

Annual Report

2002

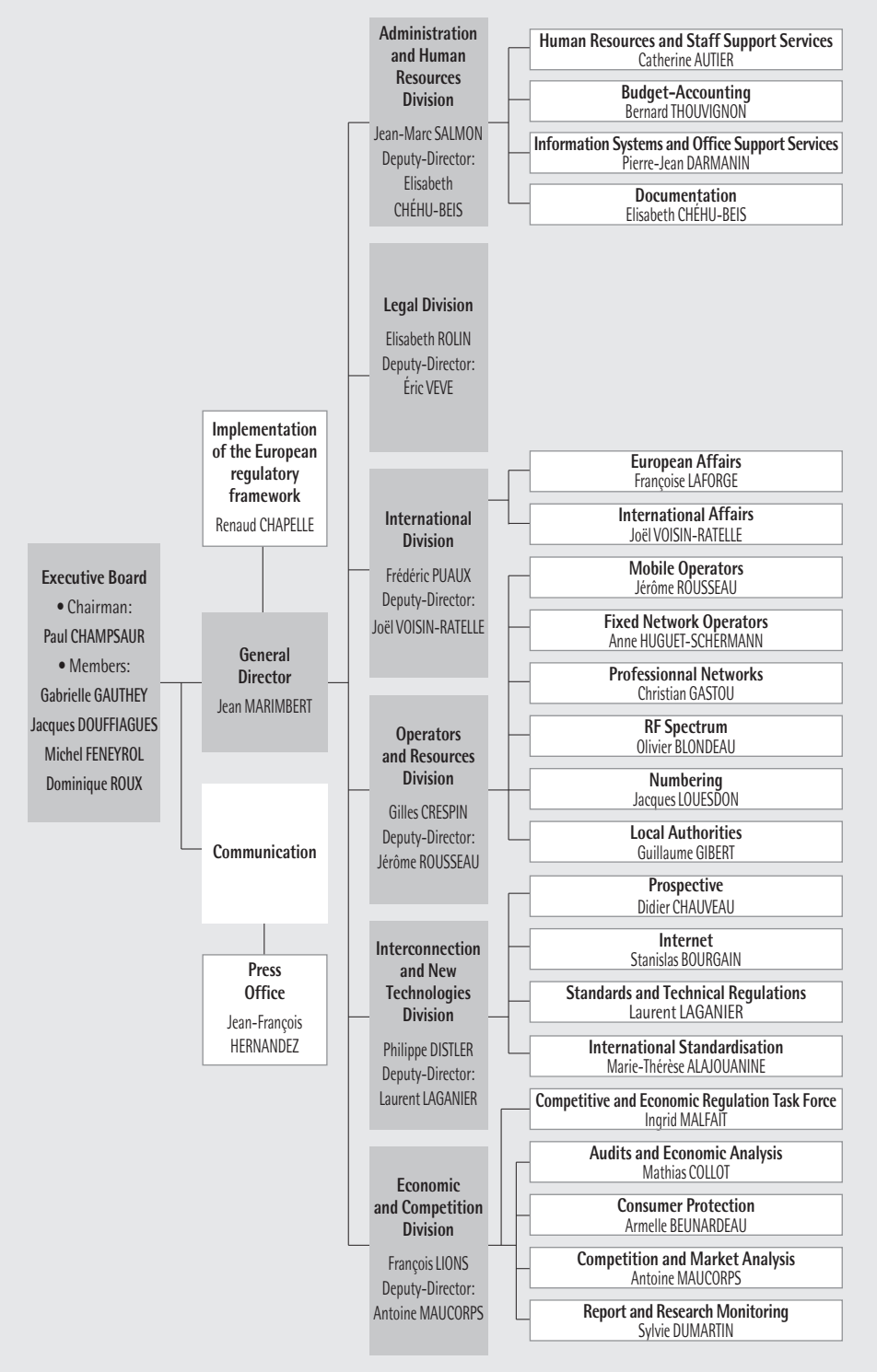
Volume 1

Article L. 36-14 of the Post and Telecommunications Code under the Telecommunications Act no. 96-659 dated 26 July 1996, provides that:

"The telecommunications regulatory authority shall draw up and publish an annual report on the performance of its functions and on the application of the legislative and regulatory provisions for telecommunications before 30 June. This report shall be submitted to the Government and to the parliament. It shall also be submitted to the CSSPPT¹. In the report, the telecommunications regulatory authority may suggest legislative or regulatory amendments which appear to be called for due to changes in the telecommunications sector and the development of competition."

Pursuant to this provision, the French Telecommunications Regulatory Authority (ART) has prepared this annual report, which comprises two volumes, a set of appendices and a summary. Volume 1 analyses market trends between 1998 and 2002, reports on changes to the legal and regulatory frameworks envisaged or in the course of adoption by the legislator and sets out ART's priorities for the future. Volume 2 reviews ART's activities during 2002. The summary presents the highlights of Volume 1.

¹ See glossary



Executive board



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Editorial

2002 was a difficult year for the telecommunications sector, as was the preceding year. The operators, and by rebound the equipment manufacturers, continued to feel the impact of the drastic corrections in financial stocks (initiated by the bursting of the speculative bubble in the spring of 2000) in a general climate of slower economic growth. The effects of the abrupt downturn in the markets persisted, accelerating the phenomenon of concentration. Operators reduced investment by a little over one-third and have refocused on core businesses or pulled back into niche markets.

Over and above these temporary economic difficulties, competition continued to develop, as shown by the market share won by new players. This was notably thanks to the effective opening of the local call market with pre-selection, and the growing weight in household spending and corporate budgets of new services such as mobile and the Internet. Against this backdrop, ART focused on preserving already existing areas of competition and opening up new areas through recommendations and decisions based on continuous and intensive dialogue with the market players.

Another important development in 2002 was the introduction of local loop competition via unbundling. As in all the countries that have undertaken this process, the work is proving to be demanding and full of obstacles, and the progress made in France illustrates ART's determination to promote real, durable competition in this market segment.

ART's efforts and perseverance under the guidance of its Chairman Jean-Michel Hubert and members of the Board, and supported by the acknowledged expertise of the different departments, will be continued and developed over the coming years.

2003 will be a turning point in more than one respect.

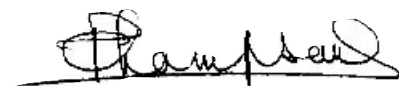
First, in broadband: progress in unbundling the local loop - albeit still rather modest - is starting to bring ADSL into the scope of competition by going beyond simple resale of the incumbent operator's services. In addition, alternative operators can now collect and transport ADSL traffic for ISPs under acceptable economic conditions. The first WiFi access points in hot spots or rural areas will gradually be put in place, offering itinerant users the possibility of broadband access

when away from home and allowing towns not yet served by ADSL to emerge from their isolation. Consideration of network convergence should also give new impetus to broadband on cable and satellite networks.

Secondly, the ongoing changes in the legal framework should facilitate local authority involvement in telecommunications. These changes should provide a more solid foundation for their initiatives, both in terms of mobile network coverage and development of broadband as part of regional and digital development. ART will accompany this movement, by dialoguing with local authorities during the preparatory phase of their projects when requested, with a view to encouraging the methods of intervention most likely to lead to development of competition in the localities concerned, and establishing dynamic partnerships between local authorities and operators, in the spirit of the legal changes now being examined.

Finally, the statutory and regulatory framework is undergoing a comprehensive change to take into account progress made in competition and network convergence. The European directives, which are currently being transposed into French law, will modify ART's role and the tools it uses in its work. Based on the analysis initiated in the spring of 2003, ART's actions will become gradually more selective, but by the same token more effective in the areas in which it is involved.

Hence, this new framework will lead ART to look in even greater depth, in collaboration with market players, at the economic logic behind its actions, while remaining faithful to the operating principles that are the guarantee of its credibility and the legitimacy of its decisions. We are entering into an era of even closer dialogue concerning the nature of market operation and the most appropriate means to regulate these markets. This resulting shared knowledge will provide greater visibility in the long term.



Paul Champsaur

Chapter 1

The telecommunications services market and economic conditions

q The French economy deteriorated in 2002, with growth of only 1.2%. This fall was as pronounced nationally as it was internationally, with many sectors of the economy being affected by morose financial markets. Hence, despite the impetus accompanying the creation of an enlarged market, the European telecommunications industry also slowed in 2002. However with growth of 2.7% the telecoms market outperformed the service market average.

I. A growing market (1998-2002)

A. The end-user market

Since 1998, when the fixed-line telephony market was opened up to competition, the end-user market has grown very sharply, from 24 billion euros to 34 billion euros, i.e. a growth rate of over 40% in five years. Although, fixed-line revenues fell slightly (-7.1% in five years and down 2.7% compared to 2001), this was easily offset by very sharp growth in new services i.e. mobile and the Internet.

In five years, the mobile market has grown by 41.7% in value (14.5% in 2002) and even more significantly in volume (over 400%), demonstrating the enormous popularity of this service with users. The penetration rate rose from 10% on 1 January 1998 to 63.8% on 31 December 2002 (61.6% on 1 January 2002). In September 2001, the number of mobile lines exceeded the number of fixed-telephony lines.

Internet services have also grown very sharply in both value and volume. Although revenues from low-speed access have tended to remain flat, the number of switched-network internet connections rose 17% to almost 7.5 million users. At end 2002, there were 1.7 million broadband service subscribers (cable or ADSL), i.e. a 2.5-fold increase in the installed base in 12 months.

Despite less spectacular growth than in the last few years, 2002 was still a good year. The slight fall in fixed-line telephony (-2.7% vs. 2001) was offset by growth in mobile and Internet business. In volume, these new forms of communication easily account for half of all

Change in revenues

EUR million	1998	1999	2000	2001	2002	Growth in 2002 (%)
Fixed telephony	14 931	15 063	14 631	14 373	13 986	-2.7%
Internet	162	344	731	1 119	1 136	+1.5%
Mobile services	4 042	5 658	7 789	10 276	11 676	+13.6%
Total telephony (fixed and mobile)	19 136	21 065	23 151	25 768	26 798	+4%
Advanced services	1 370	1 648	1 842	1 810	1 882	+4%
Leased lines	1 449	1 469	2 011	2 328	2 433	+4.5%
Data transport	378	404	530	676	482	-28.7%
Directory services and other income	557	584	319	342	340	-0.6%
Terminals (sale and lease)	1 229	1 358	1 760	2 072	1 965	-5.2%
Hosting and call-centre management	N/A	10	20	43	45	+4.7%
All telecommunications services	23 957	26 537	29 633	33 039	33 945	+2.7%

Change in traffic (minutes)

millions of minutes	1998	1999	2000	2001	2002	Growth in 2002 (%)
Fixed telephony	124 898	124 029	121 950	118 480	111 445	-6%
Internet	4 976	12 617	28 901	52 446	66 109	+26%
Mobile services	10 065	20 571	35 640	44 419	51 747	+16.5%

B. Investment and employment

EUR million	1998	1999	2000	2001	2002	Growth in 2002 (%)
Telecom Operator investment	5 538	5 909	7 841	9 182	5 800	-37%

	1998	1999	2000	2001	2002	Growth in 2002 (%)
Number of employees at 31/12	155 992	155 297	154 522	151 191	146 200	-3.3%

minutes carried.

The investment and employment figures given for 2002 are the result of an estimate based on partial data supplied by the operators and need to be fine-tuned. However, although indicative, they do reflect general trends in the sector. Operator investment grew appreciably in 2000 and 2001, when large numbers of new players came onto the market, but fell appreciably in 2002, reflecting the difficulties affecting the sector. Likewise, the fall in licensed operator employee numbers already observed in 2001 continued into 2002.

II. Sector difficulties

A. Changes in the market since 2001 have created a new situation

The sector's difficulties started in mid-2000, triggered by the fact that the different players had invested too heavily in new information and communication technologies on the back of overly optimistic market forecasts. The resulting speculative bubble started to burst in the spring of 2000 (the dotcom model), as investors began to lose confidence in the validity of certain

economic models, including the so-called "new economy" model. This problem was exacerbated in Europe by pay-out of over 100 billion euros for UMTS licences, cash which the operators could now put to very good use. Investor confidence was further shaken by scandals emerging around certain listed companies, particularly in the USA. As a result, the financial markets have become more cautious not to say wary of telecommunications stocks, leading to a financing crisis in the sector.

This new economic situation has accelerated the movement of consolidation, which is a natural step in the gradual formation of a more stable and more balanced market structure and is the concrete sign of greater maturity. Some players have fallen back on niche markets; others have adopted massive debt-cutting strategies which depress both employment and investment and hence, inevitably, growth.

At the end of 2002, the French market consisted of 91 operators authorised to establish and operate a public fixed network (L 33-1) and/or supply public fixed-telephony services (L 34-1) versus 97 on 31 December 2001. 14 mobile operators were authorised to provide public telecommunication services.

While the telephone operators appear to have found effective solutions to their difficulties by refocusing strategies, the equipment manufacturers are faced with an unprecedented crisis in finding market opportunities. Sales are falling and balance sheets have deteriorated. They are hit directly by the consequences of the drastic downturn in investment, but also by the delay in deploying 3rd generation mobile networks. Hence, in 2002, the equipment manufacturer market fell back to its 1996 level.

B. Outlook for a rebound

Despite this return to a more realistic vision of the market, with the risk of exaggerated corrections, we should not lose sight of the beneficial effects of having opened up of the telecommunications sector to competition.

Competition has resulted in the various components of demand being better served with lower prices and costs. This translates into higher levels of activity, more dynamic businesses and more innovation. The market share won from the incumbent operator by rivals clearly demonstrates the vitality of the competition: 35% of national and international long-distance calls, and 15% of local calls since full opening to competition and elimination of the local sorting zone on 1 January 2002.

The sector probably does not deserve the wariness with which investors approach it today. We can see at least three objective reasons for a recovery in investor confidence.

First, there is still considerable potential for innovation, despite its unprecedented pace in the last few years and the value chain is opening up to potential new players and markets. Innovation, both technical and commercial, continuously broadens choice at lower cost while at the same time bringing better services.

Secondly, users continue to show interest in new services, a prime example being the success of SMS (short message service) on mobile phones and, amongst young people particularly, of SMS+ (surcharge). The arrival on the market of competitively priced new terminals allowing colour display of images and photos will undoubtedly contribute to the take-off of MMS (multimedia message service). Global consumption of telecommunications services has continued to grow steadily since the markets were opened up to competition, despite a certain slowdown in pace, notably in mobiles, since the middle of 2002.

Finally, stimulus packages including the e-Europe 2005 plan and, in France, the expansion of broadband access with the support of the national and local authorities as a way of closing the "digital divide", could give new stimulus to the sector pending the arrival of new sources of growth, notably from UMTS.

C. Issues facing the regulator

This new economic situation has brought about some concentration in the sector, with the emergence of players with European or even global reach. Today, these players have greater influence on market orientation and growth, generating virtual oligopolies which the regulator will increasingly be forced to tackle. In addition, on the national level, some mobile operators today have strong positions which are likely to be reinforced in the future, given the growth and potential of the associated markets. These players are just as likely to generate distortions of competition as the incumbent operators, and here again, ART will have to find suitable remedies.

Technological changes, notably the convergence between fixed telephony, mobile telephony, the Internet and audiovisual, are continually opening up new market segments and bringing about a new distribution of network and service functions. This phenomenon is already perceptible but will gather pace in the next few years: service suppliers are becoming increasingly independent, geographically speaking, of the users to whom they propose their services. At the very least, this situation requires a pan-European approach to the issues at stake, and perhaps even an international approach. If the regulator confines its analysis to the domestic market, it risks leaving out a whole section of the market. In addition, the emergence of new mobile and roaming services to meet user expectations will require even greater involvement on the part of the regulator, notably where use of frequencies is concerned. The opening up of new markets, bringing about a sharp increase in services and a permanent repositioning of players, means that the regulator has new issues to address.

It will also have to ensure that competition is upheld while at the same time encouraging investment in new networks and services.

Another important point is the seemingly irreversible effect of these changes in technology and services on economic models. The slowdown in growth of revenues from telephone traffic is becoming evident, particularly for some fixed-line players. The major changes anticipated over the next few years will gradually challenge business plans as terminals are renewed. The regulator will continue to ensure that the laws of competition are respected, as well as the equilibrium between market players. Similarly, with the advent of mobile multimedia, the regulator must act to guarantee effective competition and prevent a few players from establishing predominant positions in all segments of these emerging markets.

III. The French market compared to the other European markets

A. Fixed telephony

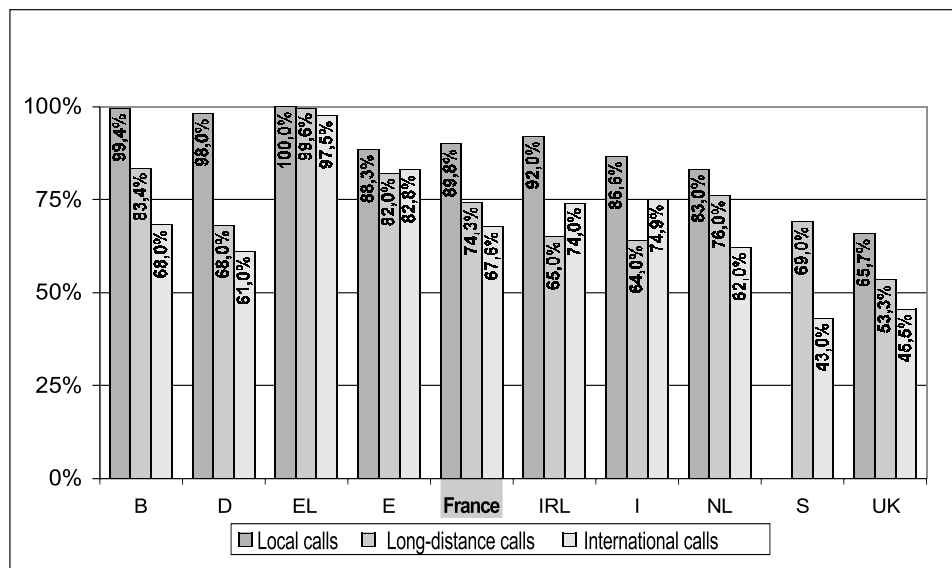
In the fixed-line services market, carrier selection or pre-selection in Europe is proving to be an effective way of opening the market up to competition. Hence, 224 operators offer residential users carrier pre-selection for local calls, i.e. twice as many as one year ago. In 12 member countries, customers can choose between more than five new operators for national and international calls, with a narrower choice in two member countries. The situation is less homogeneous for local calls, however. Eight member countries¹, including France, indicate that virtually all their subscribers can choose between more than five new suppliers for local calls. Subscribers in Italy and Luxembourg have a narrower choice (between 3 and 5 operators).

The percentage of subscribers effectively choosing a local call supplier other than the incumbent operator stood at 15% in volume on average in August 2002.

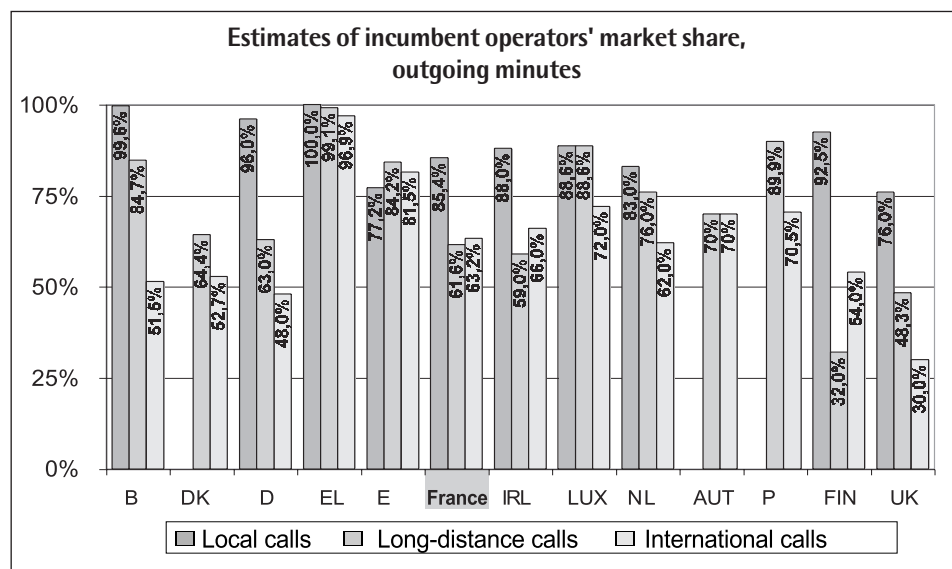
¹ Spain, Ireland, Netherlands, Austria, Portugal, UK, Sweden and France

In addition, the number of operators offering access to fixed services based on their own infrastructure rose by 42% between August 2001 and August 2002, with 50 additional operators coming onto the market.

Estimates market share of incumbent operators (retail revenues).

