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Evaluation of the telecommunications market

Report of the Federal Council in fulfilment of postulate CTT-CS of 13 January 2009 (09.3002)

Summary

With this report, the Federal Council is fulfilling the mandate issued to it by Parliament with the postulate of the Commission for Transport and Telecommunications of the Council of States (CTT-CS) of 13 January 2009.

The central question is the extent to which the objectives of the current Telecommunications Act have been achieved, according to which private individuals and the business community are to be provided with a range of cost-effective, high quality, and nationally and internationally competitive telecommunications services. These objectives are pursued via competition or – in so far as the market does not accomplish this – via the universal service.

The report deals in depth with these two topics, which are of great political relevance, as illustrated by the numerous parliamentary initiatives which the Federal Council has recently had to deal with. First of all, the market conditions of the different telecom sectors in Switzerland are described (fixed network, broadband, mobile radio and roaming). Then, against this background, the method of operation of the current telecommunications regulatory system is outlined. Based on this analysis of the market on the one hand and of regulation on the other, existing problems areas in the Swiss telecommunications market or problem areas which may emerge in the future are outlined, along with appropriate solutions. Particular consideration is given to the expansion of optical fibre access networks (FTTH). This represents a real quantum leap and opens up a new dimension in an area of infrastructure which is central for the country, and which has to date been characterised essentially by a copper wire network constructed more than a century ago under monopoly conditions.

In the market segments of fixed-network telephony and mobile broadband access, the Federal Council does not perceive any need to take action. On the other hand, challenges do exist in the most promising markets, i.e. broadband and high-speed broadband (including FTTH) and mobile telephony, both in terms of the development of sector-specific competition policy and for ensuring the universal service. To this end the report presents various options, which would require a revision of the Telecommunications Act in order to be implemented. The options or variants presented focus particularly on the design of access regulation and the corresponding procedures before the Federal Communications Commission (ComCom). The Federal Council, however, does not simply wish to give the regulator a free hand with regard to regulation. In each case, clear rules would have to be defined which would be authoritative in relation to terms and conditions of access. Furthermore, the Federal Council would like to be able to decide which technologies and markets should be cleared for regulation. In terms of ensuring the future universal service, an examination of its scope and the design of the funding mechanisms are central.

Finally, the report also looks in detail at the protection of end users. As the experience of recent years has shown, rapid technological progress makes it especially difficult for private users of telecommunications services to maintain a comprehensive overview. The increasing complexity of products and services also opens new opportunities for abuse by unscrupulous providers. The report therefore includes possible measures in relation to improving protection for consumers and young people.

In summary, the Federal Council is of the opinion that the time is ripe for a political discussion on the future form of the Swiss telecommunications system. It therefore welcomes the opportunity to provide Parliament, in the context of this report, with a general overview of the challenges and possible approaches regarding solutions. On the whole, however, it comes to the conclusion that a revision of the law is not currently pressing. However, it will continue to monitor developments closely and will take the necessary measures if crucial changes that require a revision of the law do occur.

1 Background and purpose of the report

At the end of the 'nineties, the telecommunications market in Switzerland was liberalised. This major paradigm shift towards a more efficient telecommunications sector, based on competition, which at the same time guarantees the entire population a modern universal service, was implemented by the enactment of the Telecommunications Act of 30 April 1997 (TCA)[1] which entered into force on 1 January 1998.

Very soon, however, the necessity of adapting the regulatory framework became apparent. The initial work began in 2001 and was concluded with the adoption of the amended Act by the Federal Assembly on 24 March 2006. This revision, which entered into force on 1 April 2007, was founded on the intention to facilitate market access for alternative telecommunications service providers and to make the market-dominant providers more accountable. In this context, the emphasis was on transparent, non-discriminatory unbundling of the last (copper) mile at cost-based prices. Regulation of the universal service was also modified, in particular by adapting the funding mechanism. Finally, consumer protection was strengthened and the overall euro-compatibility of the Swiss regulatory system was improved.

Shortly after the revised Act entered into force, there were calls for a further amendment to telecommunications law. In particular, the price supervisor and the presidents of the Federal Communications Commission (ComCom) and the Federal Competition Commission (COMCO) took the initiative and appealed to the Federal Council to demand from it an amendment to extend the powers of the telecoms regulatory authority. Furthermore, the intensified deployment of fibre access networks was increasingly accompanied by discussions around the introduction of this new technology from the viewpoint of competition and provision policy. In Parliament, numerous commensurate initiatives were launched; their implementation would for the most part require a revision of the law. Against this background, a thorough examination of the effects of the current system and of the future role of regulation in the telecommunications sector was indispensable.

On the basis of the observation that any revision of the law is also a source of uncertainty which is detrimental to the development of a telecommunications market characterised by high growth and significant investment, Parliament wanted to avoid a revision of the law based on short-term and sometimes conflicting demands and decided to undertake an assessment of the situation before taking any further steps. By accepting postulate 09.3002 of its Commission for Transport and Telecommunications entitled "Evaluation of the Telecommunications Market", the Council of States invited the Federal Council "to submit to Parliament, by mid-2010, a report on the development of the Swiss telecommunications market, the experience with the revised Telecommunications Act and the possible need for legislative action."

In this context the following questions were to be answered:

“1. Should the existing access regulation system be adapted, in particular by expansion towards technological neutrality?

2. Are the currently specified and implemented methods of price calculation for access regulation appropriate?

3. Would the separation of network and services be appropriate?

4. How is the achievement of the goals of liberalisation which were the intention of the revised Telecommunications Act assessed?

[1] CC 784.10.

5. How is the competition in the areas of the mobile and fixed network perceived, and where is there a need for action?

6. Does the deployment of optical fibre require regulation from the viewpoint of provision policy and competition?

7. Are the current arrangements for the protection of consumers and minors adequate?

8. Would it make sense to allow the Federal Communications Commission (ComCom) to intervene *ex officio* in the determination of access provisions? "

The purpose of this report is to analyse the questions posed, along with important additional aspects, to identify those areas which pose special challenges and to outline possible solutions. A comprehensive answer to the questions in the postulate will be given at the end of the evaluation.

In addition to this introduction, the report consists of eight chapters:

Chapter 2 is devoted to an analysis of the competition situation in the market for fixed-network telecommunications services. It is divided into two sub-sections; the first deals with the fixed telephony market and the second with the broadband market. The two sub-sections share the same structure and include an analysis of the situation and of developments with the aid of statistical indicators, information about the opinions and behaviour of users, development perspectives, a situation assessment and finally a compilation of the possibilities of regulatory correction.

Chapter 3, which analyses the market for mobile telecommunications services, has the same structure as the preceding chapter. It is complemented by a sub-section on the issue of the prices of international roaming services.

The lessons to be learned from access regulation as it has been implemented to date are set out in **Chapter 4**. The chapter is not limited to analysing the operation of the system which was introduced from an institutional and procedural perspective but also explains the introduction of unbundling in Switzerland and indicates specific approaches to optimising the system. The issue of the pricing model for access to resources and services of the market-dominant providers and the question of the separation of network and services are also the subject of Chapter 4.

Chapter 5 is devoted to the development of optical-fibre access networks. It begins with an overview of all current broadband technologies and then addresses the specifics and functionalities of fibre networks. The different categories of market player and the initiatives launched by the regulator are then briefly set out. The costs of the deployment of fibre-optic access networks were the subject of an in-depth evaluation; the key results are also outlined here. Based on these foundations, Section 5 finally deals with the question of the possible role of regulation in the development of the optical fibre networks.

The question of nationwide coverage with high-speed broadband connections (the universal service) is considered in detail in **Chapter 6**. In particular, it also includes a comprehensive description of different approaches which are being applied in other countries.

Chapter 7 outlines the most important problems from the perspective of protecting consumers and minors and presents a number of opportunities for improvement. The various topics such as advertising, value-added services, consumer information, contracts for telecommunications services and the resolution of disputes are dealt with sequentially.

Chapter 8 deals with aspects of telecommunications law which are not directly mentioned in the postulate but which will sooner or later require solutions to be found, given the challenges that they

raise. These include the question of the competencies of the authorities in regulating addressing resources and the challenges associated with convergence, network neutrality, protection of privacy and the administration of domain names.

The report concludes with **Chapter 9**, which contains a summary of the preceding sections and a list of options for future action. The summary response to the questions raised in the postulate plus the conclusions complete the evaluation.

9 Summary

9.1 Experience of the system in force and knowledge acquired from it

9.1.1 Market analysis

9.1.1.1 The fixed network market

9.1.1.1.1 Telephony

A detailed examination of the situation in the retail market for fixed-network telephony in Switzerland permits the conclusion that liberalisation has turned out to be very positive. There are strong indications that the market has undergone a radical change over the last decade. Users can now choose between numerous telecommunications service providers and are availing themselves of this opportunity; call prices have fallen to an extent that no one would have thought possible and the market share of the historical provider has decreased significantly. The situation regarding the provision of telephone *connections*, though, is still far from optimal. However, it is clear that the historical provider's monopoly is starting to crumble noticeably, in part because of the alternative offerings marketed by the cable network operators. The implementation of unbundling is expected to further reinforce this trend. Thus, for example, the Sunrise company, thanks to its unbundling efforts, can now supply 80% of households. Finally, the growing use of mobile telephony facilitates increased competition, not to mention the development of internet-based telephony (voice over IP or "VoIP"), which offers some interesting perspectives.

Currently there are no new or known problems that would justify further strengthening of regulation in the fixed-network telephony market.

