

Focal issues

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Regulating scarce resources

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I. Frequency regulation

1) Frequency planning

In France, frequency planning, which falls under ART's jurisdiction, is governed by both a national and international framework: global rules are set by ITU-R, their European application is set by CEPT¹ and governed nationally in France by the bodies responsible for radio spectrum allocation, under the aegis of ANFr². The Authority is involved at all three levels, in addition to taking part in working groups and conferences devoted to examining related issues which contribute to the decision-making process, and in gathering all of the expertise required to be able to define the conditions of application.

1.1. European standardisation

Throughout 2004, ART, in collaboration with ANFr, continued to contribute to the work being done by CEPT's Electronic Communications Committee (ECC) on harmonising frequency regulations, and particularly the principles governing the frequencies' operational management and spectrum engineering. The decisions adopted by ECC in 2004 concern the introduction of wireless access systems, including RLAN³ in the 5 GHz band, low-power radioelectric equipment using ultra wideband (UWB) technology for automotive anti-collision radar at 24 and 79 GHz, wideband PMR⁴ in the 400 MHz and 800/900 MHz bands, the mobile satellite service at 1.5 GHz, reviewing the "Ermès" band, and short-range devices.

The Authority was actively involved in CEPT's Frequency Management working group, and in the various sub-groups dedicated to PMR, the fixed service, the fixed satellite service, review of the Ermès band and short-range devices. The group's main actions involved not only preparing the above-mentioned ECC decisions, but also the ECC reports, notably in response to the European Commission mandates to devise a strategic plan for using short-range devices (automotive anti-collision radar), reviewing the Ermès band, UMTS⁵ in the 2.5-2.69 GHz band and RLANs in the 5 GHz band.

In conjunction with ANFr, ART was also involved in CEPT working groups focused on radio spectrum engineering. The work performed by this group enabled the adoption of frequency plan recommendations on fixed services in the 64 GHz band, and on defining the methods used to ensure the coexistence of the wireline service's point-to-multipoint systems in the 3.4-3.8 GHz band. This group also drafted a compatibility report on UWB (ultra wideband) technology, and on the method for allocating spectrum blocks for the fixed service in the 32 GHz band.

1) The European Conference of Postal and Telecommunications Administrations.

2) Agence Nationale des Frequencies/National Frequency Agency.

3) Radio Local Area Network.

4) Professional Mobile Radio.

5) Universal Mobile Telecommunications System.

6) International Mobile Telecommunications 2000.

In addition, ART is following closely the work being done in frequency band identification and on the conditions governing the introduction of new technologies such as ultra wideband, new approaches being taken in a bid to achieve more flexible management of the radioelectric spectrum, innovative 2 GHz mobile satellite systems, the introduction of wireless broadband access systems, new PMR applications, and the conditions applying to short-range devices accessing new bands.

1.2. ITU-R planning

As part of the run-up to the World Radiocommunications Conference (WCR) in 2007, a number of points that concern ART directly were the focus of work conducted in conjunction with ANFr. These topics include the identification of new frequency bands for IMT 2000⁶ systems and, beyond that, identifying frequency bands to be used for aeronautical telemetry, identifying the bands to be used for broadband internet access via satellite, the introduction of HEO satellite networks in the 17.7-19.7 GHz band, mobile satellite service links at 1.4 GHz and the conditions for frequency sharing, along with the regulatory measures for introducing HAPS in the 28, 31 and 48 GHz bands.

The Authority also took part in the first session of the Regional Radiocommunications Conference on changes to broadcasting frequency plans, as part of the process that involves identifying the future digital dividend resulting from the frequencies become newly available following the upcoming transition from analogue to digital broadcasting, and particularly the migration from analogue to digital terrestrial TV (DTT).

1.3. Cross-border frequency coordination

ART had a prominent role in the various meetings held on cross-border frequency coordination that were chaired by ANFr, and whose primary aim was to lay the groundwork for several multilateral agreements. These agreements are geared essentially to minimising harmful interference, and optimising use of the frequencies in France's cross-border regions which are under ART's control (e.g. coordination of GSM⁷, UMTS, and PMR frequencies).

7) Global System for Mobile communications.

The Authority also made an active contribution to the draft of the "Various measures concerning cross-border coordination procedures (Fixed and Mobile Services)" ("*Dispositions diverses concernant les procédures de coordination aux frontières (Services Fixe and Mobile)*"") adopted by ANFr's Frequency Planning Commission in October 2004. Among other things, the text specifies the national rules for frequency coordination procedures along the borders of neighbouring countries.

1.4. Additional audio broadcasting frequencies

In the last quarter of 2004 the Authority – which has been responsible for allocating frequencies for sound and television transmissions since 1 January 1997 – created the “Wireless microphones and DTT” working group, comprised of the Broadcasting Authority (CSA), ANFr and industry representatives, to define the changes to be made to existing regulation following the deployment of DTT⁸ in France.

8) Digital Terrestrial Television.

2) The digital dividend

The complete switch-off of analogue terrestrial TV – for which the date has not yet been set, but will probably not take place for another 5 years – will free up frequencies in the VHF/UHF bands which deliver optimal propagation conditions. This newly available resource is referred to as the “digital dividend.”

Held in 2004, the first of two sessions of the ITU’s Regional Conference, which were devoted to establishing the new frequency plan for all-digital TV in the Europe +Africa zone and the plan’s management agreements, did little to further debates on what use to make of this dividend. Preparations made in 2005 for the next session, which is scheduled for 2006, offer a second chance to make some progress on the issue.

The issue of the “digital dividend” can be expressed in terms of “changes to VHF/UHF frequency resource sharing between digital terrestrial audiovisual and telecom services.” A portion of the available frequencies will be used to complete DTT coverage, and to enhance the audiovisual service offering. But automatically allocating all of the “digital dividend” resources to audiovisual services does appear to run counter to the general interest. 3G and future mobile services have a particular need to access this type of lower frequency to be able to ensure coverage of sparsely populated areas under viable technico-economic conditions, and to improve radio coverage indoors. There is a definite risk of this reallocation being automatic since the regulatory statute in force allocates these frequencies for broadcasting use only, both at the international level (ITU) and, consequently, at the European (CEPT) and national levels as well.

Giving mobile services access to a portion of the “digital dividend” frequencies supposes consequent changes be made to the Radio Regulations during the ITU’s upcoming World Radiocommunications Conference (WRC). This issue will be addressed at the next conference to be held in 2007 (WRC07), where it is slated to be part of the agenda.

3) More flexible frequency management

Frequency resource management is a key part of regulation, as reflected in the considerable number of decisions made by the Board in this area. In 2004, the Board adopted 218 decisions on the allocation of 5,236 frequencies on publicly-available networks, some 80 decisions amending allocations, one for cancelling frequency use, and a number of decisions authorising independent networks, some of which were allocated frequencies.

Pursuant to the “authorisation” Directive reiterated in the Act of 9 July 2004, ART is responsible for awarding individual authorisations to operators under objective, transparent and non-discriminatory conditions. As part of its mission, ART must ensure that proper use is made of spectral resources, and so guarantee efficient management of the spectrum. To do so, it has held several public consultations to gather the views of the industry's players on the use of certain frequency bands. Furthermore, the legislator has made new mechanisms available, including the introduction of a secondary frequency market, which is expected to provide greater flexibility in managing the spectrum, and enable a more cost-effective approach to frequency regulation.

3.1. The secondary frequency market

Article L.42-3 of the Post and Electronic Communications Code introduced the possibility of reselling frequency authorisations that had been awarded by ART. The decision to create a secondary frequency market was announced in the “authorisation” Directive. This system allows authorisation holders to negotiate the transfer of all or a portion of their authorisation.

Ratification of this system is contingent on a decree being issued by the Minister of Industry – which was still in the draft stage in March – defining the general rules and the regulator's powers in the matter, and on an order that defines the frequency bands for which these trades will be authorised.

ART is taking an active role in helping the government lay the groundwork for these texts, and will be submitting a report on frequency bands in summer 2005.

The Authority and the DGE⁹ are co-chairing a working group created in the autumn, and focused on informing the players and gathering their feedback and expertise on the principles to be applied to the concrete implementation of a secondary frequency market. This working group, which is open to members of the Broadcasting Consulting Commission (CCR) and to the sector's players, has met four times since late October 2004 to draft the preparatory documents. It will submit the proposed framework mechanisms for a secondary frequency market in early April.

9) The Directorate General for Enterprise (DGE) is the product of the merger of the Directorate General for Industry, Information Technologies and Post (DiGITIP), and the Directorate for Regional Action and Small and Medium Industry (DARPMI).

The creation of a secondary frequency authorisation market constitutes a new regulatory instrument that will endow spectrum management with greater flexibility, which should in turn help improve the balance between demand and delivery of frequency allocations, alleviate certain inflexibilities in spectrum access, and encourage innovation. Placing an economic value on the frequencies should thus enable a more efficient allocation process. A coherent remuneration policy will need to be adopted to guarantee the full benefit of this new instrument.

This does not mean that the market will replace frequency planning. On the contrary, its role becomes all the more important since the rules defined should serve as a framework for current and future users. In addition to planning, the framework that ART is in the process of defining is expected to help prevent any risks of anti-competitive behaviour, or the emergence of a relative anarchy in the frequency bands.

France has adopted the principle of a gradual opening of a secondary market – focusing during the first stage on those bands for which there is already demand, and which carry limited risks. To choose the frequency bands, the government can rely on the market-by-market analysis conducted by ART to assess demand, the risks and the possible impact on primary spectrum allocations. A different process is likely to apply to so-called assigned frequencies, for which ART ensures the technical coordination, and for so-called allotted frequencies, for which ART authorises more flexible use in certain zones, and for which there could be considerable appeal in allowing partial sales.

The first frequency bands open to the secondary market will become available in late 2005. Among the allotted bands, the 3.4-3.8 GHz frequency band, dedicated to the wireless local loop, seems well-suited to this type of liberalisation. Like the others, this band will be analysed on a case-by-case basis, according to criteria enabling a ruling on the relevance of introducing a secondary market, and particularly on the possibility of allowing partial authorisation sales. As to assigned bands, a gradual but ambitious approach could be taken, since sales concerning this band would take the form of simple trade.

3.2. WLL-WiMAX

As its name implies, the wireless local loop (WLL) is a wireless network technology used to connect fixed subscribers equipped with an antenna to an Internet access point. Currently available offers deliver bitrates of between 64 kbit/s and 34 Mbit/s, and most are solutions geared to the business market.

3.2.1. The market's players

During the two years following the first frequency allocations that took place in 2000, the wireless local loop market has undergone massive consolidation, with the number of players in Metropolitan France shrinking from seven in 2000 to two by the end of 2004: Neuf Telecom in 18 regions and Altitude Telecom throughout the country. In the overseas départements, the wireless local loop operators are XTS Telecom subsidiaries, Cegetel La Réunion and Médiaserv.

The 3.5 GHz band

		3.5 GHz band	
		Duplex 1	Duplex 2
Metropolitan France 15 MHz duplex		Available	Altitude Telecom
		3.5 GHz band	
		Duplex 1	Duplex 2
Overseas <i>départements</i> 42 MHz duplex	Guadeloupe	WLL Antilles-Guyana	Médiaserv
	Guyana	Médiaserv	Available
	Martinique	WLL Antilles-Guyana	Médiaserv
	Reunion	WLL Reunion	Cegetel La Reunion

The 26 GHz band

		26 GHz band	
		Duplex 1	Duplex 2
Metropolitan France 112 MHz duplex	Alsace	Neuf Telecom	Available
	Aquitaine	Neuf Telecom	Available
	Auvergne	Neuf Telecom	Available
	Brittany	Neuf Telecom	Available
	Burgundy	Neuf Telecom	Available
	Centre	Neuf Telecom	Available
	Champagne – Ardennes	Neuf Telecom	Available
	Corsica	Available	Available
	France-Comté	Available	Available
	Ile-de-France	Neuf Telecom	Altitude
	Languedoc-Roussillon	Neuf Telecom	Available
	Limousin	Available	Available
	Lorraine	Neuf Telecom	Available
	Lower Normandy	Neuf Telecom	Altitude
	Midi-Pyrénées	Neuf Telecom	Available
	Nord-Pas-de-Calais	Neuf Telecom	Available
	PACA	Neuf Telecom	Available
	Pays de la Loire	Neuf Telecom	Available
	Picardie	Neuf Telecom	Available
	Poitou-Charente	Available	Available
	Rhône-Alpes	Neuf Telecom	Available
	Upper Normandy	Neuf Telecom	Altitude

3.2.2. ART’s actions

During the first quarter of 2004, a great many players expressed an interest in obtaining access to frequencies available in the whole of France. This revived interest was attributed to the emergence of the IEEE 802.16 standard out of the US, which defines solutions for wireless broadband access networks, notably in the 3.4–3.8 GHz bands, and which is backed by the WiMAX Forum industry consortium.

Seeking to allocate the available resources in an objective, transparent and non-discriminatory fashion, on 29 June 2004 ART launched a public consultation to gain feedback from the players concerned on all of the aspects involved in the use and allocation of these frequencies in the 3.4-3.8 GHz band. 59 players responded to this consultation, and confirmed the lively interest in these frequencies. The summary of the responses was published on ART’s website in late

December 2004. In addition, ART also worked to identify newly available frequencies in the 3.4-3.8 GHz band in Metropolitan France and in the overseas départements and territories. Based on these elements, the Authority was able to define several possible allocation scenarios, which it then submitted for comments. The new methods to be used for allocating these frequencies are in the process of being defined, and are expected to lead to a new round of allocations in the second half of 2005.

ART also undertook a third assessment of the WLL operators' obligations in late 2004. The goal of the process was to evaluate the level of wireless coverage in the different regions where WLL operators are present. The results of this assessment are currently being examined.

3.3. PMR and independent networks

3.3.1. New system for use of the 410 and 450 MHz bands

10) The summary of the results of the public consultation are available online, on ART's website.

The results of the public consultation¹⁰ launched by ART in the second half of 2003 on the terms for reallocation of the UHF frequency band (410-430 MHz band), which had previously been awarded to Dolphin Telecom, revealed a vast array of projects and frequency needs amongst the players.

Some players hope to operate independent narrowband PMR networks in the 410-430 MHz band, but the demand expressed outweighs the quantity of available spectrum, particularly in the Ile-de-France (Paris & suburbs) region. One player filed a request to create and operate a publicly-available network equipped with broadband PMR capabilities. This request is a result of CEPT's March 2004 decision on introducing broadband PMR technology in the 410-430 MHz and 450-470 MHz bands.

11) Public Protection and Disaster Relief.

Frequencies are also needed to develop what are known as PPDR¹¹ systems, which were the subject of a recommendation made during the World Radiocommunications Conference in summer 2003.

Given the complexity of the topic being examined by this public consultation, and the issues inherent in PPDR networks, ART expanded the scope of its assessment to the 450-470 MHz band, whose propagation characteristics are identical to those of the 410-430 MHz band.

This then was the context of the frequency planning system that the Authority drafted for the 410-430 MHz and 450-470 MHz bands late in the first half of 2004, which provides a response to the demands expressed by all of the players, while also ensuring efficient and harmonised planning of the frequency bands identified at the European level for networks offering PMR capabilities.

After having notified the European Commission, ART's Decision on use of the 410-430 MHz and 450-470 MHz¹² bands was ratified in mid-November 2004. It was approved by the Ministry of Industry Decree dated 7 January 2005, and published in the Official Journal of 15 January 2005.

12) Decision n° 04-922 dated 16 November 2004.

This Decision plans on having the portion of the 410-430 MHz band for which ART is responsible for allocation dedicated to networks using narrowband PMR/PAMR technologies, with channel spacing not exceeding 100 kHz, and on enabling use of the portion of the 450-470 MHz for which ART is also responsible for allocation, by narrowband or broadband networks, with no channel spacing restrictions, pursuant to the CEPT Decision¹³.

13) CEPT Decision ECC/DEC (04)06 dated 19 March 2004.

At the same time as the notification/approval procedure, and pursuant to the framework defined by the planning system, the Authority launched an internal study on the introduction of a publicly-available mobile broadband network with PAMR capabilities operating in the 450-470 MHz band, and a public consultation on the 410-430 MHz with the goal of defining a frequency authorisation model for narrowband systems.

Analysis of this consultation, which was completed on 30 September 2004, allowed ART to conclude that, based on coordinated site-by-site frequency allocations – which is the allocation method that provided the best response to the projects submitted – the available frequencies were capable of satisfying all of the requests made to date, and this in all of France's administrative regions. On 24 January 2005, the Authority informed all of the players of the gradual launch of the frequency allocation procedure, with site-by-site coordination in the 410-430 MHz band.

As to the 450-470 MHz band, the report conducted during the second half of 2004 enabled an analysis of the frequencies that were available in this band, and revealed that several technologies could be used to offer broadband PAMR services. In April 2005, ART launched a public consultation to assess, with the help of the players, the needs that could arise in view of deploying and operating a PAMR network in this band and, if necessary, to define the terms for allocating frequencies for this use.

