Eidgenössische Kommunikations-Kommission
Commissione federale delle comunicazioni
Federal Communications Commission

Commission fédérale de la communication
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ACTIVITY REPORT 2000

of the

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I. Summary

Because of the various licences which have been granted and the many decisions which have been pronounced, the Commission and its secretariat have had to assume a much heavier workload in the course of the year 2000 than in the preceding years.

With regard to **interconnection**, six procedures were in progress, of which four were submitted in 2000. One of them, which concerned leased lines and transmission resources, was concluded. The two parties lodged an appeal with the Federal Court. The four recently submitted procedures are the following: one concerns unbundling of the local loop, another mobile termination prices, and the last two concern determination of interconnection prices on the basis of the "Long Run Incremental Cost" (LRIC) model of calculation.
At the beginning of 2000, numerous providers were able to agree with Swisscom on interconnection prices and conditions.

Towards the end of 2000, **additional GSM frequencies** were allocated to the three existing GSM[1] operators after they reached agreement on distribution of the frequencies. These frequencies were the former frequencies for the analogue Natel C network and those in the extended GSM band of 900 MHz. If, of the five original candidates, the two operators with no GSM network had not withdrawn, these licences also would have been the subject of an auction.

The four identical licences for **IMT-2000/UMTS[2]** mobile telecommunications were auctioned by the Commission on 6 December 2000 for CHF 205 million. Of the ten initial candidates, six withdrew, some on the very day before the envisaged start of the auction. The award process was therefore interrupted and the reasons for the withdrawals were studied; however, there was no indication of collusion between the candidates. In order to avoid substantial delays in the introduction of this new technology and to guarantee the certainty of the law, the Commission decided to proceed with the auction in accordance with the existing rules.
The granting of a licence to a fourth, new participant in the market makes it possible to take a major step forward towards greater competition, thereby achieving one of the main aims of the Law on Telecommunications. Consumers should also benefit from this.

All the licences granted in 2000 included strict conditions relating to obligations on area planning and protection of the environment, as well as co-ordination and co-use of sites. In this way, consideration has been given to the concerns of the Swiss population regarding non-

1 GSM: Global System for Mobile Commmunication.

2 UMTS: Universal Mobile Telecommunications System.

ionising radiation originating from mobile radiocommunication antennas. Primarily, however, this problem is regulated by the decree on protection from non-ionising radiation, which came into force on 1 February 2000. In this respect, the Federal Court found, at the end of August 2000, that the decree takes into account the principle of prevention in the law on protection of the environment and that it definitively regulates the limits on emissions from mobile radiocommunication antennas throughout Switzerland.[3] It should be recalled that the Commission has no competence concerning the application of the decree on protection from non-ionising radiation.

The auction for licences for the **wireless local loop (WLL)** commenced on 8 March 2000. Three national licences and 31 regional licences were auctioned off for almost CHF 583 million. In general, we can say that in 2000 all auctions took place in an objective, transparent and non-discriminatory manner.
The excellent result of the WLL auction in Switzerland, however, leaves an after-taste when one notes that the licences for the most part remain unused and the expected competition for the local loop (the "last mile") does not exist for the time being.

On 29 March 2002, the **national numbering plan** (E.164/2002) will come into force in accordance with the decision taken by the Commission in March 2000, thereby marking the transition from open numbering to a closed numbering system. The plan is characterised by its simplicity and low application costs. The main points concern area codes and the current subscriber numbers, which remain unchanged. As of 29 March 2002, the area code will always have to be dialled (it is possible to do this from 2001 onwards). There are no changes for incoming calls from abroad, to the extent that the zero prefix must still not be dialled. In order to make all numbers uniform, those in numbering area 01 will have to change to the code 044 by 2007 at the latest.

Number portability was introduced on 1 March 2000, obliging suppliers to allow their customers to keep their number when they change their operator. In 2000, some 50,000 numbers – mostly in the mobile telephony sector – were ported to a different provider.

Compared with the previous year, the number of measures and sanctions imposed by the Commission within the framework of **supervisory procedures** has increased considerably. The Commission has issued six decisions on the following points: introduction of carrier selection call-by-call in the mobile telephony sector, non-compliance with the obligation to provide coverage as part of a mobile radio licence, infringements of the universal service licence (two cases) and failure to provide OFCOM (Federal Office for Communications) with statistical data (also two cases).

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[3] Federal Court decision: BGE/ATF 126 II 399.

The **general outcome** for 2000 may be assessed as positive, not only as far as the Commission's activities are concerned but also in relation to the development of the telecommunications market. The universal service is assured throughout Switzerland. The quality and diversity of the services offered on the market continued to improve, particularly in the area of mobile telecommunications. Thanks to the introduction of the LRIC model of calculation for interconnection, the prices of fixed network calls fell greatly at the beginning of 2000, and this augurs well for healthy competition. The prices of international calls have evolved similarly. Consumers are therefore benefiting from considerable advantages. To date, the access network has not been opened up to competition, but unbundling of the local loop is the subject of a procedure.

II. Introduction

1. General

Each year, the Federal Communications Commission (ComCom) draws up a report for the attention of the Federal Council in which it summarises its activity during the preceding year[4]. It gives an overview of the telecommunications market from its viewpoint as the regulator and sketches the outlines of its activities for the coming year[5].

The year 2000 was a turbulent year for the telecommunications sector, not only in Switzerland but also throughout Europe. Until the spring of 2000 a marked euphoria reigned in the telecommunications and internet sectors, generated mainly by the explosion in mobile telephony and by the entry into the liberalised markets of numerous new firms with their impressive business plans. According to current assessments by analysts, expected profits were evaluated incorrectly and as a result shares in telecommunications and internet companies were greatly overvalued, with colossal sums being paid when companies were bought out.
Since summer 2000, the trend reversed completely and euphoria on the capital markets has given way to disenchantment. Scepticism has become *de rigueur*, particularly with regard to the exaggerated forecasts predicting quick success for the "new economy", based on the Internet, and the new mobile radiocommunication technologies. Stronger and stronger doubts have been expressed about whether the new generation of mobile telephony terminals will be ready on time, and if UMTS systems will meet with commercial success.
Moreover, the failure of WAP and the much delayed introduction of GPRS (General Packet Radio Services), a technology based on (and extending) GSM, have only boosted the general uncertainty. This situation is having a negative knock-on effect on estimates of the launch date and of the commercial chances for a UMTS technology which is as yet untried. On the one hand, GPRS was supposed to make it possible to quantify the actual demand for broadband mobile radiocommunications services, and on the other, this technology might be a serious competitor to UMTS for some time to come. Despite the great uncertainties which they face, telecommunications markets are developing quickly, making any forecasting and any long-term strategy difficult. This is also why, since summer 2000, investors are generally proving to be more and more reserved and sceptical about the telecommunications sector and the internet.

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4 Law on Telecommunications (LTC), art. 57, para. 1 (RS 784.10).

5 For information, the tasks of the Commission are as follows: awarding licences for telecommunication services providers, licences for use of radiocommunication frequencies and universal service licences, laying down interconnection conditions in the first instance when service providers are unable to reach an agreement, approval of the national plan for frequency allocation and national numbering plans, and laying down the terms of application of number portability and carrier selection. It also takes measures in the event of violation of the law which is in force and, where applicable, revokes the licence. The Commission, which has no administrative apparatus proper apart from its secretariat, may have recourse to the Federal Office for Communications (OFCOM) and impose directives on it. It

The excessive prices for UMTS licences in some cases, as well as the considerable investments which have to be agreed for network construction, the development of new services and marketing have contributed decisively to the dramatic deterioration in the capital market. For the highly indebted companies[6], which may have paid very high amounts at auction or which have bought companies at a high price, these debts weigh heavily on balance sheets. In addition, the high amount of interest to be paid, and amounts to be written off for goodwill, reduce profitability and hence put pressure on the shares of the entire industry on the financial markets. Since the rating of numerous telecommunications companies has also dropped, it has become more and more expensive and difficult for these companies to obtain capital since October 2000, just before the auction for UMTS licences in Switzerland. The end of the "gold rush" atmosphere is also due to the fact that profit forecasts remain uncertain for the near future, because of the pressure on margins and the dependence on the interest rate of those companies with large debts.

All these factors have contributed to the drastic drop in the prices of almost all telecommunications companies' shares, a drop which is now affecting the stock exchange values of most of the manufacturers of mobile telephones and networks, who are additionally being required to finance the UMTS networks in advance.

These developments on the capital markets have strengthened pressures towards consolidation of the sector. We are seeing alliances and mergers which make businesses large enough to ensure their survival. The merger of diAx and Sunrise announced in November 2000 (with the simultaneous take-up of the majority of the shares by TeleDanmark) or Vodafone's 25% holding in Swisscom Mobile are indeed minor events at the international level, but they are very important for the Swiss telecommunications market.

The marked fluctuations in trends which have occurred on the financial markets in a few months and the changing conditions concerning the acquisition of capital have also greatly influenced the competitive tenders for licences in Switzerland.

The continuous fall in share prices has certainly shaken up the entire telecommunications sector, though it must be underlined that this area underwent some highly dynamic developments in the year 2000. In particular, the market for mobile telephony has enjoyed spectacular growth in customer numbers.

Major investment has been agreed not only for the construction of the mobile radiocommunication networks but also for the establishment of new high-performance fixed networks. These infrastructures are of primary importance within the framework of the future development of the information society and Switzerland's economic position. In addition, figures

is therefore OFCOM which examines cases and prepares items which are subsequently submitted to the Commission for a decision.

6 In March 2001, Deutsche Telekom's debt was estimated at 60 billion euros, that of France Télécom at 61 billion euros and that of British Telecom at 47 billion euros (see Handelszeitung, 21.2.2001 and NZZ, 23.3.2001).

from the sixth EU report on telecommunications show that total agreed expenditure in Europe for telecommunications has increased over the last few years, despite a fall in consumer prices.[7] It is therefore undeniable that telecommunications, and in particular mobile radiocommunication, will remain an important motor for the Swiss economy.