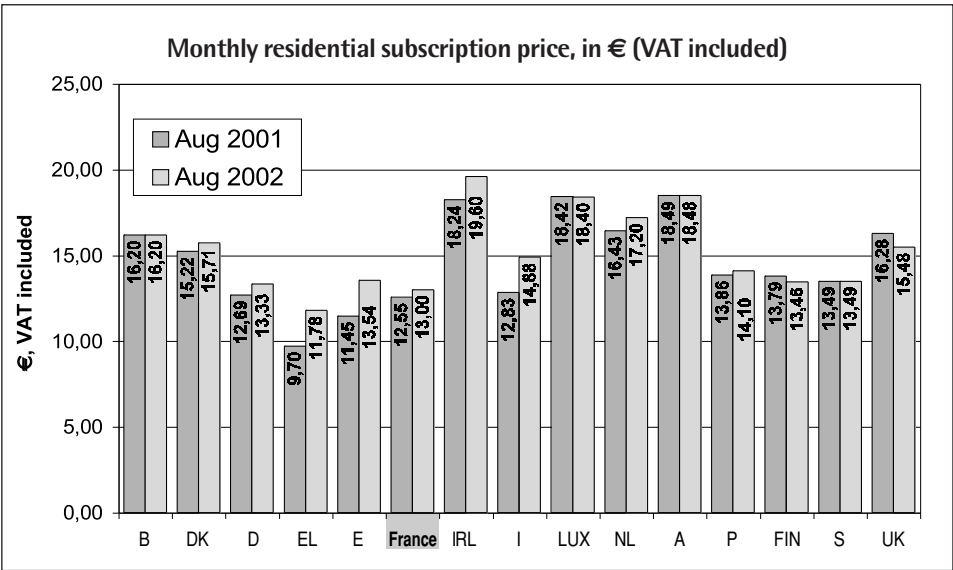


Source: European Commission, December 2001

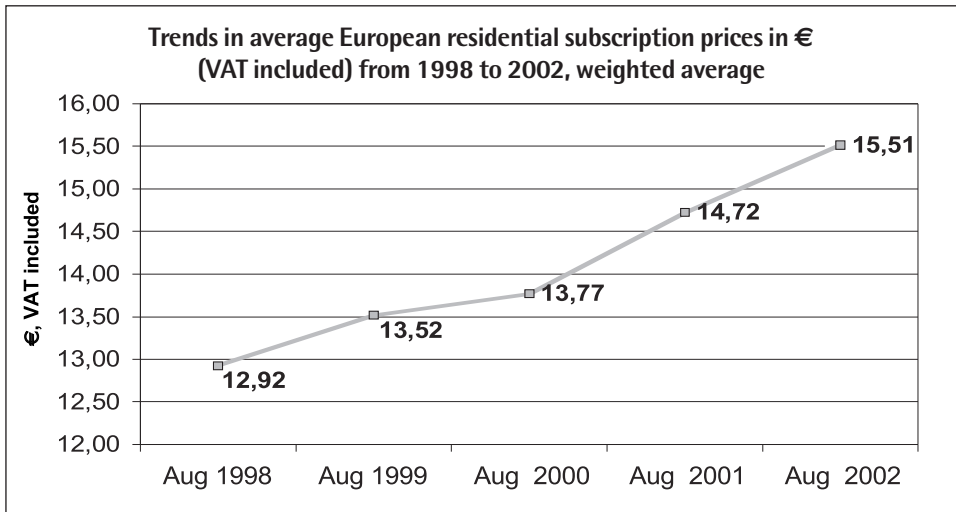


Source: European Commission, December 2001

Subscription price
-Residential subscription



Source: European Commission, August 2002

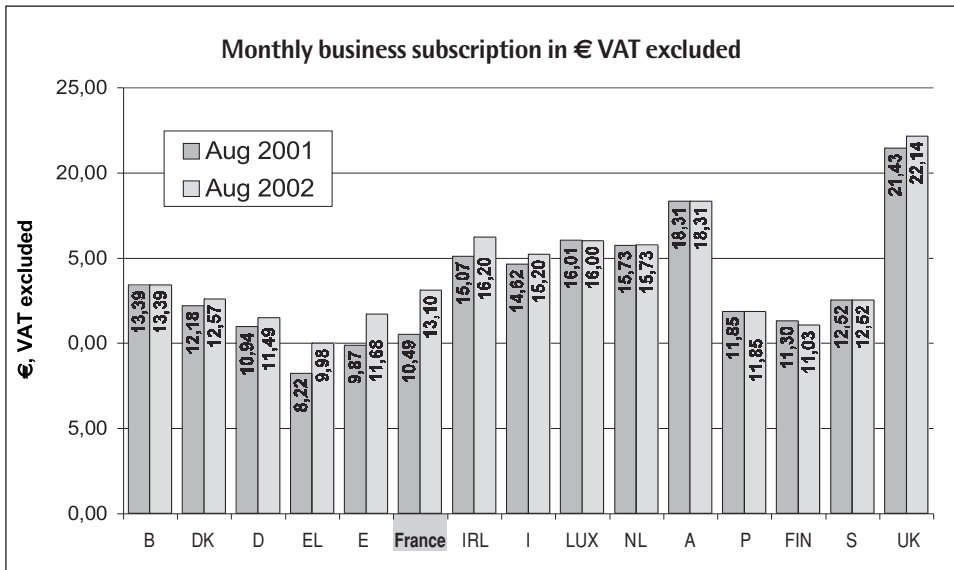


Source: European Commission, August 2002

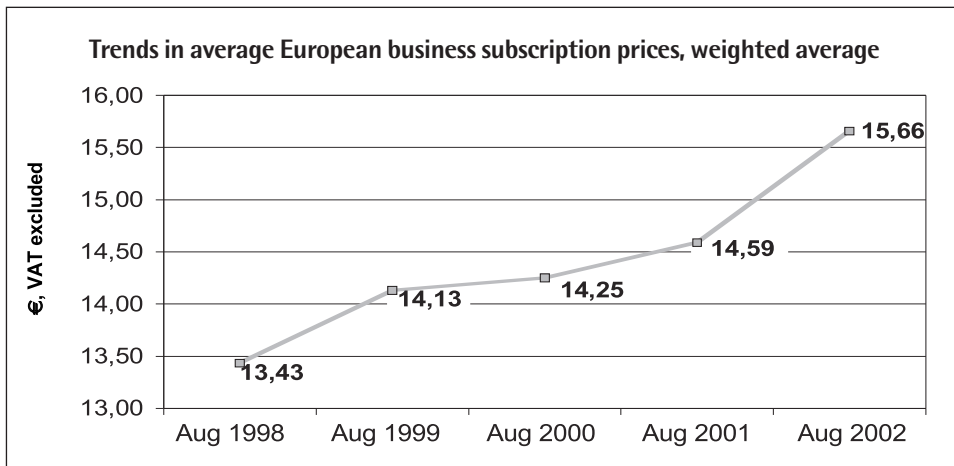
The residential subscription price in France has risen slightly but is still lower than the European average. The UK and Finland are the only markets where subscription prices actually fell. Germany has raised subscription prices, in

similar proportions to France and the majority of EU countries. Greece, until now the star pupil, with a residential subscription price under 10 euros, has sharply raised the price to catch up with its neighbours.

- Business subscription



Source: European Commission, August 2002

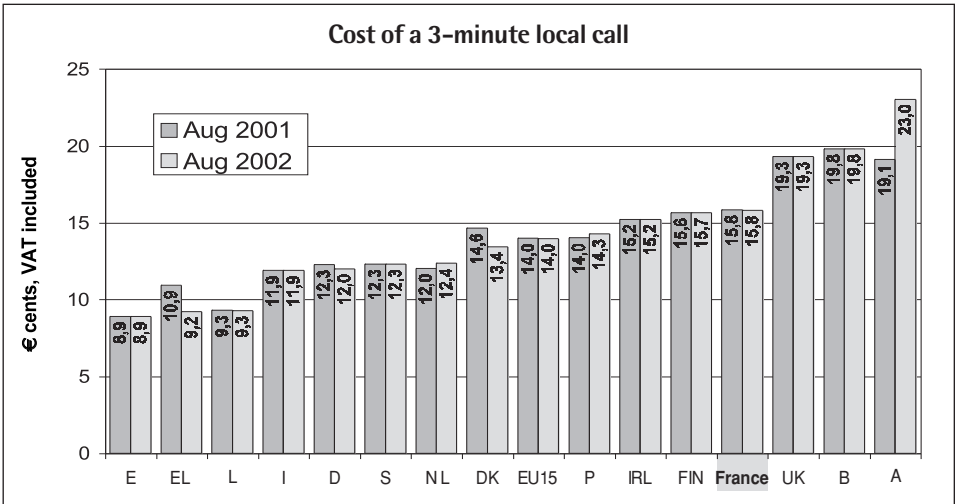


Source: European Commission, August 2002

Business subscription prices in the EU rose quite sharply in 2002. France posted the sharpest increase, with a rise of over 2.60 euros, although the business subscription price is still

lower than the European average. The UK was the only country with a business subscription price of over 20 euros/month excluding VAT in 2002.

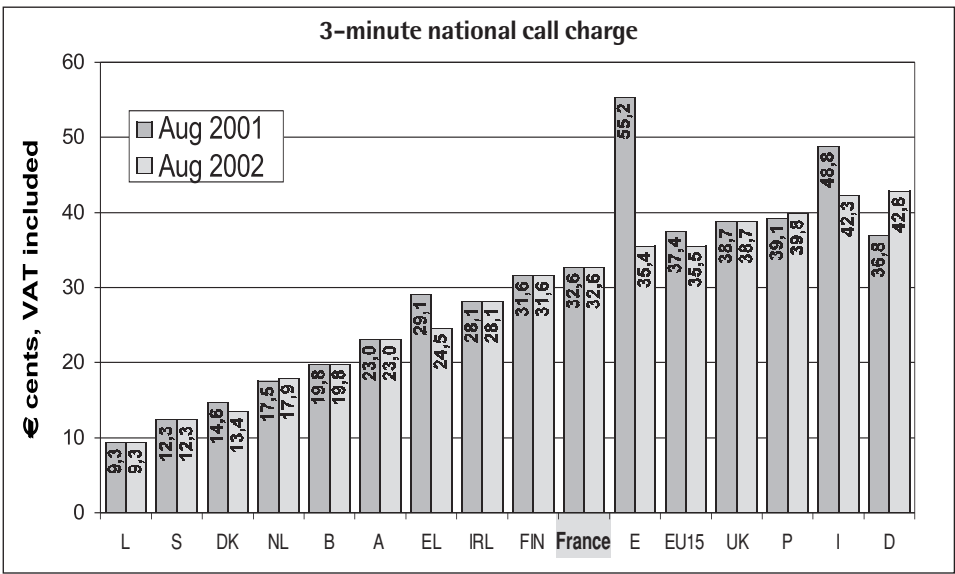
Call prices



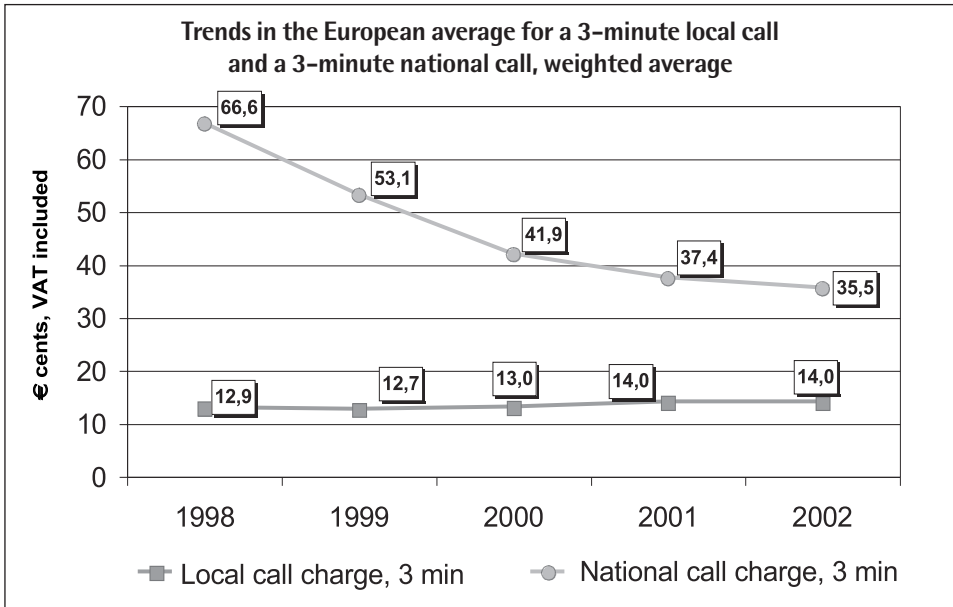
Source: European Commission, August 2002

The European trend shows that local call prices have remained flat, with an average price of 0.14 euro, VAT included, for three minutes. Austria was the only country to increase the cost of

local calls in 2002: the price rose to 0.23 euro for a three-minute call. French prices are still higher than the European average, at 0.158 euro, VAT included, for 3 minutes.



Source: European Commission, August 2002



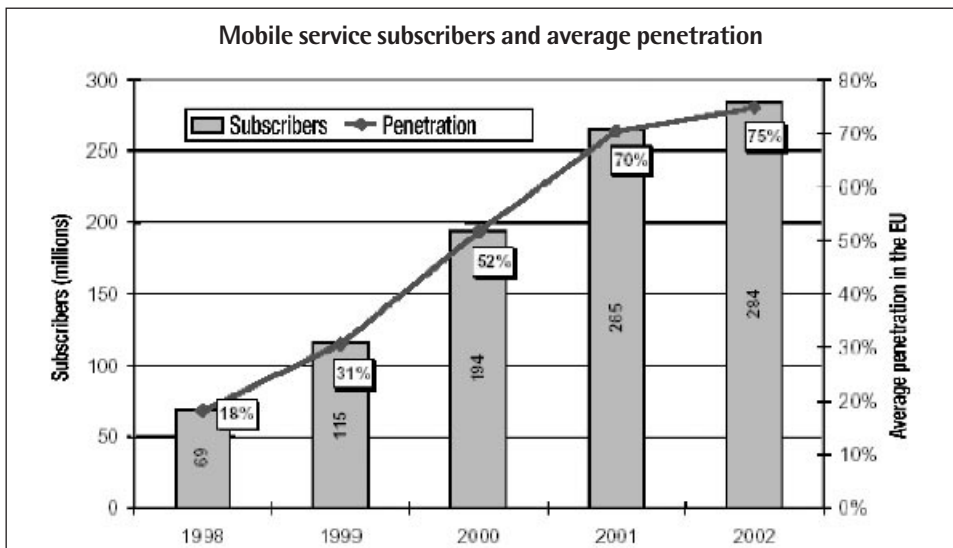
Source: European Commission, August 2002.

Prices of national calls in the European market have fallen slightly. Spain is now within the EU average thanks to a fall of over 36% in 2002. French prices remained stable, and are slightly under the European average of 0.35 euros for a 3-minute call.

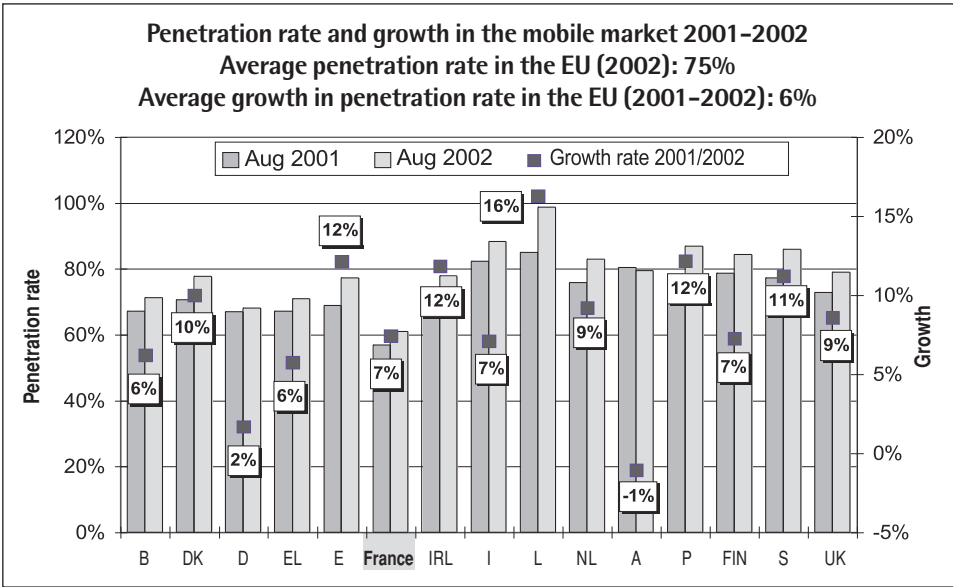
B. Mobile

Growth and mobile penetration rate

The European mobile market has some 284 million users and an average penetration rate of



Source: European Commission, August 2002



Source: European Commission, August 2002

75%. Growth slowed to 6% year-on-year as of August 2002, versus 36% for the same period the previous year and 69% in 1999/2000. Mobile penetration rates have almost achieved saturation, with over 85% in four member States. However, data concerning mobile penetration rates should be looked at with caution given the different methods used to calculate

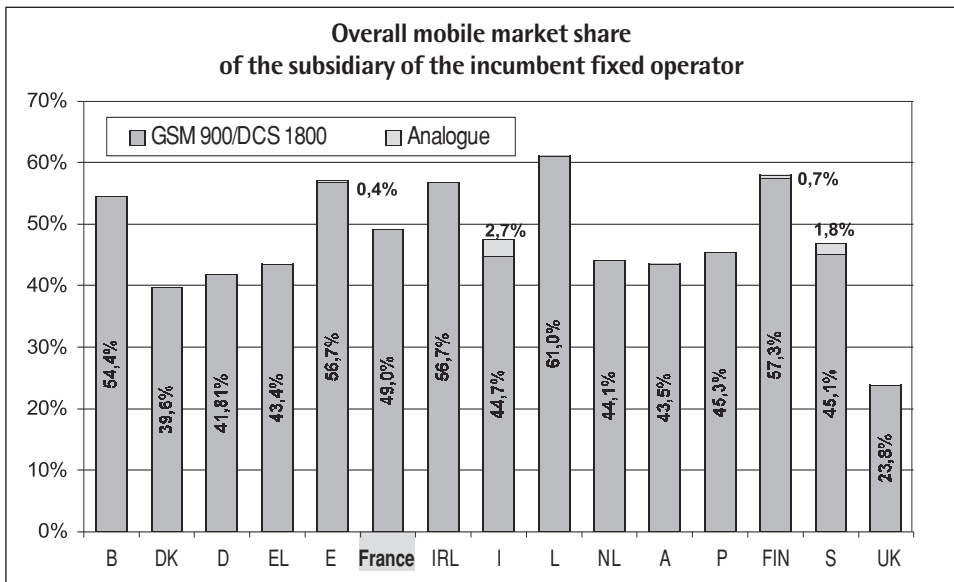
this rate in the different countries. For instance, some countries base their calculations on the number of SIM cards in circulation, whereas others base them on the number of terminals. Furthermore, in some countries, operators "winnow out" inactive customers from their pre-paid customer base, which increases ARPU for pre-paid customers.

Mobile number portability			
Germany	Yes	Greece	30/06/2003
Austria	No	Ireland	Yes
Belgium	Yes	Italy	Yes
Denmark	Yes	Luxembourg	No
Spain	Yes	Netherlands	Yes
Finland	08/2003	Portugal	Yes
France	30/06/2003	UK	Yes
		Sweden	Yes

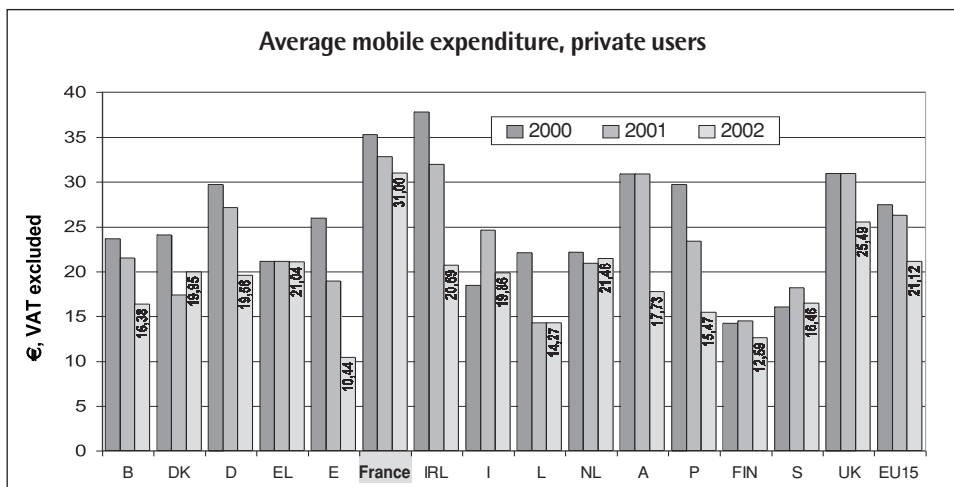
Source: European Commission, August 2002

Mobile number portability allows GSM mobile operator customers to keep their mobile numbers when they switch operator. Establishing portability is crucial for ensuring competition,

since it increases mobile user churn (switching rate). Mobile portability should be effective in France from the summer of 2003.



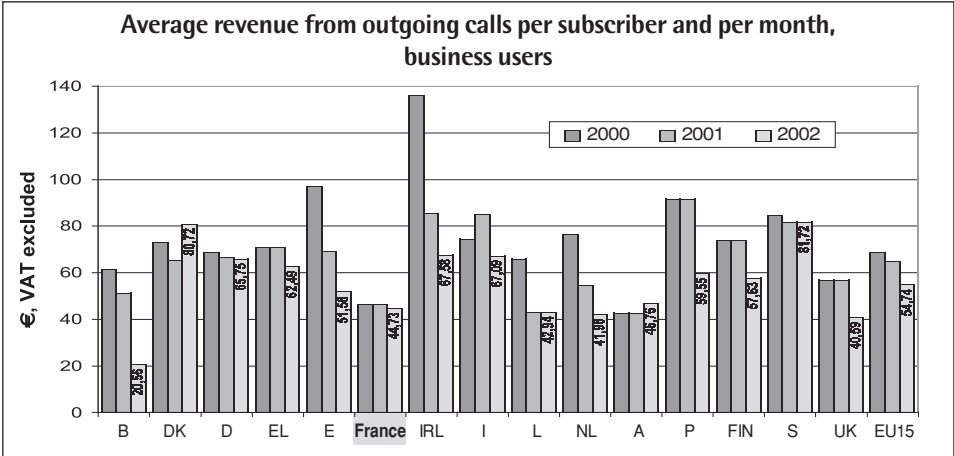
Source: European Commission, August 2002



Source: European Commission, August 2002

From 2000 to 2002, average monthly expenditure (outgoing calls) by private users in Europe fell from 27.45 euros to 21.12 euros, or 23%. The countries where average expenditure fell the most sharply are Spain (45%), Austria

(42%) and Germany (28%). The average invoice (outgoing calls) of mobile service subscribers is highest in France, at 31 euros, or 47% higher than the European average. The average invoice is lowest in Spain.



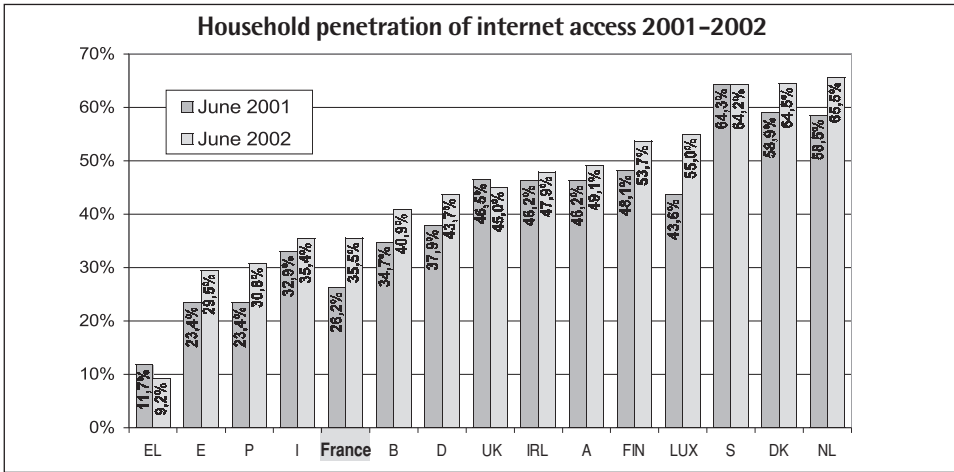
Source: European Commission, August 2002

Between 2000 and 2002, average monthly expenditure (outgoing calls) by business users fell from 68.5 euros excluding VAT to 54.74 euros excluding VAT, or 20%, i.e. not as sharply as for the private user market. The market posting the biggest fall compared to 2001 was Belgium (60%), followed by the UK (29%) and Spain

(25%). Average expenditure by business users in France remained stable but is still almost 10 euros lower than the European average.