3.3.2. RLAN or Wi-Fi

a)) Definition

Radio local area networks (RLAN), commonly referred to as Wi-Fi, are capable of delivering point-to-point or point-to-multipoint access services that enable wireless broadband communications. Composed of micro-cells, one of the prime appeals of these networks is that they can provide broadband Internet access in hotspots, in other words, heavy traffic public spaces such as railway stations, airports, hotels, etc. They can also be used for supplying broadband connections in isolated regions. Bitrates will vary depending on the RLAN technology used, and can go as high as several Mbit/s, albeit with the bandwidth shared by the micro-cell's users. The conditions that enable use of this technology are now established, and should therefore enable the swift spread of this access mode for mobile pedestrian, i.e. nomadic, broadband Internet users.

One particular feature of the 2.4 GHz and 5 GHz frequency bands is that they are assigned to no user in particular, and are licence-exempt. They are used for a wide array of services (a number of industrial, scientific and medical applications, for low-power, short-range wireless devices, amateur radio, radiolocation, earth exploration satellite services, etc.).

b) More flexible usage and authorisation terms

The regulations governing RLAN that were enacted by ART in 2002 are divided into two parts:

- first, decisions that define the terms of use for RLAN frequencies, and the terms for frequency allocations¹⁴;
- second, the guidelines that lay down the terms for granting authorisations to conduct trials on publicly-available networks.

Since 25 July 2003, a system of simple declaration has applied to operators of publicly-available RLANs, pursuant to the guidelines that were published jointly by the Ministry of Industry and ART, concerning the transitional period up to the adoption of the "electronic communications" Directive's transposed texts. The Act of 9 July 2004 concerning electronic communications and audiovisual communication services provides for a much more flexible authorisation system.

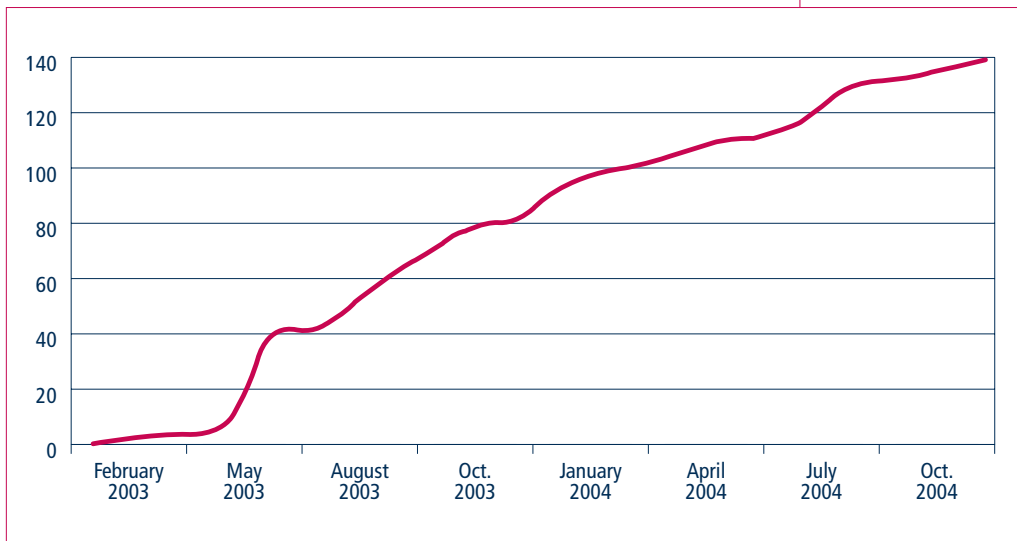
The current experimental framework applying to publicly-available RLANs allows original initiatives to develop in a relatively unrestricted environment, and so enables the players to build economically and technically viable services for this nascent market.

14) Decisions n° 02-1009 and n°02-1091 allocating frequencies to radio installations in the 2400-2483.5 MHz and 5150-5350 MHz bands.
Decisions n° 02-1008 and n°02-1092 defining the conditions for radio installations the 2400-2483.5 MHz and 5150-5350 MHz bands.

Over the course of 2005, in concert with the industry's players, ART is expected to define those changes that need to be made to the regulations governing publicly-available RLANs, as part of the framework defined by the Electronic Communications Act.

The frequencies currently authorised for operating RLANs are the 2.4 GHz band, both indoors and outdoors, and the 5150-5350 MHz band, for indoor use only, and carrying restrictions on their maximum power (listed in the table below). ART and France's other authorisation bodies are currently working to define the terms for making the 5470-5725 MHz band available as well for indoor and outdoor RLANs.

**Number of RLAN operators declared with ART
since the start of 2003:**



Source ART

Maximum authorised power

	Geographic zone	Frequencies	Indoorr	Outdoor
2.4 GHz band		2400	100 mW	100 mW
		2454		10 mW
		2483.5		
	Guadeloupe, Martinique, St Pierre et Miquelon, Mayotte	2400	100 mW	100 mW
		2483.5		
	Reunion and Guyana	2400	100 mW	impossible
		2420		100 mW
		2483.5		
5 GHz band		5150	200 mW	impossible
		5250		
		5350	200 mW with DFS/TPC or equivalent or 100 mW with DFS only	

3.3.3. Independent networks

In 2004, ART adopted 340 decisions on independent networks. 201 concerned PMR networks, of which 70 2RP networks, accounting for allocations for more than 20,000 networks. As it has been since 25 July 2003, in 2004 independent wireline networks are no longer subject to individual authorisations. The smaller number of decisions compared to the previous year is due to the fact that no frequencies were allocated for the RPX (shared LAN) category because of the Independent network/Publicly-available network distinction that still needs to be made.

Decisions on independent networks

	Number of Decisions*	WLN**	RR**	SNG**	VSAT**	2RP**	PMR**
1997	159	14	93	16	11		25
1998	215	21	79	27	8		80
1999	278	29	145	12	9		83
2000	334	28	99	18	8	82	69
2001	400	59	92	11	12	90	136
2002	376	40	95	19	14	90	118
2003	435	25	88	24	29	88	181
2004	340	0	99	25	15	70	131

* : Total number of decisions, including frequency allocation.

** : WLN: wireline network.

RR: radio relay.

SNG: satellite news gathering (temporary video links).

VSAT: very small aperture terminal/satellite telecommunications service using a narrow portion of the satellite's full capacity.

2RP: independent mobile radio network.

PMR: private mobile radio network (independent of the terrestrial mobile service).

II. Number management

1) ART's role

ART is responsible for establishing a national numbering plan (operational management of the plan, definition of the rules of management and evolution), and for allocating operators the numbering resources they require for their operations, pursuant to Article L. 36-7 7° of the Post and Electronic Communications Code. This power involves the assignment of telephone numbers that can be used on the public switched telephony network (geographic numbers, non-geographic numbers, short and special numbers and dialling prefixes), but also the allocation of addressing resources for data networks, post-paid card numbers and MCC + MNC codes (for GSM network SIM cards). ART is also in charge of overseeing the proper use of numbers, and the operational deployment of the required structures (files, databases).

The terms governing ART's assignment of numbers to operators are defined in Article L. 44 of the Post and Electronic Communications Code, which provides most notably for a fee to be paid for use and management of these resources. The sum and schedules for these fees are set by Decree n° 96-1224, dated 27/12/1996, and the Order dated 30/12/1997. By way of an example: a block of 10,000 "classic" numbers (e.g. 01 40 47 70 00) costs 200 euros a year, while a four-digit prefix costs 40,000 euros a year. For a single-digit prefix, referred to

as an E prefix, the annual cost to the beneficiary operator is 400,000 euros. Article L. 44 of the Post and Electronic Communications Code also defines operators' obligation to offer their subscribers number portability.

ART ensures monitoring of the technical and regulatory work being done in the area of numbering, around Europe and around the globe. It needs to be remembered that France's national numbering plan is part of a global system that was implemented worldwide by the International Telecommunications Union (ITU) and regionally by the European Conference of Postal and Telecommunications Administrations (CEPT).

2) Managing the national numbering plan

The rules for managing the national numbering plan were established by Decision n° 98-75, dated 3 February 1998, and ratified by Article L. 36-7 of the Post and Electronic Communications Code, in concert with the country's operators. These rules include the terms of request for admissibility, the process for making information available, and allocation withdrawal procedures. They specify the documents and information that need to be supplied in operators' submissions, and are amended as needs evolve.

In 2004, ART issued 211 decisions on numbering. 8 of its decisions were general in scope, and 203 concerned day-to-day numbering resource management. These latter can be broken down into 151 allocation decisions, 10 reservation decisions, 20 decisions on transfers from one operator to another, and 22 decisions on withdrawals or amendments to terms of use.

2.1. The different types of numbers: definitions

- E or 16XY format prefix: a one or four-digit prefix to be dialled instead of 0 when calling a correspondent. It is used for selecting an alternative local or long distance operator.
- Geographic numbers: numbers assigned to fixed lines only (allocated to operators by lots of 10,000 numbers).
- Non-geographic numbers: 0800 type numbers that provide access to so-called special services (e.g. toll-free calls, shared cost or shared revenue calls).
- Mobile numbers: numbers that begin with 06 reserved for mobile operators' customers.
- 3BPQ short numbers: numbers allocated to card-based services, double dialling carrier selection, kiosk services, etc.
- 10XY special numbers: numbers assigned to an operator for offering subscribers a given service (e.g. technical support).

State of numbering resources at the end of 2004

	Number of numbers
"E" prefixes allocated	5
16XY prefixes allocated	31
16XY prefixes reserved	0
10XY special numbers allocated	17
10XY special numbers reserved	0
Short numbers (3BPQ) allocated	168
Short numbers (3BPQ) reserved	5
Mobile numbers allocated	68,230,000
Mobile numbers reserved	1,000,000
Fixed non-geographic numbers allocated	17,790,000
Fixed non-geographic numbers reserved	420,000
Fixed geographic numbers allocated	153,070,000
Fixed geographic numbers reserved	200,000

Source : ART

2.2. Short number management (3BPQ)

The summary of the 17 contributions that ART received to its public call for comments on changes to the numbering plan for 3BPQ short numbers, which was launched in October 2003, was submitted to the Board and to CCRSCE¹⁵ in 1Q 2004.

The vast majority of the contributors voiced their support for allocating short numbers to operators to be used by a single vendor, which cannot share its use with another vendor. On the other hand, some did stress the fact that the proliferation of this type of number could hamper the development of non-geographic 08ABPQMCDU type numbers, and possibly increase the potential number of dialling errors. Another argument put forth was that having the switches' translators managing a large number of 3BPQ numbers could overburden the equipment's handlers.

Although a significant number of the contributors were in favour of structuring short numbers based on pricing tiers, most did not see the relevance of this type of hierarchy, given the massive migrations that it would entail, which in turn would have a considerable detrimental impact on service operators financially. CCRSCE recommended that this system not be used, and so ART did not adopt it as part of its numbering plan.

15) Commission Consultative des Réseaux and Services de Communications Electroniques/ Advisory Commission on Electronic Communications Networks and Services.

Breakdown by category of service of short numbers allocated or reserved

Short numbers (3BPQ) for offering card or assimilated services	21
Short numbers (3BPQ) for providing carrier selection via double dialling	6
Short numbers (3BPQ) for other uses	146
Total	173

Source : ART

3) Changes to the numbering plan

16) ART Decision n° 98-75, dated 3 February 1998, ratifying the national number plan management rules

After eight years of being used, it was decided that changes needed to be made to the numbering plan that was implemented in 1998¹⁶ – and since modified, notably to make pricing for special o8AB numbers more clear, to take virtual private networks into account, and for the introduction of short 3BPQ numbers. First, the new regulatory framework requires that numbering plan management rules be made to comply with the new provisions, and particularly the general authorisation system.

Furthermore, changes in the marketplace are altering the stakes involved in allocating certain resources, notably single-digit prefixes used for carrier selection. These resources in fact become less strategic with subscription-based pre-selection and could be allocated to other uses.

And, lastly, technological innovations are forcing the need for changes to the old systems, and even the creation of new ones. It is therefore worth wondering whether the geographic information tied to a number should be maintained, or whether a videophony service, for instance, should be identified by a specific number. The growing use of Voice over IP services, fixed-mobile convergence and the possibilities that these new technologies open up for consumers and operators, require that the numbering plan be taken under proper consideration.

3.1. Launch of a public consultation

This is why, on 27 October 2004, ART launched a public consultation on changes to the numbering plan and its management rules. This consultation, which ended on 26 January 2005, will lead to the publication of a summary document in the first half of 2005, which will in turn lead to the first decisions on the matter.

The consultation contained two main parts. The first part was prospective in nature, aimed at exploring new uses and new needs, fuelled by the growing use of new technologies, which will emerge in the coming years. The second part, focused more on the operational aspect, was geared primarily to gathering the sector's views on the current numbering plan, and on its evolution in the short

term. Three main topics were addressed in this call for opinions: Voice over IP and nomadcity; the carrier selection prefixes “E” and “16XY”; and “08AB” numbers for accessing online services.

3.2. CCRSCE's numbering committee

Parallel to this public consultation, upon the Authority's suggestion, the Advisory Commission on Electronic Communications Networks and Services (CCRSCE) created a task force dedicated to examining changes to the numbering plan in three to ten years. Chaired by Antoine Weil, this working group is made up of users, operators, equipment manufacturers and academics. Its goal is to reach a consensual view which would be used primarily in guiding ART's future decisions on numbering.

Five core issues were identified:

- Use of the numbering plan;
- The various markets' expectations for the numbering plan;
- Technological developments (IP, XML, etc.) and their impact on the plan;
- Evolution of numbering plan needs (portability, positioning, etc.) and the technical solutions that can be implemented;
- Issues relating to operation and taxation.

This working group met twice in 2004, and further meetings are planned for 2005, the goal being to submit a final report containing concrete proposals in autumn 2005.

Universal service

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I. The universal telephone service

1) Universal service and the universal service operator

One outstanding event in 2004 was the publication of Act n° 2003-1365, dated 31 December 2003, in the Official Journal of 1 January 2004, concerning public telecommunications service obligations and France Telecom's obligations – thereby transposing the European “universal service” Directive of 7 March 2002¹⁷. As with the telecommunications regulation Act of 1996, the legislator reaffirmed the great importance that it attaches to the public electronic communications service, which is defined in Article L. 35 of the Post and Electronic Communications Code, and to universal service in particular.

17) Directive 2002/22/EC of the European Parliament and Council on universal service and users' rights relating to electronic communications networks and services.

1.1. Universal service components

The universal telecommunications service is made up of three public telecommunications service obligations, which include the provision of mandatory telecommunications services (access to the digital network that integrates services, leased lines, packet data switching, advanced voice telephony and telex, which must be provided nationwide), and general interest missions (in the areas of defence and security, public research and higher education).

Universal service must be provided nationwide, and is broken down into three components:

- “component 1” covers the installation of a fixed connection for all persons who so request, and provision of a quality telephone service over this connection, at an affordable price;
- “component 2” covers the provision of a directory enquiry service and an electronic directory service (Minitel or Internet), at a reasonable price, and the free distribution of a printed directory to all public telephone service subscribers;
- “component 3” covers the installation of public payphones in the public thoroughfare, and the provision of a quality and reasonably-priced telephone service over these payphones.

Each of these three components includes provisions for disabled persons, guaranteeing that their access to services is equivalent to the one enjoyed by all other users, provided that the enabling technologies are available, and can be deployed at a reasonable cost.

1.2. Universal service operators' obligations

The operators responsible for providing one or more of these components must:

- comply with quality of service obligations, and publish the value of the QoS indicators set by their specifications (these indicators include those defined in the European “universal service” Directive);
- establish a tariff catalogue for the universal service and the mandatory services;
- communicate their tariffs to the Ministry and to ART at least eight days prior to their implementation;
- inform users of their universal service offer, of the corresponding tariffs and of any future modifications, suspensions or cancellations (providing regular updates of this information to all of their sales agencies, and all of their points of contact with customers, and through an electronic medium which can be accessed in real time at a reasonable price; and guaranteeing disabled persons’ access to this information in a manner adapted to their disability);
- not alter the material terms of use of a universal service before having informed users (six months’ notice for cancellation or modification terms and deadlines, 18 months’ notice in the case of technical modifications that require significant replacements or changes to the installations connected to the network, and 8 days prior notice for all new offers relating to the universal service, and changes to the existing offer other than tariff-related);
- separate universal service items from other services in all material related to the service offering, on customer invoices and in the subscriber contract.

1.3. Universal service tariffs

The tariffs charged for offers which fall under the heading of provision of a universal service component are set by the operator, which is required to adhere to the principles of transparency, non-discrimination and cost-oriented pricing. They do not depend on the way that subscribers utilise the service, as long as it does not affect the conditions for providing the service. These tariffs are set in such a way as to avoid discrimination based on a user’s geographical location.

With the publication of Decree 2005-75, dated 31 January 2005, ART was put in charge of controlling universal service tariffs, which had previously been performed through ministerial approval, after having received ART’s opinion. The new framework creates a system whereby the operator in charge of a universal service component informs ART of any changes to its pricing structure, and provides the Authority with all of the information required to assess these price changes, at least one month prior to their scheduled roll-out. Once it has received the complete submission, ART has three weeks to issue a public recommendation, or to oppose the new tariff’s implementation. In addition, tariffs applying to “component 1”

telephone calls may be subject to a multi-annual tariff schedule defined by ART, in which case they will not be subject to the system of prior notice that carries the power to oppose.