It must also be borne in mind that this market plays a decreasing role in the strategy of the operators and that the real challenges in relation to competition are posed in other markets. Fixed-network telephony, however, is not threatened with extinction – Swiss households still attach great importance to it. It will therefore continue to be offered by operators but probably in a different commercial form, for example against payment of a flat rate or as part of a combined offering.

The only downside is the continuing high price level for calls to the national mobile networks.

This problem has been known for some time and it has still not been possible to resolve it satisfactorily, despite the initiatives of various players (the opening of investigations by the Competition Commission, a joint initiative by the price supervisor, the Competition Commission and ComCom, a motion by senator Forster-Vannini). It is directly related to the observed malfunctioning of the wholesale market for mobile termination and must therefore by addressed at this level, if a proportionate, efficient and permanent solution is to be found (see Section 9.1.1.2.1)

9.1.1.1.2 Broadband

The liberalisation of the telecommunications market has also had a positive impact on the retail market for fixed-network broadband connections. We have come a long way since the marketing of the first mainstream broadband connections by the cable network operators in the late 'nineties. Although use of the internet was initially only a niche market, it quickly expanded and led to a broadband boom. Thanks to the competition between cable network operators and the historic operator (Swisscom), on the one hand the cost of broadband has dropped and on the other the transmission speeds offered to users have constantly increased.

When broadband technology was introduced, the conditions for rapid development in Switzerland were ideal. It brought together a number of factors: the existence of alternative networks with good coverage (i.e. those of the cable network operators), a population with a high level of education and a willingness to pay a relatively high price for telecommunications services. Thus a virtuous spiral was

set in motion. In terms of broadband penetration per capita, Switzerland has for several years been at the top of the OECD rankings.

Behind this positive overall snapshot, however, there lies a particularly worrying reality for the future. For some time it has been possible to observe a unique development compared with other countries for the market shares of the historic provider are growing again. Indeed the cable network operators are constantly losing ground and in the DSL market the alternative providers are lagging behind. Clearly, the alternative providers are finding it difficult to prevail against the might of the historic provider. It can be assumed that this is partly due to the tardy introduction of the unbundling obligation in Switzerland, i.e. more than six years after this obligation was imposed in the EU countries. In this context it should be noted that the first basic offer for bitstream access was not published until June 2009, because Swisscom had disputed its market-dominant position. The introduction of mandatory unbundling certainly met a need, because some companies have invested large sums in order to pursue this option. There is concern, however, that they are not in a position to make up for lost time in a market which is now saturated.

In order to encourage competition in services, the introduction of a requirement for the market-dominant provider to provide bitstream access which is less restrictive than is currently the case would be a possibility.

Broadband connections via fibre access networks are analysed separately in Section 9.3.2.

9.1.1.2 The mobile radio market

9.1.1.2.1 Mobile telephony

The liberalisation of the telecommunications market has also brought profound changes in relation to mobile communications. Whereas at the beginning of liberalisation, mobile telephony was still the preserve of a small minority consisting primarily of businessmen and women, it subsequently become available to the general public as well. Thanks to the entry into the market of alternative providers and the resulting competitive pressure, prices fell by half. Despite this positive development, it is clear that the competitive situation is not ideal and that there remains distinct potential for improvement. Two key factors justify this assessment: the high prices of mobile communications compared with other countries on the one hand and the large market share of the historic provider on the other. With such a large percentage (62%), Switzerland, together with Cyprus, represents an exception in Europe.

It is certainly possible to offer in explanation the excellent quality of the services provided by Swisscom and Swiss users' unwillingness to switch – once they have made their choice of mobile provider they hardly give the matter any further thought. The main reason, however, is the late liberalisation of the market. When two alternative providers (diAx and Orange) were awarded the first licenses for the operation of national mobile telephony networks in May 1998, Swisscom already had a well-developed network and a portfolio of over one million customers. Its in-depth knowledge of the peculiarities of the market and exploitation of economies of scale attributable to its position as a former monopoly enabled it to consolidate its lead. In contrast, the two alternative providers, with their low market share, had much less favourable cost structures and were never able to compete on a level playing field. Against this background, it is clear that fierce and repeated price assaults on the historical provider would have been a risky strategy, especially as the new infrastructure had to be amortised. It is worth recalling that the Tele2 company had to pay a price for its rather aggressive business policy.

The Swiss mobile telephony market is characterised by a degree of inertia and an unequal balance of power between the different service providers. To give the market a little more momentum, the telecommunications regulator would need to have more effective ways of intervening, including the possibility of regulating termination charges at the wholesale level and requiring licensees by law to provide a national roaming service. Even if it is now somewhat late for this, the establishment of such an arsenal of intervention tools should be discussed again.

The merger of Orange and Sunrise, prohibited by the Competition Commission, would inevitably have had an impact on the structure of the market, though this remains speculation. Although the parties to the merger challenged the decision before the Federal Administrative Court and also planned to file a new application with the Competition Commission, they finally gave up their plan and abandoned any rapprochement. The question which is now posed is how the market will react to the findings of the Competition Commission and what impact this will have on users. However, regardless of this, the state of the market is such that a proactive view about future regulatory options should be taken to complement the general competition legislation. Ultimately, the key point is to give mobile providers who are new or who have entered the market at a late stage – with or without their own network infrastructure – an opportunity to contribute to sustainable competition.

9.1.1.2.2 **Mobile broadband**

The general dissemination of the internet and mobile telephony created new demand, i.e. the possibility of using the internet anytime and anywhere. The mobile broadband market is currently enjoying dynamic development. Compared to the fixed-network broadband market, however, the mobile market still suffers from excessively high prices and low bandwidths which prevent it from effectively replacing the fixed network. However, prices could fall over time, with the increasing importance of the service, and bandwidths will continue to increase.

This market, which is just emerging, currently requires no specific regulatory intervention.

Any premature intervention would be harmful because the risk of distorting competition and/or inhibiting willingness to invest should not be underestimated. Since this new market is still a very young one, it would appear in the first instance to be appropriate to allow the regulatory authorities to develop tools which allow them to monitor further developments.

9.1.1.2.3 **International roaming**

The high prices which Swiss users have to pay for international roaming services are criticised regularly. By virtue of the legal foundations of the Community's internal market, the European Commission has in recent years taken drastic measures to reduce the cost of using mobile services for citizens of the European Union who are travelling within the EU but are not currently in their home country.

The roaming rates that are charged to Swiss users travelling in the EU countries are for the most part well above those fixed by European price cap regulation, the so-called "euro rates".

However, one has to be aware that unilateral regulation of retail prices in Switzerland is not an appropriate instrument for aligning to the current level of prices in the EU. A large part of the price paid by Swiss users serves to cover the costs which are borne by the participating foreign service provider. However, these costs, i.e. the prices charged on the wholesale market, are the result of bilateral negotiations between a Swiss provider and its foreign partners. The unilateral setting of a price cap would have a devastating impact on competition, as the same price range would be imposed on all providers even though they cannot influence a large proportion of the costs and have to make calculations under different conditions.

Allowing Swiss users to benefit from the "euro rates" without having to take distortions of competition into account would be possible only by negotiating a bilateral agreement with the European Union.

Such an approach would, however, be appropriate in the overall context of the Switzerland's policy on Europe.

9.1.1.3 Transparency and user contracts

Finally, it should be noted that in all the markets analysed – fixed and mobile communications – competition would become stronger if there were more price transparency and if certain practices, including contractual ploys which make it more difficult for consumers to switch providers, were better regulated or even in certain cases prohibited (cf. Section 9.3.3.1.4).

9.1.2 Analysis of access regulation

9.1.2.1 Introduction

The liberalisation of the telecommunications market was intended to create genuine competition to meet the needs of households and businesses as effectively and appropriately as possible. Liberalising the market without parallel measures accompanying the transition from a state monopoly to a genuine market, would, however, have been illusory. Since the legislature was aware that the competing networks would need some time to establish themselves, it has taken measures to guarantee interoperability and interconnection of the networks. In particular, it has ensured that alternative providers acquire access to the market-dominant provider's network under equitable conditions. After the revision of the law which entered into force in April 2007[2] the interconnection arrangements were complemented by various provisions for unbundling access to the last mile.

The following section outlines the lessons learned so far in terms of regulation. Here the focus is mainly on difficulties that have arisen regarding the implementation of the TCA and on points which have been the subject of intense debate in political discussions. First of all the available regulatory instruments are explained and then consideration is given to the question of the conditions under which ComCom can take regulatory action.

The liberalisation of the telecommunications market and the existing system of access regulation have had a generally positive impact on the variety, quality and prices of telecommunications services in Switzerland. However, the analysis of the system in Switzerland, based on years of experience, does indicate that there are a number of specific challenges or even gaps, the most important of which are described below. In this regard, there is therefore potential for optimisation.

9.1.2.2 Regulatory instruments

9.1.2.2.1 Undifferentiated conditions for regulation

The objective of regulating access to the equipment and services of a provider which dominates a specific market is to establish effective competition. In this context, the selection of the products to be regulated and the regulatory instruments to be applied should be undertaken in a proportionate and targeted manner.

The purpose of the law is clear. However, this does not apply to the same degree to the corresponding legal instruments (Art. 11 TCA), which do not differentiate clearly between markets, regulated products and regulatory instruments.

[2] CC 784.10.