C. Internet

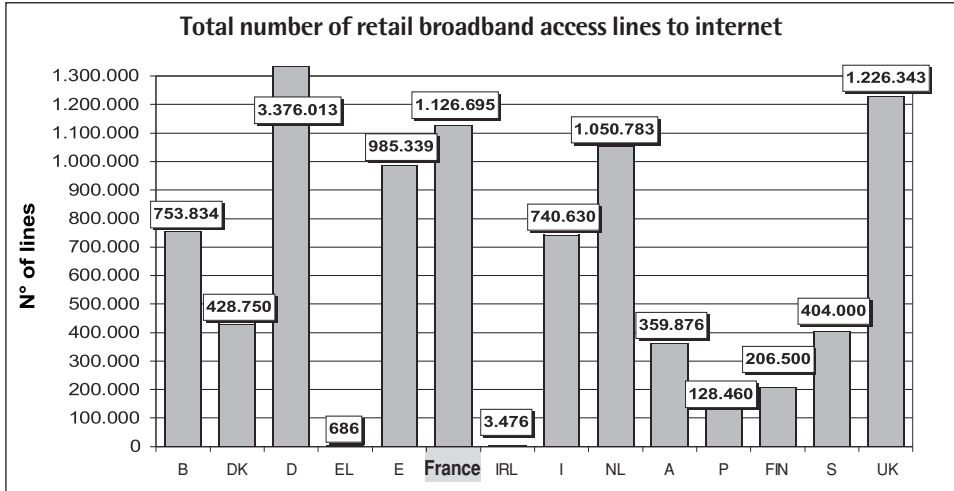
Internet penetration rate



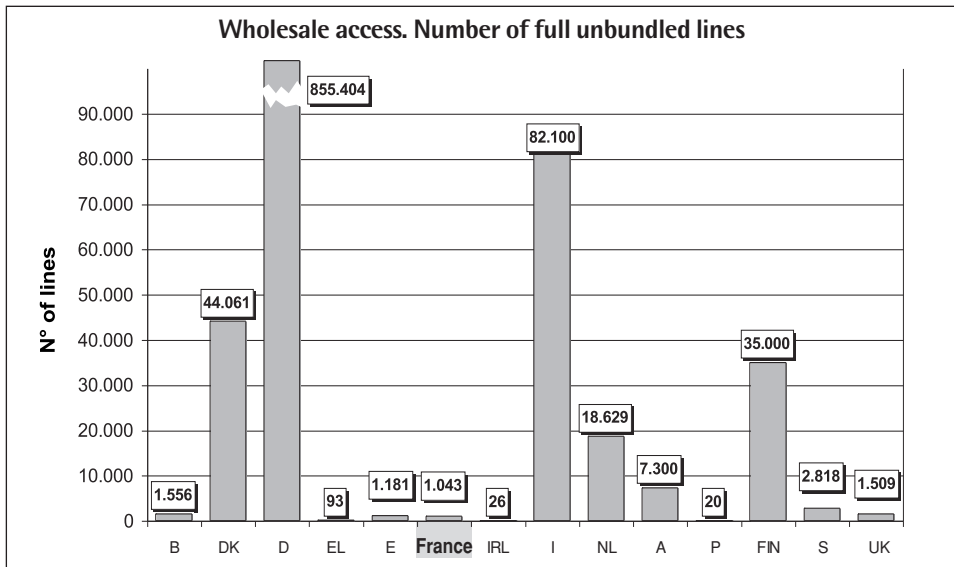
Source: European Commission, August 2002

At mid-2002, the internet penetration rate in France was still quite low compared to other countries in the European Union. France is only in 11th position, but we should highlight sharp

growth between June 2001 and June 2002, when the internet penetration rate rose from 26% to 35% in just on one year – the fastest growth rate in Europe.



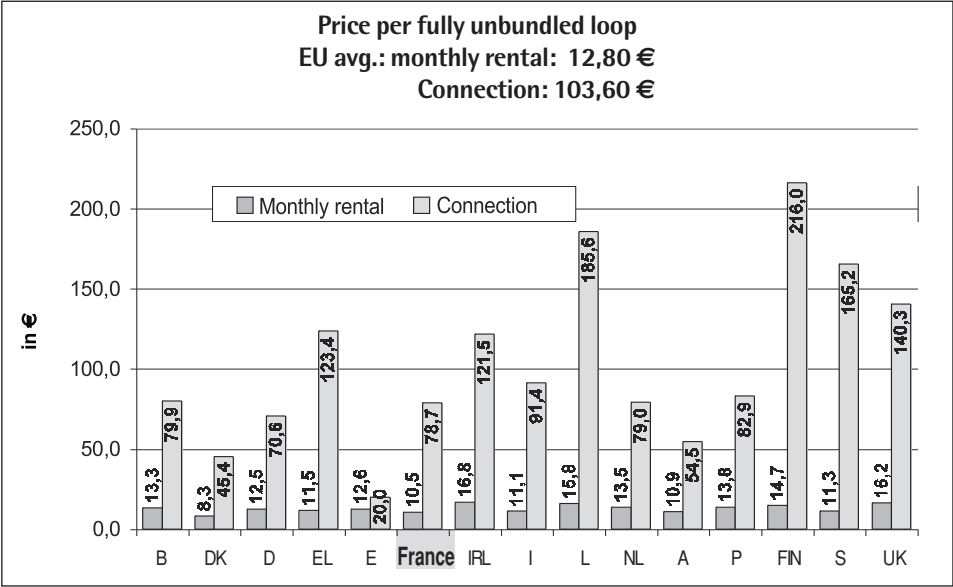
Source: European Commission, August 2002



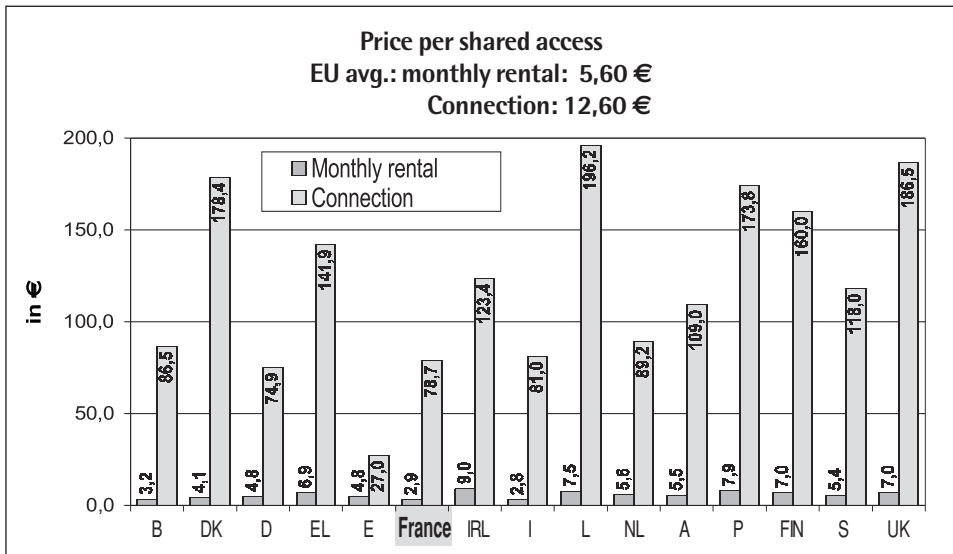
Source: European Commission, August 2002

If we look at unbundling progress in Europe, we note that the situation is rather mixed. Germany is well ahead of all the other EU countries, with 855,404 fully unbundled lines. However, it should be noted that this does not mean broadband unbundling but changing the

digital telephone line over from the incumbent operator to an alternative operator. The number of fully unbundled lines in France is still very low: shared access began at the end of 2002 following the decisions made by ART in the spring of that year.



Source: European Commission



Source: European Commission

Internet Service Providers

The biggest ISPs in Europe Name of service (country of origin)	Number of active subscribers (millions)		
	December 2002 (exc. * Sept. 02)	March 2002	June 2001
T-Online (Germany)	12.2	11.2	9.2
Wanadoo (France)	8.5	6.6	5.0
Tiscali (Italy)	7.3	7.2	7.0
New Wind (Italy)	6.9*	6.0	4.8
AOL Europe (USA)	6.4	5.5	4.6
Terra Networks (Spain)	5.3*	4.4	2.3
Freenet (Germany)	3.7	3.2	2.1
Tin.it (Italy)	2.3	1.9	1.7
BT (UK)	2.1	1.7	1.3

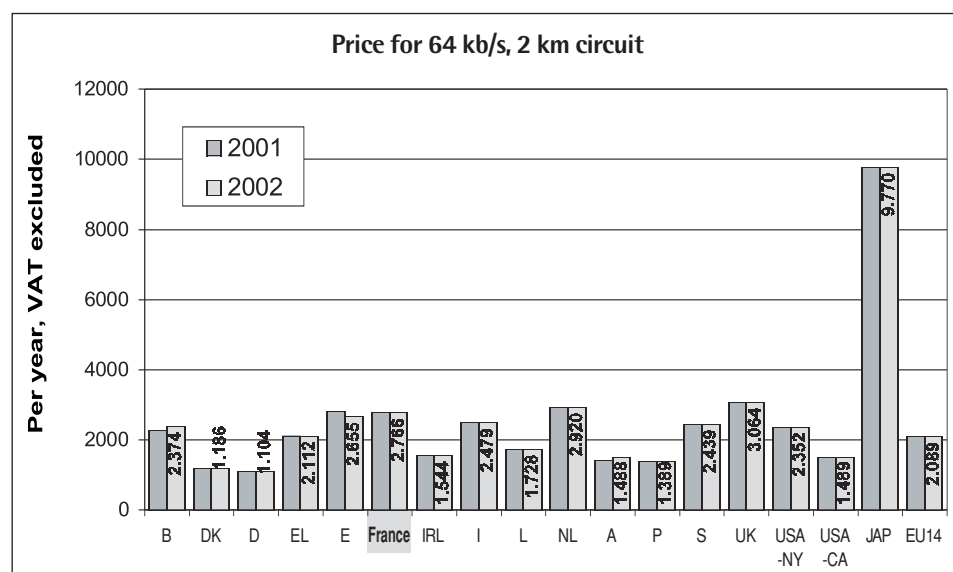
(Source: Idate, European Commission - 2002)

Incumbent operator's internet access market share			
Germany	53%	Greece	39 %
Italy	23 %	Belgium	47%
UK	20 %	Finland	50 %
Spain	51 %	Luxembourg	0 %
France	47 %	Portugal	0 %
Austria	33 %	Denmark	34 %

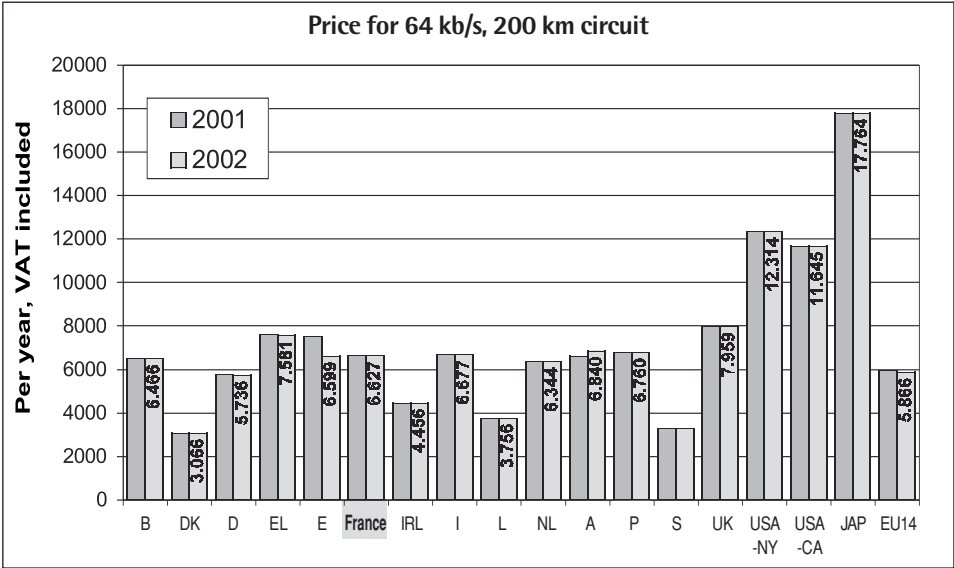
(Source: Idate, European Commission - 2002)

D. Other markets

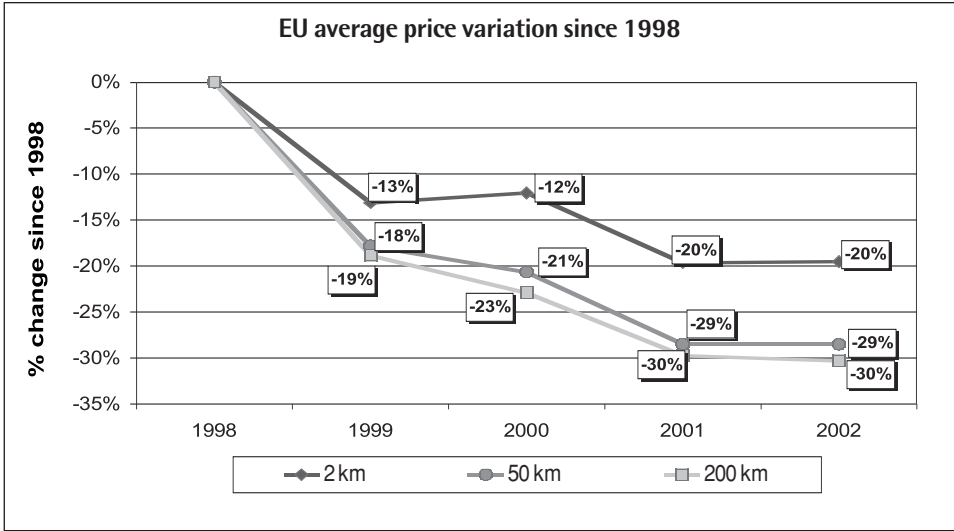
Leased lines



Source: European Commission, August 2002



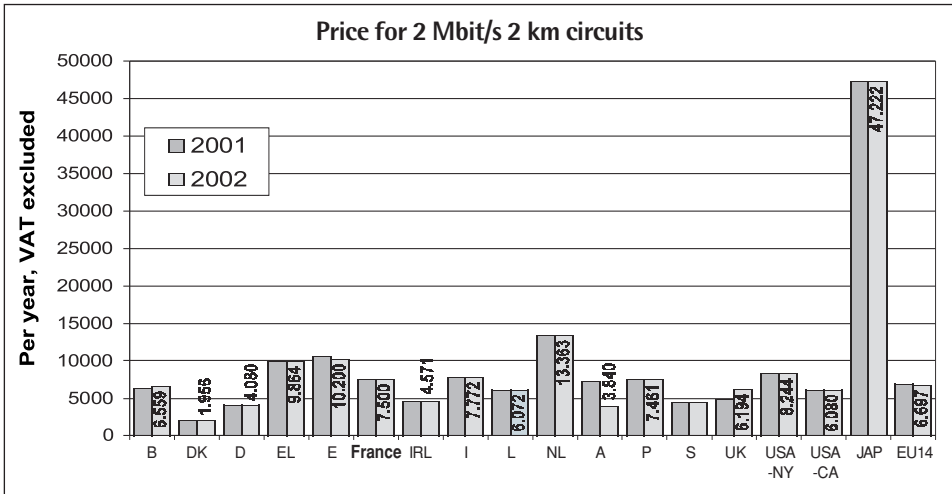
Source: European Commission, August 2002



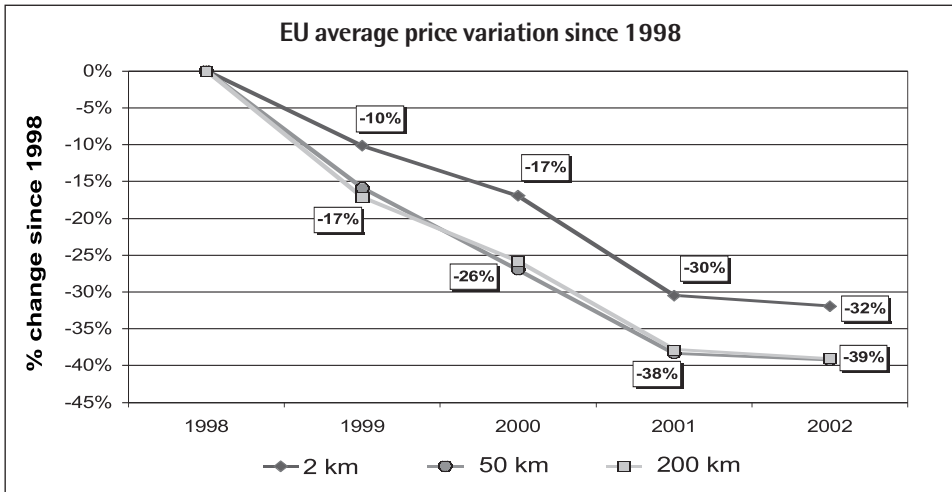
Source: European Commission, August 2002

Prices for 64 kbps lines have been virtually stable since August 2001, with an average drop of 0.5% for the different circuits (2 km, 50 km and 200 km), contrasting quite sharply with trends in the preceding three years, e.g. a fall of 25% between 1998 and 2002.

Leased 64 kbps lines are most expensive in the UK, while the prices charged in France are still higher than the average. Note that fees from leased lines fell in France, Germany and Spain in 2002.



Source: European Commission, August 2002

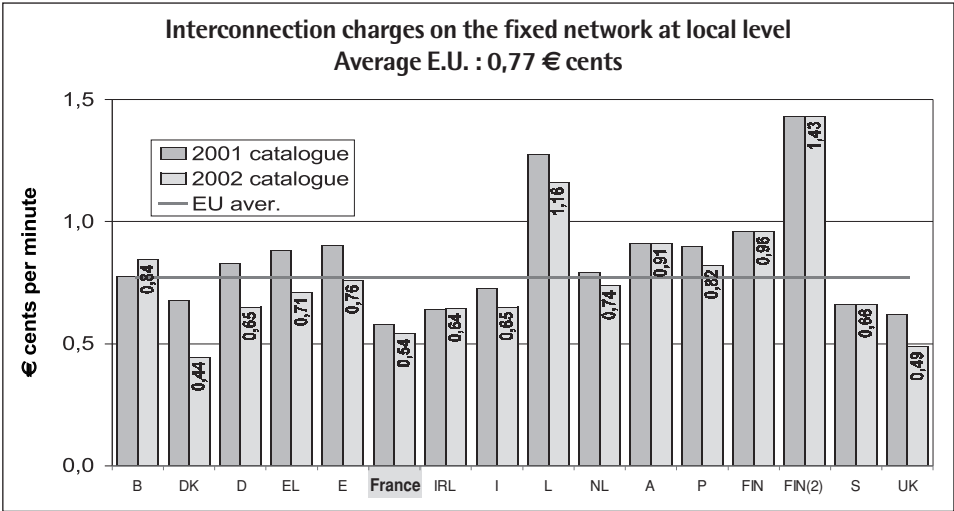


Source: European Commission, August 2002

Prices for 2 mbps lines fell by 3.5% primarily due to price reductions for local circuits (close on 5%). However, they are now falling much

less steeply. Between 1998 and 2002, the price of 2 mbps lines, all distances combined, fell by 37% on average.

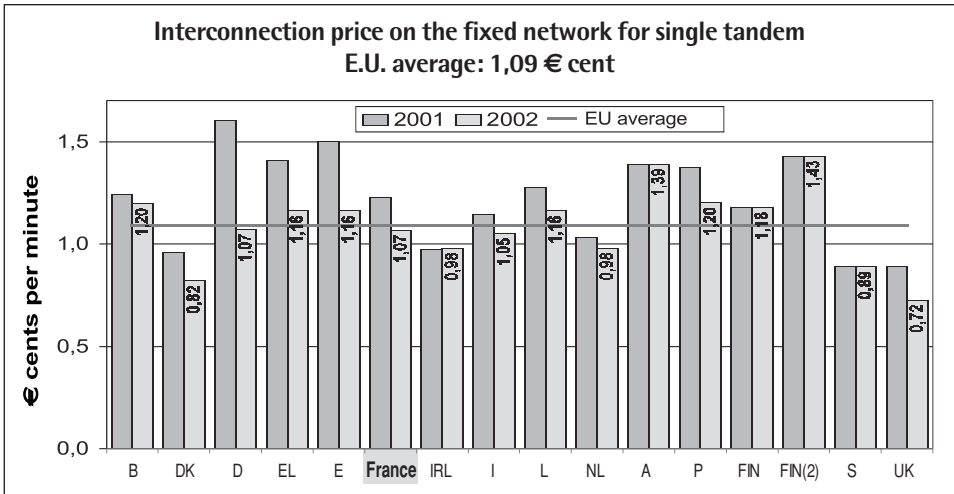
D. Interconnection market
Interconnection at local level



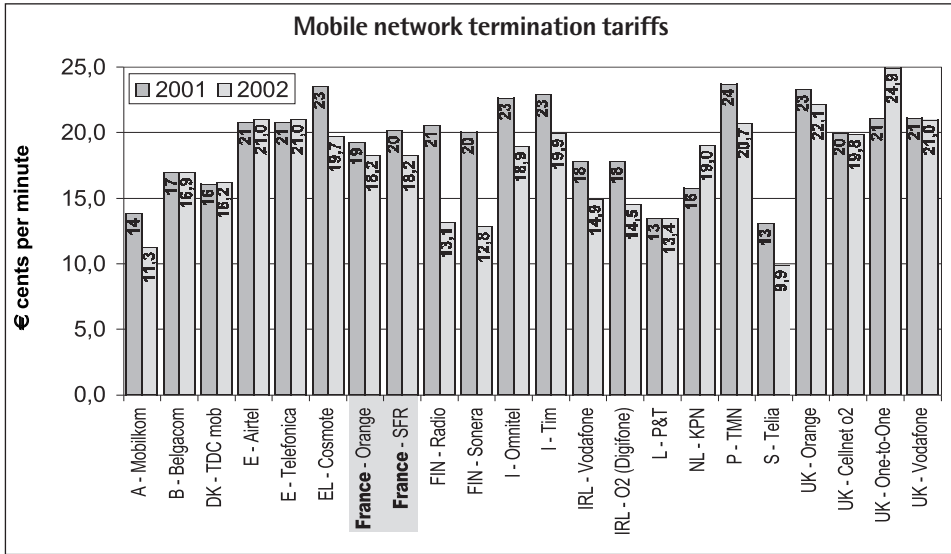
Source: European Commission, August 2002

Local interconnection prices fell quite sharply throughout Europe, except in Belgium and Austria, where they rose slightly. France's interconnection prices are still lower than the European average – it is in third place just behind the UK and Denmark.