It is also worth noting that the universal service operator keeps the power to instigate price changes, and that the Authority can only oppose implementation of these changes in cases where they contravene the obligations contained in the regulatory framework.

1.4. Designation of universal service operator(s)

Article L.35-2 of the Post and Electronic Communications Code states that the operators that can be designated to provide one of the universal service components are *“any operator that agrees to provide a component of universal service nationwide and is capable of doing so.”*

Designation of the operator(s) in charge of universal service is performed by the Minister responsible for electronic communications, following three calls for candidates (one per component) relating to the technical and tariff conditions and, if necessary, to the net cost of providing these services.

In principle, this procedure allows for competition over each of the universal service components defined by the Directive, and limits the cost of universal service since the net costs factored in for assessing the cost of universal service cannot exceed the commitments made in the responses to the call for candidates.

Having submitted its response to the call for candidates on 16 December 2004, France Telecom was designated the operator in charge of universal service for all three components on 2 March 2005, through three orders that were issued by the Minister responsible for electronic communications on 3 March 2005.

2) Funding universal service

The Act of 31 December 2003 introduced two major changes to the system used for financing universal service through the universal service fund. The first involves the scope of the contributors, and the second changes the scale of assessment used to spread the cost of funding universal service amongst the operators.

2.1. Greater number of contributors

Pursuant to Article L. 35-3 of the Post and Electronic Communications Code, the undertakings financing the net cost of universal service are the operators defined by Article L. 32 15° of the Post and Electronic Communications Code, in other

words *"all physical persons or legal entities operating a publicly-available electronic communications network or providing an electronic communications service to the public."*

There are two consequences to this provision. First, some operators or service providers which did not help fund universal service under the system in force in 2001, became contributors in 2002. These are primarily data transport network operators such as France Telecom subsidiary, Transpac, and ISPs, such as Wanadoo, AOL, Club Internet, etc., which did not have the status of declared operator at the time. Furthermore, starting in 2002, authorised operators which had contributed to the universal service fund prior to 2002, will not be obliged to declare the turnover generated with these new contributors (notably ISPs) as part of their retail turnover.

2.2. Contribution based on turnover

Traffic volume is no longer used as the basis for calculating operators' contribution to the universal service fund, as it would penalise narrowband ISPs in particular. The new wording of Article L. 35-3 of the Post and Electronic Communications Code includes a second paragraph that states that, for each operator, calculation of their contribution will be *"prorated based on the turnover generated by electronic communications services excluding revenues generated by interconnection and access services that are the subject of the agreements defined in Section 1 of Article L. 34-8, and other services carried out or invoiced on behalf of third-party operators."* This same Article specifies that this new scale will be applied starting with the final assessment for fiscal 2002.

18) Decree n°2004-1222, dated 17 November 2004, published in the Official Journal of 19 November 2004.

The Decree¹⁸ relating to public service obligations and funding the universal electronic communications service, which amends the Post and Electronic Communications Code, defines the methods used for applying the new legal framework governing calculation of the cost of universal service.

Article R. 20-39 of the Post and Electronic Communications Code states that: *"The operators which contribute to the universal service fund are undertakings which operate publicly-available networks and which provide electronic communications services to the public."*

Calculation of each operator's contribution to the universal service fund will be prorated based on the turnover generated by electronic communications services excluding:

- 1) *revenues generated by interconnection and access services that are the subject of the agreements defined in Section 1 of Article L. 34-8 and other services carried out or invoiced on behalf of third-party operators.*
- 2) *revenues generated by the conveyance and broadcast of radio and television services, and by the operation of master antennae.*

In the case of offers that combine radio or television services and electronic communications services, calculation of the operator's contribution will be prorated based solely on the turnover generated by electronic communications services.

When calculating the contribution, an exemption of 5 million euros from the thus-calculated annual turnover is provided for."

In a bid to be transparent and anticipate future scenarios, on 30 April 2004 the Authority brought together potential contributors to the universal service fund (operators who held an L.33-1 or L. 34-1 authorisation in 2002, and those operators who in 2002 were providing electronic communication services such as Internet access or data transport, etc.) and a group of chartered accountants. The Authority then conducted a public consultation, from 2 August to 16 September 2004, on the implementation of these new measures, and proposed several methods of application through a draft accounts statement.

Decision n° 04-1027, dated 25 November 2004, adopts the account statement of turnover which is relevant for calculating definitive contributions to the universal service fund for 2002, taking into account the regulatory provisions set by Decree n° 2004-1222, dated 17 November 2004, particularly with respect to the 5 million-euro exemption.

2.3. Relevant electronic communications services

The following table, which lists the principal business areas covered by ART's 2002 Market Observatory, and specifies their qualification with respect to electronic communication services, indicates those electronic communications services to be included or not in the scope of turnover which will be used as the basis for calculating an undertaking's contribution to the universal service fund.

Electronic communications services	Incl. in the scope
Fixed telephony services <ul style="list-style-type: none"> - Originating from a fixed line - Originating from a public payphone - Originating from a calling card 	Yes Yes Yes
Mobile services <ul style="list-style-type: none"> - Terrestrial mobile telephony (access and call origination) - Roaming in - Roaming out - Calls from mobiles 	Yes No Yes Yes
Other mobile services <ul style="list-style-type: none"> - Satellite mobile services - Paging services - Professional mobile networks 	Yes Yes Yes
Internet <ul style="list-style-type: none"> - Narrowband - Broadband - Other services related to providing Internet access (advertising, e-commerce, website hosting other than for access, firewall, antivirus...) 	Yes Yes No
Advanced services (fixed and mobile telephony) <ul style="list-style-type: none"> - Toll-free services - Shared cost numbers - Shared revenue numbers (regardless of the number's owner) - Special routing services 	Yes Yes Yes No
Leased line and other capacity services aimed at the retail market, and data transport (fixed and mobile network) <ul style="list-style-type: none"> - Analogue and digital lines, regardless of bitrate - Other capacity services (LAN interconnection, etc.) - Data transport 	Yes Yes Yes
Directory services and related income (fixed and mobile telephony) <ul style="list-style-type: none"> - Telephone directory services - Electronic directory search 	Yes Yes
Related income <ul style="list-style-type: none"> - Directory sales (print, CD-ROM, ...) - Advertising: other income - Sale of files 	No No No
Terminal sales, rental and maintenance	No
Other services related to electronic communications (computer applications and hosting services)	No
Interconnection and access for fixed and mobile telephony, including inbound international traffic.	No

It should be pointed out that broadband services, satellite services, paging services, corporate mobile network services and leased line and data transport services which were not taken into account when calculating contributions for the years prior to 2002, are now included in the scope of calculation.

On the other hand, terminal sales and rental are not part of the eligible services, and the turnover they generate is not factored into the statement of accounts.

2.4. Breakdown of contributions by type of operator

The changes made to the scale of assessment more than doubled mobile operators' share (which rose from 20% to 42%), decreased only slightly by the change in scope (42% to 39%). The new contributors shoulder 8% of the total cost of universal service in 2002.

Scale of assessments	Breakdown of Universal Service (US) funding, based on volume (prior to the Act of 31/12/2003)	Breakdown of US funding based solely on TO	Breakdown of US funding, based on TO, and expanded to all contributors (pursuant to the Act of 31/12/2003)
Contribution as a % of US cost			
Fixed	75%	56%	52%
Mobile	20%	42%	39%
Internet	5%	2%	2%
Cable operator	0%	0%	0%
ISP	Not concerned	Not concerned	4%
Data transport	Not concerned	Not concerned	4%

3) ART's role

3.1. Universal service tariff control

On 7 January 2005, France Telecom – the universal service operator at the time, and which had responded to the call for candidates launched by the Minister responsible for electronic communications – submitted a tariff decision to the Ministers responsible for the economy and for electronic communications (and communicated to ART) which sought to substantially alter the tariff structure of its universal telephone service and directory services. The inquiry on these decisions

was conducted according to the procedure in force at the time, and the Authority issued two Recommendations – nos. 05-0031 and 05-0032, dated 21 January 2005 – prior to the Ministers' approval. The publication of Decree 2005-75, dated 31 January 2005, interrupted this procedure by transferring the responsibility for tariff control to ART.

On 3 February 2005, France Telecom therefore submitted two new tariff decisions to ART, which are described in the following section.

3.1.1 France Telecom's universal service tariff offer

The two tariff decisions submitted by France Telecom were geared to changing the following tariffs contained in "Main Subscription" and "Social Subscription" contracts:

- A 19.3% increase in "Connection fees," effective on 3 March 2005;
- A multi-annual increase in the monthly price of the "Main Subscription" of 7.6% on 3 March 2005, of 7.2% on 1 July 2006 and of 6.7% on 1 July 2007;
- A 7.6% decrease in the monthly price of a "Social Subscription" effective on 3 March 2005,
- Amendment to the tariff structure and a 5.8% decrease in the average price of "fixed-to-fixed" national calls;
- A 12.4% increase in the price of directory services supplied by an operator to private phone users, and a 66.7% increase for enquires made from a public payphone.

The proposed changes to the tariff structure for fixed-to-fixed national calls include the following elements:

- Removal of calling minute credits, to be replaced by a per-call connection cost for local, trunk and long distance calls in Metropolitan France and the overseas départements;
- Simplification of call destinations: merger of regional 1 and 2 tariffs with the local calling tariff.

Furthermore, in its response to the call for candidates, France Telecom had proposed to adhere to a multi-annual tariff schedule for 2005-2008 for the price of a calling basket, which includes national fixed-to-fixed and fixed-to-mobile calls such that, calculated on a fixed basis, increases in calling prices would be lower than consumer price increases (excluding tobacco), by an average of at least 7% a year, from 2005 to 2008, with 2005 tariffs being the starting point.

3.1.2 The Authority's analysis

According to ART's estimates, in 2003 France Telecom had an over 99% share of

the residential access market, and an over 70% share of the residential fixed-to-fixed calling market, in terms of both volume and value.

As to the impact on consumers of increased telephone service tariffs (installation fees, monthly subscription and the price of calls), ART noted that once these measures came into effect, the monthly invoice for a customer who is representative of France Telecom's average consumption level remained relatively unchanged. The increase in installation and subscription fees is offset by the decrease in calling prices. Nevertheless, a great many customers will see their bill increase if their individual consumption level is below that of the average consumer. The Authority pointed out that the choice of a lower call establishment cost, combined with a lower per-minute calling price, would have minimised this outcome, while having the same overall outcome for France Telecom and for consumers as a whole.

Based on the cost elements submitted by France Telecom – which reveal a deficit in the operator's 2004 trading account, coupled with international comparisons which reveal that France Telecom's subscription price is significantly lower than the European average – the Authority ruled that both the principle of a multi-annual increase in subscription prices, and the increases proposed by France Telecom, were acceptable overall.

Nonetheless, in view of France Telecom's virtual monopoly in the access market, the Authority felt that France Telecom needed to offer something in exchange to enable competition to develop in this market, and so benefit consumers. France Telecom therefore agreed to several commitments:

- **Concerning wholesale subscription resale:**

- Publication of a reference offer, comparable in its terms to European best practices, by 15 September 2005 at the latest, to be implemented in the 1st quarter of 2006;

- **Concerning unbundling:**

- a decrease in service access fees (SAF) for unbundling, starting on 1 February 2005: to a maximum 50 euros, excluding VAT, for full unbundling, and 55 euros, excluding VAT, for shared access, in line with European best practices;
- a decrease of at least 1 euro, excluding VAT, in the recurring monthly full unbundling tariff, for the period running from 1 June 2005 to 31 December 2007; this set rate for the period should allow for the creation of a substantial gap between the wholesale unbundling tariff and the price of a retail subscription by mid-2007, thereby allowing effective competition to develop;

- a commitment from France Telecom that the quality of the unbundling service, both full and partial, will be at least as high as the quality of its retail services; a list of indicators will be established and published by France Telecom concerning the quality of the delivery process and after sales service, for both wholesale markets and corresponding retail markets, effective 1 June 2005, at the latest.

As to the "Social Subscription," ART was pleased with the tariff decrease proposed by France Telecom, since it was a particularly important part of universal service sought by the legislator. The Authority nevertheless had some concerns over France Telecom's forecasts, which project a 34% decline between 2005 and 2007 in the number of customers benefiting from this subscription, dropping from 707,000 to 465,000.

With respect to the price of the operator's directory services, ART stated that the proposed increase was legitimate in view of the service's trading account deficit, due in large part to the steady decline in use. Furthermore, this increase applies only to a limited number of calls per subscriber. Since average consumption rates are estimated at around five calls a year per subscriber, the average impact of this increase in tariffs is around 0.50 euros a year per subscriber.

The Authority therefore issued a favourable recommendation on the tariff increases proposed by France Telecom, provided that France Telecom uphold its commitments.

3.2. Evaluation of the cost of universal service

Pursuant to Article L.36-7 of the Post and Electronic Communications Code, since 1 January 2004 ART has been responsible for establishing the sum of the contributions made to universal service funding and for overseeing this financing system, in accordance with the principles and methods defined by Article L.35-3.

An annual assessment of net costs factors in the costs, revenues and intangible benefits that the operators providing each of the universal service components derive from these obligations.

For each fiscal year, the definitive cost calculation rules applied to universal service are adopted by ART, following a public consultation and published prior to the assessment.

ART requests that each of the providers of the different components supply the information required to assess the cost of the universal service components. The portion of these service providers' accounts used to calculate the net cost of universal service obligations is audited by an independent body appointed by ART. The audit concerns the service cost and revenue data which is taken into account to evaluate the cost of universal service obligations, and the data collection methods relative to the characteristics of the network and the traffic, supplied by the service provider's information system.

3.2.1. Geographical balancing

The net cost of the geographical component is equal to the sum of the relevant net costs in unprofitable zones, which would not be served by an operator under normal market conditions.

For 2002, ART elected to segment local distribution into zones which represented France Telecom's network economy, made up of 35 classes of local distribution zones, characterised by their geographic density.

The model reflects the behaviour of an operator which is developing a network starting with the most profitable zones, supposedly those which are the most densely populated. For each class of local zone, a net cost appears when the added cost to the operator for serving this category of local zone is higher than the direct and indirect revenues generated by providing services in this class of local zone.

3.2.2. Social tariffs

a) *Reduced phone bills*

The net cost of social tariffs is equal to the portion financed by the operator in charge of this component in view of reducing tariffs for disadvantaged persons (notably due to low income levels).

b) *Telephone debt*

The net cost of telephone debt is equal to the debts absolved through a decision issued by the prefect of the requestor's *département* of residence, following an opinion from the regional commission.

3.2.3. Directories and directory services

The net cost of providing directory and directory enquiry services takes into account the calls induced and derivative products (e.g. France Telecom's Yellow Pages (*Pages Jaunes*) products).

3.2.4. Public payphones

The net cost of installing and operating public payphones is calculated based on the operating accounts for this activity provided by the operator in charge of this service.

3.2.5. Intangible benefits

To assess the intangible benefits enjoyed by universal service operators, ART incorporates the advantages derived from brand image, ubiquity, lifecycle and access to data, in accordance with the European Commission communiqué of 27 November 1996.

a) Brand image

An operator which provides a telephone service to all persons requesting it, even in sparsely populated zones, automatically improves its brand image with the public. Assessing this advantage is tied to the additional cost that the subscriber is willing to pay, which is evaluated through a statistical study.

b) Ubiquity

This is a technical and commercial advantage that results from the network's density when connecting a new subscriber, compared to an operator under normal market conditions. For the universal service operator, the fact of having "*universal coverage in a ubiquitous operating zone*" naturally generates comparatively lower costs than those generated by the competition when extending its network to new customers.

c) Lifecycle

This is the advantage derived from the improvement over time of the economic status of subscribers benefiting from universal service. Some subscribers, who are not profitable when they first connect to the phone service, can become profitable later on (e.g. as the children in the household grow up), thereby creating new revenues for the operator.

d) Access to telephone usage data

This is the advantage derived from the use of subscriber data to improve market knowledge. Because of the service it provides, a universal service operator has access to market data (regarding usage) which it can use for its marketing needs or to assess network upgrade requirements.

3.3. Evaluation of the net cost of universal service for 2002

The Act of 31 December 2003 incorporated regulatory amendments come from the transposition of the "universal service" Directive. To explain this new system that sets the players' definitive contributions, on 30 April 2004 ART assembled

both potential contributors to the universal service fund (operators who held an L.33-1 or L. 34-1 authorisation in 2002, and those operators who in 2002 were providing electronic communications services such as Internet access or data transport, etc.) and a group of chartered accountants. The Authority then conducted a public consultation, from 2 August to 16 September 2004, on the implementation of these new measures, and proposed several methods of application through a draft accounts statement.

