subscription charges and related call charges. The same will apply if access services at a fixed location were perhaps combined with mobile or

⁷¹ One excludes here kinds of special (promotional) offers which are usually of short duration running up to three months („offer series“ represent circumvention of this time limit). The contractual period or service utilization period must not exceed one year.

broadband services in a single package (cross-service cluster bundling of regulated and unregulated products), which has recently been increasingly noticeable.

Bundled products can be of regulatory significance if they fulfil the following conditions:

- The bundle comprises two or more products on a single market or on several in which the operator offering the package has a dominant market position (SMP position); or
- the bundle comprises both a product on a market in which the operator offering the package has a dominant market position and one on a market in which the operator does not have an SMP position.
- In either case, both or only one of the products are/is either only available in bundled form or subject to a price reduction or other benefit that is conferred when taking up the package while the retail customer will not obtain that reduction or benefit if it takes up a component product on its own.

The tolerability in competition terms of offering product bundles is to be gauged according to the tests of technical and commercial replicability, the existence of a margin squeeze (where wholesale products are concerned) and the potential created for leveraging market power (if the bundle is non-replicable).

When judging a bundle one must also weigh any possible advantages (greater efficiency and utilization) against possible anti-competitive effects. In this regard a sufficiently long view has to be taken (more than a year in any case) because some positive effects may be only short-lived while the negative effects may predominate into the longer term (through squeezing out competition and reducing competition).

5.3.2.3 Accounting separation– accompanying regulatory measures

It is necessary to supplement the measures for price regulation by accounting separation under Art. 36 VKND because this provides the means to perform rapid examination of prices and may also help in countering the (potential) competition problem that has been identified regarding the risk of leveraging market power through product bundling.

The instrument of accounting separation serves to make transparent internal expenditure, costs and revenue among different areas of activity for the benefit of the Regulatory Authority.⁷² Accounting separation must be imposed as it is an essential instrument in support of the obligation of cost-oriented price control. This is because TLI operates on other markets and has the incentive to relocate costs from unregulated to regulated fields. Price control only affects products on the relevant market and since this represents only a small part of an integrated operator's activity, accounting separation is, for this reason, needed for the whole of the undertaking.⁷³ Simple price control in this sub-area

⁷² Cf. In this regard, also ERG Remedies (2006).

⁷³ Cf. ERG Remedies (2006).

would not solve the problem of cross-subsidization from other business areas. A global perspective of aggregated revenues and costs is required in this connection. Movements of revenue or costs from regulated to unregulated areas (or vice versa) can in this way be made transparent.

Ascertainment of cost orientation by means of a (short) procedure is only possible with undertakings having a large number of products if there are separated accounts in the framework of accounting separation that are inspected regularly. Only then can the cost-orientation of pricing for particular products or groups of products be examined within a brief period of time on a case-by-case basis and it be ensured that costs are not taken from unregulated into regulated business areas (or the other way round). Given that TLI also currently has market power on other markets, and that it may be subjected to accounting separation for those markets, the obligation of accounting separation can be viewed as being in any case a proportionate remedy because it is necessary for price control in the sense used above, the incremental costs associated with this regulatory instrument will be small on this market, and significant synergies will arise.

TLI shall accordingly be obligated, on the basis of Art. 23(1)(a)(1) KomG and Art. 36 VKND, and in order to prevent impermissible cross-subsidization and relocation of costs between regulated and unregulated areas, to separate its costs and revenues in relation to the present market from the other products it offers and to break them down according to the markets specified in the Announcement on market definition through use of a cost accounting system (separated accounting). The following information is, as a minimum, to be provided in this connection in conformity with the requirements of the Office for Communication:

- revenues,
- costs (differentiated according to personnel costs, asset amortization costs, the cost of capital and miscellaneous costs),
- a detailed assets analysis for the company, key figures on personnel, cost drivers such as particularly the number of connections and other information that is necessary for examination of the accounting.

The details of the precise form the information is to take will be specified during the course of the inspection performed at regular intervals. This will examine whether the information that is to be provided regularly to the Office for Communication presents the necessary specificity and granularity.

5.4 Summary: regulatory instruments to be imposed

Proceeding from the problems for competition that have been identified in the present market analysis, the available regulatory obligations (measures of special regulation) were investigated in order to determine to what extent they might individually or in

combination meet the problems for competition identified. In evaluating and selecting obligations, the Office for Communication took particular care to ensure that the regulatory instruments selected were not only suitable and necessary, but that they also represented respectively the mildest means according to the principle of proportionality.

Added together, the following measures of special regulation, which are to be imposed on TLI as an undertaking having significant market power on the access market at a fixed location, are necessary, suitable and also the mildest means (because they are the only effective ones) in order to protect the retail customer from abuse of market power, to prevent leveraging of market power and to encourage market entry and competition:

- **Price control:** The obligation to obtain prior approval of cost-oriented retail prices and of the general business terms and conditions for access services (both as services individually and as parts of a product bundle) to the public telephone network at a fixed location (obligation at the retail level);
- **Accounting separation:** The obligation, for prevention of impermissible cross-subsidization and relocation of costs between regulated and unregulated branches, to separate its costs and revenues in relation to the present market from the other products it offers and to break them down according to the markets specified in the Announcement on market definition through use of a cost accounting system (accompanying regulatory measure);
- **Carrier (pre-)selection:** The obligation to provide, on a cost-oriented basis, indirect access by means of carrier selection and carrier pre-selection through use of access codes for all connections to the public telephone network at a fixed location (obligation at the wholesale level). For reasons of proportionality, AK abstains for the time being from the imposition of a requirement to ensure carrier pre-selection on VoB connections;
- **Wholesale line rental:** The obligation to provide a wholesale product for the resale of the subscriber line connection by third parties, applying a retail-minus cost approach (obligation at the wholesale level).

Availability of a WLR product will encourage service-based competition over the long term on the access market and will allow alternative providers to enter the market more easily, while also offering them a better opportunity to design attractive packages and/or tariffs. However, particularly because it has currently no practical importance and will probably have only slight significance throughout the time horizon under investigation, it is unsuited to removing the problems for competition that have been identified on the access market.

Carrier (pre-)selection must be envisaged in light of TLI's dominant market position on the markets for access and the resulting possibility or actual exercise of foreclosure strategies on the calls markets. This obligation to a certain extent represents a basic regulatory

regime for the calls markets, without which effective competition would not be possible for the foreseeable future. Carrier (pre-)selection does not, however, have any direct effect on the access market itself and is thus not suited to removing the problems for competition on it that have been identified.

Special measures at the retail level in the shape of ex ante price control based on cost orientation are therefore necessary for tackling the competition problem of excessive retail prices that has been determined. Prices and T&C for fixed network access services (both as services individually and as parts of a product bundle) must be submitted to the Office for Communication for its prior approval.

The obligation of separated accounting must, as an accompanying regulatory measure, be envisaged a necessary precondition for adequate and timely examination of costs and for preventing impermissible cross-subsidization or relocation of costs between regulated and unregulated areas.

The obligations proposed by the Office for Communication deal in an effective and proportionate manner with all of the problems for competition that have been identified on the market for access at a fixed location. They are sufficient, from today's perspective, to prevent TLI from abusing its market power on this market. No further regulatory measures in the sense of Art. 43 VKND are needed.