These deficiencies in clarity and differentiation considerably complicate the procedures implemented by the regulatory authorities and significantly reduce the effectiveness of intervention. They primarily prevent ComCom from acting proportionately and force it to apply, even in less serious cases, restrictive measures (in particular the fixing of cost-based prices).

The example of cable ducts is an ideal illustration. To give alternative providers without their own cable ducts a chance in the market, the law enables them to obtain access to the ducts of the dominant provider under certain conditions, i.e. access must be transparent, non-discriminatory and at cost-based prices. By adding cable ducts – which do not constitute a telecommunications service – to the list of regulated products, the legislature has implicitly granted them the status of an instrument. Moreover, this instrument does not relate to a precisely defined market, since other economic players also have ducts.

9.1.2.2.2 **Criticism of the pricing model**

A controversial point in the political debate also concerns the calculation of the prices which must be paid for the use of the infrastructure of a market-dominant provider. The discussion is centred on the delicate area between the fear that excessive access prices would have a negative impact on retail prices, and on the other hand the concern that excessively low prices could in the long term inhibit investment in new infrastructures.

In order to verify whether the wholesale prices of a market-dominant provider are cost-based, and to fix these prices where applicable, ComCom uses a method whose principles are defined in law. The prices calculated using this method are intended to correspond to those which an efficient provider would demand in a purely competitive situation. The dominant provider is therefore not in a position to siphon off a return based on its special status, and for an alternative provider, it makes practically no difference in terms of prices whether it provides the lacking infrastructure itself ("make it") or whether it purchases a facility or a service wholesale ("buy it"). Price can thus play its role as an economic signal which makes it possible to prevent distortion of competition not only on a technological platform, but also between different technological platforms, as far as possible.

In the context of interconnection disputes, there was at most criticism on the part of the market-dominant provider, of the application of this method in practice. Since decisions have been made on disputes relating to the new forms of access[3], the effective implementation of the method has, however, been called into question by various parties.

The main criticism is that in assessing the net costs, replacement costs are taken into consideration. These criticisms indicate that the system should be clarified or adapted. ComCom should be given the power to be able to make adjustments to price calculations based on new value replacement cost if there is no modern equivalent technology which can serve as a basis for comparison. This might be the case especially in relation to price calculations for the relatively old copper networks.

9.1.2.3 **Rules relating to procedures**

9.1.2.3.1 **The current system: the primacy of negotiation**

In Switzerland, the *ex post* system applies, i.e. the regulator (ComCom) – unlike the Competition Commission – lays down the conditions for access to the equipment and services of the provider which is dominant in the relevant market only if the players in the market have not been able to agree within the statutory framework and one party applies for regulation.

[3] New forms of access which have been introduced as a result of the revision of the TCA which entered into force on 1 April 2007: fully unbundled access to the local loop, cable ducts, etc.

The cornerstone of this system is thus the so-called primacy of negotiation. These rules may lead to negative effects in practice; this is considered in detail below.

9.1.2.3.2 **Limited scope for negotiation**

Often the conditions for a balanced agreement are not met because the parties involved in the negotiations do not have the same weight.

On one side there is a party (an alternative provider) which requires the equipment and services of the other party (the market-dominant provider). The latter, however, has no real interest in a competitor moving in on its turf. The relationship is therefore open to conflict from the outset.

This relatively unfavourable starting point is complicated by the fact that the conclusion of an agreement on access to telecommunications equipment and services is extremely complex. The market-dominant provider is indeed obliged to publish a basic offering which guarantees a degree of transparency for all interested alternative providers. However, since the information is very complex, and the asymmetries in terms of (technical, legal and economic) knowledge and resources are considerable, it is difficult or even impossible for an alternative provider to build up a clear and accurate picture. Therefore it has only two possibilities: simply to sign the agreement or to request intervention by ComCom. Since such a procedure is time-consuming and costly, however, it is a major deterrent for various providers.

9.1.2.3.3 **Possible collusion between providers**

The fact that ComCom cannot intervene *ex officio* in the event of evident problems but only on request is another weakness of the current system in Switzerland.

A particular problem is evident especially in those cases where providers have no interest in subjecting the provision of facilities or a service to legally defined conditions, i.e. transparently, in a non-discriminatory manner and, in the event of market domination, at cost-based prices. The example of the setting of mobile termination charges between the licensed operators best illustrates such a situation. The problem is that the high price level serves the negotiating parties but has a negative effect on consumers.

The primacy of negotiation, as provided for in the Telecommunications Act, constitutes a special case in price and competition regulation in Switzerland, in that the competent authority is precluded from enforcing the applicable law if no request is made by any party. The Federal Health Insurance Act of 18 March 1994 (FHIA[4]) and the Federal Electricity Supply Act of 23 March 2007 (FESA[5]) also provide in principle for the primacy of negotiation. However, tariff agreements in the FHIA are subject to an approval obligation (Art. 46 para. 4 FHIA) and the Electricity Commission can examine tariffs *ex officio* on the basis of Art. 22 para. 2 lit. b FESA. The price supervisor and the Competition Commission, with the exception of merger supervision in the law on cartels, cannot intervene *ex officio* and are also able to intervene only *ex post*, i.e. in the event of price fixing or prohibited behaviour.

9.1.2.3.4 **Risk of frequent changes in practice**

As explained above, ComCom decrees the conditions for access to the equipment and services of the market-dominant provider only on application from one of the negotiating parties. In practical terms this means that a decision on access can be applied for at any time and that multiple applications for decisions on the same question can be submitted at different times.

[4] CC 832.10.

[5] CC 734.7.

Against this background, there is a risk that ComCom will issue decisions which differ despite a precise match to the problems on certain points because, for example, they take into account new findings concerning the question.

The current *ex-post* regime therefore leads to frequent changes in practice which adversely affect legal certainty and which are not in the interests of the industry.

9.1.2.3.5 Risk of litigation borne by alternative providers

If an alternative provider is not satisfied with the negotiations with the dominant provider, it can request an access decision from ComCom. By doing so, it involves itself in a time-consuming and costly procedure, the outcome of which it is hardly able to assess, particularly because of the complexity and lack of transparency of the price fixing process, which must comply with the principle of cost-based prices.

An alternative provider which embarks on such a procedure is exposed to a risk which should not be underestimated and which not all alternative providers can assume.

It is worth mentioning in this context that to date only a few alternative providers have actually filed access procedures with ComCom.

9.1.2.3.6 Diffuse effects of regulatory decisions on the retail market

If ComCom issues a decision which is positive for an alternative provider, the latter often receives large sums from the market-dominant provider, as most disputes relate to the excessive level of the prices originally demanded. After a procedure which in many cases lasts for several years, the repayment of these amounts rarely has a direct and substantial impact on the retail market, or it occurs too late. When it sets the prices of its services, an alternative provider does not yet have the necessary information on whether and by how much ComCom will reduce the inflated wholesale prices. The retail prices must therefore be set with caution, but must remain as attractive to the market as possible.

This lack of transparency for the alternative providers prevents them from setting prices which give clear signals. This adversely affects competition.

9.1.2.4 Introduction of new forms of access: key findings

It is still too early to be able to assess definitively the impact of the introduction of new forms of access into telecommunications law, particularly local loop unbundling. Nevertheless, based on the available information, a detailed overview of the situation should be drawn up. First of all, the positive effects must be mentioned: the fast provision of a basic offering for unbundling of the local loop, the rapid set-up of Swisscom's local exchanges for co-location, a discernable willingness to invest on the part of some alternative providers and positive trends in the number of unbundled local loops. Other aspects, however, give cause for concern.

For example, ComCom has had to open at least twenty procedures relating to the new forms of access since the entry into force of the amendment to the Act. The obligation to provide bitstream access was the subject of lengthy court proceedings and to date has acquired hardly any practical significance. Moreover, this last point vividly demonstrates the limits of a system in which – apart from possible supervisory measures – it is basically up to the provider itself to decide whether it is market-dominant or not.

In terms of prices, one positive effect of unbundling is apparent: after several years of relative stagnation, prices in the retail market for broadband connections have fallen. Whether this reduction will persist and be maintained in the long term remains to be seen. The price reduction associated with unbundling has meant that different prices apply depending on whether the customer connection is

unbundled or not. If the substantial investments associated with unbundling can be made only in the urban centres, it is to be feared that users in areas where unbundling is not worthwhile will not be able to benefit from the advantages of intra-modal competition. In this context, the legal enforcement of a form of bitstream access which is less restrictive than that which is currently defined could be an interesting option to stimulate the market and to extend its positive effects.

9.1.3 An interim overview

The detailed analysis of the telecommunications market and the findings from the application of regulation over the years reveal shortcomings which can only be overcome by overhauling the access and interconnection regime. The criticism of the cost calculation method and the recurring debate on ComCom's powers of intervention underpin this conclusion. Even in a stable environment, reform of the system would be a difficult task. In addition, however, the evolution of technology must be considered – and in particular the introduction of next generation networks; these factors make the situation and analysis even more complicated. It is one thing to regulate access to a network constructed and financed in a monopoly situation. It is quite another thing to do this for a network which does not yet exist and which must be constructed under competitive conditions. This challenge is described below in more detail.

9.2 Challenges in the deployment of optical fibre access networks

9.2.1 An inventory of broadband coverage in Switzerland

A modern and efficient telecommunications infrastructure which provides coverage to a large part of the population and the territory is of critical importance for any country. Telecommunications services play an important role in the production and exchange of goods and services and help citizens and consumers to participate in the political, social and economic life of the country. In an environment characterized by globalisation and rapid change, the influence of the telecommunications infrastructure continues to increase, so that the constant maintenance and periodic adaptation of the networks has become a vital condition for maintaining a country's international economic competitiveness.