This draft accounts statement for turnover that is relevant for calculating definitive contributions to the universal service fund for 2002 was adopted by Decision n° 04-1027, dated 25 November 2004. It takes into account the regulatory provisions laid out in Decree n° 2004-1222, dated 17 November 2004, which specifies the terms of application of this new system, by amending Articles R.20-33 to R.20-39 of the Post and Electronic Communications Code concerning the methods for calculating net costs corresponding to universal service obligations. The cost of geographical balancing, for instance, is confined only to the costs generated in unprofitable zones.

Following a public consultation on the draft measures for putting these Articles into effect, which ran from 2 to 10 December 2004, ART adopted the rules of definitive cost calculation for 2002 in its Decision n° 04-1066, dated 15 December 2004. On this same date, the Authority set the compensation for use of capital rate at 12%, via Decision n° 04-1067.

In its Decision n° 04-1068, dated 21 December 2004, ART applied these same methods for valuating the net cost of universal service in 2002 at 124.989 million euros, after deduction of intangible benefits.

The maximum contribution for 2002 was 0.42% of relevant turnover.

3.4. Net cost of universal service from 2002 to 2005

In million €	2002	2003 ⁽¹⁾	2004 ⁽¹⁾	2005 ⁽²⁾
	Definitive	Estimated	Estimated	Estimated
Geographical balancing	164.060	104.80	104.80	164.060
Public payphones	20.927	14.80	14.80	20.927
Social tariffs	35.676	35.676	22.50	22.50
Directories & directory services	0	0	0	35.676
Intangible benefits	-95.674 ⁽³⁾	⁽⁴⁾	⁽⁴⁾	-95.674 ⁽³⁾
Total	124.989	142.10	142.10	124.989

Source : ART

- (1) Estimated calls for 2003 and 2004 are calculated base on the definitive net cost for 2001.
- (2) Estimated calls for 2005 are calculated base on the definitive net cost for 2002.
- (3) Re: intangible benefits: brand image (86.228 M €); ubiquity (0.310 M €); lifecycle (8.216 M €); usage data (0.920 M €).
- (4) When calculating the definitive net cost for 2001, intangible benefits were factored into the three components, and totalled 98.2 M €.

3.5. The notion of excessive prices

The law indicates that “where the net cost to an operator subject to universal service obligations does not represent an unfair burden for this operator, no compensation will be paid to it”. The existence of a net cost therefore leads to the possibility of compensation only in cases where it constitutes an unfair burden on an operator.

4) Pending disputes

Several operators filed appeals with the Conseil d'Etat relating to ART's assessment of their contribution to the cost of universal service for a given year. On 23 February 2005, the Conseil d'Etat ruled that nine operator appeals on estimated contributions for 2002 were inadmissible because no prior complaint had been filed. Other appeals are still pending.

Appeals were also filed to rescind the Decree dated 10 April 2003 concerning universal service funding, while others sought to repeal the decision from the Minister responsible for electronic communications to launch three calls for candidates for each of the universal service components.

Furthermore, the administrative court of Paris is still hearing two operators' appeals concerning the calculation of the estimated cost of universal service for 2001.

II. Universal directory

1) Legal context

The new legal framework created by the transposition of European directives reaffirmed the principle of freedom to publish a directory, thereby creating competition between the providers of these services (Electronic Communications Act¹⁹), and upholds consumers' right to have access to a universal directory service which lists, among other things, all fixed and mobile network users and subscribers (law relating to public telecommunications service obligations²⁰). While awaiting the publication of the Conseil d'Etat's new decree, specifying application of the universal directory provisions contained in Article L.35-4 of the Post and Electronic Communications Code, Decree n° 2002-36, dated 8 January 2002,²¹ and the Conseil d'Etat's Decree n° 2003-752, dated 1st August 2003, (Articles R. 10-4, R.10-5, R.10-7 and R.10-8)²² apply.

The goal of this method is to stimulate competition between directory and directory enquiry services (residential and business directories, reverse directories, filtered and unfiltered results, etc.), and for new services (advanced search, access to detailed information, etc.), at competitive rates for consumers.

In 2004, as part of its universal service mandate, France Telecom supplied a print directory (White Pages), an electronic directory ("3611") and directory enquiry services (by dialling 12), which delivered calling information on all the people who subscribed to its fixed telephony service, with the exception of those who had requested unlisted numbers.

These same services (directory in print or electronic format, online directories on the Minitel and the Internet, and directory enquiry services), which are developed as part of the universal service directory, in addition to the France Telecom fixed numbers must include mobile users' or subscribers' personal coordinates, coordinates of those subscribing to fixed telephone services other than France Telecom's (local loop, unbundled, VoIP operators, etc.), along with business numbers and IP telephony numbers. These services can be provided by France Telecom's competitors, whether local loop operators or not (particularly as concerns online directories and "118" type information services). To inform consumers, ART provides regular updates on frequently asked questions concerning the universal directory²³.

19) Article L.34 of the Post and Electronic Communications Code, derived from the Act of 9 July 2004, formerly Art. L.33-4 of the Act dated 26 July 1996.

20) Article L. 35-4 of the Post and Electronic Communications Code.

21) See <http://www.art-telecom.fr/textes/decrets/decret2002-36.pdf>

22) See <http://www.art-telecom.fr/textes/decrets/2003-752.pdf>

23) See <http://www.art-telecom.fr/telecom/faq/annuaireuniv.htm>

All subscribers, whether individuals or legal entities, subscribing to a publicly-available fixed or mobile telephone service can request that their personal data (or those of the line's user, contingent on their consent) not be listed in the universal directory created by their operator. This list can be supplied to any operator or publisher creating a print or electronic directory, and to any enquiry service provider, all of which are required to comply with subscribers' demands with respect to publication of their data.

Subscribers or users have the right:

- not to appear in the listing (this right is applied by default to mobile phone subscribers or users; they must in fact request that their operator include their name and number in the listing);
- to have their mailing address not listed, insofar as possible²⁴;
- to have their first name replaced with an initial, insofar as possible²⁵;
- to have their e-mail address or URL listed²⁶;
- to refuse that their data be supplied to third parties for marketing purposes;
- to refuse that their data be available for reverse directory searches (based on their phone number).

24) It is possible that this right be overruled, particularly when two people share the same name, in which case the publisher may be required to list addresses to distinguish them.

25) It is possible that this right be overruled, particularly when two people share the same name, in which case the publisher may be required to list their first name to distinguish them.

26) An e-mail address cannot be listed in print directories, because of the potentially temporary nature of this information.

Initially planned for 2004, publication of universal directories was postponed due to delays in the release of the associated decrees. According to the timetable, the first online universal directories and the first universal directory services are to become available at the earliest within four months of the "universal service" Decree's publication, in other words within the timeframe needed for operators to inform subscribers of their rights, collect their demands and personal data, and transmit them to the directory's publishers. Because of the specific publishing schedule for print directories (essentially spread out over the year on a region-by-region basis), they could be released gradually over the course of 2006. Provided the "universal service" Decree is published on time, this timetable is aligned with the launch schedule for directory enquiry services which are available by dialling 118 numbers, which allow operators and service providers to supply "universal" information immediately at launch.

2) ART's action

Following ART's involvement in the work performed by the National Computer Technology and Freedom Commission (CNIL) in 2003, on the principles of protecting users' personal data and information, and in a bid to monitor changes being made to the regulatory framework (particularly the cancellation of automatic listing of mobile subscribers who did not explicitly ask to have an unlisted number within the allotted 6-month period, and the Conseil d'Etat's decision to cancel use of the longstanding "12" number for directory enquiry

services), in February 2004, ART created a “universal directory” working group. The group is made up of operators, directory publishers and directory enquiry service providers, consumer associations and CNIL. The work it performs is focused on legal obligations, competition rules, consumer protection and defining the timetable for deploying universal directories and universal directory enquiry services.

3) Guidelines for the sale of subscriber lists

On 16 December 2004, the work performed by this group also allowed ART to publish guidelines²⁷ for the sale of subscriber or user lists, following a public consultation on the matter in the summer of that year. ART’s goal was to encourage the swift deployment of these universal services, by minimising any potential conflicts that might arise between operators and service providers.

The guidelines address operators’ and publishers’ obligations, the technical restrictions that need to be adhered to (content and format of the data files, update regularity and process, etc.), and the financial terms for the sale of subscriber lists. ART based these guidelines on compliance with certain principles:

- respect for the rights of electronic communication subscribers and users;
- universality and non-discrimination towards users in the collection, layout and publication of the data;
- operators’ non-discrimination towards publishers in their distribution and pricing of the lists;
- operators’ obligation to effect cost-oriented and usage-based pricing for their lists;
- ban on the resale of lists for uses other than the publication of universal directories (particularly a ban on using these lists for direct marketing purposes or similar activities);
- simplicity of the method used and of the technical ability to update the information, to guarantee both a reasonable cost and a viable, future-proof system.

3.1. Operators’ chief obligations

The guidelines emphasised the chief obligations incumbent on operators assigning subscribers a number from the national numbering plan, for a particular telephone service²⁸.

27) See <http://www.art-telecom.fr/publications/lignedir/annuniv/ld-annuniv.htm>

28) Note that these obligations do not apply only to local loop operators, since in some cases it is their distributors or online service operators which assign numbers to subscribers, and are therefore the ones in a position to supply the information used in universal directory listings.

Among other things, each operator is obliged:

- to deliver its “universal directory” list to publishers which agree to publish a “universal” directory or a “universal” directory enquiry service;
- to keep this list up to date so that the personal data it contains corresponds to the latest choices expressed by subscribers and users;
- to establish a price for the sale of their list which is both non-discriminatory and cost-oriented;
- inform their subscribers of their rights, and make it possible for them to exercise them, notably by the implementation of means through which subscribers can consult their personal information and request any changes to it.

3.2. Publishers’ chief obligations

In the same vein, the guidelines defined the chief obligations incumbent on publishers who publish a directory or who provide a directory enquiry service based on universal directory lists.

Among other things, each publisher is obliged:

- to comply with the choices expressed by subscribers and users, and to process all of the data contained in this list in the same, non-discriminatory fashion;
- to publish each user’s data in the same format and according to a neutral sorting order (or search response display)²⁹;
- not to favour certain subscribers in terms of content or the way that the supplied information is presented³⁰;
- to offer subscribers the same terms for having special listings, if they so request (listing in a particular format, promotional format, etc.);
- to keep their “universal directory” lists updated, in concert with operators, with a regularity that corresponds to the type of product supplied;
- not to mention the name of the subscribers’ operator in the directories or enquiry services they provide.

3.3. Player feedback

In a bid to avoid any future disputes, the guidelines clarified the relationship between the players, recommended certain practices, and specified a certain number of points inherent in the business of publishing universal directories.

Under these guidelines, then, subscribers’ rights may be restricted in order to handle the listing of two subscribers with the same name, or to take into account an operator’s particular system for indicating a subscriber’s profession. The responsibilities of each of the players (users, subscribers, operators, directory publisher or directory enquiry service provider) with respect to publication, updates and the exactitude of the information published are clearly defined.

29) In cases where subscribers have indicated a sort preference, it must be respected. For all subscribers who have expressed no preference, the same sort order must be applied to all users (e.g. alphabetical by last name, or fixed then mobile for phone numbers).

30) The rules of neutrality and non-discrimination apply to the order of the responses given to an online directory search or directory enquiry (e.g. a neutral criterion used for selecting a shop could be the distance from an address supplied by the person conducting the search).

The guidelines also recommend that, in the list they supply to publishers, operators include information on the type of pricing applied to calls made to numbers in their listings which are not geographic or mobile numbers. The exact tariffs do not need to be specified, the goal being to provide clarity for users.

In addition, the guidelines define the scope of the numbers published in the universal directory, the format of the lists that operators sell to publishers, the terms of their sale, the regularity of operators' list updates (particularly to take into account the specific needs of online directories – which allow for and require quick updates – compared to print directories), the management of subscriptions held by several users and subscription modifications (e.g. when a subscriber changes operators but keeps the same number, or when different operators supply different information about the same subscriber).

Consumers

I. Consumer services

- 1) Information mandate
- 2) Assistance mandate

II. Information technology usage

- 1) Mobile
- 2) Fixed telephony
- 3) Internet

III. Consumption

- 1) Household consumption in 2003, according to INSEE
- 2) Changes in subscription
- 3) Consumption baskets in France

IV. Directory enquiry services

- 1) Elimination of the “12”
- 2) The choice of 118XYZ
- 3) An initial non-discriminatory and transparent allocation
- 4) Informing consumers

I. Consumer services

Like in previous years, ART continued in its mission to inform and assist consumers. In a sector undergoing constant change, from a technological, marketing and legal standpoint, ART has set itself the goal of providing users with as clear and legible a view as possible of the electronic communications sector's reigning environment. Taking consumers' interests into account is in fact one of the missions that the legislator entrusted to ART, through the Act dated 9 July 2004 on electronic communications and audiovisual communication services. Article L. 32-2 of the Post and Electronic Communications Code stipulates that ART must foster real and fair competition between network operators and telecommunications service providers "to the benefit of users."

1) Information mandate

1.1. The Authority's website

ART makes use of several media to keep consumers informed – notably on new uses or the different technologies available – including its website³¹ which remains its central communication platform. Updated daily, this site covers all of ART's activities. Web users can obtain answers to their questions by browsing the FAQ sections, which are updated regularly and which cover issues as diverse as mobile number portability, 0800 numbers and ADSL. Mobile users in Metropolitan France can also obtain information on the quality of the networks' service by consulting the surveys conducted each year with operators and consumer protection associations.

Topics can also be viewed by theme, including the local loop, mobiles, Internet, network interconnection and access. An educational and working tool, ART's website provides access to reference texts (European directives and their transposition into national law in the three Acts involving the sector which were published in 2004, decrees of application, etc.). ART's recommendations and decisions too are published online.

The other sources of information available to consumers are the observatories. In addition to the market observatories (quarterly and annual), and the mobile and unbundling observatory, in 2004 ART set up an Internet market observatory. Up until then, figures on the Internet market covered only declared operators, and so excluded a number of ISPs which enjoyed a sizeable market share. To cover the whole of the Internet market, both residential and business, in early 2004 ART sought to expand the scope of its statistical observations to all ISPs, with which it has formed a fruitful collaboration. A special quarterly questionnaire was created in concert with the players, and the mechanism was validated by ART through its

31) www.art-telecom.fr

32) Decision n° 04-451, dated 3 June 2004.

June 2004 Decision³². Furthermore, in partnership with Ortel (Regional telecommunications observatory), ART publishes a digital Atlas on its site, which shows the districts covered by a permanent connection to the Internet, a map of the telecom operators' networks, the location of the infrastructures that can be mobilised for operators' network deployments, and the location of public broadband infrastructure projects. Publication of this Atlas helps complete the information that ART makes available to regional authorities on its site, which is grouped together in a dedicated area.

1.2. The Authority's Newsletter

To inform consumers, ART also publishes a newsletter which is available in both print and electronic format. Every two months the Authority's newsletter addresses a specific topic (mobiles, Europe and Telecoms, the new regulatory framework for electronic communications, etc.) and examines the latest headlines and changes to market analyses.

1.3. Direct consultation with consumers

Consumers and their associations are consulted regularly during the calls for comments launched by ART. In 2004, they were able to express their views on topics as wide-ranging as changes to the numbering plan, directory enquiry services including the elimination of the "12" information service and the adoption of a new numbering format that seeks to ensure fair competition between the various service providers, and mobile number portability (see below). Users' opinions were also solicited on the revamping of the authorisation procedure for publicly-available networks, and notably GSM and a mobile terrestrial radiolocation network. Consumer associations were also able to voice their opinion as part of the market analyses process. All of these public consultations led to the publication of a summary paper, which is available on the Authority's website.

1.4. Reports

The pace of the changes taking place in the sector, the technical aspects and the importance of the issues involved in regulation require that ART call upon outside technical, economic, statistical and legal experts. The work performed by consultancies allows ART to benefit from specialised, neutral and outside expertise. Most often, for ART these reports are used as working tools only and not meant to be made public. Nevertheless, some reports are aimed at informing the sector, and are made available on ART's website. In 2004, a report on regional councils' networks, which was drafted in 2003/2004, was published along with others focused on mobile payment methods, instant messaging and one on the "Distribution and use of new technologies in France."

Reports published in 2004

THEMES
Fixed and mobile market regulation
A mobile network operator's economy
Mobile operators' profit levels and European comparisons
Tariff control in the major European countries
Tariff monitoring (residential and business markets)
Broadband market regulation and regional government (assistance)
Broadband network collection cost model
Guidelines for regional government intervention
Universal service
Audit of telecommunications services turnover in 2002
Technology and the future
Fixed-mobile convergence
Upgrading cable networks in France
Consumption and usage
Distribution and use of new technologies in France
Quality of service and consumers
Quality of service on mobile telephony networks
Operator relations with residential subscribers
Resource management
Numbering plan benchmarks
Scope of players newly subject to regulation
Streamlining frequency management procedures

2) Assistance mandate

As in previous years, in 2004 ART's "Consumer" division provided assistance to consumers by responding to their various enquiries.

Telecom operators' customers (in the broadest sense: i.e. carriers and ISPs) can address ART directly to inform the Authority of a problem encountered with their operator, or to obtain information on the current telecommunications service offer, which is becoming increasingly complex.