At the European level, it must be noted that the EU is trying as hard as possible to encourage the information society and to maintain the European lead in the area of mobile telephony. In July 2000, the European Commission also submitted various proposals aimed at simplifying and harmonising regulations on telecommunications between member states. The first concrete result: all the EU member states were obliged to introduce unbundling of the local loop on 1 January 2001.

2. The Commission and its secretariat

2.1. The Commission

The past year has not seen any changes in the composition of the Commission, which is still composed of seven members[8]. The Federal Council, moreover, renewed its confidence in these members, since it proceeded to re-elect them in December 2000 for the period 2001-2003.
The Commission met 10 times during the year 2000, and including a study trip to the Benelux countries, there were a total of 13 days of sittings. This breakdown obviously does not include the important work of analysis of the numerous documents submitted throughout the year. Nor does it include the preparation time for the various meetings by the members of the Commission (1 to 2 days per meeting) or the cases in which a position was taken by circulating documents.

2.2. The secretariat

The secretariat of the Commission has seen several changes in the course of the year 2000. Following the departure of the former secretary, and after advertising the post, responsibility for the secretariat has been assumed since June 2000 by the former scientific officer. He is seconded in his functions by an administrative officer employed 60% of the time and a new scientific officer (50%) who also acts as webmaster.[9]

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7 European Commission, Sixth Report on the Implementation of the Telecommunications Regulatory Package, December 2000: http://europa.eu.int/ISPO/infosoc/telecompolicy/6threport.html

8 See appendix I: Commission members.

9 See Appendix II: Collaborators of the secretariat.

2.3. The Commission's internet site[10]

The Commission has its own internet site which is fully managed internally by the secretariat. Drawn up in the three official languages of the Confederation as well as in English, and updated regularly, the information published on the site allows the public to keep abreast of the Commission's activities.

Apart from the composition of the secretariat, an introduction to the Commission's members and access to the annual report, the website has a section outlining the distribution of competencies to the various authorities in accordance with the Law on Telecommunications. Moreover, from this year on, the main decisions of the Commission can also be accessed.

In addition, the latest press releases from the Commission and OFCOM (Federal Office for Communications) can be accessed from the website; surfers can also consult all the releases which have appeared since the establishment of the Commission. They can also access the principal legal texts governing the telecommunications market and the activity of the Commission.

Finally, a list of links refers visitors in their quest for information not only to the sites of the telecommunications operators active in Switzerland, but also to those of other regulators and international bodies in Europe and throughout the world.

This new communications tool seems to fulfil its purpose with the public, since the number of visitors to the site saw constant growth throughout the year 2000. With an average of 470 weekly visits during the initial months of the year, the site recorded an average of 1000 visitors per week at the end of the year, giving an annual average of around 802 visits each week. Some weeks, moreover, saw peaks of 1500 to 2000 visits per week, depending on events in the telecommunications market and the current situation of the Commission. The adoption of the new numbering plan in March, for example, and above all the procedures for the granting of the GSM and UMTS licences, aroused lively interest from October to December.

III. Activities of the Commission

1. Interconnection

Interconnection is the process which makes it possible to link networks and telecommunication services together, by obliging the dominant operators and all service providers of services which are elements of the universal service to guarantee access to their network to other operators.[11] It therefore allows operators who have no network of their own, or only a partial network, to offer their services to consumers. The legislation expects the dominant operators and those requesting interconnection to attempt first of all to come to an agreement between themselves

[10] http://www.fedcomcom.ch

[11] Art. 3 letter e, and art. 11 LTC

(the primacy of negotiations). In the event of a failure to do so, and after an investigation and a conciliation procedure conducted by OFCOM, the Commission fixes interconnection prices and conditions.

Since 1 January 2000, interconnection prices have been fixed in accordance with new principles which the Federal Council laid down in the decree on telecommunication services[12] and which are based on the *Long Run Incremental Costs (LRIC)* model. Prices are therefore calculated as a function of the costs incurred directly by interconnection services, on the current basis of the additional long-term costs generated by the use of the infrastructure. Consideration is also given to a normal return on capital investment in the industry. The dominant provider is no longer authorised to include charges deriving from terms of the old law, and depreciation costs can no longer be charged.

After negotiations, numerous telecommunication services providers reached agreement with Swisscom in December 1999 and January 2000 on new interconnection rates which, according to Swisscom, correspond to the new calculation model. After the failure of their negotiations with Swisscom, however, two providers submitted an application with a view to having the interconnection prices fixed.

A brief description is given below of the six procedures pending before the Commission during the year 2000.

1.1. Leased lines and transmission resources: Commcare versus Swisscom

The most complex procedure is probably the one lodged against Swisscom on 21 September 1998 in relation to the interconnection request of Commcare Communications AG. In this matter, the Commission rejected provisional measures in an interim decision on 28 June 1999 with regard to interconnection for both leased lines and for transmission resources. The Commission judged that the conditions required for provisional measures had not been met (in particular, the proportionality of the measures, the existence of an irreparable prejudice, and urgency).

Commcare appealed against this decision to the Federal Court, which gave its verdict on 17 December 1999. Overall, it echoed the arguments of the Commission and therefore confirmed the interim decision taken by the Commission.

Following the failure of conciliation negotiations in July 2000, the Commission pronounced judgement on the matter on 2 October 2000, thereby terminating the procedure. The request submitted by Commcare was approved only in part. Commcare, in fact, did not succeed in making Swisscom's transmission resources also subject to the interconnection arrangements. The transmission resources in fact designate only the physical means, i.e. copper or fibre-optic cables, excluding the transmission systems and interfaces. The Commission concludes that the direct linking of clients' sites, as requested by the applicant, via transmission resources within the Swisscom access network, is not a case of interconnection, since it is not necessary to

[12] Art. 34 and art. 65 DTS (RS 784.101.1).

establish communication with the Commcare network. The Commission stated that the facts presented by Commcare could not be considered as a case of local loop unbundling.

In those markets in which it occupies a dominant position, Swisscom is nonetheless obliged to offer its leased lines to other providers at prices based on costs. As far as the dominant position in the market is concerned, the Commission's decision is based on a study carried out by the Competition Commission in February 2000. The latter states in this regard that Swisscom occupies a dominant position in the leased lines market in the access network, but not in the fixed network. In view of a lack of information on Swisscom's costs, the Commission had to fix the leased line prices on the basis of European reference values (benchmarking). The reductions decided upon vary between 14% and 63%, according to capacity and distance.

The two parties each lodged an appeal against the Commission's decision with the Federal Court. Commcare is of the opinion that the Commission has not taken proper account of the facts concerning transmission resources. As for Swisscom, it disputes the obligation to submit leased lines to the interconnection conditions and has requested that the appeal be accompanied by suspensory effect. The Federal Court granted this request on 15 December 2000.

1.2. Mobile telephony: diAx (mobile) versus Swisscom

The following procedure relates to the dispute between diAx (mobile) and Swisscom. Following the superprovisional measures taken on 6 November 1998, the Commission took provisional measures on 29 April 1999, in which it confirmed the non-financial conditions of interconnection established by the superprovisional measures and in addition fixed the prices for diAx's mobile termination services[13] .
Since this decision, exchanges of correspondence have taken place on the main matter. The Competition Commission's opinion was additionally sought in order to judge the dominant or non-dominant position of Swisscom. The conciliation procedure took place, without success, in summer 2000. The legal authority had to proceed with additional clarification with a view to taking a final decision, which is expected in summer 2001.

The request lodged on 28 August 2000 gave rise to a complementary procedure between the same parties, this time relating to determining Swisscom's mobile termination prices. On 5 September 2000, the Commission rejected the application concerning superprovisional measures, for the reason that it was not so urgent that it was necessary to take a decision before even granting the right to be heard.

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[13] 1999 Activity report of the Federal Communications Commission, p. 9.

1.3. Procedure according to the Long Run Incremental Cost (LRIC) method

On 3 April 2000 and 20 April 2000 respectively, the companies diAx and MCI WorldCom submitted an application with a view to the taking of a decision on interconnection. In both cases this was on the basis that the offer from Swisscom did not correspond to the LRIC principles. One plaintiff additionally requested the establishment of provisional measures.

Swisscom disputed the Commission's competence in both cases, for the reason that these disputes concerned an existing interconnection contract and were therefore within the sole competence of the civil courts. The Commission, however, stated that even if such a contract did exist, it had been renegotiated in part – unsuccessfully – as a function of the new method of calculation. It also indicated that the new offer on price from Swisscom had led to a revision of the contract which, in the event of agreement, would have led to the conclusion of a new contract. It considered, in addition, that in so far as it was a matter not only of interpretation of the interconnection contract, but of a re-negotiation, it was competent to judge the two procedures (decisions of the Commission dated 22 June and 16 August 2000).

On 16 August, the Commission decided to take provisional measures and obliged Swisscom to offer the plaintiff interconnection services throughout the procedure, at prices corresponding to the current standard offer.

Within the framework of these procedures, OFCOM, as the investigating authority, not only exchanged correspondence and investigated the facts, but also studied in an extensive way the market in view of the analysis carried out by the Competition Commission concerning the dominant position in the market.

1.4. Unbundling the local loop: diAx versus Swisscom

In its interconnection request of 31 July 2000, diAx requested unbundled access to the local loop in three variants: "Bitstream Access", "Shared Line Access" and "Full Access". With "Bitstream Access", Swisscom itself was to proceed with the installations necessary for a broadband data link via the local loop and to offer this link to other providers at a wholesale price. In this case, it would be up to Swisscom to choose the DSL technology to be used.

Since summer 2000, Swisscom has been offering its "Broadband Connectivity Service", similar to "Bitstream Access", though which only offers limited transmission speeds; it was first offered in seven cities and has since been extended to other geographical areas. To the prices for this service are added the interconnection charges for traffic passing through the Swisscom network outside the local network.

With "Shared Line Access", the local loop copper wire would be co-used. Swisscom would remain competent in the area of voice telephony, whilst an other provider could lease a part of the copper line and install the equipment necessary for offering broadband DSL services. With "Full Access" (or "Full Unbundling"), a provider would lease the Swisscom local loop with a view

to exclusive use, guaranteeing his customers both voice telephony services and broadband data services.