Switzerland currently has a good telecommunications infrastructure.

Various technologies enable the provision of broadband services to the population and businesses. Thus 98% of the population have ADSL coverage and 75% have VDSL coverage. In addition to the services which Swisscom and various other operators provide on the basis of the historic provider's network, a large proportion of users also have the possibility of accessing the services provided by the cable network operators. In addition, service offerings based on optical fibre are already available in some regions. The mobile and satellite networks offer interesting alternatives, both for mobile use and for coverage of outlying regions. In view of the data rates available and current prices, although mobile broadband cannot replace the services offered on the fixed network, the new mobile technologies, including "Long Term Evolution" (LTE) nevertheless offer attractive prospects, because they allow significantly larger bandwidths to be attained than is possible today.

9.2.2 Future development

Technological innovation is one of the defining characteristics of the telecommunications sector. In this regard it should be noted that the pace of innovation has clearly increased over the last twenty years. The inevitable consequence of this acceleration is that a new ground-breaking technology soon becomes commonplace or even outdated. The example of the Integrated Services Digital Network (ISDN) illustrates this phenomenon very well.

New technologies and applications are constantly being developed which are even more powerful and promising than those which preceded them. Under these circumstances, constantly adapting to progress represents a real challenge.

A challenge is faced on the one hand by providers who have to make substantial efforts to keep their skills and know-how up to date and to obtain the financial means to make new investments. On the other hand, the legislature and the regulator are also challenged, since the possibilities of intervention in each case are increasingly reaching their limits as a result of greater complexity.

9.2.3 Optical fibre in the access network

9.2.3.1 Challenges and objectives

In view of the emergence of new services (e.g. interactive television) and the growing demand for bandwidth, the key question currently under discussion is the expansion of optical fibre in the access networks. Only with this technology will it be possible to adequately meet the predicted growth in demand. Whilst fibreoptic transfer rates available today are approximately 100 Mbit/s, in the near future they may be as high as several hundred Mbit/s or even Gigabit/s. At present it is still a little too early to assess whether this trend corresponds to a real need and, if so, when demand for high-speed broadband connections will emerge in homes.

In any event, optical fibre offers users greater ease of use, security and quality. Furthermore, it must be assumed that the expansion of this technology will promote innovation and stimulate the further development of existing services and the launch of new services and applications.

9.2.3.2 Deployment activity

The replacement of copper local loops by optical fibre is no longer an abstract project of the future.

For around 2 years now, real momentum has been observed in relation to optical fibre. Projects and initiatives are multiplying across the entire country. In comparison with other countries, the willingness to invest also seems to be high. This is attributable in particular to the competition that exists in Switzerland between the different infrastructure owners.

Swisscom has decided, under pressure originating from different players, to commit to the large-scale roll-out of fibre earlier than planned. These players are on the one hand electricity companies which as newcomers want to exploit the synergies between their power networks and optical fibre in order to improve the management of their businesses or even to find new markets, and on the other hand the cable network operators, who are also planning investments in order not to lose existing customers. The switch to a new transmission standard (DOCSIS 3) should enable the cable network operators to offer transfer speeds of up to 100 Mbit/s. Finally, the fact that Swiss users show great interest in information and communication technologies and on average spend larger sums than their neighbours is undoubtedly a positive factor which promotes and fosters a willingness to invest.

Expanding the optical fibre network demands major investment amounting to several billion Swiss francs [6] spread over many years. So this is not a single-generation project but one which will extend over several generations. In view of the uncertain development of demand on the one hand and on the other hand different technologies which will also meet the demand, these investments represent a considerable risk. Such a situation has never existed before, as for the first time an infrastructure classified *a priori* as essential will be developed under market conditions and not under the control of a state monopoly. The challenges are therefore significant and the definition of a future panoply of

[6] In a study conducted for OFCOM the WIK Institute estimated the costs for country-wide development of a fibre access network to be CHF 21.4 billion or CHF 23.9 billion, depending on the model (2009, p. 3).

intervention tools to accompany the development of the new networks whilst simultaneously fulfilling the objectives of the Telecommunications Act will require a balancing act between promoting competition and preserving investment readiness and innovative capability.

9.2.3.3 **Coordination efforts**

At present the market is working and seems to be doing its job. The first steps have been taken and various initiatives have been taken throughout Switzerland.

To reduce the risks associated with the deployment of optical fibre, the various players are making serious efforts to coordinate their work and conclude co-operation agreements. The various agreements signed by February 2010 together cover 25% of the Swiss population, mainly in the urban centres[7].

The conclusion of such agreements makes sound economic sense. By exploiting possible synergies, the contracting parties reduce the costs of the operation, speed up the expansion of the networks on the ground and share the risks. This also avoids the danger of building unnecessary multiple infrastructures in parallel. Such agreements must therefore be judged positively today, but their future effects must be closely monitored. The risk of such agreements "tipping over" and becoming an obstacle to competition should not be underestimated.

9.2.3.4 **How the market operates**

Economic rationality means that investments will generally first be made where costs are lowest and potential demand is highest, i.e. in the population centres. Then coverage will gradually spread, depending on the population's demand for faster connections.

It is currently impossible to predict which parts of the population and which regions of the market will be supplied with fibre by the market. However, today it must be assumed that the market will not guarantee nationwide coverage, since the costs of supplying users in less densely populated areas are too high.

According to the aforementioned WIK study, the provision of high-speed broadband connections in Switzerland for the last 40% of the territory to be provided with fibre would demand investment estimated at CHF 13.6 billion, whereas connecting the first 60% would cost CHF 7.8 billion, i.e. a total of CHF 21.4 billion in the single-fibre model. With a multi-fibre model (i.e. four fibres instead of only one), these sums amount to CHF 15.0 billion and CHF 9.8 billion respectively, i.e. a total of CHF 23.9 billion.

It is also unclear how the deployment of the fibre network will impact on the competition situation. It is possible that in some regions competition between networks will emerge, with each one based on its own fibre, but that monopolies will arise in other regions.

It must be assumed that even with a multi-fibre approach, Swisscom will acquire a strong position in the high-speed broadband market, as it will primarily be today's ADSL customers who will be interested in switching to even higher transmission speeds. However, it cannot be excluded that other companies will be able to establish local monopolies. It is already apparent that not all telecommunications service providers have the same opportunities to invest in the fibre infrastructure. The only companies currently committed are those which have significant financial resources and cable ducts. In addition, in today's broadband market the market shares of the different providers are anything but balanced, suggesting that the less well-equipped are having difficulty surviving. However,

[7] Source: Swisscom.

it cannot be ruled out that other companies with sufficient financial resources will in the future make the necessary investment to take over one of the fibre networks which have already been laid.

9.2.3.5 **Regulation of competition and nationwide coverage (the universal service)**

9.2.3.5.1 **Competition**

With regard to a possible overhaul of the instruments of regulatory intervention, the deployment of fibre brings new challenges in the areas of regulation of competition and nationwide coverage.

If infrastructure competition does not develop in a balanced way, the option of regulatory intervention has to be considered. However, the instruments introduced in 2007 with the revision of the Telecommunications Act do not allow such interventions. The market-dominant provider's obligation to provide its rivals with fully unbundled local loop access and bitstream access under transparent, non-discriminatory conditions and at cost-based prices applies only to the historic provider's copper network.

The evaluation of intervention options in relation to new technologies should avoid variants which destroy existing investment incentives and hence incentives to innovate. In view of the financial resources required, the investment risks in fibre deployment are considerable and this should be taken into account for future regulatory instruments.

In practical terms it is a matter of providing the necessary regulatory tools to ensure that other providers can access the fibre networks in the event of the establishment of a monopoly or a market-dominant position, so that competition can function. However, in doing so it is essential to ensure that the environment remains investment-friendly.

Moreover, with a less restrictive requirement than the current obligation to provide bitstream access, infrastructure competition could also be supplemented by competition in services. This would have the advantage of greater choice for users. A prudent approach needs to ensure that such instruments are in place should any problems occur. Otherwise there is a risk of late intervention. Experience has shown that it is difficult or even impossible to reverse monopolies or market-dominant positions once the market is saturated.

Obviously, the requirements relating to security of investment and investment incentives have to be taken into account in the definition – as accurately as possible – of the conditions for intervention and in determining reasonable remuneration for the use of networks. This means in particular that the high risks of investing in the construction of fibre access networks have to be taken into account.

9.2.3.5.2 **Nationwide coverage – the universal service**

It is expected that the market will not result in comprehensive fibre coverage for the whole of Switzerland or – expressing this in technologically neutral terms – sufficiently high bandwidths. The goal of ensuring adequate coverage even for those areas not given sufficient consideration by the market will be served by the instrument of the universal service.

So far the universal service has played an important role in ensuring that all strata of the population throughout Switzerland are offered a minimum package of services at affordable prices and in accordance with pre-defined quality criteria. The system which was designed to close certain gaps in the market is so far operating satisfactorily and requires no special funding. This positive result is largely due to the fact that the provision of basic services is based on an existing network, in which it has merely been necessary to resolve a few shortcomings.

Whether the current universal service system and the associated funding will also be sufficient for the deployment of the next generation networks, which will extend over several decades and which will require substantial resources, is at least questionable. This point is addressed in Section 9.3.2.3.