Single tandem



Source: European Commission, August 2002

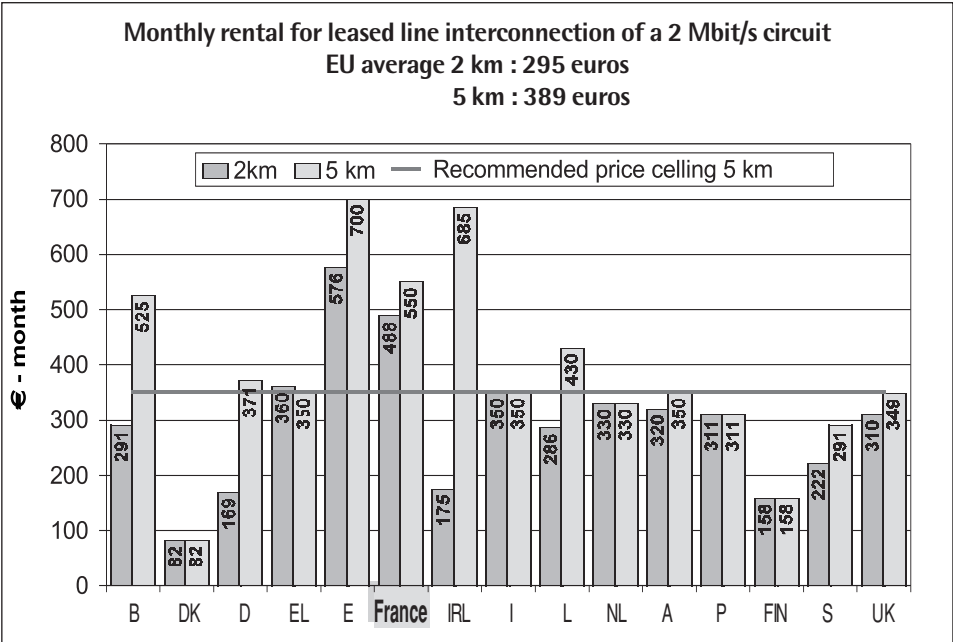


Source: European Commission, August 2002

In some countries, the regulators have ordered a reduction in termination charges for calls from fixed to mobile networks, which they deemed too high, even though the mobile operators were not designated as having significant market power. In other countries, notably in France, the

regulator ordered a reduction in charges with prices commensurate with costs, even though two out of three mobile operators were designated as having significant market power in their domestic interconnection market.

Interconnect leased lines tariffs



Source: European Commission, August 2002

Chapter 2

Fixed and mobile broadband access

Internet users are increasingly demanding broadband access as new services become available. This is evident from the success of services allowing music and films to be downloaded from the Internet, large file transfers and on-line gaming, for instance. Broadband access offers greater user comfort and also real-time transmission capabilities.

The definition of "broadband access" tends to vary. The International Telecommunications Union (ITU) has defined certain thresholds as a function of the technologies employed. According to the recommendations issued in July 1999, ADSL technology could allow speeds of approximately 1.5 mbps with simplified service and low modem cost. The specifications for FS-VDSL (Full Service Very-high-speed Digital Subscriber Line) will allow traditional wireline

telecom operators to compete with cable and satellite operators in terms of price and service efficacy on a multiservice multimedia offering, i.e. very high quality digital video, access to broadband Internet and audio services. For Europe, the minimum threshold for asymmetrical FS-VDSL is 14 mbps (downstream) and 3 mbps (upstream)

More generally, French users tend to think of ADSL broadband access as speeds of around 512 kbps (upstream), whereas someone living in Brussels would require a minimum of 3 Mbit/s. In Germany, the general understanding of broadband access is equivalent to 768 kbps, while in Spain, it is around 256 kbps. French fixed-line network operators also segment the market, offering "medium-speed" access at 128 kbps.

	DOWNLOADING TIME						
Theoretical speed	Narrowband access (56 kbps)	ADSL (128 kbps)	ADSL (512 kbps)	ADSL (1024 kbps)	WiFi ⁽¹⁾ (11 mbps)	GPRS (30 kbps)	UMTS (384 kbps)
Music (4 minutes) –MP3 format– 5 Mb	11 min. 50 s	5 min.	1 min. 15 s	37 s	8 s	22 min. 15 s	1 min. 45 s
Video clip (4 minutes) –MPEG format– –medium quality– (16 Mb)	38 min.	16 min. 40 s	4 min. 10 s	2 min. 05 s	32 s	1 h 12 min.	5 min. 50 s
Film (1h30) –DVD quality– (3,5 Gb)	+ 5 days	2 $\frac{1}{2}$ days	15 h.	7 h 30	1h50	+ 10 d days	20 h.
Daily paper –PDF format– (8308 Kb)	19 min. 45 s	8 min. 40 s	2 min. 10 s	1 min. 05 s	17 sec.	37 min.	2 min. 50 s
–HTML format– (484 Kb)	1 min. 10 s	30 s	8 s	4 s	Less than 1 sec.	2 min. 10 s	10 s
Encyclopedia –PDF format– (700 Mb)	+ 1 day	12 h 10 min.	3h.	1h 30 min.	23 min. 30 s	+ 2 days	4h.

Sources: ART

Demand for data transmission is no longer confined to fixed telephony, since users increasingly demand mobility. To respond to this demand and pending roll-out of UMTS, manufacturers have developed an intermediate solution, the so-called 2.5G. These systems allow GSM (2G) networks to migrate to data transmission while limiting the associated investment for the mobile operator. In Europe, this means primarily GPRS, which is the first phase of migration towards UMTS (3G). Another alternative is EDGE technology, a development of GPRS, designed first and foremost for the requirements of US mobile operators using 2G networks under the TDMA standard and as a way of mitigating the scarcity of frequencies available for 3G in the United States.

UMTS should allow users to access a wide range of new services, the most important of which is Internet access at a peak speed defined in the specifications of French operators holding a 3G licence of 384 kbps downstream and 144 kbps upstream.

I. Accelerating the recent development of fixed-line broadband access

A. The turning point: the summer of 2002

The turning point for broadband Internet access came in the second half of 2002, with an acceleration in growth of the number of

¹ The 2.4 GHz band is shared between users. The greater the number of users, the longer the downloading time.

residential subscribers. The market grew sharply, from around 850,000 subscribers at end June 2002 to 1.7 million broadband Internet users (ADSL and cable) on 31 December 2002. In one year, the number of subscribers rose 2.5-fold, making the French market the fastest growing in Europe. At end 2002, broadband access subscribers amounted to around 18% of all Internet access subscriptions. The decisions made by ART in April¹ and July 2002² concerning unbundling of the local loop (option 1), collection and transport (option 3) and France Telecom resale offers (option 5) had a very positive impact on the broadband market. These decisions helped create favourable conditions for the emergence of a more diversified offering and brought down prices. ISPs also launched flat-rate ADSL packages with different speeds: 128 kbps, 512 kbps and 1024 kbps. at prices ranging between 30 euros/month and 80 euros/month depending on the speed.

B. Consolidating growth for the future

ART's broadband access objective in the next few years is unchanged: it aims to ensure continued growth at the rate observed at the end of 2002 and early 2003 by providing the conditions for durable, high growth in the market. To achieve this objective, the technological access solutions need to be diversified to satisfy the different requirements, whether for users in dense urban environments (ADSL and cable primarily) or rural environments (WLL, WiFi or satellite primarily).

ART will also seek to consolidate competition by ensuring healthy emulation between Internet service providers and between the different players in the market.

Development of competition via infrastructure brings into play the alternative operators (option 1 for unbundling and option 3 for transport of DSL

traffic) with the aim of generating a medium-to-long term downtrend in prices and encouraging technical innovation (voice on DSL, TV on DSL, etc.) and commercial innovation (bundled voice and Internet offerings, broadband Internet access at different speeds, etc.).

Another challenge is to create conditions encouraging geographical expansion of broadband access offerings at affordable prices to allow all users, including those living in isolated rural regions, to benefit from the competitive dynamism observed in 2002 in the more densely populated urban areas.

C. Priority issues in 2003

1. Unbundling and ADSL

At the end of 2002, there were 1.4 million ADSL subscribers in France, and this figure could increase to almost 3 million by the end of 2003. ART will focus particularly on ADSL in both the retail and the wholesale markets, for two reasons: it is the dominant broadband access technology and it uses the incumbent operator's (France Telecom) access network (copper pairs).

Apart from the incumbent operator's ADSL offerings and the resale offering of the service by other operators, unbundling, introduced in 2002, is one of the Authority's preferred methods for developing effective and durable competition in broadband access on the switched telephone network.

Unbundling consists of an alternative operator leasing the bare copper pair or the high-frequency portion of the copper pair from France Telecom to transport Internet traffic exclusively (i.e. not voice traffic) by means of shared access to the local loop. The alternative operators place their own technical equipment in France Telecom distribution frames to carry ADSL traffic, and

¹ Decisions 02-323 and 02-346 dated 16 and 30 April 2002 respectively, OJ 15/05/2002 and 19/06/2002

² Decision 02-594 dated 18 July 2002, OJ 20/10/2002

handle collection and transport of this traffic up to the ISP's point of presence. Hence, ADSL traffic is controlled end-to-end by the incumbent operator's competitor – the incumbent's role is confined to leasing the access line.

This solution helps introduce competition in collection and transport of ADSL traffic. The ISPs can then not only differentiate their tariffs but also the service quality provided, depending on whether or not they guarantee the proposed speed. Even more important, they can differentiate themselves on the actual services by offering customers not only ADSL (asymmetrical upstream and downstream), but also SDSL (symmetrical upstream and downstream), HDSL (symmetrical two-way transmission at 2 mbps) or VDSL (symmetrical or asymmetrical very high-speed access at speeds up to 27 mbps over short distances), for example.

We might legitimately assume that the main obstacles to the development of unbundling were removed in 2002 thereby enabling the emergence of competition. Unbundling has become a reality in Paris and the inner ring of suburbs as well as in the larger French cities. As of 1 April 2003, the majority of unbundled lines were located in Paris and the inner suburbs, but unbundling also existed in Lyon, Marseille and Nice. A growing number of unbundling sites have been delivered to alternative operators in ten or so provincial cities, which means that unbundled ADSL has now been extended to Lille, Strasbourg, Montpellier, Toulouse, Bordeaux, Nantes and Biarritz-Anglet-Bayonne. Spectacular and innovative offerings, both technically (varied speeds) and commercially speaking (special offers, attractive terms for acquiring the modem, low-cost or even free connection costs) have rapidly attracted users.

ART has three primary objectives for 2003:

- **consolidating past achievements, notably in operational terms and service quality in densely inhabited regions**

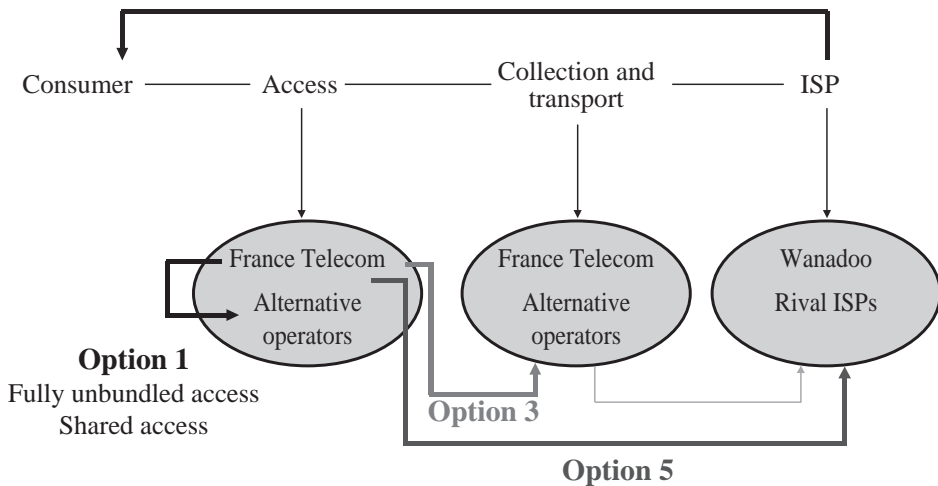
Results for 2002 and early 2003 are encouraging but have to be confirmed and taken further. True, any complex procedure such as unbundling requires a running-in period for the different operating processes, a period of adaptation for alternative operators but perhaps even more for the incumbent operator. However, these operating processes should reach maturity this year, after evaluation and monitoring by ART in concertation with all the players involved. Where necessary, corrective measures may be taken to get the process up to speed.

The Authority is focusing particularly on defining access migration procedures, from option 5 (access and collection of DSL traffic by France Telecom) to option 1 (unbundling of the local loop), and from option 3 (access and collection of DSL traffic by an alternative operator) to option 1. These migration procedures will have to be incorporated into contracts. ART is also reinforcing its control procedures by setting up a certain number of relevant indicators to monitor the quality of the procedures put in place by the alternative operators and France Telecom. Some indicators could be published in an aggregate form to ensure greater transparency.

- **creating the conditions for geographical extension**

In any case, the Authority will monitor this development very closely and will ensure that ADSL is not confined to Paris and a few big regional cities. This means finding solutions for extending ADSL to a larger number of end users. One of the solutions available for remedying signal attenuation when the end user is too far away from the France Telecom distribution frame might be unbundling at the sub-distribution frame level, i.e. closer to the user. The France Telecom local loop offer made on 14 June 2002 also provides for the possibility of total access to the local sub-loop. However, introduction of new techniques must not

The three options of unbundling



Source ART

compromise the integrity of the France Telecom network or the services already implemented (or to come) at the level of the distribution frame. For this reason, ART set up a committee of experts on 19 September 2002, bringing together representatives of France Telecom, the alternative operators and manufacturers. The committee's task is to analyse the situation, and issue opinions on the technical questions raised by introduction of new technologies into the local loop and on the possible changes to be made in terms of management of the spectrum for the local loop.

In March 2003, the committee of experts studying the introduction of new technologies into the local loop issued a favourable opinion on implementation of techniques linked to voice, fax, minitel and voice modem services at sub-distribution frame level. Given that xDSL techniques have different specific characteristics, selecting those that can actually be deployed

at the sub-loop level is a long and complex process. The committee of experts has therefore drafted a work timetable, with priority given to examination of ADSL and ADSL2+. The technical study will be steered by the committee, and the operational study by an ad hoc group supervised by ART.

Provision of DSL technologies outside major cities is also hampered by economic problems. The difficulty here is no longer the cost of housing the alternative operators' technical equipment in France Telecom distribution frames, a problem that was solved in 2002, but the connection to the end user. Given the size of distribution frames in medium-sized towns and their suburbs, it does not seem economically feasible for alternative operators to establish fibre connections. During 2003, the Authority and sector players will have to look objectively at this structural difficulty and find ways of resolving it.

- **improving resale offers**

In 2002, after more than 3 years of research, a coherent range of offerings was defined. The wholesale market should be able to develop on this basis in 2003, thanks to ratification of prices in the summer of 2002 and resolution of the dispute between LD Com and France Telecom¹.

The redefinition of pricing levels between option 3 and option 5 guaranteed sufficient economic leeway for alternative transport operators. In addition, a coherent position was defined between option 3 at the regional cross-connect switch level (40 points) and the first-level urban cross-connect switch (around 240 points), allowing alternative operators to continue their roll-out, to collect traffic as close as possible to the user and to differentiate themselves from France Telecom along a much longer portion of the value chain.

We expect to see effective development of this kind of competition in 2003, notably with the implementation of ATM network interconnection at the regional and local level, followed by sign-up of the first customers. The alternative operators must make up their lag to ensure that from 2004, market dynamism and price reductions are no longer generated by ratification of France Telecom tariffs but rather by genuine competition between the transport operators.

Concretely, the Authority will seek to consolidate the economic terms of option 3 and will pay particular attention to the risk of a price squeeze for option 5. ART will also ensure that there is no impediment to competition on the operating level.

ART's actions in this field will be reinforced by the new regulatory framework created by the transposition of European directives. Wholesale supply of unbundled access (including shared access) to loops and sub-loops on copper pairs is in fact one of the eighteen relevant markets in which ART can impose interconnection and access obligations on operators with significant market power.

2. Cable

Cable is the second means of broadband access. Its share of the French market in 2002 is still low compared to other countries, notably Belgium and the USA. However, experience shows that dynamic development of broadband access depends to a large extent on access to rival infrastructures.

ART has always seen cable networks as a major alternative infrastructure for supply of telecommunications services. One of its first decisions in resolving a dispute in 1997 concerned supply of Internet access on cabled networks. In the two decisions handed down in favour of Paris TV Câble and Compagnie Générale de Vidéocommunications², the Authority specified the technical and economic conditions of the service to be supplied by France Telecom to enable these cable operators to offer on-line services. The French cable-distribution sector has changed a great deal since then. Competition from satellite for television, from ADSL for Internet access and, in the near future, from digital terrestrial television has created a worrying situation for the French cable industry today, as can be seen from the study commissioned by ART from J.-L. Missika in 2002³.

¹ Tariff recommendation no. 02-346 of 30 April 2002 and no. 02-594 of 18 July 2002

² Decision no. 97-029 dated 10 July 1997, OJ dated 7 September 1997

³ Missika study, January 2003. On www.art-telecom.fr website

Despite regular growth in the number of customers for both television and Internet access services, cable still suffers from very low economic weight in France. Although close on 6 million outlets can be connected in 650 city councils, there were only 280,000 subscribers to broadband internet access at the end of December 2002, shared between four operators: Noos, France Télécom Câble, NC numéricâble and UPC France. Almost all of them are operating at a loss, a situation exacerbated by high levels of debt.

There are three explanations for the difficulties of cable. The first is structural. The cable operators are still carrying unpaid debt from the Cable Plan initiated in 1982, whereby networks were built based on technological choices made without any visibility as to the applications and the nature of public demand. In addition, today they are forced to invest heavily to develop new services to compete with satellite and ADSL, or to upgrade old networks.

Secondly, allocation of network operating licences in accordance with the 30 September 1986¹ Act acknowledging the failure of the Cable Plan, led to a fragmentation of operating areas throughout France, preventing any economies of scale. Moreover, the public service concession regime which governed this allocation does not allow operators to improve infrastructure if they are not the owners.

Cable is also burdened by regulatory and commercial restraints. Maximum coverage for a single operator, set at 8 million customers by the 1986 Act, makes it impossible to rationalise network operation; anticipated additional constraints associated with terrestrial microwave digital television and the resulting obligations ("must carry" obligation for some radio

broadcasting services), may exacerbate the cable sector's difficulties. Finally, technical problems, such as interference with channels broadcast on cable observed during experimentation of this new television standard, will probably only be solved at the price of additional expenditure.

Transposition of the new regulatory framework which, as the Authority has long advocated, calls for a common legal regime for electronic communications networks, is an opportunity to simplify the regulatory regime applicable to cable operators. ART is hoping that the sector will rapidly emerge from its crisis, although this might involve a geographical and capital recomposition of the cable industry in France so as to resolve the problem of duplication of technical and commercial costs. This reconfiguration of the cable industry could take the form of a regrouping of networks by cross-disposals of operating areas and/or a regrouping of the existing players into two or even a single operator, whose Internet access offering could compete with ADSL to the greater benefit of consumers and the information society.

3. WiFi

- In 2002, ART took steps to liberalise roll-out of wireless local area networks (WLAN), commonly called WiFi. As an innovative technology, WLAN benefits from favourable technical and regulatory conditions by virtue of the 1996 Act. Hence, after agreement with the Ministry of Defence for the use of frequencies in the 2.4 GHz band, service suppliers and operators can install access points in hot spots in 58 *départements*², without authorisation, as long as they respect the power thresholds. In the other *départements*², WiFi power thresholds remain unchanged.

¹ Act no. 86-1067 on Freedom of Communication, dated 30 September 1986

² *Départements* : Metropolitan France is divided into 95 *départements*.

ART has also published guidelines for public network trials using this technology in the 2.4GHz band in regions currently poorly served in broadband by the existing networks.

ART's objective in 2003 is to gradually complete the list of *départements*¹ served as agreements are signed with the Ministry of Defence and allow wider use of WiFi, in urban and rural environments.

This kind of liberalisation is compatible with the European recommendation on WLANs adopted on 20 March 2003 to "create a favourable environment for development of wireless broadband access", which recommends eliminating individual authorisations.

Success for WiFi will also require technological improvements. Equipment manufacturers will have to make an effort to resolve security problems since this technology cannot yet fully guarantee confidentiality of transmissions, although work has been undertaken to remedy this difficulty.

4. Other broadband access infrastructure

- Wireless local loop (WLL) technology is used to transport broadband data and provides a means of Internet access for small and medium-sized businesses. In particular, it opens up the local loop to alternative operators.

Difficult economic conditions in the telecommunications sector in 2002, the lack of maturity of equipment in the 3.5GHz band and the cost of equipment in the 26GHz band have all impeded development of this technology. In the framework of their regional development policy and given changes in the legislative and regulatory environment, local authorities might find in WLL a good solution for bringing

broadband to as-yet uncovered areas. Wireless local loop is also complementary to WiFi in some respects, notably for connection of access points in the hot spots. WLL also has the advantage of being secure, guaranteeing the operator exclusive use of the frequency allocated to it.

The Authority is still confident about future markets for wireless local loop and even more so today as new players emerge. They could use it as a tool for regional development as part of an approach built on taking into account complementarities between the different technologies.

- Satellite is another means of opening up certain areas and innovative broadband Internet access offers are starting to emerge, primarily to meet the requirements of business users and local authorities. Private users could have access to a one-way offering, with the upstream passing via the switched telephone network.

Today, there is a two-way configuration offering (broadband upstream and downstream) for business users. An affordable, albeit one-way offering also exists for private users (narrowband upstream via PTSN/ISDN, broadband downstream).

The big challenge for 2003 and after is to develop and strengthen an economic model that will give private users access to a virtually symmetrical broadband offering under satisfactory pricing conditions (similar to ADSL). The CIADT² Interministerial Committee for Regional Development meeting on December 2002 called for a study to develop this type of offering. Thanks to its expert knowledge of the market, ART can assist the public authorities in making the right choices.

¹ *Départements* : Metropolitan France is divided into 95 *départements*.