On 9 November 2000, the Commission decided on provisional measures. It reached the conclusion that it was not disproportionate, given the forecasts of success, to oblige Swisscom, until the final decision, to offer "Bitstream Access" within nine months in a large part of Switzerland, at transmission speeds higher than for the "Broadband Connectivity Service". In addition, it was also decided that within three months the two parties should together draw up a standard offer for the "Shared Line Access" and "Full Access" services.[14]

Swisscom lodged an appeal against this decision with the Federal Court, requesting it to annul the decision and grant suspensory effect. The Federal Court granted suspensory effect on 12 December 2000, and approved the appeal on 13 March 2001. The provisional measures were lifted on the grounds that for Swisscom they represented a burden which it would be difficult to offset. The Federal Court did not express itself directly on the fundamental question of this procedure, i.e. whether unbundling does or does not come under interconnection. It merely stated that this was a complex and thorny problem which it was necessary to study in greater detail.

Here too, OFCOM had to undertake numerous analyses with a view to a consultation conducted by the Competition Commission. The decision of the Commission on the substance of the matter is expected by the second half of 2001.

2. Licences

This chapter gives an overview of the licences granted in 2000 by the Commission and of the preparatory work for those licences which may be granted in the near future.

The Commission, as the licensing authority according to art. 5, para. 1, LTC, is competent to grant licences to telecommunication services providers and licences for the use of the frequency spectrum. The Commission, however, has delegated to OFCOM competence to grant certain licences, notably those for telecommunication services which are not subject to an invitation to tender (for example: licences for fixed networks without radio elements) as well as radiocommunication licences which are not intended for the provision of telecommunication services (for example: amateur radio licences, CB licences or licences for transport companies' private radiocommunications systems). Only those licences awarded by the Commission directly will be dealt with here. The start of the chapter on UMTS licences includes the general aims of the Commission deriving mainly from the Law on Telecommunications and relating to the granting of licences.

[14] See the decisions online: http://www.fedcomcom.ch/fre/commission/entscheid.html

2.1. WLL licences

The wireless local loop (WLL) technology enables users to be connected directly to a telecommunications network by radio link, therefor WLL is an alternative to the local fixed network which is still owned by Swisscom.

At the end of 1998, the Commission asked OFCOM to evaluate the demand for this technique on the national market. Once it had assimilated the results, the Commission decided to hold an auction (a sequential "English"-style auction) for 48 WLL licences: three national licences (two licences with a 28 MHz bandwidth in the 3.4 GHz frequency band and one with a 56 MHz bandwidth in the 26 GHz frequency band) plus 45 regional licences (five licences in each of the nine regions, which are all in the 26 GHz frequency band: two with a 28 MHz bandwidth, two of 56 MHz and one of 112 MHz). In August 1999, OFCOM was entrusted with preparing and then holding both the call for tenders and the auction.

The invitation to tender was published on 14 September 1999; after detailed evaluation by OFCOM, the Commission, on 13 December 1999, authorised 19 candidates to take part in the auction.[15]

In January 2000, the Télésonique company appealed to the Federal Court, disputing both the authorisation decision concerning itself, on the grounds that the minimum prices were too high, and the authorisation granted to diAx, since that company already had a GSM licence. Télésonique also applied for suspensory effect for the authorisation decisions. Because of this appeal, the commencement of the auction, envisaged for 9 February 2000 by OFCOM, was postponed until 8 March 2000, by agreement with the Commission. The Federal Court refused suspensory effect on 21 February 2000, leaving the way open for the auction.

The 48 licences were auctioned from 8 March 2000 onwards, at a rate of one per day.

This was a first, from two points of view: on the one hand, it was the first time that telecommunication and radiocommunication licences have been auctioned in Switzerland and, on the other hand, no European authority had ever carried out such an operation over the internet, in a decentralised way. Not only was the transparency of the award procedure guaranteed, but a contribution was also made to the development of the information society.

The three national licences were awarded for CHF 120, 134 and 55 million, and 31 regional licences were awarded. It was only in eastern Switzerland (four licences awarded out of five put up for auction), in Ticino (two licences awarded out of five) and in Valais and the Grisons (no licences awarded) that the licences aroused only limited interest.

This auction, which took place in spring 2000, allowed the Confederation to benefit from the euphoria reigning in the financial markets, since, to general surprise, some CHF 582,757,580

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[15] These companies were as follows: BroadNet, Callino, Commcare, DiAx, Europe i Switzerland, FirstMark Communications, KPNQwest, Mannesman Eurokom, Multilink, Primus Telecommunications, Star-One, Sunrise, Telcom Venture of Switzerland, Tele2, Télésonique, United Pan-Europe, VTX Services and Winstar Europe.

were obtained for the 34 licences which were awarded.[16] The excellent result of the WLL auction in Switzerland, however, leaves an after-taste when one thinks that two of the three national licences are still unused and that the launch of WLL services on the market is greatly delayed. This also means that the expected competition for the "last mile" is non-existent, for the time being.

Once Télésonique had withdrawn its appeal on 8 May 2000, there was no longer anything to stop the auction for the licences, granted at the beginning of June 2000 for a period of ten years.
The holders of these licences are obliged to commence commercial operation within one year, with at least one base station. After approximately one year, OFCOM will verify that this condition has in fact been met, by June 2001. If necessary, OFCOM will initiate a supervisory procedure and submit applications to the Commission with a view to taking any necessary measures.
As of 1 June 2000, companies interested in the frequencies which have not been allocated in certain regions were able to apply for a licence for smaller parts of regions. Three licences have been granted in this way in the Grisons, three in Valais, two in Ticino and one in St-Gall.

2.2. UMTS licences

The third generation of mobile telecommunication, standardised at the level of the International Telecommunications Union (ITU) as IMT-2000, of which UMTS is the European version, differs from the current GSM generation essentially in terms of access to multimedia services at transmission speeds of up to 2 Mbit/s (under ideal conditions). It is the key to accessing a whole series of wireless services such as the internet, video on demand, mobile commerce, video-telephony, etc.

2.2.1. Aims of the auction

The principal aim laid down in the Swiss Law on Telecommunications is to ensure varied, reasonably priced and high quality telecommunications services for private individuals, business and the administration. This objective must be achieved not only by the universal service (this has been assured today) but also by the establishment of effective competition (art. 1 LTC). By auctioning four almost identical UMTS licences, the Commission intended to fulfil this legal mandate. Therefore, one of the priorities of the Commission was to award at least one licence to a new participant in the market.

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[16] In other countries, WLL licences have been granted, depending on the time, at very low prices. The sale of licences raised CHF 99 million in Great Britain in November 2000 and CHF 2 million in Austria in January 2001.

As far as the procedure is concerned, the primary objective – explicitly formulated and communicated – pursued by the Commission was to guarantee a selection process[17] which would be objective, transparent and non-discriminatory, a goal which was easier to achieve with an auction than with an award based on criteria ("beauty contest"). In addition, the Commission attributed prime importance not to maximising revenue but to maximum transparency and the economic efficiency of the procedure.

The Commission considered juridical security and the credibility of the authorities as critical, since they contribute to creating a climate of confidence in institutions, a factor which is in general very important for Switzerland's economic position and for investors. Indeed, the companies involved are spending billions on infrastructures and market development in Switzerland, and this is one reason why the Commission and OFCOM attach great importance to a correct judicial procedure.

Finally, by co-ordinating the auction with the EU's schedule, the Commission wished to give Switzerland the possibility of embracing the new technologies at the same time as its neighbours; these technologies will be of critical importance, as a platform for mobile data services, for the future development of the economy in our country. For Switzerland to be able to progress at the same pace as the EU, it was important to avoid any delay in the award process, in particular any prolonged procedures before the Federal Court, as occurred following the award of the GSM licences[18]. As figure 1 shows, Switzerland was in the middle of the European pack for awarding UMTS licences, despite the late award of GSM licences compared with Europe.

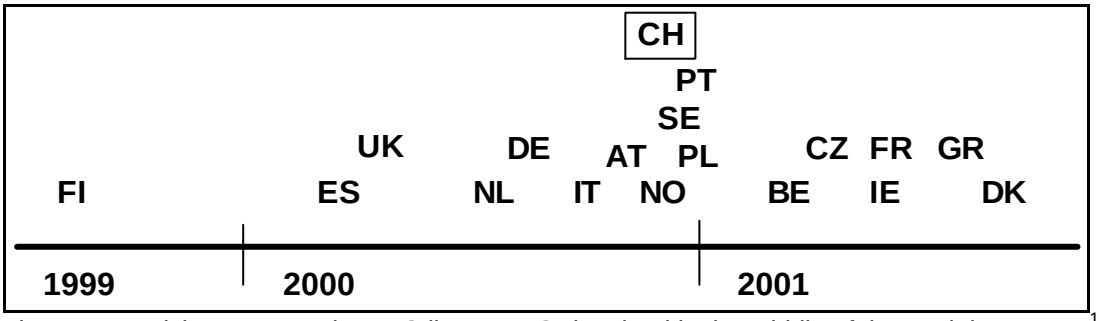


Fig. 1: Decisions to award UMTS licences: Switzerland in the middle of the pack in Europe.[19]

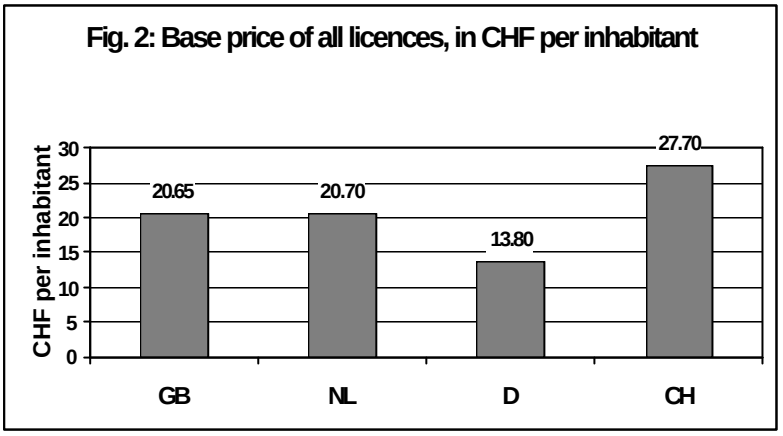
[17] See in particular the press releases of 26 August 1999 and 29 August 2000. These are also the principles on which the granting of licences is based pursuant to art. 24, para. 2, LTC. Within the framework of the 4th GATS protocol, Switzerland has also signed up to the international obligations corresponding to the above-mentioned provisions of the LTC. See OMC, Fourth Protocol to General Agreement on Trade in Services (GATS), N° S/L/20 (30.4.96/15.4.97); for the special obligations in Switzerland in the telecommunications sector: see GATS/SC/83/Suppl.3/Rev.1 (28.1.98).