9.3 Approaches to the future development of the telecommunications system

9.3.1 Possible solutions in relation to access

9.3.1.1 Introduction

The current access regime does not consistently produce the desired effects. In relation to interconnection, access conditions are now in place which are even able to withstand international comparison. In the case of fully unbundled access to the copper-based local loop, it was possible to establish clarity and hence investment security relatively quickly regarding lawful prices, so at present at least one participant in the market is continuously making progress in its unbundling activities. However, things look more critical in other areas. For example, mobile costs for consumers remain high compared with other countries, not least because of high wholesale prices, and the legally enforced fast bitstream offering is becoming available only after considerable delay.

Also, an analysis of the impact of regulation commissioned by OFCOM and relating to possible new regulatory approaches[8] concludes that in order to meet the challenges of technical change a dynamic, sophisticated regulatory system will be necessary.

There are two major problem areas, which are discussed below: first of all, the substantive rules ("rules of the game"), i.e. the question of which regulatory measures can be taken and under what conditions. The procedure is then discussed. The central question in this context is when ComCom (the "arbitrator") is allowed to intervene. The question to be answered is, in essence, whether ComCom is allowed to apply the rules on its own or whether it has to wait for a request or a complaint from an interested party.

9.3.1.2 Material rules

9.3.1.2.1 Differentiated options for intervention

Today, the law defines one measure which ComCom can take if market dominance exists: i.e. the provision of access to infrastructures of a market-dominant provider at cost-based prices. The regulator has therefore no sophisticated instruments of regulatory intervention available to it. Such instruments, however, would enable it to limit itself in a specific market situation to those measures which are necessary to deal with the failure of the market, i.e. it could also possibly take less far-reaching measures to achieve the desired objective.

It is not a matter of giving the regulator a blank cheque or unlimited opportunities for intervention. Rather, the applicable catalogue of measures should be defined at the level of acts or ordinances. As under the current law, measures would generally require a situation of market dominance, but unlike today the law would not rigidly predetermine which measures would be applicable to a particular case. Such a nuanced system would be important, especially in the phase characterised by rapid technological change and many uncertainties in which the telecoms market currently finds itself.

9.3.1.2.2 Technological neutrality

It is not a question of subjecting all new technologies to regulation in advance. Unlike at the time of the last TCA revision, however, in view of the technological dynamics the legal framework in the TCA would have to be designed to be flexible enough to take new technological developments into account, without always having to follow the route of a formal amendment to the law. However, to avoid a situation in which the regulatory authority can regulate any technologies or markets *a priori*, the law could, by means of a delegatory arrangement in the Act, specify that the corresponding technologies and markets would first have to be cleared for regulation by the Federal Council by way of an ordinance.

[8] Regulatory options for advanced telecoms networks, Infras, Zurich, December 2009

These concepts are not limited to the roll-out of fibre but also extend to existing fixed-network infrastructures and the mobile communications market: in the first case, a form of bitstream access which is expanded compared with the current definition could be effective. Regarding mobile radio, the question of how competition can be stimulated in connection with technological neutrality and in relation to the scope of the TCA is being posed with increasing urgency. The key factor here is an obligation on market-dominant mobile providers to allow other telecom providers to use their network under regulated conditions. This would ensure that providers without their own network infrastructure (Mobile Virtual Network Operators - MVNOs) can access the existing networks and that market entrants or providers with only regional networks can fill the gaps, e.g. by means of national roaming, under adequate conditions.

As far as the possible establishment of a legal basis to meet the new challenges posed by fibre access networks – which are not covered by the current TCA – the reader is referred to Sections 9.2 and 9.3.2.

9.3.1.2.3 **Differentiated price calculation**

In addition to the regulatory options discussed above, the pricing model would also have to be adapted on an *ad hoc* basis. The calculation of prices for access is crucial, both to reduce end user prices through competition and at the same time to maintain incentives for investment. Finding appropriate solutions in this minefield will require differentiation, which takes account of the specific circumstances of the regulated infrastructure.

The following essentially applies: the higher the pace of innovation and the need for investment in specific infrastructure elements, or the shorter the amortisation cycles, the more likely it is that pricing will be founded on a costing which is based on amortisation costs. In this way it can be ensured that investment incentives remain and that desired future investments can also be financed from current business. But in the case of infrastructure elements where the pace of innovation is slower and payback periods are longer, prices tend to be assessed more in terms of historical costs.

Cable ducts are one example of an infrastructure in which the access prices should probably be calculated on the basis of historical costs. These are installations with low innovation dynamics and long amortisation periods. Duplication does not make sense, initially for economic reasons but also for reasons of the immissions associated with the construction of ducts.

It should be borne in mind that an incorrect price calculation may lead to distortions in competition. If an infrastructure provider demands access prices which are much higher than the costs it incurs for its own use of the same infrastructures, it can offer the services to the customer at much more favourable prices than a telecommunications service provider which has an access entitlement. The greater the difference between the access prices for third parties and the infrastructure provider's own costs, the higher the barriers to market entry for third parties. An alternative provider which relies on using the infrastructure of a market-dominant provider will not enter the market if it anticipates that the market-dominant provider will be able to offer lower retail prices than the alternative provider because of its low infrastructure costs.

A special situation arises when investments are being made in new technologies. In such cases, the investor often has to take into account high vacancy risks, as there is frequently a time lag between investment and demand. If access rights exist in such cases, the beneficiary must jointly bear the vacancy risk. It is conceivable, for example, that in such a case the price calculated in accordance with general principles will be increased by a risk premium. This aspect is addressed in greater detail in Section 9.3.2.2.2 in relation to fibre access networks.

9.3.1.2.4 **No separation of network and services**

The separation of networks and services is of little use as a regulatory measure. The possibility of functional separation introduced in the European Union as a last resort, i.e. the splitting-off of the

network infrastructure into a business unit which is organisationally independent but – in contrast with structural separation – not legally independent, would not create any added value in Switzerland, given the existing and strengthening infrastructure competition. It would be more reasonable to assume that infrastructure competition, even where it effectively exists, would be endangered or would even come to a standstill.

On the other hand, separate accounting would be advantageous if the cost of cable ducts were in future to be calculated on the basis of historical costs, or if, because of a lack of options for comparison with a functionally equivalent technology, it were necessary to deviate from the established replacement value calculation.

9.3.1.3 **Procedural law**

The question here is: under what conditions is the regulatory authority allowed to take action. It is not a matter of creating an undefined regulatory environment for it, i.e. giving it virtual *carte blanche*. The central question is: is the regulatory authority to be able to enforce the legal requirements, i.e. the legally defined "rules", on its own initiative if they are violated, or does it have to wait for an application or a complaint from the parties involved? In this connection, it should also be borne in mind that the instruments available under price-monitoring and anti-trust legislation, which are in principle applicable in parallel with telecommunications regulation, do not constitute a genuine alternative. As the Federal Administrative Court pointed out in its recent (not yet final) judgment on 24 February 2010 in the case of Swisscom (Schweiz AG) versus the Competition Commission (COMCO) (B-2050/2007), the intervention thresholds for these two instruments are much higher precisely in the area of "price level control". While price monitoring can intervene in the interests of consumer protection against unfair price-setting by powerful companies in the market, Competition Commission sanctions insist on "exploitative" behaviour as a further prerequisite for intervention (E.11.3). As the verdict shows, this element may be absent precisely because it would be possible for the market players affected by the unlawful prices on the basis of the sector-specific price control system to have the current prices subjected to examination (E 12.3).

Reference is made above to the various weaknesses and problems of today's *ex post* system, which is based on the so-called primacy of negotiation (Section 9.1.2.3). Three graduated options for addressing these weaknesses are presented below.

9.3.1.3.1 **Option 1: subsidiary *ex officio* intervention (the Forster motion)**

The subsidiary *ex officio* intervention option for the regulatory authority also demanded in the Forster motion (08.3639) (the subsidiary *ex officio* solution), could mitigate some disadvantages of the current system. In particular, the specialist authority responsible for telecommunications regulation would no longer have to stand idly by in the event of collusion by telecommunications service providers but could intervene *ex officio*. This would also help to tackle the problem of unlawful access conditions not being contested merely because the small providers involved fear the legal and financial risks associated with an access application.

With such a solution, however, a number of procedural issues would first have to be clarified. This would mean, for example, determining how long the regulator would have to wait before it could intervene on its own initiative, or rather how long it should wait in the interests of legal certainty before it intervenes. In other words, a time window for its intervention would probably have to be defined in law. In addition, it would also be necessary to clarify whether and under what conditions it could *ex officio* extend a procedure, initiated via an application, to other payment conditions which are critical but which are not part of the applicant’s petition, thereby going beyond the applications from the parties. Other questions to be resolved include those of interested parties after the fact in procedures initiated *ex officio* or after delimitation of procedures under anti-trust law. These problems could be solved by adopting appropriate regulations. However, it should not be forgotten that even such an interim solution which does not overcome all the weaknesses would require considerable additional expense in terms of market observation and analysis in order not to make *ex officio* regulatory

intervention dependent merely on random observations. As for the distribution of risk between the parties to the proceedings, this would tend to be fairer at least for the procedures initiated *ex officio*. Another question is whether Option 1 could be reasonably combined with a sophisticated set of regulatory tools (see Section 9.3.1.2.1).

9.3.1.3.2 **Option 2: *ex officio* market analysis**

Further improvements could be contributed by a solution according to which the regulator could *ex officio* analyse the relevant markets in advance and detect any market-dominant positions of individual providers.