² See glossary

It has already been decided that the fees paid by operators for management and provision of frequencies for fixed Internet service by satellite are no longer calculated as a function of the number of stations installed; instead the amount to be paid is calculated on a regional flat-rate basis. This measure, recommended by ART, should contribute to development of the Internet access offering by satellite, which is one of the challenges of regional development.

- ART will also keep a close eye on the other technologies, such as FTTH (Fibre To The Home) or powerline carrier systems, although this second technology still plays only a very marginal role in terms of the number of broadband access subscriptions in France in 2003.

II. UMTS, still a priority issue

A. ART's commitment to UMTS

The regulator started to reflect on the issues surrounding UMTS back in January 1998 in the framework of the Radiocommunications Consultative Committee (CCR). Aware of the crucial importance of UMTS for developing the information society and the future of the telecommunications industry, ART launched a public consultation on the introduction of 3G in France in February 1999. From the start, it was committed to the idea of selecting candidates on the basis of presentations (beauty contest) rather than by auction. Following the call for candidates in August 2000 for allocation of 4 UMTS licences, two companies – Orange and SFR – obtained a licence. The Authority was keen to inform them of its analysis of the situation, based on the new economic conditions and experience of auctions in other countries. It suggested reducing the financial terms for allocation of UMTS licences in France and gave a positive recommendation on infrastructure sharing. On 16 October 2001, the Government reviewed and finalised the new financial provisions, whereby operators would pay an

initial fixed fee and a variable fee based on the sales generated, an arrangement that lowered the entry barrier created by the cost of licences.

The second call for applications for the two 3G licences not awarded in the first round, was launched at end 2001 and finalised on 3 December 2002 with the Minister for Telecommunications selecting Bouygues Telecom. To ensure fair competition, the licences of the two operators already selected were adjusted to include the provisions of the 2001 Budget concerning the amount of royalties and extension of the term of the licence to 20 years.

ART's aim in this matter was to provide the greatest possible visibility for market players. Hence, it clarified the terms of infrastructure sharing for 3G operators, which will be obliged to inform ART of their agreements so as to avoid any impediment to effective competition. ART has always manifested its desire to make real competition possible in 3G in view of the potential of the French market. For UMTS, the Authority adopted a realistic and pragmatic approach, warning players against exaggerated optimism about the time frame for bringing services on line. This approach will continue to guide its actions and future decisions in favour of development of 3G.

B. Mobile multimedia: the pace of development

Very early on, ART officially declared that the timetables for launch of UMTS services were over-optimistic for all the links in the chain starting from the communication standard to creation and development of a genuine market. In May 2001, in its "Viewpoint on UMTS", ART wrote: "Today, everything suggests that a really viable market will only emerge at the end of 2003 or the beginning of 2004". This underscores the importance of the success of the transitional phase, i.e. GPRS. The European, indeed the world industry is focusing today on 2.5G and the associated services, as can be seen

from the work of the GSM Association for 2003. This phase is essential, and we can see that roll-out of mobile networks and services will occur according to different time frames.

1. Pre-UMTS services on 2.5G

GPRS is an essential link in the transition between 2G and 3G, since it provides users, whether business or private, with new services associating mobility and data transmission. GPRS offers much lower speeds than will be available with 3G, but they are still three to four times higher than with GSM. Hence, the success of GPRS will govern that of UMTS, since the recent services launched on the second-generation networks foreshadow those that will be available on the future UMTS networks. Thanks to its transmission performances and high speeds, UMTS will make the services currently available on 2.5G more fluid and more instantaneous and will bring a high level of user comfort.

These services can be classified into several major categories:

- interpersonal or value-added message services (SMS or short message service, MMS or multimedia message service)
- "browser" services, access to different types of portal
- geographically localised services for information about the user's immediate environment (hotels, film times, special offers from trading chains in the near area, etc.),
- games on mobiles have great potential and represent another decisive component of the market and a source of revenues for mobile operators as well as terminal manufacturers and software vendors.
- personal videophone services will be available thanks to the speeds offered by UMTS, for both downstream (calling party sees called party) and upstream (called party sees calling party).

The contours of the value chain have already been modified and new players are emerging, whether technical intermediaries, web hosters, integrators, content or portal suppliers, etc. The services market will have to find an equilibrium by establishing profitable economic models, a phase that has in fact already commenced.

Data services will gradually generate alternative revenues for the mobile operators, although telephony and message services will continue to generate the bulk of revenues for 3G operators for some years to come.

2. Implementation delays

Development of UMTS will take place according to a European industrial cycle that was responsible for the worldwide success of GSM. This type of industrial cycle is obviously staggered over time; in the case of GSM, it took eighteen years from identification of the first frequency bands at European level to the real take-off of the consumer market in 1997. UMTS will be no exception to this rule. The ambitious time frame imposed at EC level at the end of 1998, turned out to be incompatible with the industrial cycle for UMTS, even when accelerated. The UMTS system was not even finalised on paper when the first licences were allocated in Europe during 2000.

The main reason for this delay in providing services with respect to the official European timetable is the complexity of UMTS. From an industrial viewpoint, the first production cycle starts about two to two and a half years after adoption of the first standard (the first version of the specifications came out in January 2000), followed by successive quarterly versions before final stabilisation of the standard. At this point, it satisfied the criteria of forward compatibility and was used as a reference point for the first pre-commercial services. Hence, there is generally a one to one and a half year lag between first adoption by 3GPP (the standardisation

structure responsible for drafting the specifications for 3G) and the stabilised version. Production of terminals obeys the same industrial cycle as infrastructure, although with a lag of several months. The wide range of services offered inevitably makes the preliminary phase before marketing of mobiles more complex. Hence, the network is ready before the terminals.

Over and above the standardisation timetable, there are two other major reasons for the UMTS implementation delay:

- First, GSM operators migrating towards W-CDMA (the European 3G standard) are faced with a major break in continuity in respect of the TDMA standard used in 2G technology (GSM). Hence, both the equipment manufacturer and the operator have to allow time for the learning curve.
- Secondly, the W-CDMA wireless interface (FDD mode) is particularly complex in terms of the protocol, which requires very high processing power in the terminal to the detriment of the power that can be allocated to multimedia functions. The number of MIPS (millions of instructions per second) required to make the mobile work is ten times higher for UMTS than for GSM.

C. Issues facing the regulator

While the value-added services and terminals proposed in the French market today are a factor of differentiation, they are also a source of vertical market segmentation, with the risk of subscribers being "locked in" to a given operator. The reduction in terminal subsidies can only exacerbate this problem and reduce churn (subscriber changeover rate). In addition, the access/services combination could accentuate effects that are undesirable for a competitive market. Hence, there is a risk that the industrial dynamic will lead to a centralisation of models

along proprietary lines, where the operator controls the point of entry to the service by means of a gateway and plays the role of exclusive access provider. In the longer term, this situation could exclude some technical intermediaries from the value chain and close off possibilities for competition between players providing access to any given mobile network. Creation of a truly innovative market requires the presence of a variety of players right along the value chain: software vendors, equipment manufacturers, operators, service and content suppliers.

In addition, certain operators which are active in more than one country might be tempted to ensure interoperability and limited transparency solely between their own networks, with the risk of a fragmenting the UMTS market. This is contrary to what previously happened from the outset with GSM.

Only an open and interoperable model is capable of stimulating competition in the different market segments i.e. operators, service suppliers, infrastructure and terminal equipment manufacturers. The success of SMS, still quite recent, depended on interoperability and interconnection between mobile operators, allowing more rapid growth in the installed base. The same approach would guarantee success for MMS, and in this respect announcement by the three French mobile operators in May 2003 of the interoperability of their MMS platform, is a significant step forward.

Hence, the regulator still has a crucial role to play in defining economic models.

D. UMTS outside France

Given the delay in developing the different UMTS infrastructure equipment and terminals compared to the timetable defined by the European Commission, the regulators and the public authorities in the different countries

have added corrective measures to the stated obligations of UMTS operators.

Hence, obligations for network roll-out and commercial service launch have been eased in numerous countries. For instance, launch of commercial services has been postponed by one year in Belgium and Spain, to January 2004 in Greece and Ireland, while in Norway operators have been given a 15 month stay of execution. Conversely, the Swedish regulator refused to change the deadline for roll-out of networks initially set for 3G operators.

Different accompanying measures have been taken to ease constraints for operators. First, infrastructure pooling has been authorised and is already effective in Germany and the UK. The

European Commission has also agreed to equipment sharing between rivals, which is also possible in other countries (Norway, Ireland, Denmark, the Netherlands and Italy). Secondly, the term of UMTS licences has been extended in the Netherlands, Italy and Spain.

Finally, constraints on licence payments terms have been eased in certain countries, notably in Spain.

At the end of April 2003, very few European operators had actually launched services, with the exception of pre-commercial trials by operators such as Hutchison 3G in the UK and Italy. Monaco Telecom and Mobikom in Austria have also commercially launched their 3G service.

Chapter 3

Local authorities and regional development

I. Requirements

Telecommunications services are crucial for enhancing the attractiveness of our cities and regions. Local authorities are now fully aware of the importance of providing digital technologies to citizens, particularly as a way of fostering economic growth and development. Given this structural trend but also the specific economic difficulties facing traditional telecommunications operators today (which has forced them over the last few years to take a more cautious and selective approach to investment), many local authorities have been looking closely at their capacity to establish and operate telecommunications networks. Some have already taken initiatives, notably in the field of broadband access.

Pursuant to the public mandate entrusted to it by the Government following the CIADT¹ (Interministerial Committee for Regional Development) meeting in Limoges in 2001, the

*Caisse des Dépôts et Consignations*¹ listed some forty projects, sponsored by General Councils and intercommunal structures in 2001. The number of projects more than doubled in 2002.

Hence, local representatives have gone beyond acknowledging the need to act and have focused on the methods to be adopted. The work carried out by various organisations² generally converges on a single conclusion: to avoid exacerbating the unequal development of digital technology and services throughout the country, public intervention in both offers and services is becoming a necessity.

ART is aware of the scale of investment required to provide widespread broadband access and improve mobile coverage, particularly in less densely populated areas. It has noted that the public authorities, and in many cases the local authorities in Europe and in the USA are committed to regional development and use a variety of approaches. It has also noted that other European countries also make better use of European FEDER³ funds for this purpose.

¹ See glossary

² "Briefing on mobile telephony and broadband Internet access", Nicolas Forissier, UMP deputy for l'Indre, responsible for reporting on behalf of the delegation for durable regional development to the National Assembly (28/11/2002).

³ "Information and communications technologies: an opportunity for the regions", André Marcon, responsible for reporting to the "Conseil Économique et Social", (see glossary) (13/08/2001)

Hence, it favours allowing action by local authorities, who are often more closely aware of the requirements, not only in terms of public requirements but also those of local businesses and ordinary users, on condition that they act in partnership with telecommunications operators, with the utmost transparency and impartiality and in a way that allows better organisation of competition.

II. Changes in the legal framework

A. The Local Authority General Code

To enable local authorities to take initiatives in a secure legal framework, the legislation must be amended, since the wording of article L.1511-6 of the Local Authority General Code, as interpreted by the *Conseil d'État*¹ after the Government request for a recommendation, is not currently adequate in this respect. ART fulfilled its role of expert adviser in the inter-ministerial discussions which resulted in presentation of an amendment to the draft legislation to ensure confidence in the digital economy (LEN). Indeed, ART clearly expressed its position in favour of changes to the legal framework concerning action by local authorities in the field of telecommunications.

This amendment, adopted on first reading by the National Assembly on 26 February 2003, provides for abolition of article L1511-6, to be replaced by an article L1425-1, inserted in Book IV "Local public services", Section II "Provisions in respect of certain local public services".

Article L1511-6 authorised local authorities to assist private businesses in developing their activities by taking financial responsibility for the most onerous network construction costs, primarily civil engineering costs. Article L.1425-1 allows recourse to clauses governing local public services and in this way provides a

secure legal framework for local authority intervention. It also allows local authorities to use the public service outsourcing procedure to make their infrastructures available to authorised players, under transparent and impartial conditions.

The legislation also provides for modification of the authorised scope of local authority intervention.

Whereas before, according to the restrictive interpretation of the French State Council, local authorities were authorised to intervene solely on passive infrastructures, this new legislation will give them wider powers in respect of telecommunications networks.

In effect, the legislation provides that they may not only create but also, under certain conditions, operate telecommunications networks, thereby entering into the field of activity described in Article L33-1 of the Posts and Telecommunications Code. However, it also provides for prior publication requirements in order to identify the projects and requirements of operators, businesses and ordinary users, along with the infrastructure and players already active in the area in question.

A second stage of the draft legislation provides that local authorities may provide telecommunications services to the public where private initiatives are inadequate to satisfy the requirements of business or private users.

B. Use of FEDER¹ funds in the framework of Information and Communications Technology (ICT)

One of the financial tools for developing broadband networks in France is use of European (FEDER¹) funds. Through the CIADT¹ (Interministerial Committee for Regional Development), the Government is currently holding talks with the European Commission with a view to adapting the framework for use of structural funds "to the new regional reality".

¹ See glossary

These discussions should, notably, lead to modification of Article L1511-6 of the Local Authority General Code (CGCT).

On this point, the European Commission has announced publication of guidelines for use of FEDER¹ funds. The broader range of possibilities for funding telecommunications networks planned by local authorities should allow accelerated use of these funds on the national level and give new impetus to local initiatives, provided that they go ahead under conditions of transparency that are favourable to competition.

III. Scope

In the CIADT¹ meeting held on 13 December 2002, the Government took some important steps.

A. Second-generation (2G) mobile telephone coverage

Improving mobile network coverage is a major issue for regional development.

In the agreement signed with the ADF¹ (Assembly of French Départements) in Rodez in 2001, ART provided local authorities with a tool for analysing coverage based on objective measurements of activity on the three operators' networks.

The local authorities, keen to use this partnership in order to obtain reliable coverage data, were then able to use this data in their negotiations with operators carried out under the aegis of the regional *Préfectures*¹ in 2002. So far, some thirty agreements have been signed, while others are currently being validated.

At the CIADT¹ meetings on 9 July 2001 and 13 December 2002, the Government embarked

on a programme aimed at extending mobile telephony coverage in France. This programme, which calls for roll-out of approximately 1250 sites covering more than 1600 city councils located in dead zones², provides for public authority financing of passive infrastructures, notably the towers on which the antennae are installed. The investment package of 88 million euros would be financed half by the Government and half by local authorities.

Leaving aside infrastructure sharing, ART worked to ensure that local roaming would also be taken into account as a means of facilitating full coverage. This solution, which concerns the three mobile operators, was chosen in the framework of legislation proposed by Senator Sido and adopted by the Senate in the autumn of 2002. It was inserted into similar clauses in the draft legislation to ensure confidence in the digital economy (LEN), adopted on first reading by the National Assembly on 26 February 2003.

A steering committee was set up under the guidance of the public authorities with a view to drawing up a list of dead zones and a hierarchical listing of the city councils to be covered. An agreement will shortly be signed by the Ministries concerned, ART, representatives' associations (AMF³, ADF) and the three mobile operators. It will specify the areas to be covered by the plan of action, along with the accompanying technical and financial aspects.

B. Widening access to broadband

The President of the Republic is committed to ensuring that all French city councils have broadband Internet access by 2007. The Prime Minister has set a target of 10 million broadband Internet users in this timeframe. The CIADT¹ meeting held on 13 December 2002 quite rightly emphasized the importance of the "collective effort" required to meet this target.

¹ See glossary

² i.e. areas not served by any of the three mobile operators.

³ See glossary

IV. The regulator's role

A. In mobile coverage

ART will deliver its recommendation on the breakdown between roaming areas and shared infrastructure areas as proposed in the operators' deployment plan, guided by a concern to preserve balanced competition in the mobile telephony market.

Furthermore, ART will monitor implementation of the roaming mechanism, notably the financial aspect. It will, in collaboration with the operators, define the calculation methods for determining the relevant revenues and costs to be taken into account, to ensure the financial neutrality essential in the context of public funding by subsidies.

B. In broadband access

The draft legislation emphasizes the obvious point that local authorities setting up projects in compliance with the legal provisions must respect the obligations incumbent on telecommunications operators.

Hence, if the legislation is adopted as drafted, it should lead to emergence of a new category of player concerned by sector regulation, i.e. local authorities.

In view of the potential impact of local authority telecommunications projects on free and fair competition, ART may require prior notice of these projects, notably to ensure that tariffs charged for making infrastructure available to players in the sector (operators or service providers) do not distort competition.

Today, ART is placed at the heart of a new system, involving concerns ranging from public objectives in terms of regional development and narrowing the digital divide on both the social and regional level, to objectives concerning the preservation and strengthening of competition

as a source of innovation and price reductions for users in these regions.

On this point, in 2002 ART successfully reinforced its capacity as expert in playing an advisory role upstream with respect to local authorities. It also increased its capacity to take the concerns of local authorities on board.

Upstream, ART, as an independent administrative authority, has deliberately positioned itself alongside the "Expert Groups" which the Government decided to set up at the CIADT meeting held on 13 December 2002. ART's collaboration with ICT project heads from the SGAR¹ (General Secretariats for Regional Affairs), and the strengthening of links and joint projects with government organisations reflect its determination to contribute to the success of public policy goals in this field.

In 2002, local authorities sought ART's assistance and advice during the preliminary reflection phase before operational project implementation. Indeed, ART both seeks and strongly recommends this type of collaboration upstream of project implementation.

Another of ART's goals, particularly in respect of regional visits by members of the Executive Board or staff from the different departments, is to seek a closer understanding of the real objectives underlying local policies, in order to fine-tune and adapt its regulatory activities to local conditions, albeit without departing from its duties under the Telecommunications Regulation Act.

Hence, ART emphasizes whenever necessary the need for local authorities, acting on the new powers conferred on them by the law, to respect the principles of partnership with operators. The time of the big multi-CUG (Closed User Group) projects appears to be over. The large urban centres that were the main drivers of these projects, now appear keen to take advantage of the new provisions to entrust management and roll-out to market players, or even to new players with closer

¹ See glossary

ties to the regions that are likely to emerge in 2003.

The Authority encourages these new forms of intervention by local authorities (in the framework of public-private partnership with sector players and notably operators), via public service outsourcing contracts, which may be subsidised for instance or through leasing contracts.

A great deal of reflection on the concept of intervention by local authorities was carried out in 2002, at a time when market players were having increasing difficulty in mustering financial resources.

ART will continue to foster this trend in 2003, notably by developing new regulatory tools to encourage the intervention of local authorities in anticipating, accompanying and financing regional digital development projects.

Chapter 4

Continuing to adapt regulation to the new legal framework

During 2002, the European Union established a new regulatory framework for the electronic communications sector. The aim of this new legislation is to adapt the European legal framework to the new competitive environment and ensure development of network convergence, thereby establishing a clearer separation between network regulation and content regulation. Member States must, in principle, transpose the directives constituting the main body of the new framework by 24 July 2003. Hence, regulators will soon have new tools to assist in performing their duties.

I. Transposition of “electronic communications” directives

A. The new EC electronic communications framework

1. Presentation

The European regulatory framework for electronic communications consists of six directives and a decision:

Four directives – the “Framework” directive, the “Authorisation” directive, the “Access” directive and the “Universal Service” directive – were adopted on 7 March 2002 by the European Parliament and the EU Council of Ministers and must be transposed into national legislation no later than 24 July 2003.

A directive concerning processing of personal data and protection of privacy (the “Personal Data” directive) was adopted on 12 July 2002 by the European Parliament and Council of Ministers and must be transposed into national legislation no later than 31 October 2003.

A decision concerning a regulatory framework for radio spectrum policy in the European Community was adopted on 7 March 2002 by the European Parliament and Council of Ministers. This decision is applicable directly and therefore does not have to be transposed.

A directive concerning competition in the electronic communications network and services markets (the “Competition” directive) was adopted by the European Commission on 16 September 2002 and must be transposed into national legislation no later than 24 July 2003.

This framework is completed by two administrative texts designed to guide the national regulatory authorities in carrying out their analysis of the markets, which is the core of the new regulatory framework created by the directives:

- guidelines for analysis of the market and evaluation of market power adopted by the European Commission on 11 July 2002
- a recommendation concerning relevant product and service markets in the electronic communications sector, adopted by the European Commission on 11 February 2003.

2. Principles of the new framework

The new European electronic communications framework is based on a certain number of principles:

- confirmation of the key role of regulation in guiding sector markets towards full competition and preparation for the transition towards application of general competition law.
- progress in establishing free and fair competition, which means adapting regulation to the diversity of competitive situations in the different markets (analysis of relevant markets, identification of operators with significant power in these markets and choice of the regulatory tools to be used depending on the situation of each market).
- transition to a regime of general authorisations, with the aim of facilitating the overall conditions of operation in the electronic communications sector.
- consideration of the technological convergence implied in the use of the term

"electronic communications", which replaces and broadens the concept of "telecommunications". This means that, the new system establishes a harmonised framework for all networks, independently of the content carried.

- reinforcement of the Commission's role of harmonisation, more particularly in the field of market analysis and regulation.

3. ART's activities in 2002

During 2002, ART focused on anticipating and laying the groundwork for these important changes.

From January 2002, it embarked on a process of reflection on how to adapt regulation to the regulatory changes instituted by the new framework as well as to changes in the economic conditions under which it carries out its tasks. Its findings were published in a report on adaptation of regulation in July 2002¹. A summary of this report, entitled "*adapting regulation to the new situation in the telecommunications markets*" was also published alongside the Authority's annual report on 9 July 2002. A review of the first five years of regulation is appended to this document.

On 1 August 2002, the Minister responsible for Industry and the Minister for Culture and Communications launched a public consultation on changes to French legislation on electronic communications. The aim is to consult sector players in preparation for transposition of the new Community directives into French law. This consultation complements and broadens the scope of the first public consultation launched in April 2002 by DIGITIP² (Direction générale de l'industrie, des technologies de l'information et des postes - Directorate for Industry, Information Technologies and the Post).

¹ <http://www.art-telecom.fr/publications/adapt-regul.htm>

² See glossary

ART provided a detailed response to the Government's consultation, published on 9 October on its Internet site¹. The responses provided by ART to the questions raised by the public consultation extend and supplement the proposals formulated in its report on adaptation of regulation and in the accompanying summary. They are organised around several general themes:

- simplifying the regulatory framework
- providing appropriate competitive regulation
- consideration of technological convergence
- adapting public service implementation procedures
- guaranteeing consumer protection

B. Preparing for transposition

1. Creating a taskforce for application of the EC regulatory framework

Over and above the regulatory framework for electronic communications, the actual texts are crucial, and ART's mission will to a large extent consist of applying regulation to the concrete analysis of markets and fostering their development on a competitive basis.

For this reason, ART set up a task force at the beginning of September 2002, under its Chairman, with a brief to implement the new EC framework.