[18] The appeals lodged at that time by Sunrise with the Federal Court caused some uncertainty for a long time regarding the diAx and Orange licences, as well as delaying construction of the infrastructure.

[19] End of the auction or decision to award licences on the basis of criteria. Countries: FI = Finland, ES = Spain, UK = Great Britain, NL = Netherlands, DE = Germany, IT = Italy, AT = Austria, CH = Switzerland, NO = Norway, SE = Sweden, PT = Portugal, PL = Poland, BE = Belgium, CZ = Czech Republic, IE = Ireland, FR = France, GR = Greece, DK = Denmark.

2.2.2. The award procedure

On instructions from the Commission, OFCOM had been carrying out the initial preparatory work since 1998 (analysis of the situation, official consultation). In August 1999, the Commission decided to award four national licences by auction. For the invitation to tender, it was necessary



to wait until the various major international IMT-2000/UMTS standards and the recommendations of the ERC on frequency co-ordination in the country's border areas had been defined (in this case in December 1999). Moreover, it was essential to find a solution with the armed forces, which were still using some of the frequencies assigned to UMTS to operate data transmission in their ADS 95 system. This problem was not resolved until early February 2000.

It was, therefore, only on 24 February 2000 that the Commission was able to announce the invitation to tender and fix the price of the minimum bid, an important point of the auction conditions.

This price was three times higher than that of the licence fees which the decree on fees in the telecommunications sector (ordonnance sur les redevances dans le domaine des télécommunications - ORDT) stipulates for such a radio licence within the framework of an award based on criteria. To date, the Commission had fixed the minimum bid for auctions (WLL licences or supplementary GSM frequencies) according to the amount of the federal licence fees capitalised over the period of the licence, on the basis of the amount of fees laid down by the Federal Council. In February 2000, Télésonique S.A. lodged an appeal with the Federal Court against minimum bids considered too high during the WLL auction, what led to a one-month postponement of the auction. It was therefore rather bold to fix at CHF 50 million the minimum bid for a technology which has not been market tested at all.

As the price of the minimum bid was criticised by some parties at the time of the auction, it would appear opportune to recall the two following aspects:

Fig. 2: Minimum bids of all licences in CHF, per country and per inhabitant

- The Commission adopted the tender documents eleven days before the start of the first of the UMTS auctions ever organised – in Great Britain[20]. No-one therefore knew at what prices the licences would be granted in other countries. Indeed, at that time only Finland had awarded licences, free of charge.
- If one calculates the ratio of the total minimum bids to the population of the country (cf. fig. 2), it is clear that Switzerland fixed minimum bids higher than the first three countries which had organised an auction up to August 2000 (Great Britain, the Netherlands and Germany).

For the fees for use of the GSM frequencies, which are scarce, recourse is made only to the fees fixed by the Federal Council in the decree on fees in the telecommunications sector, which must be considered as compensation for the use of this rare public asset by a GSM technology which has proved its worth.[21]

The competition for four UMTS licences was formally opened on 14 March 2000. At the end of the candidature period on 31 May 2000, 10 submissions had reached OFCOM with a view to participation in the UMTS auction.
In their candidature dossier, the interested parties had to provide proof that they were not only capable of constructing a UMTS network in technical and economic terms but also that they would meet a whole series of preselection criteria (constraints relating to coverage, national roaming and co-use of sites). It was also important to know if the candidates were sufficiently independent in economic terms to be allowed to take part in the auction. This selection procedure, organised by OFCOM, required some time because of the vast quantity of information to be analysed. On 20 June 2000, the Commission approved the definitive version of the detailed rules for the auction and instructed OFCOM to prepare and carry out the sale.[22] At the meeting on 24 August 2000, the Commission decided to authorise all of the 10 candidates proposed by OFCOM to participate in the auction, the beginning of which was fixed for 13 November 2000.[23]

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[20] Even after the beginning of the UMTS tender in Switzerland (14.3.2000), this auction proceeded very slowly and there was no hint of the very high prices which would eventually be obtained in April.

[21] Concerning the allocation of GSM frequencies, it should be added that according to the transitional arrangements in the Law on Telecommunications (art. 66, para. 2, LTC), Swisscom was awarded a firm GSM licence for ten years, and this did not permit the auction of other GSM licences. Given the assured success of GSM technology even at that time, substantial revenues would have been possible in the case of a sale. The legislature's decision shows that at the time more weight was given to the economic arguments than to the financial objectives.

[22] The four licences were to be auctioned simultaneously over the internet (http://www.umtsauction.ch). The procedure chosen by Switzerland was similar to the one used by Great Britain for its UMTS auction.

[23] It should be noted that the duration of the award procedure is determined to a large extent by the appeal periods laid down by the law and in this case also by the additional procedure for auctioning the supplementary GSM frequencies.

Of these 10 candidates wishing to obtain one of the four UMTS licences, by Sunday 12 November 2000 six had withdrawn from the procedure (Teldotcom SA on 3.10.2000, Telenor on 8.11.2000, Cablecom and Hutchison on 9.11.2000, T-Mobil on 10.11.2000 and Sunrise on 12.11.2000). Thus there remained only four companies: dSpeed SA (a subsidiary of diAx), Orange Communications SA, Swisscom SA and Team 3G (Telefónica). The sudden withdrawals and above all the announcement of the merger of diAx and Sunrise the day before the start of the auction changed the situation. OFCOM, which was responsible for the sale, therefore decided, after consulting the Commission, to interrupt the procedure and to postpone the start of the auction.

OFCOM first of all examined the consequences on competition of the merger between the two main participants Sunrise and diAx, but it also subsequently considered various options concerning the steps to be taken, in particular regarding the delays and the legal risks which might result from a change to the envisaged timetable. All the candidates insisted, credibly, that they had taken their decision to withdraw without taking into account the behaviour of the other competitors. In addition, the investigations conducted by OFCOM gave no hint of any collusion between the candidates.

During the extraordinary meeting on 30 November 2000, the Commission decided, in view of the detailed investigations conducted by OFCOM, to make no changes to the rules for the sale and therefore not to make use of the stipulated release clause.

The Commission considered that a change in the rules, e.g. increasing the minimum bid during the procedure, could not be justified. Changing the rules of the sale during the ongoing procedure would very probably have had legal repercussions which would have considerably delayed the award of the UMTS licences in Switzerland. Delay in the awarding of the licences compared to the rest of Europe would have had negative consequences on construction of the networks (acquisition of the infrastructure by the licensees), on the introduction of innovative mobile telecommunication services and, as a result, on the attractiveness of Switzerland as a business location.

The auction took place on 6 December 2000 in accordance with the initial rules; the four UMTS licences were sold for just over the minimum bid, CHF 205 million in total.

We would like to highlight once more the following aspects relating to the licences granted in January 2001 and valid until 31 December 2016:

- **Availability of frequencies:** The licensees will have access to all the frequencies only from 1 January 2002. In 2001, only some of the frequencies are available, for test purposes.
- **Strict conditions of the licences:** Despite the award by auction, the conditions associated with the UMTS licences are strict and correspond to those of the GSM licences: they include both detailed obligations regarding area planning and the environment as well as conditions concerning the coverage obligation and national roaming. In addition, strict obligations are

imposed on co-ordination and co-use of sites.[24] As the supervisory authority, OFCOM is ensuring compliance with the provisions of the licence.

2.2.3. Consequences

Considerations relevant to the public economy: The modified general conditions (mentioned in the introduction) prevalent on the capital markets and resulting from the excessive prices of UMTS licences in Great Britain and Germany have had a lasting influence since the summer of 2000 on UMTS auctions in all countries. Some telecommunications companies were no longer ready or able to pay high prices for licences and therefore withdrew from the competition just before or just after the start of the sale (in Italy, Austria and Switzerland), as the banks had by then adopted a restrictive policy on loans.[25] Since the end of 2000, the situation has worsened further, and this is why, in Poland, France and Belgium, it has not been possible to award all of the licences.

By deciding to maintain the rules initially laid down, the Commission chose a solution which generates increased competition and, as a result, opposes trends towards the establishment of oligopolies.[26] In the case of a large increase in the minimum bid, the objective of attracting at least one new player into the market would probably not have been achieved, as was the case in France and Belgium. A new operator entering the market with neither customers nor a network is in a difficult initial situation and, once the licence is awarded, has to invest resources which are considerably greater than those of an established operator in the market.

The fact that in Switzerland the four UMTS licences were auctioned at moderate prices to solid, experienced companies is encouraging speedy construction of the networks, the establishment of new services and effective competition in the area of mobile services. Consumers, as well as the Swiss economy as a whole, will be the beneficiaries. In the medium and long term, it can only be positive for the state that the companies building and operating telecommunications networks are financially healthy. On the one hand, such companies are able to build and operate networks which are relatively onerous in the environment of Switzerland, with its multilingualism, its environmental standards, which are very strict compared with the rest of the world, especially concerning non-ionising radiation, and its other requirements regarding area planning and protection of nature and the national heritage. On the other hand, looking at the long term, they

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[24] See the "model UMTS licence" on the OFCOM site at: http://www.bakom.ch/fra/subpage/?category_50.html

[25] Several supervisory banking authorities (e.g. the Financial Services Authority in Great Britain, the German and Canadian supervisory authorities and the Bank of England) had warned as early as the autumn that some financial institutions and other banks risked overexposure to telecommunications companies (cf. Stuttgarter Zeitung, 2.10.2000 or NZZ, 9.12.2000). Consequently, UBS, for example, considered that it was important to note in its 3rd quarter report for 2000 that its commitments in the telecommunications sector were relatively low.

