

FEDERAL OFFICE OF COMMUNICATIONS (OFCOM)

APPROACHES TO THE REGULATION OF MODERN TELECOM NETWORKS

Final report

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SYNOPSIS

The starting point

Since several municipal utilities have announced the fact and have begun to construct a fibre-optic network and offer it to service providers, a discussion has sprung up among players in the telecommunications market, in politics and in the media about the possible need for regulation. The Federal Council has therefore approved a postulate from the Transport and Telecommunications Commission of the Council of States which envisages that a report should be produced by mid-2010 outlining the need for action and possible approaches to regulation in relation to fibre-optic networks. Against this background, the Federal Office of Communications has commissioned INFRAS to clarify which approaches to regulating the future telecom networks might be considered and what impact they would have.

The problem

The creation of fibre-optic access networks in Switzerland results in new telecom networks which are not subject to the sector-specific regulation provided for in the Telecommunications Act. This raises the question of whether and, if so, in what form new telecom networks require regulation. From the viewpoint of economic competition, two conditions must be met for regulatory intervention. First, a natural monopoly must exist in the market in question. Secondly, this monopoly must be permanent, as a result of major barriers to entry into the market (non-duplicability, sunk costs). In this case one speaks of a monopolistic bottleneck. On the basis of their characteristics, fibre connections tend towards such monopolistic bottlenecks and regulation may therefore be justified. In comparison with all broadband connections, however, the proportion of optical fibre connections is still very low, so there is practically no market and no market power. At the level of services, no applications for which optical fibre connections are indispensable can currently be identified.

The status of regulation in Switzerland and in Europe

In Switzerland, the Telecommunications Act (TCA), revised in 2007, and the corresponding Telecommunications Services Ordinance (TSO) govern the sector-specific regulation (*ex post* regulation). It is limited to the copper network; to date, fibre-optic cables are excluded from regulation. Market analyses represent a key element of telecommunications regulation in the EU; they have to be conducted regularly by the national regulatory authorities (NRAs) on the basis of the mandatory framework of telecommunications law. On this basis, the appropriate and specific regulatory measures are decreed, from an inventory of predefined regulatory instruments (gradual regulation). Unlike in Switzerland, in the EU *ex ante* regulation applies.

With reference to fibre networks, a regulatory recommendation is currently in preparation at the European Commission. The regulatory systems in the individual countries provide a heterogeneous picture. In France or the Netherlands, regulation already exists for modern access networks, but in most countries these are still being worked out and are pending.

Regulatory options

For Switzerland the following regulatory options have been discussed:

- › A: Dispensing with regulation (the market solution); no amendment of the TCA.
- › B: Non-discriminatory network access; players who own fibre-optic networks must guarantee all players access to the network under the same conditions.
- › C: Price regulation; regulations for the pricing of access products.
- › D: Vertical separation; conditions relating to the accounting, organisational or property-law related separation of network infrastructure and services.
- › E: Licensing, network corporations; awarding the right to construct networks to one or more undertakings which do not themselves provide any end-user services.

Effects

An analysis of the effects indicates that there is no optimal solution. Regulatory systems have different effects on different criteria and are more or less appropriate depending on the development of the market and conditions relating to competition. If regulation is dispensed with, there is a continuing threat of a monopoly if voluntary agreement breaks down. In the case of access regulation, particularly with price regulation, the disadvantages of monopolisation can be avoided. Appropriate wholesale

prices lead to more intensive competition and innovations at the level of services. On the other hand, with price regulation there is less incentive for network constructors to invest in fibre-optic networks. From an economic viewpoint, the intention is not to set the highest possible investment incentives, but those which promote efficient investment. If the prospect of regulation is lacking, there may be a danger of excessively high investment in fibre-optic networks in anticipation of future monopoly rents. Non-discriminatory access represents the weakest form of access regulation. It gives the network constructor greater room for manoeuvre and incentives to invest and reduces the risk of (irreversible) regulatory mistakes.

On the other hand, the network corporation represents only one possible model, if the legislature is certain that in the future only fibre-optic networks will exist. Competition in networks and technology will be given up in favour of greater competition on services and expansion of the network will not be as market-driven but more politically controlled. Since a network corporation means a serious intervention in property law, functional separation or a network corporation is appropriate only if access regulation does not lead to the desired market outcome.

For all the options, a universal service obligation could be inserted via inclusion in the universal service catalogue or by means of regional tender procedures and performance mandates.

Conclusions

The following considerations form the starting point for the design of an appropriate regulatory framework for fibre-optic networks:

Today, fibre-optic networks do not yet constitute a relevant market.

In Switzerland today, optical fibre connections are still not widespread and no specific market exists: There are as yet no fibre-based services on the market, nor are any foreseeable in the near future which customers cannot also receive via alternative forms of access on the existing copper or cable network. It is certainly possible, but not certain, that fibre will replace conventional access technologies in the future.

Today's infrastructure competition must be considered.

Unlike most other countries, cable networks in Switzerland are very widespread and currently ensure competition on infrastructure which operates relatively well. With the construction of fibre-optic networks this competition will remain very important for the Swiss telecommunications market for a fairly long time, and should not be adversely affected by regulation.

A need for regulation, not for today...

Against these two backgrounds, it seems in principle appropriate not to intervene in the market too early with heavy-handed regulation and not to determine a technology in advance. For the time being, the market is not sufficiently developed and is subject to uncertainties, so there is a high risk of regulatory mistakes. Far-reaching regulation, such as the establishment of a network corporation or a universal service obligation would not be opportune and would be counter-productive for current competition (on infrastructure).