Even with this solution, the conditions of access would in principle be defined only on application or defined *ex officio* only in a subsidiary manner. The solution involving a market analysis produced in advance would, however, in the case of contested market domination avoid possibly having to first fight to obtain a basic offer before the access conditions could be specified. In addition, the market analysis by the regulatory authority would also provide the market information necessary to decide whether the access conditions should be defined *ex officio* in the absence of a corresponding application. Markets which would be subject to further examination would not have to be left to the regulator, but could be defined in advance by the legislature in general and abstract terms. On the basis of a clear definition of the markets to be examined, the currently existing amalgamation of markets, regulatory products and regulatory instruments would disappear. It should, however, be noted that the procedural challenges described above, which apply to a subsidiary *ex officio* solution, would also apply here, in principle.

9.3.1.3.3 **Option 3: *ex officio* regulation**

A solution which provides for *ex officio* intervention both for market analysis and for the subsequent definition of concrete regulatory measures *a priori* has various advantages compared to the other options: (i) all market players relatively quickly and reliably obtain certainty about which markets are subject to regulation, (ii) it quickly becomes clear which providers are the subject of measures, and (iii) the regulatory authority can consistently take differentiated measures – and this promotes legal certainty.

9.3.1.4 **Summary**

In summary, based on experience to date, there is potential for optimisation of the current access regulation system, especially considering the recent upheavals in the telecommunications market. The current regulatory system does not provide any solution to these developments. The new challenges, however, call not just for a schematic technology-neutral reconfiguration of the current regulatory system but would also require a refinement of the instruments. In this way, in cases where competition is not effective, it would be possible to intervene effectively in a corrective manner before the market structures become so ossified that regulatory measures would no longer be able to modify them.

Such legislative intervention would not mean regulation before it was required but the provision of adequate instruments which are available when needed; however, the extent to which they might have to be applied cannot be predicted at present. Constructing such a set of tools would also mean establishing legal certainty by indicating to the players in the market which regulatory measures they should expect.

The following table evaluates the current access regime in terms of the associated possibilities of regulatory correction should unlawful conditions occur and compared with the alternative possible solutions outlined in this report. The table does not evaluate or indicate the resource requirements on the part of the regulator which are associated with the individual options. At least under the prevailing conditions, assuming a manageable number of access procedures and normal national market delimitations, the *status quo* would demand the least resources and an *ex-officio* solution the most.

Table 1: Evaluation of the access regime

	Possibilities of intervention by the regulator in the event of			
	Absence of a basic offering[9]	**Discriminatory behaviour**	**Excessively high wholesale prices**	**Collusion**
Status quo: *ex post*	Only on application	Only on application	Only on application	Not possible
Option 1: *ex post*, subsidiarily *ex officio*	On application or after a waiting period	On application or after a waiting period	On application or after a waiting period	After a waiting period
Option 2: market analysis *ex officio*, otherwise as Option 1	Situation does not apply	On application or after a waiting period	On application or after a waiting period	After a waiting period
Option 3: *ex officio*	Situation does not apply	immediately	immediately	immediately

The table illustrates that the regulator has to rely on the initiative of a provider in the *ex post* regime currently in force in order to take action. As experience shows, this is particularly problematic where all the providers involved have reason to fear the downside of a regulatory intervention, particularly an official cut in their own wholesale prices. In such cases, the public interest in promoting competition and hence the interests of consumers takes a back seat compared to the private interest of providers in the highest possible margins. In addition, in cases where a provider obliged to provide an offering contests its market-dominant position and therefore neglects to publish a basic offering, its market-dominant position first has to be established in a potentially lengthy procedure and the obligation to provide an offering has to be officially decreed before the access conditions can constitute the subject of official examination. The loss of time involved – as shown by the bitstream example – may under certain circumstance mean that the regulated offering becomes available only at a time when the market has already advanced so far that the said right of access has lost its practical significance. The unequal distribution of risk between the parties to an access procedure is also a negative factor. Finally, the current access regime does not permit the solution most appropriate to the problem of competition in each case to be implemented. Indeed, the present regime automatically provides for cost-based prices if a market-dominant position exists, even if under certain circumstances a less drastic measure would also solve the competition problem.

9.3.2 Adaptations in connection with the deployment of fibre

9.3.2.1 Introduction

The construction of fibre access networks is currently driven by market forces. The activities of the network operators are supported by non-binding standardisation work and a multilateral discussion of cooperation models and business models. Today's efforts to clarify the technical or contractual aspects of network-building (the so-called "round tables") can be allowed to continue as appropriate.

[9] This refers to those cases in which a market-dominant provider does not consider itself to be market-dominant and therefore does not provide a basic offering.

Where necessary, standards which have been developed would have to be protected by legislative measures.

Even though the market is currently driving investment and the multi-fibre model is being applied virtually wherever FTTH access networks are being built, i.e. multiple fibres are being laid in competition with each other, there is no guarantee of effective competition. The fibres also have to be used.

The long-term stability of competition in the multi-fibre model is also critically dependent on the distribution of market shares and the distribution of investment by the multi-fibre partners. Different market shares and investment ratios mean that small network operators "subsidise" bigger network operators and the latter can derive disproportionate benefit from cooperation or cost-sharing.

Given the current balance of power, therefore, there is a risk that competition in the area of fibre access networks without regulatory protection will not be sustainable or might not even emerge in spite of a multi-fibre approach being chosen.

There are therefore different scenarios emerging which may possibly trigger a requirement for regulation. The possible tools to sustain the development of the market are presented in the following section.

9.3.2.2 **Possible regulatory instruments**

9.3.2.2.1 **Principles**

The impact that deployment of fibre will have on the competitive situation cannot currently be predicted. It is conceivable that in some regions competition will emerge between networks, each based on their own fibre, but that monopolies will arise in other regions. It is to be expected that Swisscom will assume a strong position in the FTTH market, despite the multi-fibre approach. However, it cannot be excluded that other companies' local fibre infrastructure monopolies will emerge.

In the event that there is no effective competition at the infrastructure level, the question of regulatory measures arises. For home connections it is a matter of physical bottlenecks which service providers cannot circumvent if they want to reach end users. This situation causes a particular problem when multiple fibres have been laid but these all remain in the hands of a single company, which thereby controls access to the home connection and which, thanks to such market dominance over service providers, is able to charge an excessive price for releasing the fibres it does not use itself. Against this background and in the interest of competition in services it is necessary to examine which regulatory steps will have to be taken to ensure non-discriminatory and cost-based access to these fibres. A functioning market for wholesale products (the wholesale market) in the area of network access is primarily in the interests of consumers and end users, because only in this way will they have at their disposal a broad, versatile and good value choice.

If it is desired to guarantee alternative providers access without delay to the fibre networks in the monopoly or market dominance cases, in order to enable competition, the corresponding instruments should be ready in good time. If the creation of the regulatory instruments is only taken in hand when competition is no longer working, the instruments will not be available in time because of the time-consuming legislative process. It is important that the policy discussion at least takes place in good time.

If a policy of regulation is adopted, this should be framed as a catch-all arrangement. It should not adversely affect the construction of fibre networks but should allow the market free play in this initial phase and intervene only if competition is clearly not working.

In this context, it is necessary to combat the view that the legislative work, for reasons of legal certainty, should wait until investments are well advanced. There are two arguments against this:

- The amortisation period for the upcoming investments is so long that in any case no legal stability can be guaranteed over the whole period. On the contrary: the earlier the overall regulatory framework is clarified, the higher the proportion of investment made in full knowledge of the legal framework.

- If any legislative work is delayed until a possible failure of competition emerges, by the time the new instruments enter into force the monopoly situation will have consolidated itself in such a way that it will be difficult to exercise a positive influence on the evolution of the market.

The concern for investment security and the incentives for investment have to be taken into consideration by means of a precise definition of the preconditions for intervention and by setting a reasonable fee for the use of the networks. In particular, any increased investment risks in the construction of fibre networks must be taken into account. Moreover, it is necessary to prevent those service providers which do not themselves invest in infrastructure from becoming "freeloaders", i.e. acquiring access to a network under conditions which are excessively onerous to the network operators and which have a negative impact on infrastructure competition.

9.3.2.2.2 **Instruments**

The following regulatory instruments are available and are conceivable:

- Unbundling of fibre connections: in order to create an access infrastructure, unbundling fibre connections according to cost-based principles with non-discrimination would be possible.

- Fast bitstream access: if the market-dominant position arises not in the area of infrastructure-based access but in the connecting-up of broadband services, fast bitstream access is the appropriate instrument to remedy this.

In the case of regulated forms of access, in order to combat possible "freeloading" by competitors and to counter the risk of reducing incentives to invest in fibre networks, a regulated balancing of risk between investors and consumers of wholesale products such as the unbundling of fibre connections could be arranged. In this context, it is worth mentioning options such as volume discounts, non-linear prices with one-off fixed-cost components and binding demand quantities. This reduces the risk of vacancy and encourages rapid development of the market.

If the fibre access networks are constructed and operated using the multi-fibre model, the following conditions must be laid down as mandatory in order to ensure fair and non discriminatory access:

- Access opportunities should exist both at the manhole (the "distribution point") and in the exchanges ("M-POP"). In this context, access facilities in the exchanges should not be limited to one competitor; it should be possible for several competitors to connect in them. The cabling between the exchanges and the relevant manholes should be designed accordingly.

- Cost-sharing rules for infrastructures used jointly by several competitors should be based on realistic market shares or adapted in the event of major deviations.