[26] For information, in May 2000 the Competition Commission initiated an inquiry to find out if the three mobile telephony operators collectively occupied a dominant position in the market.

are better taxpayers than companies which are heavily in debt, and are better able to assume their responsibilities with regard to the community. In those countries where the UMTS sale generated very high revenues (e.g. Germany), the licence holders are exercising pressure on the state, reminding it of the high amounts they have paid, to waive environmental standards relating to the construction of antennas.

In the debate on the right price for licences or on the question of increasing the minimum bid, it is often forgotten that the companies which have paid high sums for their licences are penalised on the stock exchange, since a high degree of indebtedness reduces prospective profits. In conclusion, if the Confederation had received high revenues from the UMTS sale, it would have lost very large sums as a result of the accelerated collapse of Swisscom shares. In addition, another consequence of higher licence prices would have been lower tax revenues, since the indebted companies would not have made a profit for a longer period of time.

On the contrary, the downward trend of Swisscom shares has been markedly less since the UMTS auction when compared to, for example, the shares of British Telecom and Deutsche Telekom.

No cross-subsidies: It is a fear, often expressed but unfounded, that in the future we shall see certain commercial groups which have obtained a UMTS licence cheaply in Switzerland subsidise the licences they have acquired abroad at a high price, by keeping prices excessively high in our country. First of all, Swisscom and TDC (Sunrise/diAx) are both solid businesses which have no foreign licence costs to offset.[27] In the tough fight for market share by the competing parties, it will be competition on prices which will emerge. Furthermore, the evolution of the market is monitored very closely by the Competition Commission, the regulatory authorities and the price monitoring body.

In another context, it should be noted that all the UMTS licensees, who are already in debt, will each invest between CHF 1 and 1.5 billion more to construct the network and to launch UMTS services. Even the Swiss subsidiaries of foreign companies will first have to clear their debts, which makes it impossible to use cross-subsidies. Only after several years will the first profits be made.

Finally, cross-subsidies, which are incompatible with Swiss commercial law (ban on paying back share capital, protection of minority shareholders), could have negative fiscal consequences for the companies concerned.

In any event, it is precisely the opposite which is taking place at present: the main beneficiary of foreign participation is the Swiss telecommunications market, since considerable financial resources and a large amount of technological know-how concerning infrastructure and market development are finding their way into our country.

Effective competition, a clear and transparent procedure: Thanks to the award of a licence to a fourth, new player on the market, an import step has been taken towards greater

competition, thereby making it possible to achieve one of the major aims of the Law on Telecommunications (art. 1 LTC), which will be of benefit to consumers. An award procedure which has been clear, transparent and non-discriminatory has made it possible to fulfil one more legal mandate. The Commission therefore considers that the objectives laid down by the LTC have been achieved.

2.3. GSM licences

2.3.1. Changes to the existing GSM licences

The Commission had modified the GSM licences to make it possible, from 1 July 2000, to call the international emergency number 112 from a mobile telephone even if it has no SIM card. Unfortunately, the announcement of this new feature was followed by an excessively high number of malicious or accidental calls to the emergency centres, and for this reason OFCOM was obliged at the end of July to limit access to the 112 number once more to mobile telephones equipped with a SIM card.

On 23 March 2000, the Commission approved the request of a mobile operator with a view to adapting the data in its GSM licence with regard to the coverage obligation.[28] The licensee was able to prove convincingly that a significant proportion of the reasons invoked for non-compliance with the coverage obligation was outside its control. Moreover, it has tried many times to meet its coverage obligation, despite a difficult context. The licensee provided justification with reference to its late entry into the market, due on the one hand to the appeal lodged by Sunrise against the award of the licences[29], and, on the other hand, to the serious problems which occurred during acquisition and construction of antenna sites, such as opposition from the population. The licensee claimed that more than 30% of its planning applications submitted in Switzerland had been blocked by opposition, delaying the construction of the network.
A supervisory procedure was initiated against another licensee for non-compliance with the coverage obligation (see below).

2.3.2. Additional GSM frequencies

In parallel with the invitation to tender for the UMTS licences, the tender for the three additional GSM licences was launched on 14 March 2000. It involved on the one hand the frequencies which Swisscom had been using for its analogue Natel C network (8.2 MHz bandwidth in the

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[27] The minority Vodafone holding (25%) in Swisscom Mobile SA is not sufficient to affect the latter's business policy.

[28] See the decisions online: http://www.fedcomcom.ch/fre/commission/entscheid.html

[29] See the 1999 activity report of the Federal Communications Commission, p. 13f.

GSM 900 MHz band) and, on the other hand, two licences with a view to using frequencies (not yet in use) in the extended E-GSM 900 MHz band (each 4.8 MHz bandwidth). On 31 May 2000, five candidates had submitted their full dossier, in which they had to take a position on the same points as for the UMTS tender. On 24 August 2000, the Commission decided to authorise the five candidates to participate in the auction (the Swiss GSM providers Swisscom, Orange and diAx, plus One.Tel Global Wireless and Telenor Mobile Communications). The licences were to be awarded from 11 October 2000 by an "English-style" auction (award of the licences one after the other). This additional award procedure for extra GSM frequencies which had newly become available, and which were urgently needed by the three GSM operators, made the UMTS award procedure even more complex.

Until the evening before the commencement of the sale, two candidates, One.Tel and Telenor, withdrew. In view of the new situation, the remaining candidates asked OFCOM to postpone the sale so that they could revise their strategy. The Office then postponed the auction to 27 October; before this date, the three existing GSM operators had sent a joint request to the Commission with a view to having the award procedure modified and the frequencies allocated. The request included a concrete written proposal concerning distribution of the frequencies between the three operators. Pursuant to the rules of the invitation to tender, the Commission approved the suggested distribution, since it guaranteed optimal utilisation of the frequencies.

Swisscom obtained two thirds of the former Natel C frequencies and diAx one third. As for the E-GSM frequencies, two thirds went to diAx and one third to Orange. They were integrated into the existing GSM licences.

2.4. Digital trunked radiocommunications networks

Digital trunked mobile radiocommunications (PMR/PAMR) networks are of particular interest to groups of professional users requiring high transmission capacities and high security, such as public transport enterprises or road haulage businesses, civil engineers, etc.

An initial invitation to tender dated 9 August 1999 did not arouse any special interest. However, after Swisscom's decision to cease operation of the Speedcom network as of 31 March 2000, interest in the 410-430 MHz frequency band appeared more probable, since after the decommissioning of Speedcom there would no longer be a national network providing PMR/PAMR services in Switzerland, although the frequencies allowing the establishment of a national network were available. It should also be noted that this frequency band is co-ordinated at European level.

After a survey of relevant demand had been carried out by OFCOM, the Commission, during its meeting of 26 September 2000, instructed OFCOM to launch a call for tenders with a view to awarding the highest bidder a national radiocommunications licence for the provision of mobile telecommunication services, via a trunked digital network in the 410-430 MHz frequency bands.

Even though no candidates had made themselves known when the deadline of 22 December 2000 had passed, a number of companies had expressed genuine interest in regional PMR/PAMR networks based on the TETRA standard.
Following the results of the invitation to tender, the Commission therefore instructed OFCOM to examine the different variants for the future course of the procedure. OFCOM envisages organising a workshop with the interested parties in the course of February 2001. The continuation of the procedure will be defined in spring 2001.

2.5. Two-way digital paging networks

Due to market demand and technological progress, future paging applications will be two-way. To achieve this, current paging service providers – of which there are three in Switzerland – will need extra channels to develop their networks and allow the bi-directional exchange of messages.
In accordance with a CEPT recommendation (ERC/REC/22-08), the 867.6-868.0 MHz frequency bands will be available to develop digital paging networks with a back channel.
Following the OFCOM investigation on the allocation of frequencies for two-way paging, it turns out that demand is clearly lower than the resources available.
Since a tender procedure was not necessary, the Commission therefore instructed OFCOM to allocate the frequencies to interested parties on application.

2.6. Universal service

One of the aims of the Law on Telecommunications is to provide all sectors of the population throughout Switzerland with the same basic, high-quality telecommunications services at reasonable prices. The Commission considers that the universal service is an important factor in the liberalisation of the market, since it at one stroke prevents certain regions or classes from being disadvantaged in terms of access to the most fundamental means of social communication. Today, universal service is assured throughout Switzerland.
The services which form part of the universal service are laid down by the LTC. The Federal Council is competent to adjust the content of the universal service regularly according to changes in technology and the market, and to the needs of society and the economy. The Federal Council also decides the maximum prices and the quality requirements relating to the services.
Until the end of 2002, Swisscom is obliged to provide the universal service in accordance with the transitional arrangements of the LTC. By then, the universal service licence must be re-allocated by means of an award based on criteria. If candidates demand contributions to investment, the licence will be granted to the applicant who has submitted the best bid, according to the terms of art. 19 LTC.

The preparatory work for the preliminary examination of the components of the universal service by the Federal Council has been under way at OFCOM since summer 2000. After a consultation due to take place in spring 2001, the Federal Council will decide on the scope of the universal service. The Commission envisages launching the call for tenders for the licence (or possibly for several regional licences) in the second half of the year 2001.

Apart from connecting subscribers, public telephones (call boxes) are the most distinctive element of the universal service. It is important for the Commission to guarantee a coverage which corresponds to the needs of the population. The use of public telephones does indeed seem to have fallen as a result of the rapid growth of mobile telephony, but these telephones remain essential in numerous locations and are very often used by certain parts of the population, for example for calling abroad using cards. Applications by the universal service licensee to remove public telephones are examined by OFCOM before the Commission decides to eliminate any of them.

For the year 2000, it remains to be noted that, within the framework of two supervisory procedures, the Commission on each occasion took a decision against the universal service licensee (see under "Measures taken during supervisory procedures").

3. Numbering plan

The goal of a new numbering plan is to guarantee a sufficient number of addressing resources (telephone numbers) for new products and services, whilst guaranteeing equal access to these numbering resources for all telecommunication services providers and all subscribers. The liberalisation of the telecommunications market, together with the rapid technological developments in this area of activity, is leading to significant growth in the demand for new numbers.