Its job is to monitor the transposition process, coordinate the preparation of any contributions which ART may wish to make to this process with a view to having them examined by the Board, and undertake a process of internal reflection concerning the adaptation of its own organisation and working methods. In carrying

out this task, it works in close collaboration with the different sector players and the public authorities.

2. The draft legislation on electronic communications

Most of the responses emerging from the public consultation on changes in French legislation on electronic communications were published² on the DIGITIP³ and DDM³ websites in December 2002.

The Government then embarked on preparing draft legislation to ensure transposition of the Community directives concerning electronic communications into French law.

Hence, on 1 April 2003, the Minister responsible for Industry and the Minister for Culture and Communications released a document containing the draft legislation⁴. For the most part, it consists of modifications to the Posts and Telecommunications Code and to the 30 September 1986 Act concerning freedom of communication.

At the same time, this document was submitted to ART, the CSA³ (French audiovisual authority), the Competition Authority and the Public Service Commission for Posts and Telecommunications.

In its recommendation, adopted on 29 April 2003⁵, ART highlighted the fact that the draft legislation faithfully transposes most of the clauses of the EC directives, while at the same time taking into account past experience in telecommunications regulation. It formulated some supplementary proposals in respect of the transposition procedure and to improve the wording of certain clauses, notably that part

¹ <http://www.art-telecom.fr/communiqués/communiqués/2002/08-10-2002.htm>

² <http://www.telecom.gouv.fr/telecom/index.htm>

³ See glossary

⁴ <http://www.telecom.gouv.fr/telecom/comelec.htm>

⁵ recommendation 03-352, not published in the OJ.

of the draft legislation modifying the 30 September 1986 Act to take into account the question of convergence. Finally, it stressed the need for the legislation to be adopted rapidly in order to respect the deadlines for transposing the directives and avoid prolonging the situation of legal and economic uncertainty that might result from delays in transposition.

3. Analysis of relevant markets

As it had indicated in its annual report for 2001, the Authority undertook competition analyses in three particular markets: narrow-band Internet collection, interconnection and optical fibre infrastructure. The aim of these surveys, the main findings of which were discussed in detail in the 2001 annual report, was to gauge the scope and conditions of competition in these markets in the run-up to implementation of the new regulatory framework created by the European directives adopted on 7 March 2002 and requiring general adoption of this approach by all the markets.

a. Analysis of markets in the new EC framework

The new EC framework created, in particular, by the "Framework" directive of 7 March 2002, whose date of transposition is set by the directives for end July 2003, establishes a system whereby regulation is effectively exercised as a function of procedures closely correlated to the competitive situation in the markets. In other words, *ex ante* sector regulation is exercised and modulated as a function of the state of competition in the markets.

This principle is implemented by the directives under the following conditions:

- the Commission drafts a recommendation on "*relevant markets*", which consists of identifying *the product and services markets in the electronic communications sector whose characteristics justify the imposition of the obligations set forth in*

the directives"; it also issues "*guidelines determining the criteria for market analysis and evaluating market power in accordance with the principles of competition law*" (article 15 of the "Framework" directive. The term "relevant markets" employed by the new directives refers to markets previously identified by the Commission, which in fact make up the scope of regulation: "relevant markets" should be understood as "regulated markets" rather than the traditional understanding of these markets in competition law. This recommendation was adopted on 11 February 2003.

- "as soon as the recommendation is adopted, the NRAs must carry out an analysis of the relevant markets, with clear reference to the guidelines", and "where applicable, in cooperation with the national authorities responsible for competition" (article 16 of the "Framework" directive).
- as set forth in article 16, this analysis is carried out to assess the actual state of competition in the markets and the resulting consequences in terms of regulatory obligations. Hence, in the event that the analysis concludes that the market is effectively competitive, it will cancel any previous obligations. In the opposite case, the NRA identifies the company or companies with significant market power – i.e. in the wording of article 14, "companies enjoying a position equivalent to dominance within the meaning of competition law" – and imposes on these companies specific and appropriate regulatory obligations.

Hence, the new procedure is inspired by the need to meet the following requirements:

- EC harmonisation: it aims to prevent disparities arising between member States concerning the scope of regulation in the sector. The object of the recommendation is to define, exhaustively and on the

Community level, the markets that need to be regulated on the national level. This aim of harmonisation is clearly visible in the procedure that provides that where an NRA intends to regulate a market that is not included on the list drawn up by the Commission, and where this decision would have an impact on exchanges between member countries, it must notify its intentions to the Commission, which may force it to withdraw its project or modify it (article 7 of the "Framework" directive).

- pursuing harmonisation of the principles of the law governing the sector and those of general competition law, by use of concepts common to both. First, the definition of the concept of a company with significant market power is now equivalent to that of a company with a dominant position in the meaning of competition law; secondly, the procedure for carrying out analyses of the market is covered by the Commission's guidelines, which are established in accordance with the principles of competition law. Finally, the analysis itself is carried out in cooperation with the national competition authorities.

This system presents some significant differences with respect to the preceding framework as concerns the scope and degree of regulation:

- the existing framework is based on designation of SMP (significant market power) operators according to a definition specific to the law governing the sector, based in particular on use of the quantitative criterion of market share of 25% or more. The new

system defines an SMP operator as an operator occupying a position equivalent to a dominant position.

- until now, the system covered four major markets (fixed telephony, mobile telephony, interconnection and leased lines). In the new framework, a greater number of markets (18) are concerned by these analyses, according to a list previously defined by recommendation of the Commission, with strict conditions governing any designation by the NRAs of a market not included in this list.
- designation of an SMP operator in a given market led in the previous framework to application of increased obligations for this operator, the nature of which was specifically described in the law for each market concerned. Under the new system, while the specific obligations that may be imposed on SMP operators are similar to those currently applied¹, there is a new element in that the obligations imposed on the operators in question must be justified, proportionate and compatible with the nature of any problem observed in terms of operation of the market. In other words, they can be "modulated".

b. The approach implemented by ART

On 12 February 2003, the European Commission published its recommendation on so-called relevant markets, i.e. according to the terms of the "Framework" directive of 7 March 2002, markets likely to be concerned by *ex ante* sector regulation.

¹ The increased obligations are:

- under the terms of the "Access" directive: transparency, impartiality, separate accounting procedures, access to specific resources, control of prices and the cost accounting system; additional obligations may be imposed if authorised by the Commission.
- under the terms of the "Universal Service" directive: control of retail service prices, provision of a minimum set of leased lines, carrier selection and pre-selection.

In application of the new directives, ART took steps to enable it to carry out these analyses in the first half of 2003 with a view to satisfying the obligations of the "Framework" directive (at least with respect to collection of market information). The definitive implementation will go ahead on the basis of the legislative provisions to be examined by parliament in the next few months.

This approach implies an even more in-depth understanding of the operation of telecommunications markets in France and requires a high degree of dialogue with consumers and operators, and notably their associations. It will also involve interaction with the Competition Authority.

It will include the following phases:

- a phase of quantitative and qualitative market surveys aimed, first, at assessing the position of operators on the markets and, secondly, understanding the way in which the markets operate and identifying, where applicable, any obstacles to effective competition. This first phase is scheduled for the first half of 2003.
- a second phase in the form of a public consultation, which will summarise the main elements emerging from the surveys carried out in the first phase and will submit the measures envisaged for sector regulation for comment. This second phase should start during the second half of 2003.

Implementing this market analysis procedure necessitates the coordinated efforts of many of ART's personnel and associates who by virtue of their functions have direct or indirect knowledge of the markets and are directly or indirectly involved in regulating these markets. This is the reason why this structure has been set up within ART.

To effectively start the process, ART invited the different players involved to a kick-off meeting on 6 March 2003, to present the market analysis procedure it had initiated. Some one hundred people participated in this meeting: the representatives of operators, ISPs, their associations, consumer associations and legal and economic experts.

During this meeting, ART presented the new EC regulatory framework concerning market analyses, designated dominant (SMP) operators and defined specific obligations as concerns *ex ante* regulation.

It also presented the Commission's recent recommendation on relevant markets, along with its own initial analysis concerning transposition of this recommendation into French legislation. The national authorities are responsible for defining the contours of these markets, i.e. defining the services included in the markets mentioned in this recommendation. The Authority invited comments on a document exploring this point and received more than 15 different contributions.

C. ART's recommendation on the draft legislation

On 29 April, ART delivered its recommendation on the draft legislation concerning electronic communications¹, which, overall, faithfully reflects both the spirit and the letter of the directives, guaranteeing the effectiveness of the new legislative framework for electronic communications in France.

1. Preliminary remarks

ART is keen to propose changes likely to further enhance the efficacy of the new regulations and to ensure that they comply fully with the EC regulatory framework. It was keen to emphasize the importance of rapid

¹ Recommendation no. 03-552 of 29 April 2003

adoption of the legislation, not only with respect to the transposition deadlines, but also in the interests of the market itself. Indeed, were the directives not to be transposed for 25 July, a period of legal uncertainty might ensue that would affect all players and be harmful to them and to the French economy as a whole.

Furthermore, the draft legislation provides for a large number of implementing orders. Given the complexity of the questions dealt with and the constraints associated with the standards hierarchy, ART agreed that it was not possible to transpose all the provisions of the directives into law. It suggested limiting any referral to regulatory provisions to the strict minimum, thereby reducing the number of implementing orders, again with the aim of accelerating effective entry into force of the new framework.

2. General remarks

a. Concerning definitions

ART considers that the draft legislation transposes the concept of "electronic communications", in accordance with the spirit of the directives, and replaces and broadens the concept of "telecommunications" in the existing legislation. Hence, electronic communications networks and services are defined in such a way as to permit harmonisation of the legal framework for networks and to make a clear distinction between electronic communications services and audiovisual content. However, it noted that conditional access systems were excluded from the scope of access, in contradiction with the provisions of the "Access" directive.

Moreover, the authors of the draft legislation chose not to modify the definition of online public communications as it appears in the draft legislation to ensure confidence in the digital economy, adopted on first reading by

the National Assembly on 26 February 2003. Hence, at this stage (early May 2003), online public communication continues to be a sub-set of audiovisual communications. However, in order to dispel any ambiguity that might arise from this definition, the authors of the draft legislation decided to restrict the CSA's regulatory scope to production and broadcasting of radio and television services, and audiovisual services using terrestrial microwave frequencies.

In the same spirit as its earlier recommendations and notably that concerning the draft legislation to ensure confidence in the digital economy (LEN), ART considers that it would have been preferable to make a distinction between online public communications and audiovisual communications to take better account of the specific characteristics of online communications, which might in future constitute a separate (*sui generis*) category. For ART, some of these services are very far removed from what is normally understood by audiovisual. Nevertheless, if this approach has to be ruled out for other reasons, ART considers that the solution adopted is likely to produce effects complying with the goal of clarification, under the explicit condition that it be supplemented by a definition of radio and television broadcasting services making it possible to precisely demarcate the scope of audiovisual regulation. ART formulated proposals for drafting such definitions in its recommendation.

• Concerning the authorisations regime

The general authorisations system established by the draft legislation complies with the spirit of the directives. It provides notably that operators submit a declaration to ART, allowing it to identify the players that come under the scope of regulation and their activities. Conversely, some activities are entirely non-regulated, which might generate obstacles to free and fair competition and electronic communications activities.

¹ See glossary

This is, more particularly, the case of the free installation of mobile phone jamming devices in theatres. ART considered that this provision was not compatible with the obligations imposed on mobile operators nor with free exercise of their activities. In addition, it was likely to be considered by the European Commission as contrary to the EC framework in force. This is why the Authority considers that it would be preferable to eliminate these provisions from the draft legislation.

In addition, ART has proposed a simplified definition of independent networks with a view to harmonising the system of network fees paid for use of the corresponding frequencies. It also emphasized that the concept of "closed user group" was not sufficiently precise to create clear boundaries for the independent network category. Hence, even if the draft legislation were to bring positive changes by excluding "multi-CUG" networks, most of which are in fact public networks, this would not totally resolve the problem of the boundary between independent networks and public networks.

Finally, ART proposes that the legislation provide a legal framework for field trials to allow the obligations applied to such operations to be reworked. In the spirit of the "Authorisations" directive, it also called for establishment of a method for calculating fees as a proportion of operators' revenues.

• Concerning allocation of frequency and numbering resources

With respect to allocation and management of numbering resources, ART considers that the provisions of the draft legislation should be supplemented by explicitly integrating the point codes used for network addressing (signalling point codes) and other technical resources in the national numbering plan managed by ART, pursuant to article 20 of the "Framework" directive. This article specifies that *"all the elements of the national*

numbering plan should be managed by the national regulatory authorities (NRAs), including the point codes used for network addressing.

On the question of frequency management, ART noted that the Government had chosen to allow operators to transfer frequencies allocated by ART between themselves, and that this possibility must be accompanied by conditions creating a framework for such transfers, as it had suggested in the event that this principle of transferability were to be adopted.

Moreover, in its current state, the draft legislation provides for audiovisual transmission frequencies to be allocated to content publishers rather than technical operators. However, ART notes that it would be more effective to allocate these frequencies to the technical operators, which are in better position to guarantee compliance with the technical conditions imposed. In addition, use of digital multiplexing procedures today makes it possible to allocate the same frequency to several users. The technical operator is best placed to perform this task on behalf of the content publishers.

With respect to frequencies allocated through a call for applications in accordance with the draft legislation, the Minister with responsibility for Telecommunications defines the allocation conditions on the basis of proposals made by ART. ART considered that there was no particular reason to modify the method whereby these conditions were published by the Minister on the basis of ART's proposals, given that this procedure has worked well to date.

Finally, ART considers that the frequency management procedure could usefully be supplemented by a provision allowing it to revoke frequencies before expiry of a licence in the event of the frequency spectrum being reorganised, provided that sufficient notice was given.

• **Concerning access and interconnection**

With respect to access and interconnection, ART considers that most of the provisions of the directives are already transposed. However, it considers that provision should be made for access and interconnect agreements to be submitted to it when requested, as is the case in the existing framework. Indeed, it is essential for ART to be informed of these agreements in order to exercise its activity of regulation in respect of access and interconnection, in particular for reasons to do with transparency and impartiality. Furthermore, it considered that the clause whereby SMP operators must submit agreements to ART should be upheld, for the same reasons. This provision also enables ART to verify that the obligation to enter into an agreement for access and interconnection has indeed been fulfilled.

ART notes that the obligations that may be imposed on SMP operators will be specified by decree, in order to complete the transposition of directives on this point. It insisted on the need for rapid adoption of this decree so as not to delay implementation of the new framework.

• **Concerning analysis and regulation of the markets**

The provisions of the draft legislation concerning market analysis and regulation generally comply with the spirit and the letter of the directives. ART notes in particular that the legislation gives it responsibility for the entire process, in cooperation with the Competition Authority and in accordance with the spirit of the provisions of the "Framework" directive.

To ensure that transposition of this directive is exhaustive on this point, the draft legislation could, however, be supplemented by two provisions:

- the first would exclude any decisions from the scope of the European Commission's

veto which relate to the definition of relevant markets identified by the recommendation of the Commission, but which according to the terms of the directive do not fall within the scope of this prerogative

- the second would transpose article 7.6 of the directive, which provides that a national regulatory authority (NRA) may waive the procedure of notification to the Commission and the other NRAs, when it considers that it must take emergency measures, under exceptional circumstances and for a limited period.

Furthermore, while the draft legislation gives ART responsibility for analysing the market for provision of a minimum set of leased lines as provided for in the "Universal Services" directive and for designating SMP operators in this market, the obligations applicable to these operators are defined by decree, which contradicts the spirit of the market analysis mechanism. ART considers that it would be more consistent with EC legislation and with the procedure as a whole for the decree to define the framework of obligations imposed on operators that must provide this set of leased lines, and to entrust the NRA with the task of precisely identifying these obligations where necessary.

Finally, the draft legislation provides for ART to draw up an annual list of SMP operators on the markets it has defined. In view of the fact that the European Commission considers the three stages of the market regulation process as being indissociable and that it should be notified of them at the same time, this provision implies that the whole process has to be repeated every year.

In the light of the work which it initiated on 6 March 2003 to prepare for the first analysis of the markets, ART considers that repeating this process every year would no doubt be extremely time-consuming and difficult to implement, both for ART and the other players, and could lead to the whole process becoming bogged down. In addition, insisting on

systematic repetition of the analysis of all markets is not necessarily useful for the more stable markets; indeed it could even be an obstacle to the visibility required by players if it was interpreted as a regular re-examination of the regulatory system.

Some of the obligations that are likely to be imposed, such as accounting separation, also require players to invest substantially in their implementation, and hence cannot be envisaged for periods limited to a single year. As it happens, the "Access" and "Universal Service" directives provide that market analyses should be carried out *at regular intervals*¹, which does not in any way imply every year. Finally, the "Framework" directive provides for the NRAs carry out these analyses *"as soon as possible after adoption of the recommendation or any amendment to it"*.

Hence, ART has proposed an amendment whereby it would draw up a list of SMP operators at regular intervals and, in any case, after any amendment to the recommendation for relevant markets. The system could also allow the frequency of analyses to be modulated as a function of the markets and the speed at which they change.

• Concerning tools of regulation

ART has noted that the draft legislation includes the improvements which it formulated on the basis of its experience in the field of regulation, as well as the new provisions contained in the directives. These improvements concern, notably, surveys, tariff control, settlement of disputes and penalties. However, it considers that the text could be clarified and supplemented in certain areas.

- Tariff control

The draft legislation gives responsibility for tariff control to ART, which tends to simplify the procedure and enhance its visibility. It provides for ART to approve or issue a public

recommendation on tariffs for universal service and tariffs likely to be controlled following market analysis. For universal service tariffs, a French State Council decree shown in article L. 35-2 designates the conditions under which they are approved by ART, but this article does not stipulate whether this decree also mentions situations in which they are covered by a public recommendation. ART considers that the wording could be more explicit on this point, as far as universal service tariffs are concerned.

Furthermore, following the market analyses, the NRAs must determine the tariffs to be controlled and the way in which this is to be done (approval, recommendation, etc.), in accordance with the provisions of the directives. Hence, ART believes it is important that the implementing order provided for in article L. 33-4 does not make any preliminary decision as to the control methods likely to be applied in this respect. Finally, the regulatory framework must not exclude the possibility of NRAs implementing pricing control in the form of a price cap, a method seen as essential to exercise of regulation on the European level.

- Application of penalties

As concerns application of penalties, ART noted that the draft legislation includes the provisions of the "Authorisation" directive, which provides that measures of conservation may be imposed in the event of serious infringement of the rules governing the sector. It also considers that decisions to apply penalties must be accompanied by the possibility of making application to the administrative judge to impose fines in the event of failure to comply. The wording of such a provision could usefully be based on that of article 42-10 of the 30 September 1986 Act concerning freedom of communications, which provides for the Chairman of the disputes section of the *Conseil d'État*¹ to impose a fine in the event of failure to meet the obligations imposed by law and to enable the CSA¹ to perform its duties.

¹ See glossary

- Settlement of disputes

As concerns settlement of disputes, ART notes the increase in its powers, in agreement with the "Framework" directive. It proposes explicitly widening these powers to allow institution of proceedings against operators in any dispute opposing them to managers in the public domain, whether this means local authorities or private managers, notably for reasons of impartiality. The Authority has already been confronted with such disputes, without being able to provide an appropriate response.

- Expert opinion

Finally, while the draft legislation allows ART to call on expert advice in the settlement of disputes and penalty procedures, it does not make any particular provision for funding such recourse to expert advice. ART considers it essential to draft provisions to enable effective implementation of these new procedures.

• Concerning universal service for electronic communications

ART notes the transposition, in the draft legislation, of provisions concerning provision and funding of universal service. In particular, it notes that the draft legislation adopted the principle of calculating operators' contributions to universal service fund as a proportion of their revenues in the retail market, in agreement with the proposals it has formulated. It considers that the wording of this provision should be amended from two standpoints: first, the revenues taken into account should be those generated by electronic communications services as defined in the Posts and Telecommunications Code; secondly, it is necessary to remove income from these revenues which has been generated from access services, and not only interconnection, so as to include all services between operators.

It would also be useful to add to the provisions an indication of the date of application of

this new method of calculation. ART proposes that it apply to the definitive assessment of the cost of universal service for 2002, i.e. in 2004.

Moreover, given the sharp disagreements concerning the system for funding the universal service, ART has reflected upon the durability of a mechanism which would result in maintaining the current level of funding. In any case, it considered that the French State Council decree mentioned in article L.35-3 should ease the constraints that currently encumber methods for assessing the cost of the universal service.

Finally, ART is keen to emphasize the need for consistency between the Posts and Telecommunications Code and the modified Act no. n° 90-568 of 2 July 1990, covering organisation of the Posts and Telecommunications public service with respect to the specifications for universal service. The draft legislation provides that provision of any one of the components of universal service is subject to a set of specifications, no matter which operator provides this component. In addition, it also provides that a *Conseil d'État*¹ decree set the conditions under which universal service tariffs are controlled. However, the 2 July 1990 Act makes provision for a set of specifications for France, which notably include the conditions of provision and tariffs for the public service. Hence, the clauses of the 2 July 1990 Act should be modified so as to be consistent with the Posts and Telecommunications Code.

• Concerning convergence provision

ART notes that the draft legislation provides for a harmonised framework for all electronic communications networks and that it places broadcasting of radio and television services on these networks within the scope of the 30 September 1986 Act and within the scope of content regulation.

It considers that the wording of certain provisions of the draft legislation concerning

¹ See glossary

broadcasting of these services does not comply with the goal of technological neutrality contained in the directives. The draft legislation provides different "must carry" obligations for satellite networks and other electronic communications networks. ART considers that this distinction between technologies is not justified and that it might be viewed by the European Commission as discriminatory, i.e. not complying with the provisions of the "universal service" directive. For this reason, it proposes that all broadcasters of audio and television services be covered by the same system. In order to ease the constraints imposed on these broadcasters and notably on cable operators, it suggests applying the same system that is used for satellite networks to all players, (i.e. public channel broadcast obligations) and retaining the procedure whereby the CSA¹ draws up a list of operators that must respect these obligations (inspired by the "Universal Service" directive). The implementation conditions of this "must carry" obligation must also be explained in detail, and in particular, the issue of appropriate remuneration, the principle of which must be respected.

Furthermore, given the implications of "must carry" obligations for the operators concerned in terms of operation and dimensioning of electronic communications networks, the CSA¹ decision could justifiably establish the criteria for calculating "the significant number of television viewers" used as the basis for imposing "must carry" obligations, following a recommendation from ART.

The draft legislation also provides that local authorities and groups of these authorities may become broadcasters of radio and television services, which is not the case in the present wording of the 30 September 1986 Act. ART considers that such a provision is likely to complicate negotiations for bringing cable network agreements into conformity with the new framework. Hence, it favours a wording closer to that contained in the existing framework.