- All competitors who participate in a cooperative agreement should have the opportunity of allowing other competitors to participate in the marketing of their infrastructures through voluntary forms of access such as unbundling or bitstream access. Contractual prevention of this possibility should not therefore be allowed.

- Even competitors who do not participate in a cooperation agreement, either because they do not have the necessary investment resources or because they are *de facto* excluded from the cooperation model should be given an entitlement in the multi-fibre model to access by way of unbundling regulation or bitstream access.

9.3.2.3 Nationwide coverage and universal service

9.3.2.3.1 The current situation

The deployment of optical fibre in Switzerland has begun. Even though the actual deployment of fibre amounted to only one percent in June 2009,[10] a lively dynamic is discernible. According to information from Swisscom, the cooperation agreements concluded between Swisscom and the electricity companies cover about 25 percent of the population. This development, however, is taking place under conditions of uncertainty. In particular, it is still not entirely clear which services will run in future on the broadband infrastructure and whether the corresponding products will meet with sufficient demand.

The deployment described is taking place – subject to exceptions[11] – for the time being with the focus mainly on the urban areas. If the deployment is successful, if the services are accepted and if the bandwidth offered meets real needs, the issue of nationwide coverage of Switzerland by a corresponding infrastructure will quickly be posed.

It must currently be assumed that the market-driven expansion of fibre will not reach and supply all the regions of Switzerland. According to a WIK study prepared on behalf of OFCOM, it will probably only be possible to provide 60-70 percent of the population with fibre under conditions which are profitable for investors. To supply the rest of the population (40%) within the framework of a single-fibre model is expected to cost CHF 13.6 billion, representing 63.6 percent of the estimated expenditure for total deployment. Although these are only estimates, nationwide fibre coverage will be associated with funding of several billion francs in excess of the market finance.

9.3.2.3.2 The instrument of the universal service

The current TCA assumes that coverage of Switzerland will primarily be ensured by the market. If services which are important for social and economic development are not provided at affordable prices and are not of good quality, the Federal Council may declare them to be part of the universal service. They will then have to be offered nationwide by the universal service licensee at regulated prices. The Federal Council periodically reviews the scope of the universal service and adapts it to requirements and technological development.

If a deficit is incurred in relation to the provision of the universal service, the universal service licensee is entitled to compensation. The service is financed by a fund which is financed by a tax levied on the turnover of all the telecommunications service providers. Swisscom does not currently claim any compensation for its universal service provision.

When the universal service system and the corresponding funding arrangements were designed, it was assumed that the universal service merely involved the closing of minor gaps. When the Federal Council, for example, included the current transfer rate of 600/100 kbit/s in the universal service, this service was available virtually throughout Switzerland thanks to ADSL coverage of 98 percent. This is because the copper which still constitutes the bulk of the wired connection infrastructure was constructed under monopoly conditions, when the issue of return on investment was not a priority.

[10] Source: OECD Broadband Portal.

[11] For example, the efforts in the cantons of Obwalden and Valais.

In the future, when (line) infrastructures will be built under competitive conditions, lower penetration via the market is to be expected than under monopoly conditions. This also means – as has been shown above for optical fibre – that the additional finance required for the universal service is greater than it used to be. It is doubtful whether the funding instrument at present provided for in law will be sufficient to cover the billions of francs which may be required.

9.3.2.3.3 **The need for action in relation to the universal service**

At this point in time it is not appropriate to include fibre in the universal service.

One argument against the inclusion of optical fibre as a specific technology is the fundamental point that the universal service should be defined in a technology-neutral manner: for consumers, what is critical is not which technologies they have available but which services are actually provided. Against this background, it is appropriate to include specific guaranteed transmission speeds within the scope of the universal service but not to mention specific technologies. This is in line with current practice which, for example, does not refer to ADSL, but prescribes a specific bandwidth.

Technology-neutral definition of the universal service also makes sense from the perspective of infrastructure construction. Depending on the state of technological development and the particular circumstances (e.g. geographic location, topography), the choice of the technology for the provision of a specific performance will be different. For instance, in some circumstances it will be more appropriate to provide the required data rates using mobile technologies in remote areas, rather than optical fibre. This decision must be left to the universal service licensee within the framework of the service specifications; it has the corresponding know-how and in the final analysis has to implement the practical solution.

Including fibre or rather the corresponding bandwidth in the universal service too early would also interfere with the investment process which is now running its course. Investors would fear that even during the infrastructure construction phase, already associated with great uncertainty, they would have to compete with a universal service licensee with a government investment mandate and corresponding compensation.

Furthermore, the fact that the average bandwidth currently used by the population, which is currently provided satisfactorily using the existing infrastructures, is much lower than the performance possible using fibre shows that currently there is no need to include optical fibre transfer rates in the universal service at present.

Finally, the dynamic of technological development and the question of costs are factors in favour of waiting before including high transmission performance in the universal service, until the corresponding requirements become a reality. In a few years, it may be possible to provide a specific data rate with the help of new technologies significantly cheaper than is possible today.

Nevertheless, Switzerland, which depends to a large extent on modern and efficient information and communication technologies, must now tackle the international trend away from an information society towards an actual broadband society[12]. In conclusion, against this background there will be a need for action over the next few years with regard to the broadest possible nationwide deployment of high-speed broadband connections:

[12] According to OFCOM comparisons, in Switzerland, 64% of households have a broadband connection, compared to 56% in the EU.

- Under current law, the Federal Council is obliged to continue to develop the scope of the universal service dynamically and in so doing to take into account real needs within the framework of the technical and economic possibilities. To make this process transparent for the public, the Federal Council could be required to inform Parliament periodically about the current status and any need for further enhancements of the universal service.

- The issue of funding must be examined in greater detail. In particular, financial instruments must be developed quickly in order to allow universal service solutions which require greater additional financing than is the case today. If it is desired to modify or expand the current funding, the law would have to be revised. The new legislation should be available in good time to ensure that a future expansion of the range of universal services is possible without delay when the corresponding policy decision has been taken.

9.3.3 Strengthening the protection of consumers and minors

The in-depth assessment of the situation in the telecommunications market has also shown that there is potential for improvement in terms of consumer protection. Curbing telemarketing, combating abuses of value-added services more effectively, more appropriate monitoring of certain contractual practices and providing the means to better protect young people from the dangers of using telecommunications services are all objectives which will need legislative changes in order to be achieved. In the event of a revision of the Telecommunications Act it would also be necessary to deal with the challenges posed by the new developments, such as the issue of network neutrality, the increased need for data protection and the challenges concerning the administration and allocation of domain names. It would then be necessary to decide whether a new requirement for regulation exists in this regard or not.

9.3.3.1 **Consumer protection**

The fight against spam can be efficient only at an international level. Switzerland has provided the means to combat this menace, as far as possible.

Consumers can submit disputes with providers of telecommunications or value-added services to an arbitration service before resorting to litigation, in order to reach an amicable settlement. Regarding these two points, the TCA revision of 2007 has provided satisfactory solutions.

Many consumers, however, continue to feel very annoyed about the telemarketing they endure. It would also be useful to ensure that consumers know their rights better.

9.3.3.1.1 **Amending the Unfair Competition Act**

Telephone canvassing companies (call centres) should in all cases respect the opt-out asterisk in the telephone directory. To achieve this, it would be necessary to amend Article 3 of the Unfair Competition Act and explicitly forbid any canvassing call which violates the will of the consumer as clearly expressed in the telephone directory, making this a punishable offence. In addition, call centres would be required to have an entry in the telephone directory, not to suppress their numbers and to be contactable both on the number used for canvassing calls and the number specified in the telephone directory. Violations of these obligations should also be punishable.

9.3.3.1.2 **A clear definition of “value-added services”**

The TCA authorises the Federal Council to act against abuses in relation to value-added services. The term 'value-added services' should, however, be clearly defined at the legislative level by including the corresponding definition from the TSO in the TCA. Consideration should also be given to the necessity of identifying value-added services which are not provided via addressing resources.

9.3.3.1.3 Extended information about consumers' rights

It is true that measures have already been taken to ensure price transparency, especially in relation to mobile telephony, but no measures have been taken to promote the quality of telecommunications services. However, the TCA allows the Federal Council to require telecommunications service providers to publish information on the quality of their services. This is sufficient and there is no need to require providers to meet specific quality criteria. As with prices, state intervention in this area is warranted only within the framework of the universal service.

On the other hand, it would be prudent to ensure that consumers know their rights better. To this end, the telecommunications service providers would have to be obliged to inform consumers about any provision which confers such rights.

9.3.3.1.4 More contractual flexibility for consumers

A contract for telecommunications services is an innominate contract and as such is not explicitly covered by the Code of Obligations, but the principles of the general section of the Code of Obligations do, however, apply. However, some private-law provisions concerning the term of the contract and termination could be included in the TCA.

There should at least be provision for transparency obligations on telecommunications service providers concerning dates and periods of notice of current contracts. It would be even better to prohibit automatic renewal of contracts from one year to the next. Fixed-term contracts would not be prohibited, but on expiry would become open-ended contracts which can be terminated, for example, with a notice period of two months from the end of the month. It would also be appropriate to require telecommunications service providers to unify the term and notice period of contracts for different services which together form a package.

9.3.3.2 Protection of minors

9.3.3.2.1 Establishing a legal foundation

It would be useful to include in the TCA – as is the case with value-added services – a legal basis which empowers the Federal Council to take any necessary measures to protect minors from the hazards of using telecommunications services and value-added services.