Thus numbering plan E.164/2001, drawn up in 1996/97 in collaboration with the economic parties concerned, was approved by the Federal Communications Commission in December 1997. The date for its introduction, initially fixed as 12 April 2001, was subsequently deferred to 29 March 2002 because of numerous requests submitted to the Commission.

Following this deferral, new proposals for improving the numbering plan were made, aimed notably at reducing its costs and difficulties in implementation. The Commission therefore approved a new numbering plan in March 2000 (E.164/2002), whilst retaining the date for its introduction: 29 March 2002.[30]

The latter plan differs mainly from its predecessor by its greater simplicity and lower implementation costs: in fact, all connections will keep their current number and area code; the only difference is that the trunk dialling code (022, 01, etc.) will be integrated into the number and will have to be dialled for local calls as well. As far as calls from another region of

[30] For additional information: http://www.num2002.ch

Switzerland are concerned, the new plan makes no changes at all to the current system. There are also no changes for incoming calls from abroad, since the zero prefix of the national number does not have to be dialled.

This solution avoids having to allocate new codes to 9 regions, as envisaged in the initial plan adopted in 1997. However, the Commission did not consider it desirable for the Zurich region to keep a different number length (9 digits) over the long term, compared with the rest of Switzerland (10 digits). Therefore within a maximum period of 5 years from the entry into force of the new numbering system, 01 numbers will have to change to a format identical to that of the rest of the country (from 01 to 044). OFCOM, charged with the application of the new plan, has been commissioned by the Commission to define how this second stage will be implemented, in collaboration with the operators.

To prepare for the introduction of the new numbering plan and to ensure users enjoy the best conditions for transition to this new system, OFCOM launched an information campaign in the year 2000. This communication campaign will intensify further in 2001; in particular, an explanatory brochure will be sent to every subscriber.

This new numbering plan, known as a *closed* plan (the same dialling format for local and national calls), introduces greater flexibility in the allocation of blocks of numbers and fulfils the conditions which are essential for introducing geographical number portability throughout Switzerland. In addition, it allows conformity with efforts at harmonisation at the European and world levels.

Finally, since the changes caused by this new plan, for both subscribers and operators, are not so great as those in the initial plan, there will consequently be a massive reduction in implementation costs.

4. National frequency allocation plan

The national frequency allocation plan presents the different frequency bands allocated in Switzerland and gives an overview of utilisation of the frequency spectrum indicating the current or planned use, most often co-ordinated at international level.

The plan coming into force on 1 July 2000 differs from the previous plan first of all in its conception. The graphical representation has been adapted to the format normally used by the ITU and CEPT at international level, on the basis of a new database design.

Secondly, its content has been modified on the basis of the results of international conferences (e.g. WRC and ERC) or as a result of the introduction of new technologies (UMTS, WLL). The Federal Civil Aviation Office has been designated as the competent authority for aviation radiocommunications bands.

5. Number portability

Number portability allows users to choose an operator freely whilst keeping their subscriber number. This eliminates the inconvenience associated with a number change and encourages competition.

Number portability should have been introduced on 1 January 2000. Because of the delays which occurred in the preparatory work and the IT problems which might have arisen with the changeover to the new millennium, the Commission decided – as indicated in the previous activity report – to postpone its entry into force for two months. It was critical for the administrative procedures to be completed without a hitch. Number portability was therefore introduced successfully on 1 March 2000. Indeed, in 2000, some 50,000 numbers – mostly mobile numbers – were ported to a different telecommunication service provider.

6. Carrier (Pre)Selection

Carrier selection is a facility which allows subscribers to select different operators for their national and international calls. This service exists in two forms: first, selection on a call-by-call basis, implying that the subscriber dials the five-digit code of the chosen operator before the called number; secondly, selection may be carried out in a predetermined manner (carrier preselection, CPS). In this second case, the selection code is pre-recorded in the switching centre, and each call is automatically preceded by this code (except for local calls). Preselection is possible for one provider only. The two variants can also be combined.

In the course of the year 2000, telecommunication services providers worked above all on improving performance in terms of the exchange and processing of preselection orders. Within this framework, a performance contract (CPS Service Level Agreement) was concluded between the service providers. This contract provides for agreed penalties, notably in the event of delay in the activation of orders submitted or in the event of activations/deactivations of preselection without subscribers' formal consent.

Discussions also broached the question of the future of preselection. Activation of preselection by the subscriber directly did not arouse any great interest on the part of service providers, who prefer to maintain a close relationship with their customers. However, with the aim of offering greater flexibility in preselection requests, a system of verification of CPS orders by an independent body (third party verification) is under test. This system is intended to allow users to subscribe to telecommunication services providers' CPS services directly, by telephone. Their request is recorded and verified by the independent body in question which validates or rejects the request as a function of objective criteria. The recording of the request may be used as proof in the event of a dispute.

7. Measures taken during supervisory procedures

It is OFCOM's task to ensure compliance with the provisions of the law, decrees and licences. If it suspects an infringement of a licence or a violation of the law in force, it initiates an inquiry. Where applicable, it may propose that the Commission instructs the licensee to rectify the lapse in question, to impose conditions on the licence or even to withdraw the licence (art. 58 LTC).
The number of decisions by the Commission relating to measures to be taken as part of supervisory procedures increased in 2000.

7.1. Mobile telephony: carrier selection call-by-call

According to the terms of the Federal Communications Commission decree on the Law on Telecommunications, mobile telephony providers have been obliged, since 1 January 1998, to offer their customers the option of choosing a provider for each of their international calls.
In view of the fact that Swisscom – the sole operator of a mobile telephony network until December 1998 – was not complying with this obligation despite several reminders, OFCOM initiated a supervisory procedure in autumn 1998. It was not until 1 May 1999, after a delay of 16 months, that Swisscom offered its mobile subscribers the possibility of carrier selection call-by-call for international calls. The supervisory procedure proved that Swisscom had not made every effort to introduce carrier selection call-by-call in good time within the mobile network. By thus impeding the development of effective competition in this area for its own benefit, Swisscom violated the Law on Telecommunications, its statutory instruments and its own mobile telephony licence. Pursuant to the Law on Telecommunications (art. 60, para. 1, LTC), the Commission decided on 20 June 2000 to impose on Swisscom an administrative penalty to the value of CHF 384,230.–.

7.2. Mobile telephony: non-compliance with coverage obligation

In December 1999, a supervisory procedure was initiated against a GSM operator for non-compliance with the coverage obligation. The licensee, in fact, waited for the period at the end of which a certain degree of coverage should have been attained to expire before submitting a request for a change in the provisions of the licence conditions. The Commission rejected this request on 27 March 2000 for the reason that the delays were due largely to the licensee's behaviour and his reactions which had been both slow and inadequate.[31]

7.3. Statistical data

The Commission also imposed administrative penalties on two smaller telecommunication service providers on the basis of the results of two supervisory procedures. According to the

[31] See the decisions online: http://www.fedcomcom.ch/fre/commission/entscheid.html

Law on Telecommunications (art. 59, para. 2, LTC), OFCOM draws up official statistics on telecommunications, for which providers subject to licensing or required to notify must provide the Office with the necessary information. Despite numerous reminders, both companies did not provide the information requested in a questionnaire and thereby infringed the regulations. The Commission then imposed penalties amounting to CHF 15,000.– and CHF 20,000.–, these amounts corresponding to a small percentage of the turnover of the companies in question.
One of the two companies lodged an appeal, which the Federal Court rejected on 22 November 2000, for the reason that a penalty only achieved its objective if it had a perceptible financial impact on the company at fault (it was appropriate, in the public interest, to prevent other licence violations). It also indicated that the offence was not indeed a serious one, but nor was it a trifle, and the fact of refusing to provide the information required to produce the statistics on telecommunications – which serve as a basis for major policy and regulatory decisions – could not be tolerated.

7.4. Universal service: calls to 0800 numbers from public telephones

From 1 January 2000, in order to cover infrastructure costs, Swisscom, the universal service licensee, billed the providers of these free services a charge of CHF 0.2474 per minute for calls to 0800 numbers made from public telephones. In addition, the usual interconnection rates were billed for traffic passing through the Swisscom network. Even before the introduction of these charges, OFCOM had drawn Swisscom's attention several times to the fact that only the amount of CHF 0.40 per call (CHF 0.50 from 1 May 2000) defined in the universal service could be demanded of other providers for the use of public telephones. Since Swisscom maintained its charges, on 18 February 2000 OFCOM initiated a supervisory procedure which led to a decision by the Commission on 10 May 2000. The Commission confirmed an infringement of the universal service licence and forced Swisscom to apply the ceiling price of CHF 0.40 (then CHF 0.50) per call. The amounts wrongly charged since 1 January 2000 were to be repaid retroactively. On 7 June, Swisscom lodged an appeal with the Federal Court under administrative law against this decision.
The Federal Court rejected the application for suspensory effect on 30 June 2000, and then the appeal on 8 December 2000. In the statement on its reasoning, it stated that the legislature had fixed ceiling prices for the universal service especially to protect end users directly. It also indicated that the entire system only made sense if the ceiling prices were complied with by the different providers among themselves. According to the court, the decision of the Commission upheld the public interest acknowledged in the Constitution, i.e. to ensure an advantageous universal service.

7.5. Universal service: database for tracing emergency calls

The legislation on telecommunications[32] which came into force on 1 January 1998 obliges all telecommunication service providers to organise access to the emergency call services so that the calls can be traced. In 1998 and 1999, OFCOM and a working group from the telecommunications sector prepared the application of this legal stipulation.

In September 1999, it was agreed that the universal service licensee would ensure the operation of a database for tracing emergency calls. The entry into force of the "technical and administrative arrangements for routing emergency calls and their tracing" was envisaged for 1 July 2000, the date on which the necessary database should also have been made available. However, the universal service licensee delayed the creation of this database. Finally, OFCOM initiated a supervisory procedure on 20 June 2000. At the Office's request, the Commission decided on 25 July to postpone until 31 October 2000 the introduction of the database for tracing emergency calls and to charge OFCOM with monitoring the progress of the project. However, it was decided not to impose any administrative penalties. Following this procedure, the database was finally put in place within the specified periods.