Consumers are encouraged to write, telephone or e-mail ART. Their requests are examined and, when necessary, they are answered directly. In 2004, over 2,000 letters and 4,000 phone calls, along with a great many e-mails were processed. The Authority forecasts that it will respond to 8,000 consumer enquiries in 2005, of which 1,800 e-mails.

Most of the time, in cases of disputes, ART launches an arbitration procedure with the operator concerned, who is encouraged to take the necessary measures to examine or re-examine the customer's file. It is important to remember that the Authority is neither a customer hotline, nor a customer service department, and even less a consumer or user association. As a last recourse, however, proper legal action is the most suitable means for resolving conflicts which are often related to the consumer code, since ART has no legal jurisdiction in these areas. Consumers should therefore address themselves to the DGCCRF or to their local Magistrates' Court.

ART is deeply concerned by the problems encountered by consumers, and meets regularly (or when necessary for a specific problem) with operators and ISPs to request that they use all of the means necessary to avoid and handle recurring problems.

II. Information technology usage

For the second year running, ART in partnership with CGTI (The Ministry of Economy, Finance and Industry's information technologies general council), has commissioned CREDOC (Research Centre for the Study and Observation of Standards of Living) to conduct a survey that seeks to measure the extent to which new technologies have been adopted by persons aged 12 years and up³³.

This barometer, which is incorporated into CREDOC's annual "Standards of living and French people's aspirations" survey, was established in June 2004 following a series of one-on-one polls conducted with a representative sample of the French population, with 2,222 people selected using a quota method, including 209 adolescents, ages 12 to 17.

1) Mobile

The 2004 survey confirmed that information and communication technologies are increasingly popular in French society. The appeal of mobile telephony has not waned, and the rate of equipment amongst French people of 12 years and over has stepped up, increasing from 62% to 67% between June 2003 and June 2004, gaining three points on the growth rate reported one year earlier. This steadily growing appetite for mobile phones derives both from the fact that certain categories of user are now getting on board (the over 60s and rural population), and to a revived appeal for a product which is offering more and more features, thanks to convergence (SMS, photos, music, etc). SMS continued to be very popular: 58% of all individuals equipped with a mobile phone send short messages, with percentages in the 12-17 year old group running as high as 97% (+ 5 points). Over half of these teenagers send more than 10 SMS a week.

33) This report is available on ART's website: <http://www.art-telecom.fr/communiqués/communiqués/2005/index-c05-06.htm>

Mobile usage:

	June 2003			June 2004		
% of people who use their mobile to:	18 years +	12-17 year olds	Total	18 years +	12-17 year olds	Total
Send SMS	53	92	57	54	97	58
Send MMS	6	23	8	9	26	11
Download a ringtone, , logo or game	nd	nd	nd	25	74	29
Use a paid voice service (kiosk)	17	17	17	18	17	18
Browse the Internet	4	11	5	7	19	8
View their e-mail	4	8	4	6	7	6

Source: CREDOC, survey on Standards of living and French people's aspirations

2) Fixed telephony

The rise of mobile telephony has taken place at the expense of fixed telephony, whose base continues to shrink. 15% of those questioned indicated that they have no fixed phone line, compared to 10% four years earlier. This trend of replacing fixed phones with mobile is particularly prominent amongst certain groups which cannot always afford two phone bills, notably 35% of young people from 18 to 24 years of age, and 29% of blue collar workers.

In June 2004, over half of the population (53%) was equipped with both a fixed and a mobile phone line. Competition in the fixed telephony market is growing. One French person in four subscribed to at least two operators, versus one in ten in June 2000. Worth noting too is that young people, people with post-secondary degrees, upper managers and people with a comfortable income are the ones most likely to take advantage of competing offers.

Fixed and mobile telephony equipment

% of the population	2003	2004	Growth 2003/2004
Equipped with a fixed and a mobile phone	50	53	+3
Equipped only with a fixed phone	36	31	-5
Equipped only with a mobile phone	12	14	+2
Has no telephone (fixed or mobile)	2	1	-1
Total	100	100	

Source: CREDOC, survey on Standards of living and French people's aspirations

3) Internet

In June 2004, more than half (53%) of all French people had a home computer, and 56% of those polled said they used one regularly outside the home (+ 7 points

in the year). More than one person in three had an Internet connection at home. The gaps according to the size of the town remained rather small: half of rural dwellers had an Internet connection compared to 65% in the Paris region. On the other hand, there are still major disparities in broadband access: only 24% of Internet users in rural zones had access to a broadband offer, compared to 75% in the Paris region. In June 2004, 9 million people, or 17% of the population, said that they had bought something off the Internet in the past twelve months.

Households' micro-computer and Internet connection equipment levels

	June 2003			June 2004		
% of people equipped	18 years and over	12-17 year-olds	Total	18 years and over	12-17 year-olds	Total
With a home computer	46	69	48	50	75	53
Internet connection at home	30	40	31	35	49	36
Of which broadband	nd	nd	nd	54	60	55

Source: CREDOC, survey on Standards of living and French people's aspirations

III. Consumption

1) Household consumption in 2003, according to INSEE

Growth of households' "communications" consumption

Variation compared to previous year, in %

	1998	1999	2000	2001	2002	2003
08 - Communications	14.7	24.1	20.8	12,0	9.4	7.1
Of which telecommunications services	16.1	26,0	23.7	13.5	10.8	7.7
Households' total consumption	3.4	3.2	2.7	2.6	1.5	1.3

Source: Insee, National accounts for 2003

Note: The "communications" item includes the purchase of telephone equipment, consumption of postal services and consumption of telecommunications services. Telecom services consumption nevertheless accounts for close to 90% of the "communications" item.

Increases in households' consumption of telecommunications services have been very high in recent years: +26.0% in 1999, +23.7% in 2000, +13.5% in 2001, while at the same time, total household consumption has risen by only 2% to 3% a year. The trend over recent years has been a decline in growth rates (+7.7% in 2003), which nevertheless remain healthy compared to other areas: households' total consumption rose by only 1.3% in 2003. Telecommunications services made

the greatest contribution to increasing overall consumption, ahead of electronic and computer equipment (+7.1%), and insurance (+7.4%).

Telecommunications services' share of households' total consumption

Budgetary coefficients, at current prices, in %

	1998	1999	2000	2001	2002	2003
08 - Communications	1.52	1.66	1.75	1.82	1.87	1.92
Of which telecommunications services	1.31	1.43	1.54	1.61	1.67	1.72

Source: Insee, national accounts for 2003

In 2003, household consumption of communications goods and services accounted for 1.92% of households' total actual consumption. Telecommunications services represented 1.72% of households' consumer spending in 2003, versus 1.54% in 2000 and 1.31% in 1998. This very high increase in telecommunications' share of household budgets in 1999 and in 2000 (+0.12 points then +0.09) later declined (+0.05 points in 2003), but still remained considerable. And it continues to be true even at a time when prices are tending to drop. This is due to the swift and widespread adoption of these services, and particularly to the growing number of households equipped with a mobile phone and Internet access.

Total consumption in this area, which includes information and communication technologies goods and services, accounts for 3.3% of household spending, and is responsible for 0.3 points of the 1.3% increase in households' consumer spending in 2003.

2) Changes in subscription

2.1. Residential and business subscriptions

During the period running from 2000 to 2004, the price of France Telecom subscriptions, all user categories combined, increased in terms of average annual value:

- by 8.2% for consumers;
- by 8.7% or 11% for businesses, depending on the type of contract chosen.

The following two tables illustrate this price increase:

Consumers	2000	2001	2002	2003	2004
Main subscription	100	104	106	108	108

(base 100 in 2000) – based on France Telecom's basic tariffs and ART baskets

Source: ART

Businesses	2000	2001	2002	2003	2004
Business contract	100	107	109	111	111
Présence and/or Numéris subscription	100	106	107	109	109

Source: ART

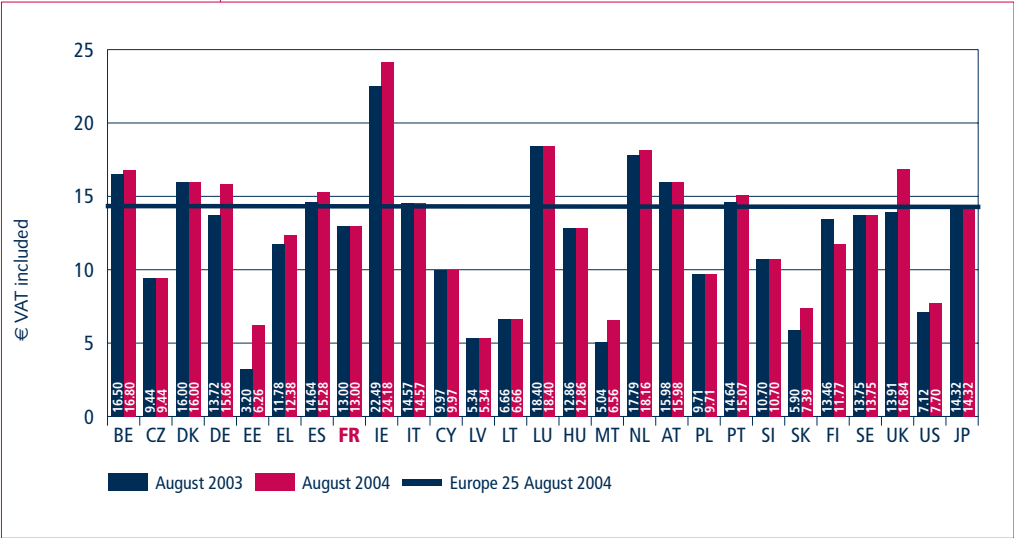
(base 100 in 2000) – based on France Telecom’s basic tariffs and ART baskets

2.2 . European comparisons

Average subscription prices in Europe have been rising steadily in recent years. Since the markets were opened up to competition, the price of residential subscriptions has increased by 30.8% to 15.30 euros, including VAT, and business subscriptions by 25% to 15.04 euros, excluding VAT.

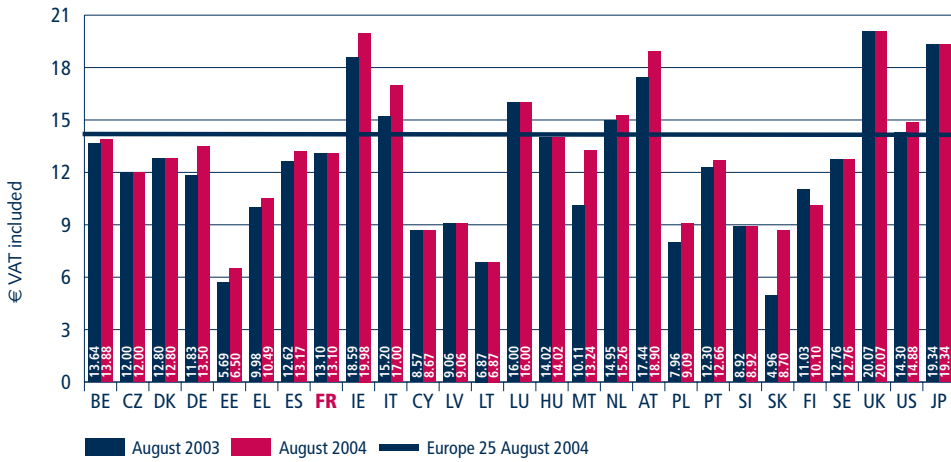
The price of residential subscriptions in the EU-15 is higher than the EU-25 average, except in France, Finland and Sweden.

Residential monthly rental

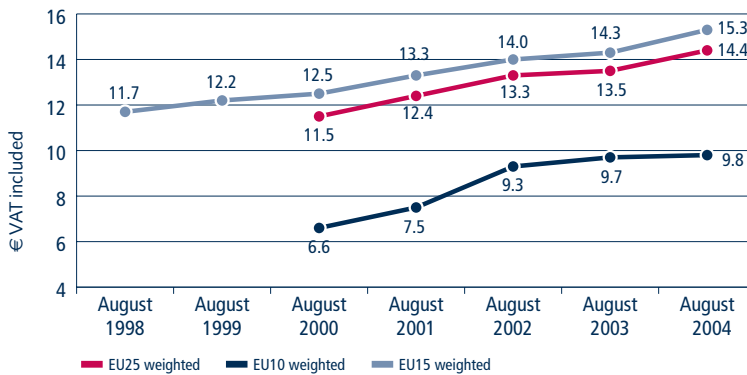


Source: 10th European Commission Report. List of country abbreviations at the end of the report.

Business monthly rental

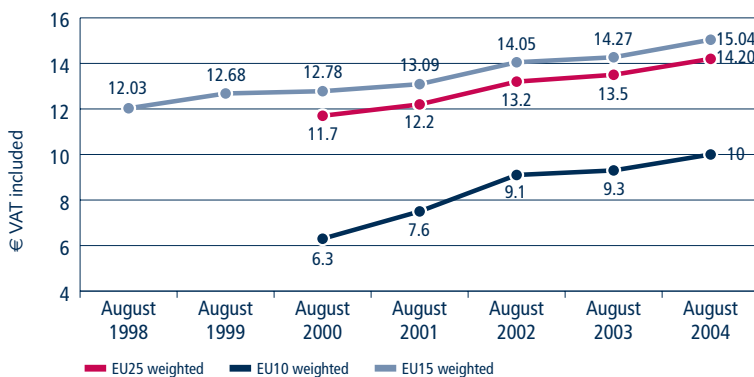


Residential rental per month



Source: 10th European Commission Report. List of country abbreviations at the end of the report.

Business rental per month



Source: 10th European Commission Report

Source: 10th European Commission Report

3) Consumption baskets in France

Last year, ART published its reports on the changes in France Telecom's basic prices in 2003, for residential customers on the one hand, and for business customers on the other. This year, a report on changes in the leading alternative operators' residential offers has been added. This report completes the quantitative estimates of the impact of market liberalisation on fixed telephony prices as a whole.

3.1. Methodology for measuring changes in alternative operators' tariffs

The methodology explained below is similar to the one used for examining the changes in France Telecom's offers and prices. It is a "bottom up" approach: each tariff (local call by operator A, etc), is associated with a consumption profile³⁴, which makes it possible to estimate the average per-minute value. By combining these assessments with volumes per customer type, we are able to reconstruct consumption baskets for each operator.

3.1.1. Scope

a) Communication assessment basis

Only subscriptions to a telephone service and national calls to geographic numbers and mobiles are taken into account. Not included, most notably, are international calls, Teltel and Audiotel calls, and IP-based calls. To examine alternative operators' tariffs, the sample chosen represents between 70% and 90% of the market in question, based on types of call.

Each offer corresponds to distinct tariffs (in most cases) for national and local calls, calls to Orange France and SFR mobiles, and calls to Bouygues Telecom mobiles, in Metropolitan France.

Calculations are made on the average annual value, including VAT for residential customers, and excluding VAT for businesses.

b) Time period

The report covers the years 2000 to 2004. It should nonetheless be pointed out that the first offers from alternative operators for local calls and calls to mobiles were not introduced until late 2000 and late 2001, respectively. Consequently, and because the report would have lost a good deal of its meaning had it begun only after all types of offers had come on the market, it was decided to consider that, like with pre-selection, an alternative operator A customer uses this operator for the largest possible portion of her calls, which means that all of the calls, when placed, correspond to operator A's offer. For the remaining calls (e.g. local calls in early 2001), this customer continued to call over the incumbent carrier's network which therefore, under this hypothesis, fall under the heading of France Telecom's basic tariffs.

34) Average length of the calls, and portion of calls made in peak hours.

3.1.2. Method used for establishing calling prices

Per-minute price refers to the average price of one calling minute. Each of the tariffs listed above is in fact composed of its length and the value of a time credit (we speak of connection cost when the length of the call is nil), and the price of a minute beyond this time credit. The average cost of one calling minute therefore depends a great deal on the total length of the call. Given that these prices are differentiated depending on whether the call is placed in peak or off-peak hours, the value of one calling minute naturally depends as well on the proportion of calls made in one or other of these time periods. The price of a minute is therefore calculated based not only on tariffs, which vary from operator to operator, and the type of call, but also on the “call profile” which also depends on the type of call (e.g. calls to mobiles are generally shorter than calls to fixed lines).

For a given call (defined by the operator used, the date of the call and the type of call), taking into account the price charged by the operator on that date and the average profile of that type of call (the profile does not relate to the operator or the time, but only to the type of call), makes it possible to calculate the average price of one calling minute.

3.1.3. Baskets and Laspeyres indexes

The volume of the baskets is calculated based on ART's annual Market Observatory, which provides a breakdown between residential and business customers. Combined with the different per-minute values, these volumes make it possible to estimate the growth of an average consumption basket.