9.3.3.2.2 Improved parental control

The telecommunications service providers should be obliged to keep a record of the end user's age when a contract for a mobile telephone is concluded. If this concerns a minor under 16 years of age, not only should access to value-added services with erotic or pornographic content be barred but also a default monthly spending limit should be activated. Similarly, the providers of value-added services with erotic or pornographic content should be reminded that pursuant to Art. 197 para. 1 of the Penal Code they are obliged to check the age of the consumer before providing services, as far as technically possible.

9.3.3.2.3 Obligatory technical solutions

Finally, as far as possible, telecommunications service providers should be obliged to provide their customers with technical solutions to protect young people (e.g. free provision of parental control software).

9.4 Options for action

In order to remedy the shortcomings indicated in the report in a way that adequately takes into account users' needs, various options for action can be considered. Most of these would require amendment to the Telecommunications Act and its implementing ordinances. These options pursue different goals, namely:

Objective: Maintaining the competitive dynamics in the markets for fixed and mobile services
Possible options: • Obliging the market-dominant provider to provide a defined bitstream access under less restrictive conditions than currently. • Providing for the possibility for ComCom to require market-dominant holders of mobile telephony licenses to provide national roaming services for other telecommunications service providers at cost-based prices. • Possibility of *ex officio* intervention by ComCom so that mobile termination prices are cost-based.
Objective: Reducing the prices charged to Swiss users for the use of international roaming services in the EU countries
Possible option: • Signing of a bilateral agreement.
Objective: Optimising access regulation to correct current weaknesses and increase future efficiency
Possible options: • Possible ex officio ComCom intervention under certain conditions. • Technology-neutral definition of the unbundling and bitstream obligation and conferring competency on the Federal Council to define the regulated technologies. • Differentiated application of the available regulatory instruments. • Analysis of the prices of cable ducts and co-location according to principles based more closely on historical costs. • Obliging the market-dominant provider to maintain accounting separation and to allow the authorities access to the accounting data if the cost analysis is founded on a historical basis or deviates in some other way from the current replacement cost calculation.
Objective: Preparation for the new challenges relating to the deployment of fibre access networks
Possible options: • Early introduction of the necessary regulatory instruments to prevent or mitigate the negative effects of monopolies or market-dominant positions, in particular the obligation to provide fully unbundled access and bitstream access as well as obligations relationing to multi-fibre networks. This must take into account the high risk being assumed by operators investing in fibre. • Defining – if necessary – binding technical standards to guarantee interoperability of the networks.

Objective: Ensuring a modern universal service
Possible option: • Adapting the current legislation to firmly anchor the periodic examination of the scope of the universal service and if necessary allowing it to be extended, applying new coverage and funding mechanisms.
Objective: Improving consumer protection
Possible options: • Obliging canvassers to respect the asterisk in the telephone directory, which would necessitate amendment of the Unfair Competition Act. • Obliging call centres to have an entry in the telephone directory, not to suppress their telephone number and to be contactable on the specified number. • Definition of the term “value-added service” in law, in order to permit more efficient intervention. • Obliging telecommunications service providers to better inform users about their rights. • Introducing certain obligations relating to the term of contracts and cancellation of contracts (e.g. prohibiting the automatic roll-over of contracts from one year to the next).
Objective: Strengthening protection of minors
Possible option: • Taking the measures necessary to protect children and young people from the dangers of using telecommunications and value-added services (e.g. obliging telecommunications service providers to check a person’s age when contracts are concluded and where applicable activating a monthly cap on expenditure).

This list is not exhaustive, especially as new challenges such as data protection, network neutrality or the administration of addressing resources are putting the current regulatory framework to the test.

9.5 A summary response to the questions in the postulate

1. Should the existing access regulation system be adapted, in particular by expansion in the direction of technological neutrality?

The restriction of access regulation to copper will come up against its limits in the future. A form of regulation which relates to a specific technology is not appropriate to the pace of technological development and does not sufficiently address the fact that in future it will be possible to provide the same services using all technologies (convergence).

2. Are the currently specified and implemented methods of price calculation for access regulation appropriate?

The currently applied principle of replacement costs takes the goal of infrastructure competition into account and should be retained in principle. However, if infrastructure elements have little potential for innovation and require long amortisation periods (e.g. cable ducts), an adjustment in the direction of historical costs is reasonable. In the case of investment in new technologies, in the current system

specific risks must already be taken into account for the investor, e.g. risks of vacancy, by setting appropriate risk premiums with regard to the return on capital invested.

3. Would the separation of network and services be appropriate?

The competition in infrastructure which has been successful in the past should continue to be promoted. The separation of network and services would not be beneficial for the achievement of this objective and is not considered appropriate.

4. How is the achievement of the goals of liberalisation, which were the intention of the revised Telecommunications Act, assessed?

The goal of opening up the market was to increase competition in the telecommunications sector and to achieve satisfactorily functioning of the universal service in telecommunications services. Taking an overall view, both objectives have been achieved to date.

5. How is the competition in the areas of the mobile and fixed network perceived, and where is there a need for action?

The assessment gives different results depending on the area in question:

In the fixed-network telephony sector, effective competition can be assumed, given the positive developments in market shares and prices.

In the mobile communications sector, the assessment is ambivalent. Positive factors include market penetration and the quality of the products. The existence of optimally functioning competition, however, is compromised by unequal market shares and high prices in comparison to other European countries. Termination charges and the high charges paid by consumers of international roaming in Europe is another problem.

In relation to broadband, the high level of market penetration with such connections in Switzerland compared to other countries is commendable. Whether unbundling of the local loop, which has developed rapidly after a late introduction, is intensifying competition sufficiently cannot yet be conclusively judged. It is already apparent, however, that unbundling tends to be a factor only for relatively strong players. Smaller suppliers, however, find it difficult to stimulate competition, since bitstream access, which is important for them, is currently guaranteed only under very restrictive conditions. It should also be highlighted that technological advances that may influence the future competitive situation are imminent.

6. Does the deployment of optical fibre require regulation from the viewpoint of provision policy and competition?

At present, the deployment of optical fibre in Switzerland is characterised by dynamic investment. Regulatory intervention is not currently necessary; nor is any corresponding legal basis for it in force. In the context of informal processes, it has been possible to establish technical standards to facilitate future competition and to launch a pro-competitive structural concept (multi-fibre).

In the future, two challenges will be posed:

The multi-fibre approach creates good conditions for competition but does not provide a guarantee. It should be assumed that cases of market dominance will emerge in the fibre market and these will require regulation.

It is not expected that the market will ensure deployment of high-speed broadband infrastructures throughout the whole country. Even if such services, given current usage patterns and current

demand, do not need to be included in the universal service today, the statutory instruments should have "broadband capability". This means in particular that the funding mechanism, which is currently orientated towards closing small gaps in provision, be reviewed. Only in this way is it possible to ensure comprehensive coverage of high-quality broadband services in the future, if this is necessary from a political point of view.

7. Are the current arrangements for the protection of consumers and minors adequate?

Recently new problems have emerged in this area, repeatedly leading to parliamentary motions, and these can only be addressed by legislative changes. These primarily relate to harassment from telemarketers and shortcomings in relation to value-added services. There are also complaints about a lack of transparency regarding the quality of telecommunications services and the duration and possibility of cancelling contracts for telecommunications services.

The protection of young people is also a recurrent theme. There is a need here for flexible solutions which give the Federal Council an opportunity to respond to emerging threats in a timely fashion.

8. Would it make sense to allow the Federal Communications Commission (ComCom) to intervene *ex officio* in the determination of access provisions?"

The intervention mode currently available to ComCom (*ex post*) is associated with various inadequacies. These lead, for example, to the fact that the Commission cannot intervene without an appropriate application from a telecommunications service provider even if the players are not acting in accordance with the law and intervention would be necessary in the interests of the consumers. Resolution of this deficiency would be worthwhile.

9.6 Conclusions

Even though Switzerland has to some extent gone its own way in drafting telecommunications regulation, it is in good shape overall.

The effective competition in infrastructure has led to a high level of innovation and to good overall coverage. In the final analysis the ongoing developments in the optical fibre sector bear witness to a high propensity to invest.

This positive overall impression, however, should not obscure the shortfalls which have been identified in this report. Given the highly dynamic nature of the sector, it would be premature to extrapolate positive future development from an overwhelmingly positive current analysis.

In order to overcome the shortcomings diagnosed in the report, a revision of the law would be necessary in most cases. A holistic approach is required to answer the question of whether this should be undertaken now. The risks of a revision process have to be addressed.

Any revision process is associated with political uncertainties. Given the very different political demands which can be anticipated, a long-running debate is to be expected; the outcome of the legislative process would be highly uncertain and would thus be associated with a period of uncertainty. This could lead to negative effects on investment dynamics, e.g. in the optical fibre sector. In addition, the introduction of new regulatory measures always takes place under conditions of uncertainty, and given the complexity of the matter, negative secondary effects cannot be excluded. Any regulation is ultimately a process of optimisation, the outcome of which can be reviewed only after the event.

Against this background, the Federal Council concludes that a revision of the law is not pressing today. The identified deficiencies are not sufficiently serious that the risks described are worth taking. There are also considerations devolving from the point of view of principle: the revised TCA entered

into force on 1 April 2007. In the interests of legal certainty and stability, enacted laws should not be unnecessarily amended again after only a short time.

The Federal Council will continue to monitor developments closely and consider the need for action. If crucial changes which require a change in the law do occur, the Federal Council will take the necessary measures.