8. Study trip by the Commission

In September, as part of a study trip to Belgium and Holland, the Commission not only held detailed discussions with the representatives of two EU Directorates-General and the Dutch regulator but also made visits to two companies. The Commission's aim was to collect information on current trends in regulation and on the technological developments which might play a major role in the future activities of the Commission.

During the exchange of views with representatives of the Information Society Directorate-General, the main focus was on the new European Union (EU) legal framework for electronic communications. Published in July 2000, these proposals are intended to facilitate better harmonisation and gradually to suppress regulation in telecommunications within the EU states, as well as to facilitate access to the market for providers, thereby intensifying competition. The EU has decided not to create a regulatory authority for the whole of Europe, but to opt for two co-ordinating and consulting bodies. In the course of the exchange of views on current developments, the Commission also obtained information on the EU initiative "eEurope – an information society for all". Through this large-scale initiative, the EU wishes to actively encourage the population to adopt and use the converging information and communications technologies.

In the telecommunications markets where competition operates, the EU envisages gradually removing regulatory measures, giving way to the general law of competition. The collaboration between the Directorates "information society" and "competition" is therefore close, as the Commission was able to establish on the occasion of its meeting with the representatives of

these two directorates. The EU's competition authority spoke to the Commission about the three sectoral studies in progress in 2000, one on the leased line market, another on prices and conditions of roaming services and the third on access to the connection network. For the EU's representatives the year 2000's key project was the adoption of a directive on unbundling the local loop on 1 January 2001.[33]

In Antwerp, the Commission visited Alcatel Bell, infrastructure and equipment manufacturers, where it was informed of the prospects for the market and for innovations in broadband technology and mobile telephony terminals. In The Hague, the visit to the Dutch PTT regulator (OPTA) allowed an interesting exchange of views on topics current both in Holland and Switzerland, i.e. the UMTS auction, unbundling, mobile telephony prices and interconnection prices. Finally, near Amsterdam, the Commission visited the internet provider Chello and the United Pan-Europe Communications (UPC) company, which specialises in broadband services and which had obtained one of the three national WLL licences auctioned in Switzerland.

IV. Evolution of the market: key figures and statistics

According to the Law on Telecommunications, OFCOM is required each year to draw up official statistics for telecommunications. Gathering and processing the information collected from all the telecommunication services providers takes quite some time and does not allow an analysis to be provided in the same year.

The first figures published by OFCOM[34] shown below therefore constitute estimates arrived at from data obtained from the main telecommunication services providers in Switzerland, namely Swisscom, diAx, Orange and Sunrise, or data derived from other sources available to OFCOM.

The number of telecommunication **service providers** in Switzerland has continued its growth, which started in 1998 with liberalisation, though at a less sustained rate.

At the end of the year 2000, there were 315 telecommunications services providers, 61 more than the previous year (+24%). Of the different types of provider, it is still useful to make a distinction between 154 providers (+19) subject to the obligation to register, 116 (+33) possessing a licence and 3 possessing a GSM mobile radio licence.

The growing number of interconnection agreements (71 by the end of 2000) shows the positive development of competition in the telecommunications markets.

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[32] Art. 20, LTC; art. 18, para. 2, OST.

[33] The directive was approved by the European Parliament on 26.10.2000 and adopted by the Council of the EU on 5.12.2000 in record time (directive No. 2887/2000 dated 18.12.2000; ABI L 336/4).

[34] OFCOM, Statistics on Telecommunications 2001-1, OFCOM, Bienne, January 2001 (http://www.bakom.ch/fre/subsubpage/document/312/1579).

In terms of use of the infrastructure, the slight downturn in the **fixed telecommunications** market observed since 1995 continues. In 2000, in fact, Switzerland, had 56.8 main lines[35] per 100 inhabitants. With an estimated 4,116,000 main lines by the end of June 2000 (the latest available official figure), the drop would be of the order of 0.8% this year. This means that the increase in the number of digital connections (ISDN), which has continued over the 1999-2000 period (+20%), with high demand from individuals, does not offset the drop in analogue main lines.

However, if one considers the number of access lines[36] to the telephone network, the market has been enjoying constant growth since the early 'nineties, with an average annual rate of growth of approximately 2% between 1995 and 2000. Thus Switzerland has 70.3 access lines per 100 inhabitants as of the end of June 2000.

The dynamism of the **mobile telecommunications** market has continued. However, the very high growth rate of 89% in 1999 has slowed down somewhat, to a mere 40% in 2000. But the rate of penetration, already high in 1999 (40%), continued to increase in 2000 to reach a figure of 60.9 connections per 100 inhabitants (4,415,000 subscribers)[37] in September (the latest official figures available).

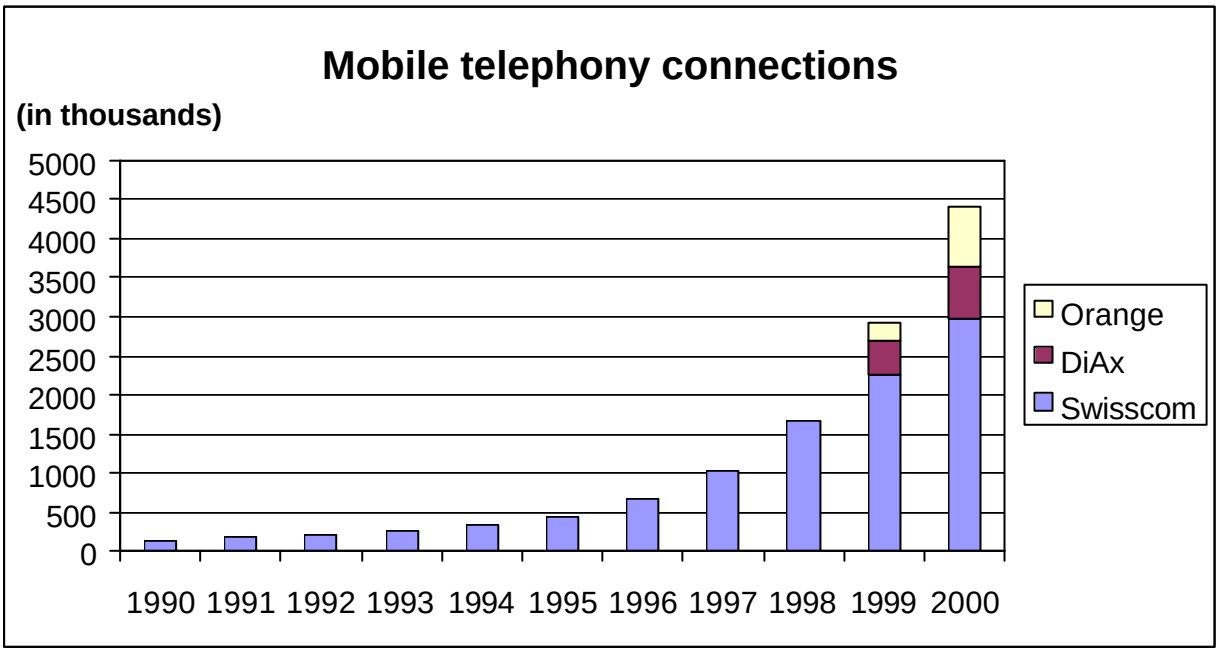

Fig. 3: Mobile telephony connections: development and market share

[35] Analogue or digital telephone lines connecting the subscriber to the public switched network (PSTN and ISDN). In the case of ISDN, connections only are counted, not the different digital channels.

[36] Unlike the main line count, this indicator does include the total number of ISDN channels.

In terms of market share, Swisscom remains by far the most important operator, since it still has 67% of the mobile telecommunications market. However, the weight of the historic operator continues to fall (-9.6%), essentially to the benefit of Orange, which has doubled its market share since 1999, with a weight of 17.5% (+9%); the diAx share has remained stable at around 15%. In absolute figures, however, each of the operators has still registered an increase in the number of its subscribers in the past year (Fig. 3).

It must also be noted that for all mobile telephony connections, the share of prepaid subscriptions has been eroded to the tune of 2.5% to the benefit of postpaid contracts (Fig. 4).

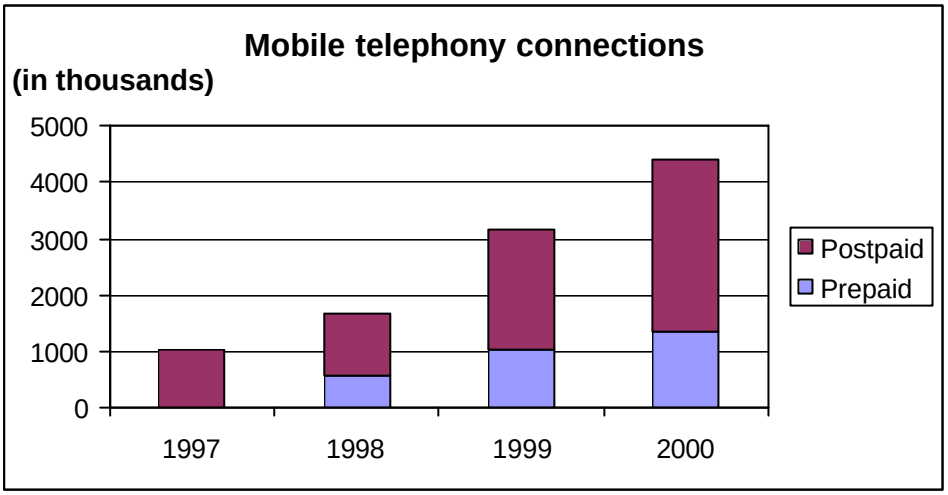

Fig. 4: Mobile telephony connections: prepaid vs. postpaid.

For the consumer, the most tangible beneficial effects of liberalisation of the market are the **changes in prices** charged by the main operators.