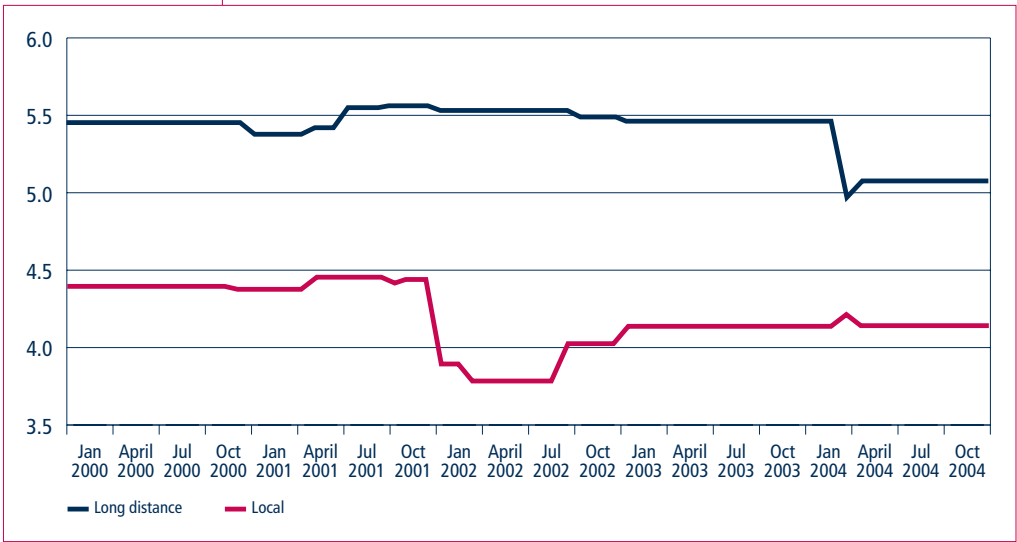
The overall sum of this basket only partially reflects the price level, since it depends on consumption level as well. For example, a 20% decrease in all tariffs from one year to the next, combined with a doubling in all consumption volumes, would increase the level of the average basket. To neutralise this volume effect, ART has selected a Laspeyres index method whereby the base is re-evaluated every year. This means that price changes are calculated annually, then aggregated to obtain an index for the total time period.

3.2. Average calling prices

For each type of call, an average per-minute price is established. This average is weighted for each year by the volume generated by each alternative operator, to obtain a clear view of the evolution of the market itself.

3.2.1. Fixed-to-fixed alternative operator calls

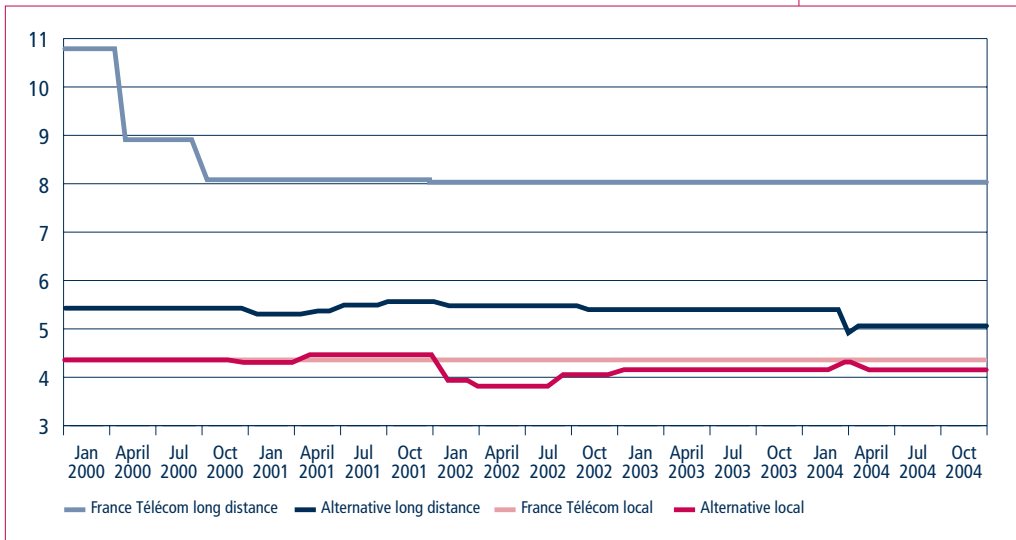
Fixed to fixed calls
Change in the average price of local and long distance calls charged by alternative operator



Source : ART

There has been an only slight change in the prices charged by alternative operators for long distance calls. The first offer for this kind of call was introduced in 1998, and the prices charged are not factored in here. By 2000, the tariffs had already stabilised and changed very little up to 2004. Worth noting, however, is a relatively sizeable decrease in early 2004, as alternative operators aligned the price of long distance calls with those of local calls. During the period covered by the study, the overall trend is one of decline, since the price of one minute of long distance calling dropped from 5.4 euro cents/minute to 5.1 euro cents/minute in late 2004.

On the flipside, the changes in the price of local calls reflects alternative operators' arrival in this segment over the course of 2001. In 2000 the curve in fact represents only the price of France Telecom's basic offer, at which point the price was 4.4 euro cents/minute. In May 2001, the first offer from an alternative operator triggered a slight increase in the average price. Then, in early 2002, the arrival of different players was felt, and significantly drove down the price of a local call, to as little as 3.8 euro cents/minute in a matter of months. Prices then began to rise, to settle in at under 4.2 euro cents/minute.

Fixed to fixed calls**Comparison of France Télécom's basic tariffs and alternative operators' prices**

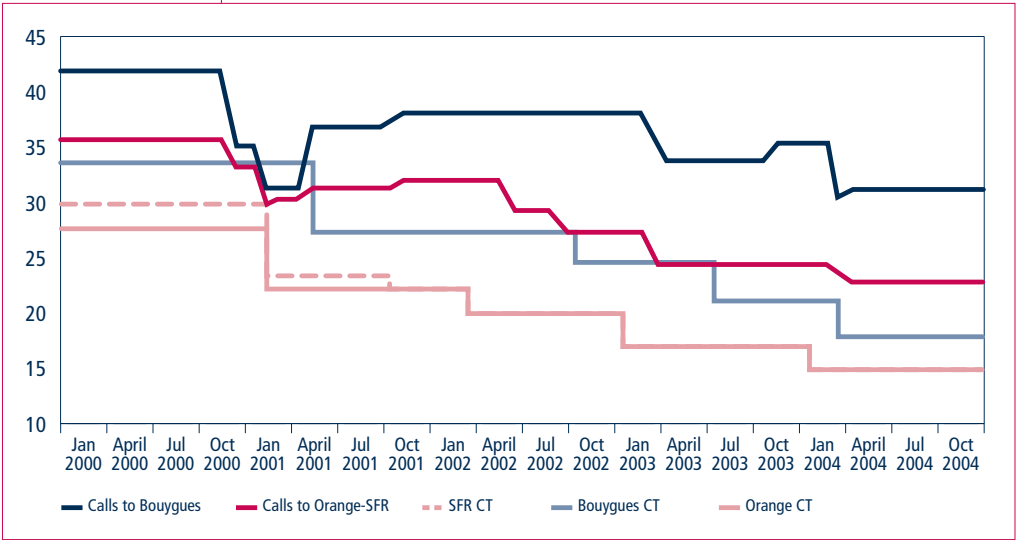
Source : ART

France Telecom's optional offers either require a subscription or are flat rate offers: no direct comparison can be made then, but would serve to reveal a significantly lower price than the one charged for France Telecom's basic offers.

Comparisons show that the price charged by alternative operators for long distance calls is well below France Telecom's. The incumbent's per-minute price dropped substantially in late 2000, then levelled off at around 8.1 euro cents. Alternative operators nevertheless continue to offer very competitive prices, with an average per-minute tariff of around 5.5 euro cents. As to local calls, alternative operators' average prices are again lower than the incumbent's but not by much (4.2 versus 4.4 euro cents/min. in 2004).

3.2.2. Fixed-to-mobile alternative operator calls

Fixed-to-mobile calls
Changes in alternative operator's prices and mobile call
termination charge



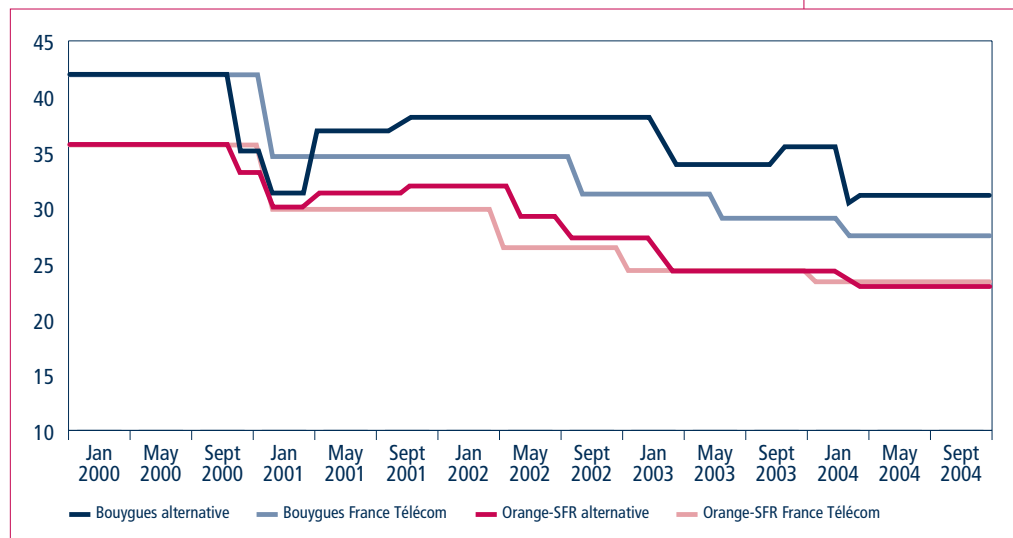
Source : ART

The above graph illustrates the change in the per-minute price for calls to an alternative operator subscriber and to mobiles, and changes in mobile call termination charges. Note that the per-minute price of calls to mobiles dropped sharply between 2000 and 2004. A first major decrease occurred when the market opened up to alternative operators in late 2000. This decrease preceded the first decline in termination charges for calls made to Orange, SFR and Bouygues Telecom mobiles, and can therefore be fully explained by the advent of the first attractively-priced offers from alternative carriers. After that, throughout the period running from mid-2001 to 2004, the per minute price for calls to Orange or SFR mobiles dropped in stages, following decreases in call termination charges by a few months. The price of a minute for calls to a Bouygues Telecom mobile has been more random: some operators have occasionally sought to harmonise the tariffs for calls to Orange-SFR and those charged for calls to Bouygues Telecom customers, only to retract, which could account for the fluctuations found between mid-2001 and late 2003.

To summarise, we shall note that competition between operators makes it possible to pass on to end users the decreases in call termination charges that ART ordered in operator interconnection markets.

Fixed to mobile calls

Comparison of France Telecom's basic tariffs and alternative operators' prices



Source : ART

For fixed-to-mobile calls, on the whole alternative operators are now offering lower prices than the incumbent carrier. More specifically, in the area of calls to Orange and SFR mobiles, France Telecom was slightly more competitive up to mid-2004, at which point alternative operators' prices became slightly lower. For calls to Bouygues Telecom, however, France Telecom's prices are still well below those charged by the competition, despite alternative operators' efforts since their arrival in the market, and a minor narrowing of the gap in early 2004.

3.3. Price indexes

3.3.1. France Telecom's basic tariffs

Change in residential customers' consumption index

France Telecom's basic residential tariff	2000	2001	2002	2003	2004
Change		-2.9%	-1.1%	-1.2%	-0.9%
Index price	100	97.1	96.1	94.9	94.1

Source : ART

Index for France Telecom's basic business offers³⁵ :

France Telecom's basic business tariff	2000	2001	2002	2003	2004
Change		-9.2%	-1.7%	-2.0%	-1.3%
Index price	100	90.8	89.3	87.5	86.4

Source : ART

35) As with the Market Observatory, these offers include business offers.

Depending on the methodology used, it can be said that from 2000 to 2004:

- Changes in tariffs were on the whole beneficial to all categories of user;
- The drop in prices was greater for business subscribers: roughly 15.6% compared to only 5.9% for residential subscribers.

Furthermore, in 2004 the price of the subscription accounted for a sizeable share of all user categories' total bill:

- around 45% for residential subscribers versus 35% in 1997;
- around 36% for business and corporate subscribers versus 23% in 1997.

The share of calls to mobiles increased along with volumes, then began to decline with the drop in tariffs. It went:

- from 7% in 1997 to 17% in 2004, after reaching a peak of 19% for residential users;
- from 20% in 1997 to 27% in 2004³⁶, after reaching a peak of 28% for business users.

36) Based on the volumes used, the share of calls for 2003 was re-evaluated at 27%.

3.3.2. Alternative operators' tariffs

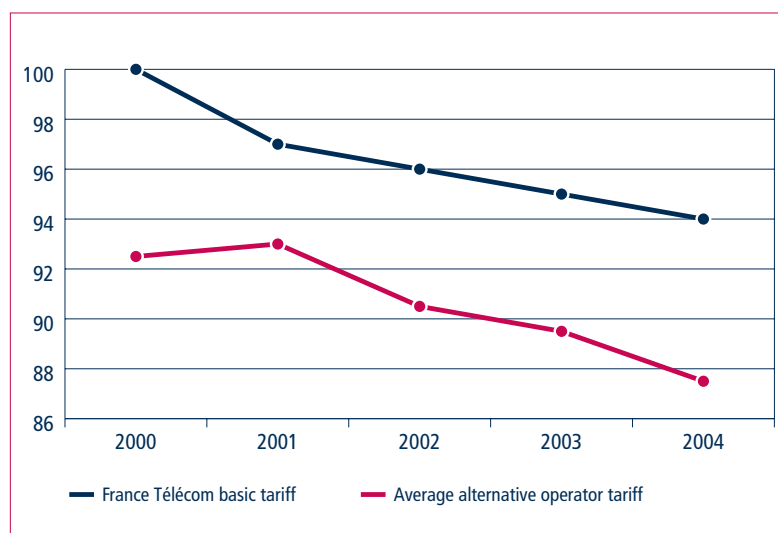
Calculating an index that includes a subscription to a France Telecom telephone service includes customers who have pre-selected an alternative operator. This index reveals that the rise in subscriptions in late 2000 was not immediately counterbalanced by the decrease in calling tariffs. Growth of the Laspeyres index is negative for every year between 2001 and 2004: the price of all calls dropped on average, whereas subscription prices remained the same. The decrease was largely felt in 2002, following the introduction of relatively low prices for local calls. The steady drop in the price of calls to mobiles is responsible in part for the annual decreases. The changes that occurred in 2004 were also fuelled by the drop in long distance prices. It is interesting to note that this downward trend has not been reversed and that, despite occasional slight increases in certain segments (for calls to Bouygues Telecom mobiles in 2001, on local calls in 2002), overall pricing levels dropped every year between 2001 and 2004.

Alternative operators average residential tariff	2000	2001	2002	2003	2004
Change		+0.4%	-2.8%	-0.9%	-2.1%
Index price	92.3	92.7	90.2	89.4	87.5

(base 100 for the France Telecom basket in 2000)

Source : ART

Residential price indexes



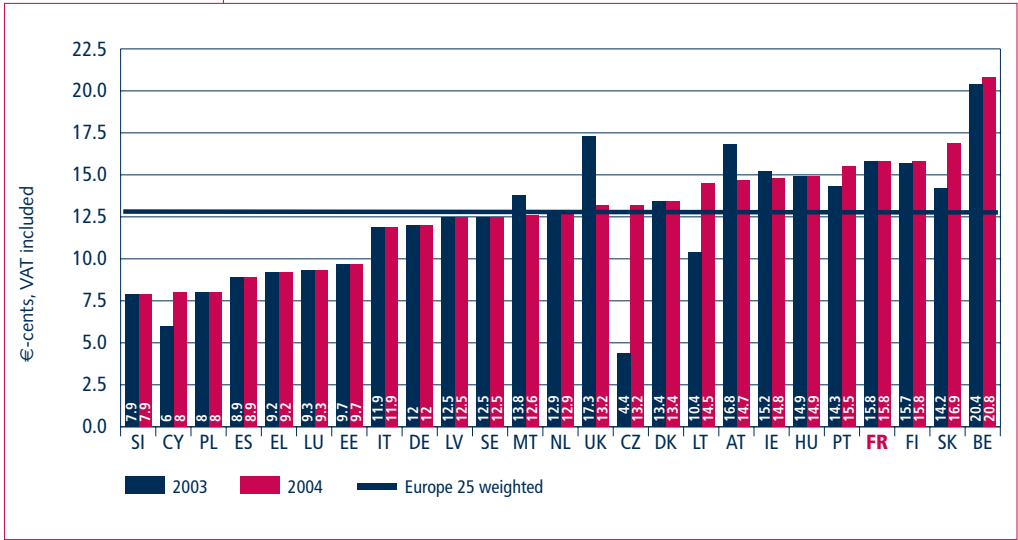
Source : ART

3.4. Calling prices: European comparison

With a few notable exceptions, the price of 3-minute and 10-minute local and long distance calls on Europe's incumbent operators' networks were the same in 2004 as they were in 2003. The most outstanding changes occurred in the UK, where the price of local calls came more in line with the EU-25 average in 2004, whereas the price of both 3- and 10-minute long distance calls plummeted by more than 60%. Belgium is still home to the highest price for local calls in the EU-25, with the award going to Italy, Germany and Hungary for national long distance calls.