...but for tomorrow

If fibre networks, as expected, expand and create a relevant market, there is, however, a danger of failure of the market, because fibre access networks tend towards natural monopolies and market power and market failure may manifest themselves. Though the market is not yet at that stage, it is important to establish the necessary legal framework now, because:

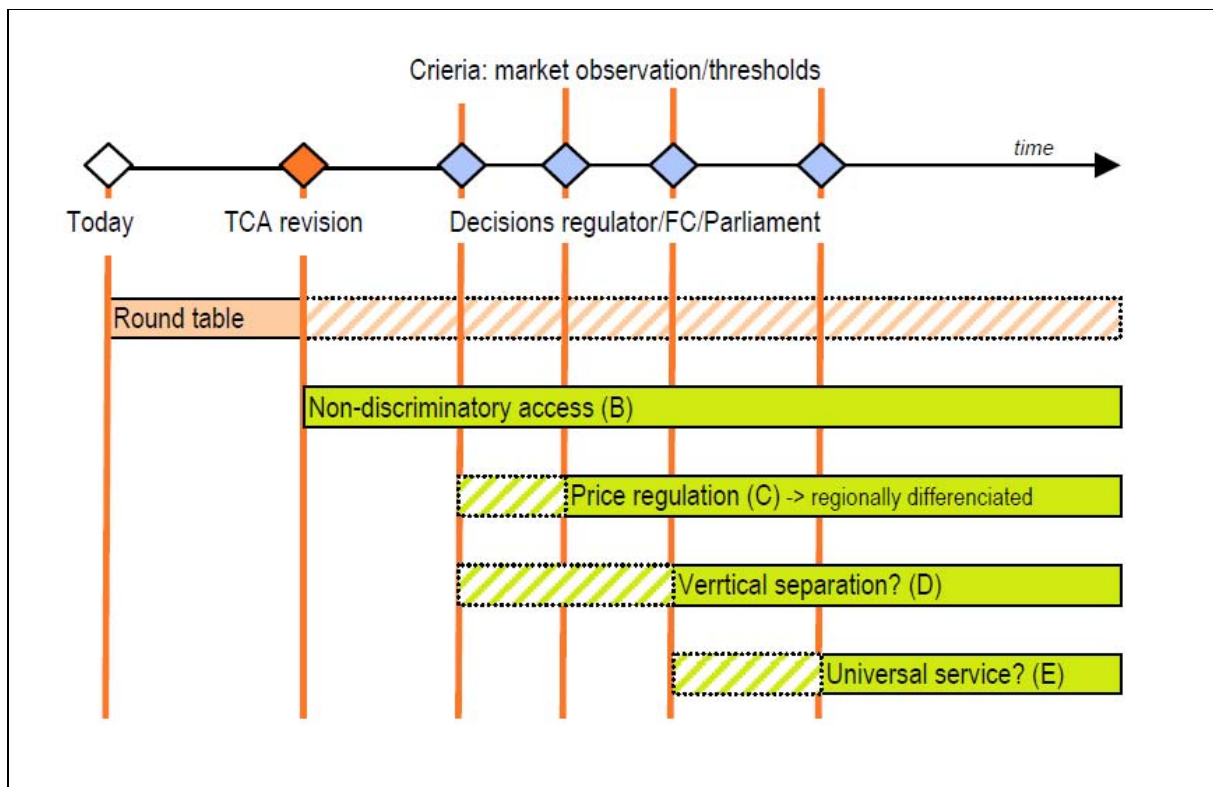
- › the market for optical fibre access networks may develop rapidly in certain areas, enabling undesirable monopoly situations to quickly occur locally which requires a rapid reaction;
- › investing telecommunications companies are dependent on legal and planning security.

A lack of certainty may curb investment or lead to incorrect investment decisions, for example if an investor expects that he will not be regulated in the future and if there is a prospect of monopoly revenue. This would result in excessive incentives to construct fibre networks and over-investment will occur.

Optimal regulation depends on the market situation and this could differ according to location and timing.

There is no optimal regulatory option *per se*; all the options each have their specific advantages and disadvantages. Depending on the region, fibre-optic networks will expand at different rates; they will be constructed using different models of ownership and cooperation and will finally lead to different market conditions. Consequently, regulation must be in the position to provide solutions appropriate to the regionally differing market situations. This may even mean that in specific regions in which competition is effective regulation can largely be dispensed with, whereas in other regions regulation will be more stringent. A dynamic and differentiated regulatory system is therefore essential, as illustrated below:

Picture 1 Possible dynamic regulatory regime



Within this system the principles of regulation and the criteria applicable to the introduction of regulatory measures and threshold values must be clearly defined. The development of the market must subsequently be monitored: If predefined thresholds or market configurations are reached, appropriate regulatory measures can be enacted by the regulator, the Federal Council or parliament.

Recommendations

1. To take in hand revision of the TCA.

Access networks tend to become natural monopolies. On the basis of the small market share and the as yet uncertain development of the market, no regulatory interventions in the fibre networks are actually necessary today. In order to be able to regulate quickly and appropriately if a monopoly situation emerges, however, it is essential for the regulatory framework to be put in place today. The TCA must be revised for this purpose.

2. To create a dynamic regulatory framework.

A regulatory framework should be created which clearly defines in advance the criteria and threshold values for regulation but which remains sufficiently flexible in accordance with these criteria to appropriately reflect the market conditions and competition-related conditions in a specific region and

at a given time. This will make it possible to define the appropriate regulatory instrument according to the development of the market and the market region. Non-discriminatory access and conditions for transparent accounting should form an early component of regulation.

3. Universal service not currently a relevant topic.

Universal service conditions cannot currently be considered as relevant – the market is insufficiently developed and the benefits are uncertain. However, the regulatory framework should be designed in such a way that the universal service can if necessary be assured and financed in a consistent manner at a later point in time.