On the **fixed telephony** side, the downward trend begun in 1996 accelerated further in 2000. The fall in prices was only around 2.6% in 1998, the year the telecommunications market was liberalised, though by 1999 it had already reached 14.7% and in 2000 the figure reached 16.8%. If one makes a distinction in terms of prices between private users and business users[38], the decrease has been more marked for the latter. Between November 1999 and November 2000, the decrease in prices for private users was 6.5% whereas for business users the figure was 22.8%. It should also be noted that the fixed charge element (consisting essentially of paying a subscription with a provider) has not changed from one year to the next and that the decrease therefore relates only to call charges. By way of comparison, it is interesting to note that the drop in prices for telecommunication services has been perceptibly greater in Switzerland than in the other OECD countries.

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[37] However, it should be pointed out that this figure includes both the analogue Natel C and digital (GSM) type connections, and that some subscribers who have concluded several contracts with different operators may have been counted more than once.

[38] Only the "basket" of "business user" prices incorporates international calls; this would in part explain the different developments noted between private and business users.

In **mobile telephony** too, the rates charged in Switzerland seem cheaper overall than the average in OECD countries, even if the fall recorded in the year 2000 in the OECD countries seems greater than in Switzerland. The difference in price changes between private users and business users seems even more marked in the mobile telephony sector than in fixed telephony. The drop in prices is practically zero for private users (-0.1%), though business users enjoyed a drop of 22.4%, bearing in mind that significant falls in international call charges have taken place since the beginning of the year 2000[39]. It is therefore clearly apparent that competition between operators has been effective above all in terms of the growth of market share rather than in prices. Operators have invested heavily to attract new customers, e.g. by subsidising terminals when a subscription is purchased.

In terms of **employment**, an examination of the data for the four most important operators in Switzerland (Swisscom, diAx, Orange and Sunrise) appears to provide an accurate reflection of the state of the market. As an indication, the number of people employed by the main operators was more than 24,000 in 1999; it was 27,000 for the telecommunications sector as a whole. For the year 2000, growth in the number of jobs has slowed down a little (+1.5%) in comparison with the two previous years (+5% and +5.5% respectively). For the third consecutive year, the number of people employed by Swisscom is down (-4.3% between 1999 and 2000), whereas it is significantly higher for the three other operators (+33% at diAx, +100% at Orange and +21% at Sunrise). The restructuring and mergers in the telecommunications sector (Swisscom or Sunrise/diAx, for example) might cause a slowdown in job creation in the industry.

Finally, to conclude this section dedicated to statistics we take a look at the **evolution of the internet in Switzerland.** It is clear that the internet is being used more and more in Switzerland and, considering the percentage of the population with suitable equipment, the conditions necessary for the development of the information society are fulfilled.
First of all, we note that in terms of hardware, the total number of personal computers[40] was of the order of 4.3 million units in 1999 (+13.2 % compared with 1998), or the equivalent of 6 computers per 10 inhabitants. Furthermore, in March 2000, Switzerland had almost 1.86 million internet users; this number, representing more than 25 surfers per 100 inhabitants, is approximately 25% up on 1999. Finally, the considerable dynamism of the internet sector in Switzerland can be looked at from the viewpoint of the number of internet hosts (*.ch top level domains, sites owned by individuals or businesses) and web servers: Switzerland had 57.7 Internet hosts[41] per 1000 inhabitants in July 2000, representing an annual growth of +58%. At that time, Switzerland had 15 web servers per 1000 inhabitants (growth for 1998-2000: +341%).

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[39] See note 38.

[40] Indicators including desktop PCs, laptops and servers (NT, UNIX, etc.)

[41] Only *.ch hosts are included in the count. This figure is distinctly higher than the average in the EU countries. See European Commission, Sixth Report [...], appendix I, p. 92 (cf. note 7).

In terms of the costs of internet access (via the fixed telephone network), it is worth noting that for a monthly connection to the network with a given number of 20 hours surftime, Switzerland has seen a major fall in prices between 1998 and 2000, both at the standard rate (-36.5%) and at the reduced rate (-51.8%). Comparatively, Switzerland in 2000 enjoyed lower internet access costs than the average for the OECD countries. In the case of the standard rate, the fall in prices between 1999 and 2000 has been perceptibly greater in Switzerland (-27.8%) than the average fall recorded in the OECD countries (-24.2%). Conversely, the fall in reduced rates has been greater in the OECD countries (-21.1%) than in Switzerland (-5.7%). This difference may be attributed to at least two phenomena: on the one hand, the recent development of free internet access packages in numerous OECD countries – this type of service has existed in Switzerland already since 1999; and on the other hand, the appearance of unlimited fixed-price connection packages in certain countries in the OECD zone – these do not yet exist in Switzerland.

V. Perspectives

Since liberalisation, the telecommunications sector has gone through years of turbulence. Increasing competition has resulted in a drop in prices in numerous areas and the explosion of mobile telephony has exceeded all forecasts. The internet and telecommunications euphoria on the stock exchange has been followed by a steep fall in share prices and uncertainty on the capital market. The initial enthusiasm, however, has not disappeared completely. Despite the financial pressure which might generate further concentration in the sector, the development of existing infrastructures and the introduction of new infrastructures – very important from the social and economic viewpoint – are continuing in a constant and sustained manner.

Two areas will continue to evolve and occupy centre stage in the future of telecommunications: high transmission speeds and wireless mobile communication.
In order to be able to offer **broadband services**, it is absolutely essential to develop the backbone networks. Large sums have therefore been invested recently in high-capacity digital infrastructures based on the IP protocol. Despite all this, end users are only beginning to benefit from access to a network with high transmission speeds, which will make it possible in particular to surf the internet at high speed or provide a data transfer rate which is sufficient to allow video-conferencing or to access application service providers.
Swisscom still has the monopoly in the local network. In the near future, competition will remain weak over the "last mile" and alternative services for accessing the fixed network will be few. Since 1 January 2001, all the EU countries have been obliged to introduce the unbundling of the local loop, in certain states this has already been achieved.
After a very long trial period, Swisscom decided to launch the "Broadband Connectivity Service" on a wholesale basis. Based on ADSL technology, this service, however, only allows low transmission speeds at present. Thanks to its internet provider BlueWin, Swisscom can now get a foothold in this market of the future. To date, there is no alternative network equivalent to Swisscom's access network: the most advanced may possibility be Cablecom's cable network, although the company has only partially equipped its network for two-way communication. In addition, about one third of the Swiss cable networks are not in Cablecom's hands but are owned by small independent operators. As an alternative solution to Swisscom's access network, mention should also be made of WLL technology, the future development of which remains uncertain, and the Power Line Communications (PLC) system. According to ASCOM, the leader in this market, this type of access via the electrical power system will be introduced gradually in 2001 (first of all in Germany and Asia). The Swiss operators of power networks are holding back for the time being. In the local network, lively competition cannot be expected in the near future, which is a disadvantage for consumers.

The development of **mobile radiocommunications** extends far beyond the current possibilities of mobile telephony, notably because of the establishment of new transmission standards

(Bluetooth, for example), which allow flexible communication between mobile terminals and many different devices, either at home, in the office or on the move. This evolution also opens up numerous possibilities of remote control (from the stereo system to the personal computer in the next room), ordering and making payments on the move, or information products depending on location or geographical position.

Mobile communication is also moving towards higher transmission capacities. In 2001 or early in 2002, all the GSM operators will have equipped their networks for GPRS; planning of the UMTS networks will start at the same time, followed by their construction, first of all in areas with a high density of usage. These technologies represent the future not only of higher transmission speeds but also of new multimedia services. For the operators, proposing a wide range of services which meet customers' needs will be a challenge, but also represents a major business opportunity. It is to be hoped that the industry will learn the lessons of the failure of WAP and in the future will introduce new technologies whilst simultaneously developing customer-orientated services with adequate content. In addition, the necessary terminals will have to be available.
Call billing for broadband services represents a further challenge for providers. Indeed, billing will have to take into account not only duration, but also the amount of data transferred or the type of content.
The high innovation potential of the services should additionally encourage new players to enter the market, across the current boundaries between branches of activity, be they new operators, service providers or content providers active in IT and the media.
In the medium term, the Commission hopes that the fourth UMTS licensee will revive competition in mobile telecommunications, something which will, however, not be easy for it as a newcomer on the market. The Competition Commission and the regulatory authorities will continue to monitor the evolution of the market closely.
With a market penetration which has already reached almost two thirds, it is obvious that the explosive growth of mobile telephony will slow down. In parallel, a decisive process is expected to occur with consumers: after many people have acquired a mobile telephone or even bought a GPRS terminal, there should follow a phase of experimentation and accumulation of competence in the use of the new technologies, as with the internet. This learning process should lead to a change of behaviour in terms of information, communication and purchasing in the mobile communications sector.

Within this dynamic context, it is important for consumers always to be guaranteed a **universal service** which offers basic services of good quality at reasonable prices. Under the terms of the law, it is the task of the Commission to allocate the new universal service licence well before the expiry of the existing licence (at the end of 2002) and to award it on the basis of criteria to the candidate offering the best conditions for the community. The invitation to tender will therefore go out in the course of 2001.

Even if the financial markets currently view the telecommunications sector with pessimism, this sector, and mobile radiocommunication in particular, will remain a key motor for the public economy. The evolution towards the information society, and the accelerating processes which characterise it, require reasonably-priced and high-quality access both to the fixed networks and to wireless networks with adequate broadband capability, and therefore competition which operates through all the telecommunications markets. The timely launch of new technologies will be an important factor in determining the attractiveness of Switzerland as a business location and as a service economy. The high level of growth enjoyed by the telecommunications sector and the resources contributed by foreign investors for the construction of the various networks in Switzerland are having a positive effect on employment, productivity improvements and the innovative capability of the economy as a whole. However, the shortage of specialist personnel might seriously impede the future development of the telecommunications sector.

Berne, 25 May 2001

In the name of the Commission
The President

Dr. Fulvio Caccia

Appendix I: Commission members

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Fulvio Caccia

Vice president:

Gian Andri Vital

Members:

Christian Bovet

Pierre-Gérard Fontolliet

Beat Kappeler

Heidi Schelbert-Syfrig

Hans-Rudolf Schurter

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Scientific officer and webmaster: Pierre Zinck

Administrative officer of the secretariat: Verena Verdun