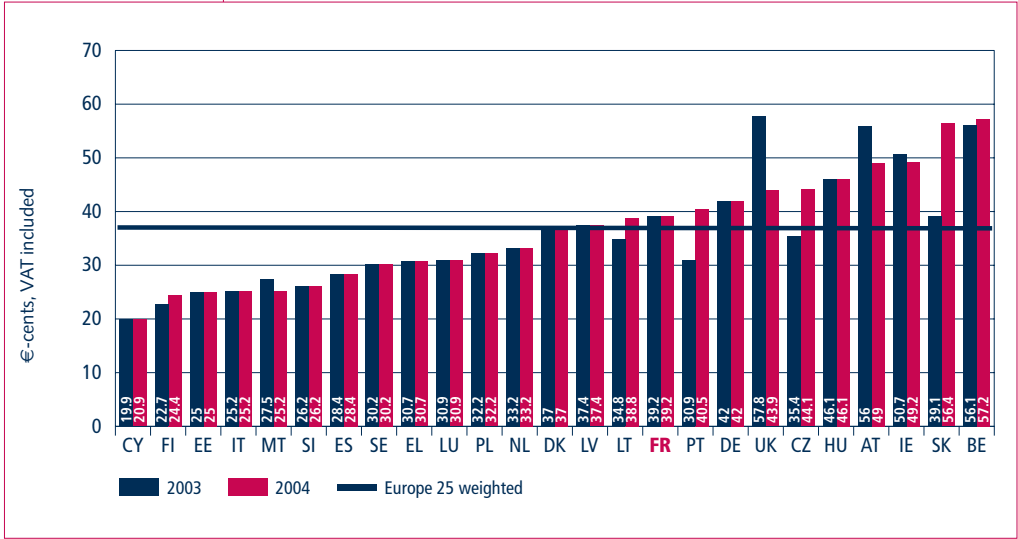
Note that the European average indicated for 2004 is weighted against each country's population.

Local call charge, 3 mn



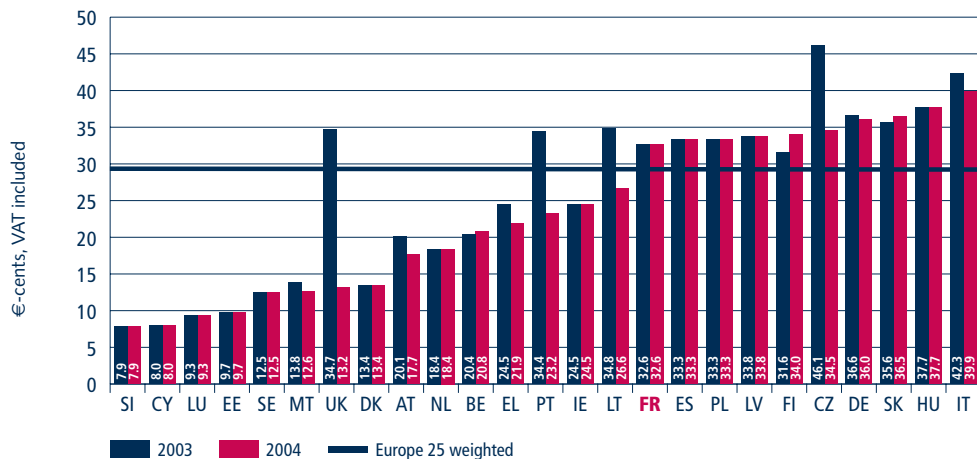
Source: 10th European Commission Report. List of country abbreviations at the end of the report.

Local call charge, 10 mn



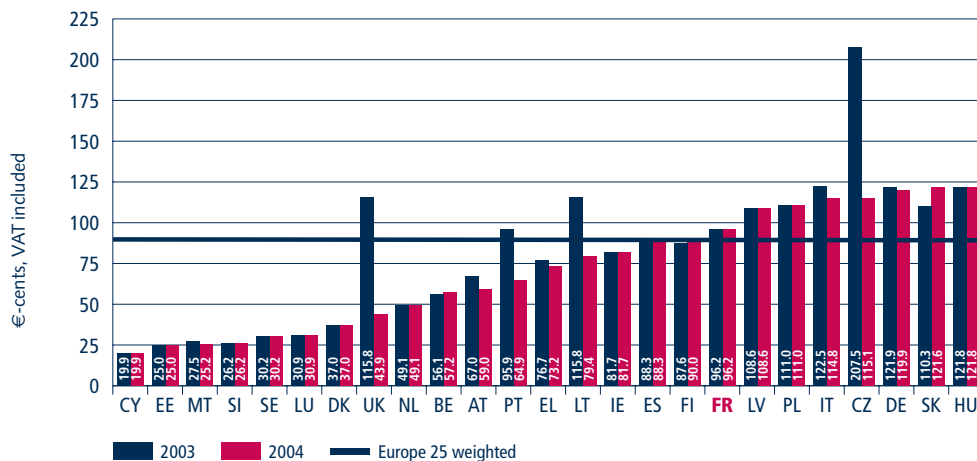
Source: 10th European Commission Report. List of country abbreviations at the end of the report.

National call charge, 3 mn



Source: 10th European Commission Report. List of country abbreviations at the end of the report.

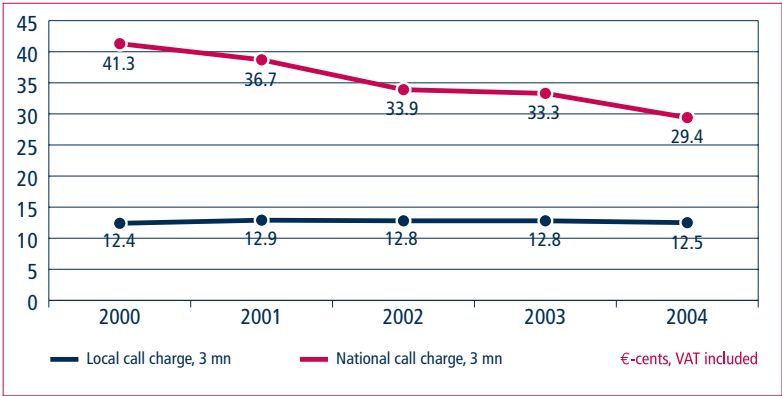
National call charge, 10 mn



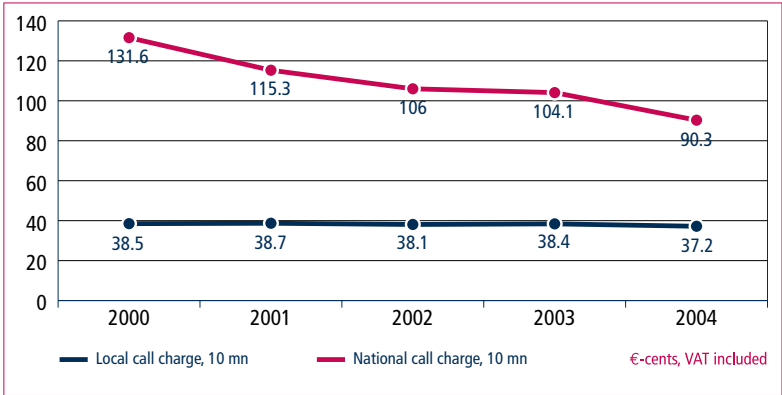
Source: 10th European Commission Report. List of country abbreviations at the end of the report.

Source: 10th European Commission Report

Changes in average calling prices in the EU-25



Source: 10th European Commission Report



IV. Directory enquiry services

One of the decisions made by ART in 2004 which will undoubtedly have the most visible impact on consumers is the one concerning telephone directory enquiry services. The change in the format of the number used to access these services, following a decision from the Conseil d'Etat, is expected to allow this market to open up to competition and encourage innovation.

1) Elimination of the “12”

On 24 June 2004, the Conseil d'Etat enjoined ART, “to define, within six months of notification of its Decision, the terms for assigning numbers having the same format to all operators providing telephone directory enquiry services and for revising of the numbering plan such that, except during a transitional period if

necessary, the number "12" can no longer be used for operator-assisted directory enquiry services."

This order, which follows a request made by the firms Scoot and Fonecta, marks the end of the "12" as the two-digit number used to access directory services, and the start of increasing competition in the sector. There currently exist several ways to access telephone directory services: either by dialling "12," by dialling a short 3BPQ format number, or by dialling one of the mobile operators' three-digit numbers, i.e. Orange France's "712," SFR's "222" or Bouygues Telecom's "612." In its order, the Conseil d'Etat expressed the view that the different lengths of these different access numbers created a potential distortion of competition, and so an obstacle to its development.

2) The choice of 118XYZ

To respond to the Conseil d'Etat's injunction, and to best prepare the changes that will affect this market of more than 300 million calls a year, on 27 July 2004 ART launched a public consultation to define the method to use for introducing a new series of numbers for accessing directory enquiry services, which will replace the "12." ART proposed that a five or six-digit number, starting with 118, be adopted.

This new format for accessing telephone directory services had already been adopted in most European countries, including Germany, Denmark, Spain and the UK, which followed the 4 December 1997 recommendation issued by Ectra (European Committee for Telecommunications Regulatory Affairs), since renamed ECC (European Communication Committee), to implement a five or six-digit number starting with 118, when creating numbers for accessing directory enquiry services.

In October 2004, ART received some thirty responses to its public consultation. The work performed in collaboration with the sector then continued in a more in-depth fashion. Working meetings were organised with operators and directory services providers; consumer associations too took an active part in the process.

Once these discussions and consultations were complete, the choice was made to adopt a six-digit number starting with 118, to be assigned to all of the national telephone directory enquiry services. This Decision³⁷, which complies with the Conseil d'Etat's demands, naturally entails the switch-off of the "12" and the other numbers which are currently being used to access directory enquiry services.

37) ART Decision n° 05-0061, dated 27 January 2005, designating 118XYZ numbers as the numbers to be used for accessing directory enquiry services.

3) An initial non-discriminatory and transparent allocation

The opening of a new block of numbers for directory enquiry services provides players with an opportunity to enter this market. The experience of other European countries where this has already taken place reveals that, despite competition from electronic directories, the introduction of a single numbering format has often helped revive players' interest in providing directory enquiry services, which are often enhanced with a variety of other services (railway timetables, cinema timetables, other information, etc.).

Forthcoming competition in this area will depend on the initial allocation of 118XYZ format numbers being conducted in a transparent, objective and non-discriminatory manner. This is why, on 27 January 2005³⁸, ART opted to assign numbers through a lottery draw. All candidates declared prior to 15 April 2005 can participate in the process. The draw will set the order in which the candidates choose the number they want to have assigned to them.

To avoid any speculation on the "golden" numbers, in other words those that are the easiest to memorise, which is what happened in some of the other countries, the Authority has taken certain precautions, and defined a number of safeguards:

- Applications must be grouped by corporate conglomerates, to avoid the creation of multiple subsidiaries in a bid to increase chances in the draw;
- Reservation of the 1181YZ block (i.e. the 100 numbers going from 118100 to 118199);
- A limit of 10 numbers per candidate in the initial allocation procedure; a barrier which will subsequently be lifted;
- A ban on trading 118XYZ numbers during the 2 years following their allocation.

4) Informing consumers

Consumers are likely to find their habits disturbed at first. They will need to get used to the new 1181YZ numbers and, in some cases, test several of them before finding the one that best suits their needs and preferences in terms of cost effectiveness, or rely on several according to their needs.

To ease the transition from use of the "12" to the new 1181YZ numbers starting in November 2005, in early 2005 the Authority published a Decision³⁹ on the provisional timetable that would apply to this new system (see below).

38) ART Decision n° 05-0062, dated 27 January 2005, concerning the initial allocation procedure for 118XYZ numbers, and the specific transitional provisions in force.

39) ART Decision n° 05-0063, dated 27 January 2003, regarding the method for making the transition from directory enquiry services from old format numbers to the 118XYZ format.

And, finally, ART has earmarked these new numbers only for directory services that use the universal directory database. This means that users accessing the new 1181YZ services will not only be guaranteed access to all of the numbers currently contained in the residential directory but also, at term, the mobile numbers of those subscribers who have chosen to be listed in the directory, along with business numbers and non-geographic numbers for voice services, and IP telephony subscribers' numbers.

The Authority is also committed to conducting regular quality of service surveys, aimed at informing consumers of the level of quality delivered by these future directory enquiry services.

Transition timetable

11 May 2005	Lottery for assignment of the first 118XYZ format numbers.
2 November 2005	<ul style="list-style-type: none"> • Opening of the first services using 118XYZ numbers; • No promotion of these numbers is allowed prior to this date.
3 April 2006	<ul style="list-style-type: none"> • Switch-off of the services provided by current numbers (12, 612, 712, 222, 3200, etc.); • A recording is played to inform users dialling the old directory services numbers of the changes in the numbering format.
3 April 2007	<ul style="list-style-type: none"> • End of the information message on changes to the numbering format.

Provisional timetable, contingent on publication of the Decree in the Official Journal by 30 April 2005, defining the cost of the numbering fees.

Number portability

I. Stakes involved in number portability

II. Fixed number portability

- 1) Portability and full unbundling

III. Mobile number portability

- 1) Mobile number portability in Metropolitan France
- 2) Mobile number portability in the overseas *départements*

IV. ART's actions

- 1) Short-term progress
- 2) Medium term improvements

I. Stakes involved in number portability

ART places great importance on the implementation of both fixed and mobile number portability, a process which allows subscribers to switch operators while keeping their existing telephone number. The Authority holds the view that this process is essential to guaranteeing effective competition in electronic communications markets.

Number portability is a provision contained in Article 30 of the “universal service”⁴⁰ Directive. The provision was transposed into French Law in the last paragraph of Article L. 44 of the Post and Electronic Communications which stipulates that: “operators are required to provide their subscribers with reasonably-priced offers which allow them to keep their existing geographic number when switching operators without changing their geographic location, and to keep their existing fixed or mobile, non-geographic number when switching operators, while continuing to reside in Metropolitan France, in the same overseas département, in Mayotte or in Saint-Pierre-et-Miquelon. Operators must include the necessary provisions in their access and interconnection agreements, and charge cost-oriented tariffs.”

40) European Commission Directive 2002/22/EC, dated 7 March 2002, concerning universal service and users' rights with respect to electronic communication networks and services.

It therefore follows that number portability is not only an obligation for operators, but also a right for users.

First, portability is one of the keys to making market competition more fluid. It is indeed a commercial necessity for all new entrant operators, as it allows them to acquire new customers. This is all the more pertinent in relatively mature markets, in other words markets which are no longer focused on customer acquisition, but which have become churn markets wherein customers are likely to switch from their existing operator to one marketing an offer that better suits their needs. Moreover, for corporate customers and public authorities, portability involves strategic considerations: changing operators would involve changing telephone numbers, which may have an adverse effect on business (loss of customers) or harmfully disrupt the continuity of a customer's service. So, even though portability is not in and of itself a guarantor of free and fair competition, without efficient portability healthy competition would not exist in a market with high penetration levels.

The second goal is to ensure that, from an operational standpoint, portability truly allows customers seeking to take advantage of market competition to switch freely from one operator to another. Early systems or processes that required

customers to inform their operator that they intended to switch to another vendor and take advantage of portability led to certain perverse effects when put into application. These requests could in fact be thwarted by operators, and the systems used as customer loyalty tools, with operators being tempted to dissuade customers from switching by offering them a new solution.

The changes underway in the French market reveal number portability's growing prominence in the competition dynamic. For fixed telephony it is one of the more recent, but increasingly popular offshoots of unbundling, which allows the incumbent carrier's competitors to build an alternative offer. For mobile telephony, the advent of new players with no network of their own, i.e. MVNOs, and the possible arrival of a fourth UMTS licence-holder in the marketplace, substantiate the need for the implementation of an efficient mobile portability system as well.

The likely increase in the volume of ported numbers and the development of new value-added applications underscore the need to upgrade the technical architecture which has been used up until now, to enable widespread implementation of direct routing to ported numbers.