ART stresses the fact that the wording of articles concerning broadcasting of radio and television services does not comply with the goal of applying a common system to all players as indicated in the statement of objectives. This system in fact applies to the "*networks mentioned in article L 33-1 of the Posts and Telecommunications Code*", whereas satellite broadcasting networks which use frequencies allocated by the CSA¹ do not fall within the scope of article L 33-1. Today, two different legal regimes apply to satellite broadcasting, depending on whether the frequencies are allocated by the CSA¹ or by ART. While all existing broadcasters use the frequencies allocated by ART, we cannot rule out the possibility that in the future other players might request frequencies from the CSA¹ to engage in similar activities; they would then be subject to different obligations. In order to respect the principle of impartiality and technological neutrality, a more general formulation should be adopted, encompassing all public electronic communications networks.

Finally, ART notes that the method for regulating management of the passive infrastructures used by the operators to build their networks is not clearly defined in the current state of the draft legislation. ART is keen to emphasize the importance of this issues involved in this field of regulation given the size of the market, both in the telecommunications sector (mobile networks, wireless local loop networks...) and the audiovisual sector (analogue and digital terrestrial microwave television, radio...). In addition, the site provision market reveals positions of dominance, not to say virtual monopolies, in some segments. This is the case for TDF, for example, in the field of tower operation. Hence, ART considers that it would be desirable for the draft legislation to define principles and methods for this regulation.

• Concerning transitional clauses

The draft legislation includes a number of provisions aimed at ensuring the transition

¹ See glossary

between the current regime and the new framework. ART has stressed the important role of these provisions in ensuring continuity of the legal framework and avoiding uncertainties linked to the transition period.

It proposes adding a certain number of measures to the provisions already contained in the draft legislation to avoid any abrupt break in application of the legal framework:

- provisions to maintain specific obligations for operators using frequencies (mobile operators and wireless local loop operators particularly), until they have been transferred into the frequency allocation specifications. This implies supplementing the transitional clauses concerning frequencies
- transitional causes concerning control of France Telecom retail tariffs. These provisions, which are in fact included in the "universal service" directive, are essential to avoid discontinuity of the legal framework and the practice of tariff control
- transitional clauses ensuring that companies operating independent networks that become operators by virtue of changes in the independent network definition, make a declaration to the Authority concerning their new activities
- transitional clauses aimed at ensuring that agreements between cable operators and local authorities be brought into conformity with the new framework. Given the very difficult situation of cable in France, the law must define the principle of compliance if this proves to be necessary, following examination of the content of the agreements in question by the contracting parties. It appears that in most cases this will indeed be necessary, given the information available about these agreements. It is also necessary for the law to set a

time limit for the process, which is the only way to facilitate rapid conclusion of talks to help clarify the situation of the cable industry, and avoid discouraging the investment required for renewed growth in this sector.

II. The impact of the law on the digital economy (LEN) on telecommunications

A. Purpose

ART was consulted in November 2002 to give its recommendation on the draft legislation concerning the digital economy prepared by the Ministry for the Economy, Finance and Industry.

This legislation aims primarily to transpose the European directive on electronic commerce of 8 June 2000¹. In particular, it amends the 30 September 1986 Act concerning freedom of communications, the 1 August 2000 Act modifying the law on freedom of communications, and the Posts and Telecommunications Code.

The draft legislation now being discussed follows on from the draft legislation on the Information Society (LSI). It is also the legislative translation of the "RESO 2007" programme initiated by the Prime Minister.

The draft legislation presented to the Council of Ministers on 15 January 2003 is organised around four major themes. They are: freedom of online communications, electronic commerce, security in the digital economy and methods for managing satellite systems. During the examination phase, the Commission on Economic Affairs, after hearing the Minister responsible for Industry, drafted a report which was handed to the National Assembly on 12 February 2003. The legislation committee also issued a recommendation and handed in a

¹ Directive 2000/31/CE of the European Parliament and the Council of 8 juin 2000, OJEC, L 178, 17 July 2000, p. 1.

report on 11 February 2003. The draft legislation was adopted on first reading by the Assembly on 26 February 2003. The scope of the measures envisaged could substantially modify the overall legal framework for telecommunications.

In effect, the draft legislation revokes article L. 1511-6 of the Local Authority General Code (CGCT). Article 1a provides for it to be replaced by a new article L. 1425-1 which introduces into this code a chapter V entitled "Local telecommunications networks and services" thereby supplementing section II of book IV of the CGCT. It gives local authorities and public institutions involved in local cooperation the power to establish and operate public telecommunications networks. However, these provisions do not apply to public audiovisual and telecommunications services available on networks established or operated within the scope of the 30 September 1986 Act2.

B. The main provisions of the law on the digital economy (LEN)

• Definition of online public communications

The draft legislation proposes defining online public communications as a sub-sector of audiovisual communications, itself defined in the law concerning freedom of communications.

• The regime covering the responsibility of technical service providers

The legislation first defines the function of hoster and then lists the cases of exemption from civil and moral liability of these service providers in respect of the content of the services which they host.

It dispenses web hosters from monitoring the information that they transmit or store, but notes that they have an obligation to hold, preserve and supply any information allowing identification

of the persons to whom they provide the service if so requested by a judge.

Finally, the draft legislation specifies that a judge may notably stipulate that access providers and web hosters take all necessary steps to cease storing disputed content or, failing that, to cease providing access to it.

• Introduction of a legal framework for allocation of domain names

The draft legislation defines the legal framework for allocation of domain names, within the first-level of the Internet domain name addressing system, which is at country level. After public consultation, the Minister responsible for Telecommunications designates the agencies responsible for allocating these domain names.

• Regulation of electronic advertising

The draft legislation imposes identification of the publisher of on-line advertising, particularly for unsolicited advertising which, according to the legislation, the recipient must be able to identify clearly and unambiguously on reception.

In addition, the legislation lays down the principle of prior consent (opt-in) for direct canvassing by electronic mail. It provides for exceptions to this principle, (notably where the recipient has supplied his/her contact details), in the context of sale of goods or provision of a service, on condition that this advertising concerns exclusively "similar or related goods and services".

• Contracts entered into by electronic means

The legislation specifies the rules and obligations applicable to contracts entered into by electronic means in the context of provision of goods or services by electronic means.

- **Liberalisation of encryption provisions**

The draft legislation contains a chapter devoted to provisions linked to security in the digital economy. It establishes the freedom to use encryption but specifies that provision of these services must be declared to the Prime Minister's Office. It specifies methods for decrypting data required in the course of an enquiry or legal proceedings, and contains clauses for combating cybercriminality. In particular, it authorises seizure or definite erasure, on order of a judge, of computer data the holding or use of which would be illegal or dangerous for the security of persons or property.

- **Satellite systems**

Article 36 of the draft legislation provides for a system of authorisations for allocation of frequencies to satellite systems. It institutes an a priori authorisation system which will replace the current practice whereby the *ANFr*¹ (National Frequencies Agency) forwards the different requests for reservation, as received, to the International Telecommunications Union (ITU) and, a posteriori, a penalty procedure in the event of the licensee's failure to respect its obligations. Authorisations (licences) may be issued after a call for applications allowing the Minister responsible for Telecommunications to select the projects that will be submitted to the ITU by the French Government.

C. ART's recommendation on the law on the digital economy (LEN)

In its recommendation no. 02-1090 dated 3 December 2002, ART formulated its observations on the draft legislation concerning the Digital Economy submitted for its recommendation by the Ministry responsible for Industry.

ART's remarks concern the version of the draft legislation before it was read in the Council of Ministers.

As a preliminary, ART notes that the draft legislation substantially repeats the provisions of the draft legislation on the information society, on which the Authority has already issued recommendation no. 01-423 dated 2 May 2001.

- **On definition of online public communications**

ART expressed reservations regarding the definition of online public communications as belonging to the category of audiovisual communications. It considers that this definition does not cover all the services provided by the means of communication constituted by the Internet, and might generate difficulties of application. In addition, given the mixed nature of some Internet services, ART considers it would be difficult to adopt a global definition, which would bring together very disparate situations. Hence, ART recommends establishing an exhaustive list of the online public communication services covered by audiovisual legislation.

- **Concerning the regime of responsibility of technical service providers**

ART considers that the clauses of the draft legislation do not define a sufficiently precise legal framework for web hosts, since they maintain ambiguity as to the procedures whereby hosting service providers may refuse access to given content. Likewise, the methods whereby the hoster can gain knowledge of the illicit nature of an activity or information do not seem to be explained in a sufficiently clear manner.

¹ See glossary

In addition, ART emphasizes that the definition of the function of hoster given in the draft legislation does not cover all the technical service providers involved in supplying an interactive online public communications service, and that the understanding of the responsibility of certain technical service providers remains ambiguous.

Concerning the measures that a judge might recommend to access providers and web hosters, ART points out that making a given content inaccessible using the measures recommended to access providers, could prove to be complex and, even more important, of rather limited effectiveness, and that it was definitely preferable and more effective to apply to the hoster of the disputed content.

Nevertheless, ART admits that this recommendation could only be applied where the hoster is located in France. In effect, this clause would be easier to apply if it were supplemented by signature of pan-European agreements on this point. If this was not possible, the final recourse of the judge would be to seek the most effective actions to render access to the content impossible.

- **Concerning introduction of a legal framework for allocation of domain names.**

In its recommendation, ART considers that implementation of this legal framework is likely to reinforce the existing agencies. It emphasizes the need to guarantee the independence of these agencies and to organise the exercise of their mission via dialogue with other players in the field of information technologies and, most important, to associate ART with this work.

- **Concerning regulation of electronic advertising**

The Authority considers that the system of securing the prior consent of the user guarantees sufficient protection of consumers and individuals, a crucial point for development of the information society. In addition, it believes that this system, which allows the user to accept advertising on a case-by-case basis on subjects of interest to him/her, in exchange for certain free services, is preferable.

Nevertheless, it points out that ambiguities in certain formulations in the draft legislation such as "*similar or related goods or services*" could give rise to difficulties of interpretation.

- **Concerning satellite systems**

ART issued an unfavourable recommendation concerning implementation of an authorisation system controlled by the ANFr¹ (National Frequencies Agency) for satellite systems, since this principle would have the effect of establishing a dual regulation mechanism, creating unnecessary complications, and even legal disputes at the very time when the new EC directives aim to harmonise and simplify national regimes.

It considers that the proposed system appears to be disproportionate to the goal sought and is likely to discourage authors of new initiatives from asking the French administration to request frequency allocations from the ITU on their behalf.

Hence, it believes that regulation of satellite systems, an essential component of the telecommunications sector, should be exercised by the Telecommunications Regulatory Authority and the Minister responsible for Telecommunications under the same conditions as for the

¹ See glossary

Glossary of French terms

ADF: assembly of French *départements* : representative body for local authorities

AFNOR : french standards association. A private, non profit making organisation placed under the supervision of the French Ministry for Industry.

AMF: association of Mayors of France Coordinates members' activities and provides assistance.

ANFr: National Frequency Agency Organisation for managing and planning the radio frequency spectrum.

Caisse des dépôts et consignations: the *Caisse des Dépôts* is a public financial institution created to provide secure management of private investment funds requiring special guarantees. These funds are used for social and economic investment programmes in the public interest.

CIADT: interministerial Committee for Regional Development. The theme of the CIADT meeting was : narrowing the "digital divide".

Conseil d'État: the Conseil d'Etat has an advisory role to the Government and the President of the French Republic. It examines draft laws and ordinances prior to them being submitted to the Council of Ministers. It is also the supreme administrative jurisdiction and rules on appeals brought by private individuals or legal entities against irregular administrative

acts that have been considered as prejudicial to their interests and which do not fall under the jurisdiction of any other body.

Conseil Economique et Social : The *Conseil Économique et Social* issues recommendations to the French authorities and also takes part in the legislative process on Acts to be submitted for approval by the French Parliament.

CSA: French audiovisual authority. An independent administrative authority to guarantee broadcasting freedom and oversee the quality of programmes.

CSSPPT: Public service commission for posts and telecommunications Monitors the balanced development of the public service. Legal advisor to executive power for posts and telecommunications sector.

DDM: Directorate for the Development of Media.

Département : Metropolitan France is divided into 95 *départements*.

DIGITIP: Directorate for Industry, Information Technologies and the Post. Related to the Ministry for Finance and Industry, it promotes competitive development of Industry in France.

FEDER : European Funds for Regional Development. Its purpose is to offset regional inequalities and promote balanced development of European regions. Funds are granted to

local players in the framework of development programmes established by the EU, the Member States and local authorities.

SGAR : General Secretariat for Regional Affairs. Coordinates public authority actions involving various local authorities.

Préfecture : Administrative center for a *département*.

Glossary of terms and abbreviations

2G, 2.5G: Pre third-generation mobile systems e.g. GSM for 2G and GPRS for 2.5G.

3G: Third generation mobile system. 3G networks will provide users with access to a wide range of new services. One of the most important will be broadband Internet access as a result of gradual introduction on mobile networks of packet-switching technology.

3GPP (Third Generation Partnership Project): Global body bringing together worldwide standards organisations, including ETSI and US, Japanese and Korean members. Its mandate is to reach an agreement on a common radio interface in order to determine a standard for third-generation mobile telecommunications systems (UMTS). ETSI transferred the work carried out within the SMG committee on UMTS to the 3GPP. Some of the 3GPP's partners are the GSM Association, UMTS Forum and IPV6 Forum.

Access network: Network to which customer premises equipment is directly connected, giving access to services. (cf. "core network")

Accounting rates: System that sets out the pricing principles to be used in interconnection

agreements between international operators, to enable revenues for international calls to be shared between the operator in the country where traffic originates and the operator in the country that delivers the traffic. For calls to a given international destination, the operator in the country originating the traffic sets the retail price, which is called the collection rate. At the same time, this operator and the operator in the destination country negotiate a per-minute settlement rate. The settlement rate is used to determine the sum paid by the originating-traffic operator to the operator which delivers the traffic. The settlement rate is often half the accounting rate.

ACTE (Approval Committee for Telecommunications Equipment): Committee chaired by the European Commission (DG XIII), responsible for implementing the terminal equipment directive (98/13/EC), by drafting common technical regulations (CTRs) for network access.

ADSL (Asymmetrical Digital Subscriber Line): ADSL is part of the xDSL technology family and is designed to enhance the performance of access networks, particularly the subscriber line of the conventional telephone copper access

network. Two modems are used, one on the customer's premises, and the other on the subscriber line before the main distribution frame, to increase data rates 70-fold compared to the usual analogue modem. ADSL uses a line splitter to enable it to carry voice, upstream data (user to network) and a greater proportion of downstream data (network to user). Filtering at both ends of the line ensures acceptable voice quality, by removing the unnecessary parts of the signal. ADSL technology is particularly well suited to the local loop, as throughput diminishes over distance. It is relatively inexpensive, and therefore constitutes an attractive alternative to cable networks for broadband Internet access.

AFA : French association of Internet access providers.

ANFr (Agence Nationale des Fréquences): National Frequencies Agency. Body responsible for managing the RF spectrum, sharing frequencies between the different bodies and administrations with allocations in France (ART, CSA, Defence Ministry, etc.), dealing with interference and participating in international negotiations on frequencies.

Asymmetric regulation: Regulation that imposes specific obligations on the incumbent because of its dominant position in the market. e.g. special interconnection obligations, up-front retail tariff control, and universal service obligations.

ATM (Asynchronous Transfer Mode): An asynchronous transmission technique providing high-speed transport of digital data using short, fixed-length packets. ATM permits ultra-fast transmission and enhances line capacity, making it particularly well suited to high-speed multi-service networks. By improving core network performance and optimising network resources, it supports high traffic flow, while maintaining high service quality.

Audiotel: Services provided by France Télécom, which can generally be accessed by dialling a number beginning with "08 36". They enable users to access information, games, etc., via an audiotex-type voice server, which guides the caller with pre-recorded messages.

Backbone (core network): Operators' backbone networks are made up of very high-speed transmission links connecting the main network nodes to which lower-capacity links are connected. Backbone networks can be national (country wide coverage), regional (covering several countries in the case of European backbones) or global (worldwide coverage).

Bandwidth : Designates the capacity of a transmission link. It determines the quantity of information (in bps) that can be transmitted simultaneously. In IT, it is often confused with the transfer rate or capacity expressed in bits per second

BAS (Broadband Access Server): Server used to manage data transport in ATM mode for ADSL-based Internet access offerings. Each BAS on the France Telecom network is connected to approximately 10 DSLAMs and groups the traffic handled by those devices. Consequently, the area covered by a BAS is referred to by France Telecom as a platform. Two ATM circuits, one "incoming" and one "outgoing", are put in place between the client and the BAS to which he or she is connected.

Beauty contest: Method used in France for selection of candidates to use a limited resource (e.g. wireless local loop or UMTS licences and frequencies). It consists of defining a certain number of criteria and rating the candidates accordingly in order to select the most suitable candidates. It is not the same as an auction, where the price of the resource is the only criterion taken into account.

Bit rate: Amount of data carried by a network within a given time frame.

Cable networks: Refers to audiovisual distribution networks established in accordance with the Audiovisual Communication Act no. 82-652 dated 29 July 1982 and article 34 of the Act no. 86-1067 dated 30 September 1986 on freedom of communication.

Call back : The user dials a number in the country which operates "call back". There is no call set-up so no charge. An automatic device calls the number back and sets up the call on an international line. The user then dials the number of his correspondent. The call is billed at the tariff charged by the chosen foreign operator. This system enables users to enjoy the tariffs charged in the country called.

Carrier (or long distance operator): Telecommunications company which carries national long distance and /or international calls.

Carrier selection: Possibility for customers to choose between several carriers. Carrier selection concerns only long distance and international calls.

CCR (Radiocommunications Consultative Committee) and CCRST

CEN: European Committee for Standardisation.

CENELEC: European Committee for the Coordination of Electrical Standards

CEPT (The European Conference of Postal and Telecommunications Administrations): Regional regulatory telecommunications organisation of which most European countries are members. It is involved in regulatory and technical co-operation (particularly on frequencies).

Chambre Zéro or "zero chamber": Operator access point to France Telecom building and distribution frame cables for remote co-location.

Circuit : Bi-directional link between two terminal units over which a connection mode service can be provided.

Co-location: In France Telecom's standard interconnection offer, physical interconnection is possible using three different techniques:

- co-location: the operator installs its equipment on France Telecom's premises.
- interconnection link: France Telecom installs its equipment on the operator's premises.
- in-span interconnection: a solution half way between these two systems where the point of interconnection is located in the public domain, for instance.

For local loop unbundling, co-location consists of supplying the premises and technical resources needed to host and connect the equipment of alternative operators.

Conformity certification: Terminal equipment intended to be connected to a telecommunications network (telephone sets, faxes, modems, etc.) as well as radio transmitters (remote control units, CB devices etc.) must conform to quality and security standards before being placed on the market. Telecoms legislation sets out assessment procedures leading to the issue by ART of conformity certificates. Equipment which has been conformity certified carries a special label.

Consumer basket: Statistical market information tool, enabling the average change in users' bills to be measured, at constant consumption. ART has established two consumer baskets to observe the average yearly change in telephone tariffs.

Convergence: Refers to two different trends:

- convergence between the broadcasting and telecommunications sectors. Advances in technology make it possible to use different media (cable networks, terrestrial and satellite radio relay systems, computer terminals and television sets) to carry and process all kinds of information and services, including sound, images and data. This type of convergence is due to a revolution in technology (digitisation). It has economic and regulatory implications.
- fixed/mobile convergence. Increasingly similar technologies are used and services provided by fixed-telephone and mobile-telephone systems. This type of convergence opens up prospects for operators to propose the same services to all users, regardless of the technology or networks they use.

Core network (backbone): A telecommunications network comprises two parts:

- the local loop or access network, which comprises subscriber lines, i.e. in a fixed-telephony network, the part of the network where each subscriber line, generally comprised of copper pairs, is physically separated.
- the backbone consisting of all the transmission and switching elements starting with the local exchange.

CPT (Code des postes et télécommunications):
The Posts and Telecommunications Code

CST (Conseil supérieur de la télématique):
French telematics services authority.

CT (Commutateur de transit): see trunk exchange.

CTA (Conseil de la télématique anonyme):
French advisory committee on telematics services.

CTR (Common Technical Regulations) :
Joint technical regulations governing network access for terminal equipment. They are

drafted in accordance with EU directive 98/13/EC by the TRAC committee and ETSI at the request of the ACTE committee, chaired by the European Commission. CTRs apply to all member States.

CUG (closed user group): The Posts and Telecommunications Code defines an independent network as a network that is shared or used for a private purpose. It "is for private use, if use is reserved for the physical or legal person that set it up, and it is for shared use if use is reserved for several physical or legal persons that have set up one or several closed user groups in order to exchange communications within that same group". ART clarified this definition by adding that a CUG must be "based on a community of interest that is stable enough to be identified and that predates creation of the network". The term 'closed user group' is also used to define a virtual private network on a public network.

DECT (Digital Enhanced Cordless Telecommunications): European digital radio transmission standard for mobile or fixed telephony (wireless local loop).

Digital block: A number of calls grouped together on the same physical transmitting medium using a technique known as multiplexing. With PDH (Plesiochronous Digital Hierarchy), the transmission standard generally used for telecommunications networks, calls can be multiplexed first into primary digital blocks (PDBs) comprising 30 calls, then into secondary digital blocks (SDBs) of 120 calls, then into tertiary digital blocks (TDBs, 480 calls) and finally into quaternary digital blocks (QDBs, 1,920 calls). Each digital block corresponds to a transfer rate or capacity expressed in bits per second, where the bit is the basic digital binary unit (which has two values: 1 or 0). The transfer rate of a PDB is 2Mbit/s. For interconnection purposes, pricing can be based on the transmission capacity, expressed in PDBs.

Digital Link: Link over which information is carried in a digital format. Digital means that all the information (sound, text, image) has been encoded and transformed into a series of binary digits, as opposed to analogue.

Direct interconnection: Call termination service, in which a call to one of France Telecom's subscribers is terminated for an operator. The call is routed by the operator to the interconnection point; it is then carried by France Telecom over its network from the point of interconnection to the subscriber's customer premises equipment.

Distributor (mobile communications service provider): Company selling and managing mobile telephony subscriptions on behalf of an operator.

Domain name: Name designating an entity to which an Internet site belongs e.g. ".fr" or ".com".

DSLAM (Digital Subscriber Line Multiplexer): One of the devices used to convert conventional telephone lines into ADSL lines for broadband data transmission, particularly for Internet access. The DSLAM is installed on the main distribution frame of the local operator's network. It combines several ADSL lines on a single medium, which routes data to and from these lines.

Dual tandem exchange interconnection: Service listed in France Telecom's interconnection offer. It enables an operator interconnected at a trunk exchange to reach subscribers served in any other trunk exchange area. Hence, it gives access to all the lines in France.

ECC (Electronic Communications Committee): New umbrella committee for the activities formerly handled by ECTRA and ERC in CEPT.

Economic regulation: The regulatory authority has to ensure that competition is effective,

fair and sustainable. It does this by using precise knowledge of market developments and the legal instruments at its disposal (e.g. dispute settlement, approval of technical and financial interconnection conditions, penalties, in-depth evaluation of operators' costs).

ECTRA (European Committee of Telecommunications Regulatory Affairs): CEPT committee responsible for regulatory affairs. Its permanent office is the European Telecommunications Office (ETO)

ENUM: protocol defined by the Internet Engineering Task Force (IETF) to create Internet domain names from telephone numbers and link them to communication services (telephone, email, fax, unified messaging etc.). ENUM is the first truly convergent Internet /telecoms project combining numbering aspects with Internet naming and addressing features.

ERC (European Radiocommunications Committee): Organisation answerable to the European Conference of Postal and Telecommunications Administrations (CEPT), responsible for regulatory cooperation on radiocommunications issues. Its permanent office is the European Radiocommunications Office (ERO).

ERMES (European Radio Messaging System): European radio paging standard.

ETNO (European Public Telecommunications Network Operators Association): Association set up to foster cooperation among operators.

ETSI (European Telecommunications Standards Institute): Body set up by the European Commission to handle telecommunications standardisation for the CEPT

Extranet: A private external network that uses Internet protocols (IP) to enable businesses or organisations to exchange digital data with

their main correspondents (subsidiaries, customers, suppliers, etc.). Hypertext Markup Language (HTML) makes the presentation of data user-friendly, using hyperlinks to allow users to browse through screen pages (as on a web site).

FIP: Flat-rate interconnection point.

Flat-rate interconnection: An interconnection offer between third-party networks and the France Telecom network whereby the fees payable by the alternative operator for collecting traffic on the local loop are on a per-circuit basis and not on a per-minute basis.

Freephone numbers: Generally called a "numéro vert" (green number) by France Telecom. These numbers are free for the caller and are paid for by the individuals, companies and organisations that have requested their assignment to allow callers to reach them free of charge. Freephone numbers begin with 0800.

FRIACO (Flat Rate Internet Access Call Origination.): British Telecom's flat-rate interconnection offer in the UK.

GCT (Group Consultatif Terminaux): Voluntary working group comprising the various parties interested in telecommunications terminal equipment, such as operators, manufacturing unions, test laboratories and users. The group is responsible for drafting national technical regulations, which are used for terminal equipment conformity assessment. ART is the group facilitator.

GPRS (General Packet Radio Services): Packet switching system enabling enhanced data rates over GSM networks (cf. "Switching").

GSM (Global System for mobile communications) : Digital radio transmission standard for mobile telephony.

GTR (Groupe de Travail sur les Radiocommunications Professionnelles): working group on business communications set up within the Radiocommunications Consultative Committee.

HDSL (High Speed DSL): Bi-directional symmetrical transmission technique primarily for professional applications. Bit rates up to 2 mbps can be achieved over 2500m.

HSCSD (High Speed Circuit Switched Data): Circuit switching system enabling enhanced data rates over GSM networks (cf. "Switching").

IAB: Internet Architecture Board.

ICANN: Internet Corporation for Assignment of Names and Numbers.

IETF: Internet Engineering Task Force.

IMT 200: Third-generation mobile systems, with special features enabling improvement of mobility services. The ITU selected five terrestrial radio interfaces for third-generation mobile systems and these therefore bear the IMT 2000 label. UMTS was one of the five selected.

IMT 2000: International Mobile Telecommunications 2000

Independent network: see: CUG.

Indirect Interconnection: Call collection service, in which an operator collects a call from one of France Telecom's subscribers. The subscriber dials a prefix to select the operator. The call is carried by France Telecom from the subscriber's customer premises equipment to the point of interconnection, and from this point by the alternative operator.

In-span interconnection (in span): see "co-location".

Interconnection agreement: Private contract negotiated and signed by two operators, on a case-by-case basis, to determine their terms of conditions for interconnection. Generally when an agreement is concluded with an operator with significant market power, it is based on this operator's standard interconnection offer. If the service is not listed in the interconnect offer, new interconnection conditions are laid down.

Interconnection interface: All the technical specifications necessary to practically implement interconnection by establishing a dialogue between networks. It defines the physical interconnection arrangements, services and advanced functions accessible between the networks concerned, the control mechanism for these services and their billing and operating arrangements.

Interconnection link: see "co-location".

Interconnection: The linking of telecommunications networks to allow one operator's subscribers to communicate with any of another operators' subscribers.

International Electrotechnical Commission (IEC) :

International Settlement Rate: Amount paid by one operator to another as part of the international accounting rates system.

Internet: A network of variable sized networks interconnected by the Internet Protocol, over which a wide range of services can be provided.

Interoperability (interworking): Service interoperability is the possibility for different services to operate on different networks. The technical specifications at the interconnection interface determine, in part, service interoperability between different operators.

Intranet: A corporate network using Internet Protocol, reserved for internal communication. It enables businesses or organisations to exchange information using the IP standard. Hypertext Markup Language (HTML) makes the presentation of data user-friendly, using hyperlinks to permit users to browse through screen pages (as on a web site).

IP (Internet Protocol): Telecommunications protocol used on networks which support Internet, enabling the information to be transmitted to be broken down into data packets, transmitted independently based on address information carried in the packet and reassembled at the receiving end. Hence, this protocol uses packet switching techniques. For Internet use, it is associated with a data transmission control protocol called TCP (Transmission Control Protocol); it is therefore known as the TCP/IP protocol.

IP Address : Address identifying a terminal connected to the Internet network.

IP telephony: Voice communication service using the telecommunications IP protocol (Internet protocol) developed for the Internet.

IRG (Independent Regulator Group): Informal body comprising representatives of the various regulatory bodies in EU and EEA countries.

ISDN (Integrated Services Digital Network): Digital telecommunications network, capable of carrying image, sound and text data simultaneously.

ISO (International Standards Organisation): International organisation for standardisation.

ISP: Internet service provider.

Leased Line: From a technical viewpoint, this is a permanent link (as opposed to a switched link which is temporary) comprising one or several

parts of a public network, reserved exclusively for a given user. From a legal viewpoint, a leased line, which is also called a dedicated line, is defined in the Posts and Telecommunications Code as: "a contract between the public operator and a user for the provision of transmission capacity between given termination points of the public network. The user has no control over switching". This type of service is used by businesses for their corporate networks, and also by telecommunications service providers that do not have their own infrastructure or that wish to increase their capacity.

Least-cost routing: Optimal routing using a system that systematically chooses the least expensive links, depending on the destination and time of the call.

LEO: Low Earth Orbit.

Licences: The Telecommunications Act of 26 July 1996 states that there are no restrictions on telecommunications activities. However, it stipulates that some of these activities require a licence (also known as an "authorisation"). For example, a licence must be obtained from the Minister for Telecommunications, after applying to ART, to set up and operate a public network, to provide a public telephone service and to provide the public with telecommunications services using microwave frequencies. ART issues licences to set up and operate independent networks.

LLO: Local loop operator (see "local operator").

LMDS (Local Multipoint Distribution Services): Technology supporting high-speed transmission, which uses microwave frequencies to provide access to the telephone service, Internet and television programmes. This type of transmission is particularly well suited to scarcely populated areas, which do not have cable coverage. However, its development is

hindered at present by technical barriers such as signal attenuation, caused on the one hand by the weather (rain), and on the other hand by obstructions (buildings, leafy trees, hills) which interfere with radio wave propagation.

Local exchange (CAA): Exchange to which subscribers are connected, by a line interface module. In France Télécom's tier system, this is the lowest-ranking exchange on the network and subscribers are connected using an URA (q.v.). The higher-level exchanges are called trunk exchanges.

Local exchange area: In France Télécom's network, the exchange area is the area in which subscribers are served by one (or several) exchange(s) of a given level. For local exchanges (lowest level) the area is called the local exchange area, and for trunk exchanges it is called the trunk exchange area.

Local exchange interconnection service: service listed in France Telecom's standard interconnection offer, enabling an operator to interconnect at France Telecom's local exchange. It enables 30 000 lines to be reached.

Local loop: The wire or radio connections between the customer's premises and the local exchange. The local loop is the part of a network that gives the operator direct access to the customer.

Local loop unbundling: Local loop unbundling, also known as unbundled access to the local network, consists of allowing new operators to use the incumbent operator's local network, made up of copper pairs, to serve their subscribers directly. New entrants will naturally compensate the incumbent for the use of its network. Consequently, the customers of a new entrant will no longer be required to take out a subscription with France Telecom to access their operator's services. This broad definition encompasses several options. The

preparations for the public consultation conducted by ART in 1999 identified five such options: Three of these five emerged during deliberations concerning the possibility of accessing the incumbent's local loop on an unbundled basis. This unbundled access may entail:

- physical unbundling of the local loop, where the new operator gets direct access to the copper pair. This is known as raw copper access (option 1),
- access to transmission capacities, comprising bitstream access and access to a permanent virtual circuit (options 2 and 3).

The two remaining options are equivalent to a resale business, namely local traffic resale and subscription resale (options 4 and 5)

Local operator (or local loop operator): Telecommunications company that has installed subscriber lines.

Local sorting zone: The local loop operator sends to the carrier selected by the calling party only those calls that are destined for calling parties outside the local sorting zone; calls within the local sorting zone are retained and routed by the local loop operator irrespective of the numbering sequence used by the calling party. In France, the local sorting zone generally corresponds to a département.

Long-run average incremental costs (LRIC): The Telecommunications Act stipulates that the interconnection tariffs must be set according to the actual costs incurred by the operator providing the interconnection service. Two methods can be used to determine these costs: the first consists of using the operator's historic network costs; the second consists of evaluating the cost of building a new network at current and future prices, which are generally lower than historic costs due to technological advances.

Long-run average incremental costing aims to reconcile these two methods by comparing

two evaluations:

- one based on the operator's accounts, and another based on a technical and economic model of network roll-out and operation. This reconciliation should provide better understanding of network cost drivers and their relationship with the different interconnection services.

Main distribution frame (MDF): Apparatus allowing the subscriber copper pairs to be distributed between the cables connected to the local exchange. It enables the distribution of several subscriber lines over a single cable.

Microwave radio links: Terrestrial radiocommunication links between fixed points.

Mobile radio network: Network using radio frequencies to connect mobiles to the fixed or mobile network

MRC (Milestone Review Committee): Advisory group set up jointly by ECTRA and the ERC within the CEPT to ensure that the various regulatory systems fulfil their requirements.

NAS (Network Access Server): Equipment used by operators to provide Internet access services over the switched telephone network. An NAS converts telephone calls into IP data streams, interfacing between the switched telephone network and the IP data transport network.

Network: Combination of telecommunications resources, e.g. exchanges, wire links (copper cable, optical fibre) and terrestrial or satellite radio transmission links.

Non-geographic numbers: Number beginning with 08, among which the services can be distinguished by type e.g. general mobile services, virtual private network services, and by pricing, e.g. freephone services, shared-cost services and shared revenue services.

Number portability: Possibility for subscribers to retain their telephone number when changing local loop operator (service accessible since 1st January 1998 if the subscriber does not change address) or when changing geographical location or local loop operator, or both (service accessible from 1 January 2001)

ONP (Open Network Provision): Rules enabling the incumbent's network to be used by new operators, whereby network ownership is separated from the provision of services over the network. This allows a distinction to be made between network implementation and its commercial operation. The European "ONP" directives aim to harmonise conditions so that ONP principles can be applied to all telecommunications services. The harmonised conditions guarantee open and efficient access to telecommunications networks.

Operator with significant market power (SMP operator): The Telecommunications Act requires ART to draw up annually a list of operators with significant market power (meaning that they have significant power on a relevant telecommunications market). They are obliged to publish a standard interconnection offer. Any operator that has over 25% market share of a relevant telecommunications market is deemed to have significant market power. When drawing up this list, ART also takes into account the operator's turnover in relation to the size of the market, and its control of access to the end user as well as its access to financial resources and its experience in the market.

PDH (Plesiochronous Digital Hierarchy): A digital transmission standard based on dividing information up into identical time intervals. Peering: Refers to a type of interconnection agreement between two IP backbone networks (called peer networks) for the exchange of Internet traffic between their respective

networks. These exchanges take place in public or private nodes.

Plan Câble (French cable plan): This term refers to a French Government plan introduced in the Audiovisual Communication Act 82-652 dated 29 July 1982, which sought to develop audio-visual cable networks in France.

PMR (professional mobile radio): Mobile radio networks for business users. In France a distinction is drawn between:

- 3R2P: trunked private mobile radio networks for private purposes
- 2RC: trunked private mobile radio networks for commercial purposes
- 3RP: trunked private mobile radio network
- 3RPC: trunked public access commercial mobile radio networks
- RPN: digital trunked private mobile radio networks, using Tetra or Tetrapol technology
- RPX: local trunked networks (new category of networks).

POI (point of interconnection): Operator interconnection point.

PoP: Point of Presence

Public network: Telecommunications network established or used for the provision of public telecommunications services

Public telephony service: Service defined by law as "commercial provision to the public of a service consisting of the conveyance of direct, real-time voice telephony between public switched telephone networks for mobile and fixed users".

Radio interface: System enabling a mobile terminal to communicate with the network. Numerous discussions were held within ETSI in 1997 on standardisation of a radio interface for UMTS. On 29 January 1998 the SMG committee adopted the UMTS Terrestrial Radio

Access standard (UTRA - terrestrial as opposed to satellite): The standard is a compromise between two originally competitive components: WCDMA and TD/CDMA. UTRA was adopted by the ITU in March 1999 as a radio interface standard for IMT 2000.

Radio paging: Mobile communications system enabling users equipped with pagers to receive call alert signals (beeps) and messages composed of numbers (numeric) or combinations of numbers and letters (alphanumeric). The three commercial radiopaging brands in France are Tam-Tam, Tatoo and Kobby.

Regulation: In the telecommunications sector, regulation may be defined as the enforcement, by the competent authority, of all the legal, economic and technical provisions enabling telecommunications activities to be carried out freely, as stipulated by law. Telecommunications regulation is essentially economic regulation, which is not the case in the broadcasting sector, where content is also regulated in accordance with cultural objectives.

RLR(réseaux locaux radioélectriques): Wireless Local Area Network (see WLAN).

RPS (radiocommunications professionnelles simplifiées): short-range business radio.

RRI(réseau radioélectrique indépendant): Private mobile radio networks (see PMR).

Satellite network: Network using radio frequencies relayed by satellite.

SFCA: (Services et Fonctionnalités Complémentaires et Avancés): Ancillary and advanced services included in France Telecom's standard interconnection offer.

Shared-cost services: Service in which the cost is divided between the calling and the called parties.

Shared-revenue services: Service in which the called party receives a payment from the telecommunications service provider.

Shelter: Housing fitted out for the installation of operator's co-located equipment for unbundled local loop.

Signalling: On a telecommunications network, signalling supports the exchange of the internal network data needed for call routing. It can be compared with the road signs on a road network. It includes the information required to identify the user for billing or calling-line identification. When carried out by the network that carries calls to subscribers, it is generally integrated in the exchange. It can also be performed by a separate network, called the semaphore network.

SIM Card (subscriber identity module): Subscriber and value-added services card (GSM standard).

Single tandem exchange interconnection: Service listed in France Telecom's interconnection offer. It enables an operator interconnected at a trunk exchange to reach the subscribers served in that trunk's exchange area, which usually means approximately two million lines

SMG (Special Mobile Group): ETSI committee responsible for mobile communications work.

SMS (Short Message Service): These messages are transmitted in the signalling channel of GSM mobile networks and have a maximum length of 160 characters. Transmission of these messages on GSM networks is standardised and a short message server integrated into the mobile network provides an interface with the fixed network.

SNG (Satellite News Gathering): Ground stations for temporary satellite video links.

S-PCS: Satellite Personal Communication Services.

SPIROU (Signalisation Pour l'Interconnexion des Réseaux Ouverts): New signalling interface developed by the French Interconnection Committee at ART's initiative, in order to adapt the French network to the ETSI European standard, ISUP. This interface comprises the specifications governing the signalling of basic telephone call commands, advanced services and functions, interworking functions with user access signalling and intelligent network protocols.

Standard interconnection offer: Technical interconnection offer and tariffs that operators designated by ART as having significant market power, pursuant to Article L. 36-7 of the Posts and Telecommunications Code, are required to publish annually to enable other operators to establish their own commercial offers and prices. The standard interconnection offer also sets out the conditions governing physical interconnection between the incumbent and other operators.

Switch: Equipment used to route calls to their destination by establishing temporary connections between two circuits in a telecommunications network or by routing data packets. France Telecom's network comprises a hierarchical system of switches. The higher the exchange in the system, the greater number of subscribers it serves.

Switched Internet: Refers to Internet access via the France Telecom public switched telephone network used for switching plain ordinary telephone service (POTS).

Switching: In a telecommunications network, switching allows temporary traffic connections to be established between two or more network points. This is carried out by switching equipment (or exchanges) located at different

points of the network. The basic structure of a telecommunications network therefore comprises transmission links interconnected by exchanges. "Packet" and "circuit" switching are two techniques used in telecommunications networks. The first is used by Internet (IP) networks and the second by traditional telephony (PSTN) networks.

Tariff squeeze effect: The risk of a tariff squeeze arises when two companies A and B are competing in a retail market and when B depends on A for the supply of goods or services needed for the retail market. A tariff squeeze occurs when operator A's retail tariff is lower than the wholesale tariff for the intermediary goods or services and operator B's own costs. In the case of tests carried out in ART recommendations, France Telecom retail tariffs generate a tariff squeeze if the average revenue is lower than the average cost of an equivalent retail offer supplied by an operator considered to be "efficient" and constrained to use France Telecom interconnection services. The term "tariff squeeze" comes from the fact that the other alternative operator must compete with France Telecom retail tariffs while at the same time depending on France Telecom for intermediary services i.e. interconnection.

Tariff squeeze: see tariff squeeze effect.

TBR (Technical Basis for Regulation): Harmonised standard established by ETSI. TBRs are used as the basis of technical regulations, which lay down the essential requirements with which terminal equipment must comply. Telecommunications networks and services consultative committee : Advisory committees created by the Telecommunications Act of 26 July 1996. They report to the Minister for Telecommunications and to the ART Chairman.

Telecommunications: Transmission or reception of signs, signals, text, image, sound or other information, by wire, optical fibre, radio or other electromagnetic means.

Télétel: Database consultation service offered by France Telecom using Minitel teletex terminals.

Terminal equipment: Equipment intended to be connected directly or indirectly to the termination point of a network in order to send, process or receive information. e.g. telephone, fax, modem etc.

The International Telecommunications Union (ITU): Organisation under the aegis of the United Nations, based in Geneva and responsible for drafting telecommunications standards.

Third-party billing: Service enabling new operators to entrust the incumbent with billing for the services offered to their customers via interconnection. In the case of special services, third-party billing cannot be used for services that are free for the caller, but only for those that are charged. As the market develops, this service is essential for effective competition.

Third-party collection: Interconnection service, which enables a network operator to collect traffic from the incumbent's network on behalf of another operator that does not have infrastructure in the geographical area concerned. This service is used in particular by L. 34-1 licensed telephone operators wishing to provide their service over an extensive area without having to rollout a network.

TRAC (Technical Regulations Applications Committee): CEPT committee traditionally set up to draft common technical regulations (CTRs) for terminal equipment.

Transmission: On a telecommunications network, transmission is the carriage of information from one network point to another. The medium used may be copper cables, optical fibres or radio relays (see "switching").
Trunk exchange area: see "local exchange area".

UMTS (Universal Mobile Telecommunications System): European-standard third-generation mobile telecommunications system, designed to support a wide range of services integrating voice, data and images. At ITU level there are several competing standards for these systems grouped under the generic umbrella called IMT 2000.

Universal service: Principle component of the public telecommunications service, defined by law. It includes provision of a telephone service to all at an affordable price, carriage of emergency calls free of charge, provision of a directory enquiry service, a directory in printed and electronic form, and supply of public phone booths on the public domain. It also sets out special technical conditions and prices for disabled and low-income users.

Unlimited flat rate: Offers unlimited Internet connection time via the switched telephone network with the end user being charged a flat-rate fee.

URA (Unité de Raccordement d'Abonné): Refers to the part of a telephone switch in the France Telecom network used to connect subscriber lines and convert information to digital format.

Virtual co-location: For unbundling, a type of co-location in which the unbundling operator's equipment is managed by France Telecom and installed alongside France Telecom's equipment.

Voice telephony: The ONP "voice telephony" directive of 26 February 1998 defines voice telephony as "a service available to the public for the commercial provision of direct transport of real-time speech via the public switched network or networks, such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment

connected to another termination point." The term "voice telephony" is used in Community directives to designate the traditional Plain Old Telephone Service (POTS).

VPN (Virtual Private Network): A virtual private network shares resources on one or several public networks for the internal requirements of a closed user group, which is defined as "a group with a common interest, which is sufficiently stable to be identified and which pre-dates the supply of telecommunications services". It responds to a need for both internal communication (within the user group), and external communication (to public network users). For businesses whose sites are spread over a wide area, the virtual private network, established on their operator's network, can function like a private network, with its own private numbering plan; this simulation provides the same service as a private branch automatic exchange (PABX) while at the same time saving the business costly investment.

VSAT (Very Small Aperture Terminal): Satellite telecommunications services using a narrow part of total satellite bandwidth and a very small transmitting/receiving terminal for low or medium speed data transmission.

WAP (Wireless Application Protocol): Standard for adapting the Internet to the constraints of mobile telephones. It deals in particular, with the use of a suitable content format. This new communications protocol is part of the

process of incorporating Internet applications into GSM mobile networks.

Wireless local loop: Local loop network where the traditional copper wires are replaced with wireless network technology, giving greater flexibility in infrastructure deployment.

Wireline network: Network using metal cables or optical fibres as a transmission medium.

WLAN: Wireless local area network.

WRC (World Radiocommunication Conference): International coordination in the field of radiocommunication. This coordination is essential because frequencies have no national boundaries and it is simpler to have the same type of service in the same frequencies. Organised in connection with the ITU, this conference is held every three years. The results, once incorporated into radiocommunications regulations, have the force of an international treaty. The Radiocommunications Assembly is held prior to the conference. After the conference, a preparatory meeting is held to prepare for the next conference. 2 363 delegates from 150 member countries and 95 organisations such as manufacturers, operators and international and telecommunications organisations attended the 2000 conference.

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