II. Fixed number portability

1. Portability and full unbundling

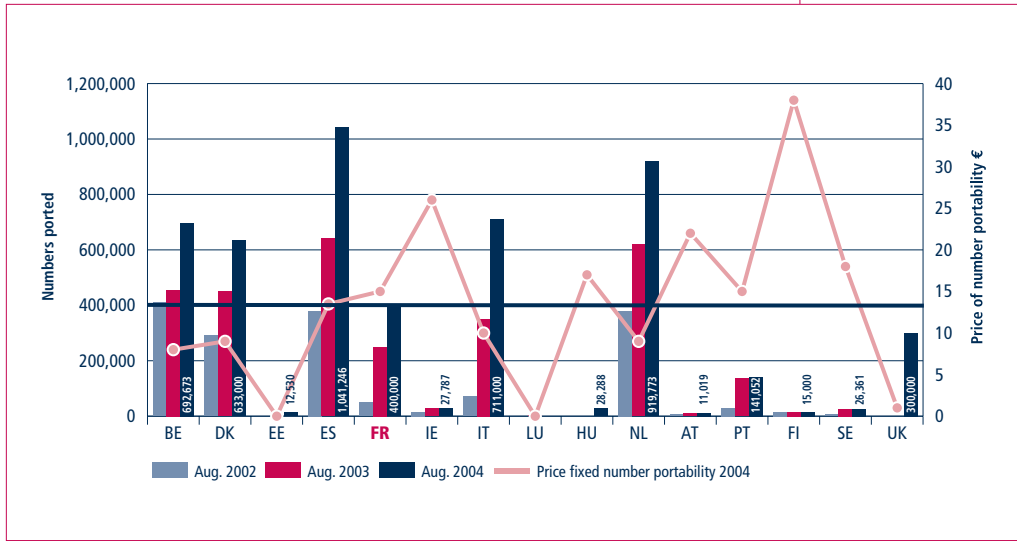
Fixed telephony numbers have been eligible for portability since 2003. These are fixed geographic numbers having the format 0Z AB PQ MC DU (Z being equal to 1, 2, 3, 4 or 5), and fixed non-geographic numbers (08 AB PQ MC DU format), which include, among others, toll-free numbers, shared cost and shared revenue numbers, whose users are either businesses or service providers.

Nevertheless, the porting process currently involves only operations between the incumbent carrier and alternative operators. Operators continued to work throughout 2004 on the operational implementation of number portability between alternative operators, and on subsequent portability (i.e. when customers requests that their number be ported a second time, when switching to a third operator).

The substantial rise of full fixed line unbundling will be central to the development of fixed number portability. Portability in fact only makes sense if a customer's fixed line is managed fully by their new operator, unlike with preselection where portability does not come into play: customers keep their subscription with the incumbent carrier and so the same phone number.

Close to 5 million subscribers switched to a new fixed operator in 2004 – a figure which is telling of the increasingly lively competition environment, and representing a 61 % rise over the previous year.

Fixed ported numbers and price of fixed number portability, August 2004



Source: 10th European Commission Report

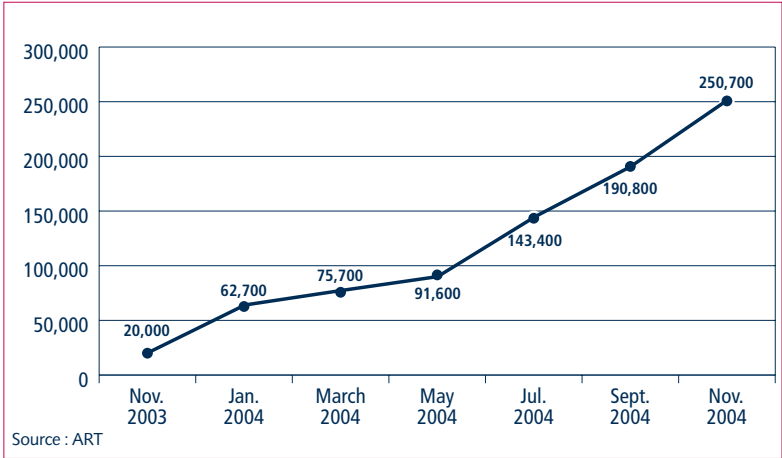
III. Mobile number portability

1) Mobile number portability in Metropolitan France

In Metropolitan France, mobile number portability came into effect on 30 June 2003 after lengthy consultation with the players, and with mobile operators and consumer associations in particular. The choices made at the time took a number of long term objectives into account, including efficiency and consumer protection, along with other more short-term considerations such as the need to offer consumers the ability to have their number ported as quickly as possible.

The following graph illustrates the growth of ported numbers in Metropolitan France since July 2003. As of 31 December 2004, 250,700 mobile numbers had been ported, which represents roughly 0.6% of the total base of active mobile customers (42.48 million mobile subscribers in 4Q 2004, according to ART's Mobile Observatory).

**Growth of ported mobile numbers up to 31/12/04
(Cumulated since 07/03)**



When compared to churn rates, the number of mobile number porting operations performed as of 30 June 2004 reveals that, on average, 2% to 3% of subscription cancellation requests were accompanied by a porting request, of which 40% to 60% were fulfilled. This means a porting rate of around 1% to 2% of internal cancellations with external porting.

Quantitative data reveal that this rate depends a great deal on the type of customer. Very few portability requests come from prepaid subscribers – close to 0%, in fact – but a significant number are made by business customers: between 10% and 20% of their subscription cancellations include a porting request. Of the 143,400 number portings performed in June 2004, prepaid accounted for only 3.6% of the all ported numbers, compared to 96.4% for postpaid accounts, which were broken down into 59.6% for companies with several contracts (fleets), and 36.9% for other offers.

2) Mobile number portability in the overseas départements

2.1. Antilles-Guyana Zone

Overseas mobile operators which are present in the Antilles and Guyana (Bouygues Telecom Caraïbe, Dauphin Telecom, Orange Caraïbe and Outre-mer Telecom) have opted for an innovative technical architecture for mobile portability, which combines direct call routing between mobile operators, and indirect routing between fixed and mobile operators. They have not, however, managed to reach a consensus of the process to use (simple or double front office), and have requested that ART intervene to arbitrate.

The Authority indicated that it was in favour of a single front office process (with customers interacting only with their new operator when seeking to have their number ported). This choice in favour of a single front office was substantiated by the fact that mobile operators planning to offer this type of service would have no major investment to make in the zone they were targeting

ART also sought to make operators aware of the mechanisms involved in implementing this type of process which, to meet the goals assigned to portability, needs to be identical for all operators, and tailored to customers' demands for user-friendliness.

Furthermore, aware of the risks of abusive porting that could arise when implementing this process, ART indicated that a parallel reporting system should also be implemented.

2.2. The Reunion Zone

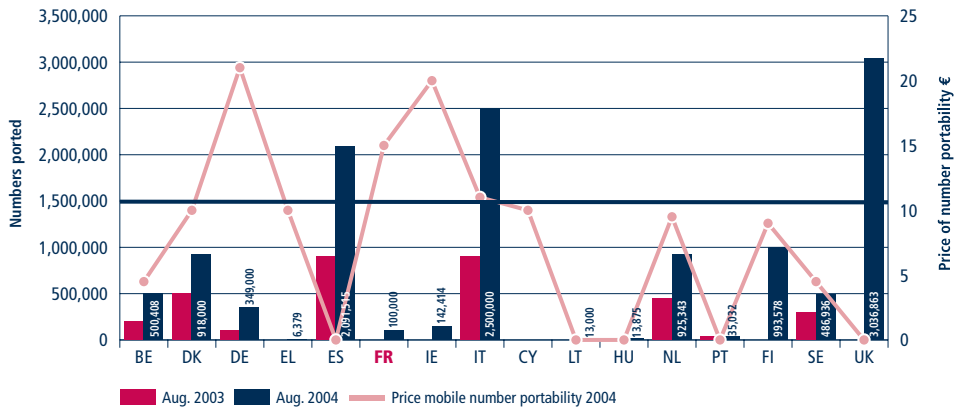
Mobile number portability was launched commercially on 31 March 2005 in the Reunion, following the signature in December 2004 of a final agreement, and an additional bilateral clause. The customer process implemented under this agreement is a double front office system (identical to the one currently being used in Metropolitan France), which involves the following steps for customers:

- Customers request a porting authorisation code from their current operator;
- Customer receives the requested porting authorisation code, which can be submitted to their new operator when signing up for a subscription;
- The number is ported upon expiry of the contract with the first operator (or donor operator).

3) European comparisons

The number of ported mobile numbers rose sharply in 2004, particularly in Belgium, Denmark, Germany and Spain. In all, by August 2004, 12.1 million customers had switched operators while keeping their mobile number, accounting for 3.2% of all active numbers, and a 119% increase over 2003.

Mobile ported number and price of mobile number portability, August 2004



Source: 10th European Commission Report

IV. ART's actions

1) Short-term progress

41) <http://www.art-telecom.fr/publications/c-publique/consult-pnm-131004.htm>

A year after its effective launch, ART opened a public consultation⁴¹ to take stock of the state of number portability in Metropolitan France, and to pinpoint the principal changes that should be made. The goal was to examine the first twelve months of the portability experience, as well as the evolution undergone by mobile markets, including the advent of mobile virtual network operators (MVNO) in June 2004, and amendments to the legal framework following the transposition of the “telecoms package” Directives.

To measure how the portability process was progressing, ART used European data (both quantitative and qualitative) that it collected from meetings with European operators and regulators, along with quantitative data supplied by operators.

These elements of comparison revealed that the mobile number portability system was not satisfactory, too cumbersome and too complex, even if the service had taken off, and apparently not led to inordinate complaints from consumers.

In October 2004, ART launched a public consultation on mobile number portability in Metropolitan France, and proposed ways in which the existing process could be altered and improved. The summary of this consultation was made public on 22 December 2004.

ART suggested that short-term changes be made first, implementing the changes that did not entail major investments for the players. The Authority therefore proposed the implementation of several changes for the early 2005, including the removal of the ineligibility clause for customers with outstanding invoices, shortening porting for prepaid accounts to one month and, lastly, certain changes that could require operators to alter their existing systems, specifically the implementation of a single porting authorisation code (PAC) for businesses and public services.

2) Medium term improvements

The discussions that took place on the matter, and the meetings held with the players (mobile operators, MVNOs, fixed operators, consumer and operator associations, etc.) and with foreign NRAs (chiefly the Belgian and the UK regulators), reinforced the Authority's view that a flexible, fast and simple process needed to be put into place, using a global fixed and mobile number portability solution, for both the customer process and the technical solutions used for routing traffic to ported numbers.

With this goal in mind, the most suitable solution from an economic standpoint appears to be the creation of a centralised database which is shared by all the players (and all equivalent technical solutions). This database would facilitate:

- Management of portability requests between recipient and donor operators (single front office);
- Efficient routing of traffic to ported numbers for all operators (choice of direct routing performed by the operator or through a third party).

Under this new system, customers would deal with only the recipient operator when requesting porting and cancelling their old account (which may include an authorisation mandate). The customer process for request and acknowledgement therefore necessarily goes through a third-party organisation (whose legal status remains to be determined). Customers can thus switch operators in a single step (via their new operator), which prevents occasionally abusive targeted loyalty practices, and the process can theoretically take place very quickly (e.g. within 24 hours).

The second function of this shared and centralised database is to enable any operator who so desires to update their own routing database regularly (or in real time). This is performed from the centralised database (which is itself being fed the porting data from the customer process), thereby making it possible to terminate the traffic on the recipient porting operator's network. This solution thus enables both a reduction in technical inefficiencies derived from indirect routing (i.e.

tromboning), and resolution of technical incompatibilities relating to porting which may occur with certain types of traffic (value-added services, MMS, etc.).

The Deputy Minister of Industry requested ART's opinion on the changes that needed to be made to mobile number portability. In response, the Authority pointed to the complexity involved in implementing a suitable solution to be used by all fixed and mobile operators, which presupposed a massive joint effort from all of these players, and which could not come about merely through regulation.

The work that needs to be done is by necessity collective, since the customer processes and technical interfaces which will be common to all operators will have to be defined. Equally crucial will be defining specifications in close collaboration with the operators themselves, since they are the system's future users. And, finally, ART's coordination of this work is required so that it can progress as quickly as possible, particularly since conflicts of interest could well arise between the operators.

The Authority nevertheless feels that this technical work needs to be backed by a regulatory mechanism. The provisions contained in Article L. 44 of the Post and Electronic Communications Code, which are general in scope, do not define the precise framework for implementing the portability process. Except under special circumstances, the multilateral work that needs to be done makes any legal action against a given operator, or concerning a bilateral agreement between two operators, ill-suited to settling any disputes, unless regulatory provisions are made that cover all inter-operator relations. As it stands, the concrete scope of Articles L. 34-8 and L. 36-11 of the Post and Electronic Communications Code is limited in this respect. When planning the implementation of mobile number portability, this limitation had in fact led ART to adopt guidelines on the methods to be used (Annex to Decision n° 02-549, dated 1 August 2002), which apply to all operators.

The Authority is nonetheless aware of the non-binding nature of this type of document. While this form of intervention originally enabled the implementation of an initial mobile number portability process, it nevertheless appears insufficient for achieving a more suitable solution, given the number of players and the economic, technical and competitive stakes involved in such a major evolution.

This is why ART indicated to the Minister responsible for electronic communications that it felt a regulatory mechanism was needed. The complexity of defining and implementing a target solution, particularly in terms of the changes that need to be made to operators' information systems, the methods used for managing the centralised database, and the status of the undertaking in charge of this management, presupposed that a preliminary analysis be performed – and

which is currently being done by ART. With this in mind, the Authority agreed to provide the Minister with a scheme in Q4 2005, which includes a draft decision on the target solution and its roll-out, in view of confirmation pursuant to Article L. 36-6 of the Post and Electronic Communications Code and accompanied, if necessary, by proposals relating to a higher tier rule of law.

Although it is difficult to define a precise timetable for the target solution's operational implementation once the regulatory framework has been set, we can predict a maximum period of 12 months.

Voice over IP & Voice over broadband

I. Definitions

II. The challenges involved in regulating VOIP

- 1) Central issue
- 2) Electronic communication services
- 3) The different categories of regulatory provisions

I. Definitions

Voice over IP, or VoIP, is a generic term used to refer to technical solutions and associated services which are intrinsically very different. It can refer, on the one hand, to voice calling services carried between two computers via the Internet, over private networks (using proprietary software) or over public networks (e.g. MSN Messenger or Skype In). This last category can also include a gateway to the public phone network (e.g. Skype Out).

But VoIP can also refer to the offers that consumers assimilate with classic telephony services, such as an IP telephony service combined with broadband access, which does not necessarily include conveyance over the Internet (e.g. the Freebox or the 9Box offers). The more exact term for this type of offer is VoB, or Voice over Broadband. Since 2004, a number of ISPs having been marketing broadband flat rates that include a telephony service.

And, lastly, for businesses in particular, VoIP can involve offers wherein the voice stream is converted then transported in IP packets over a virtual private network (VPN) from the PABX (Private Automatic Branch eXchange), and conveyed along with data streams. On some VPN, voice is conveyed directly in IP from the terminal, and the telephony function can be enhanced with additional services, such as messaging or a video service.

Depending more or less on the nature of the service provided, the terminal equipment used by subscribers or deployed on-site varies a great deal (standard or IP phone sets, micro-computers, modems, set-top boxes, local PABX, and even video game consoles, etc.). The only thing that all of these services have in common is the fact of transporting a voice signal over an IP packet-based network. Here, then, the more general term "IP telephony" applies.

II. The challenges involved in regulating VoIP

1) Central issue

The continual progress being made by IP-based offers is likely to radically alter the electronic communications landscape. With a technology that induces very different cost structures, services can become more independent of the networks, nomadic, combined more and more (e.g. triple play bundles) or embedded (e.g.

videophony), which means that economic and competitive balances will necessarily shift.

However, one of the central tenets of electronic communications regulation is that it be technology-agnostic. In other words, regardless of the techniques employed, the rules continue to apply to all networks and services that deliver the same functionalities. So, whether IP-based or not, voice calls between telephone service subscribers are governed by the same rules. Naturally, this principle does not rule out the possibility of taking certain technical specificities into account, or allowing a reasonable growth period before the rules are applied concretely.

Moreover, because classic telephony offers are being enhanced by the use of IP (an array of services that combines fixed telephony, mobile telephony, messaging, video and data can now be offered), the goal is to determine which regulation should apply to these services and, most particularly, to which services do current telephone regulations apply.

These two questions were examined by the ERG (European Regulators Group) working group in 2004. It focused on the problems of regulatory qualification and the ensuing rights and obligations. Without supplying a definitive answer, all of the regulators and the Commission reviewed the regulatory framework's various provisions to determine the extent to which they applied to Voice over IP offers.

2) Electronic communication services

Article L.32-6 of the Post and Electronic Communications Code defines electronic communication services as "services which consist entirely or primarily of the provision of electronic communications. Not included are those services which consist of publishing or distributing communication services to the public by an electronic channel." The main parameter that characterises electronic communications services is signal transmission⁴².

Only those services that correspond to this definition fall under the scope of regulation which, for operators providing these services, entails a certain number of rights and obligations, which are detailed below.

This means that, as it stands, the sale or distribution of software that enables users to dialogue with one another over their computers, does not fall under the scope of regulation. Voice calling services which are available to users of the same instant

42) Art. L.32-1 of the Post and Electronic Communications Code

messaging solution can therefore not be considered electronic communication services open to the public.

Electronic communication service providers need to have access to numbering resources. The services that use numbering resources therefore fall under the heading of electronic communication services. For instance, a publicly-available service that requires subscribers to be assigned a telephone number, and which enables calls from or to the PSTN, meet the definition of electronic communication services.

3) The different categories of regulatory provisions

Several categories of regulatory provision exist:

- general provisions, which apply to all electronic communication services; among them, certain measures apply more specifically to publicly-available telephony services;
- provisions regarding the universal service operator;
- provisions that result from competition regulation, and particularly those obligations that apply to SMP operators in certain relevant markets, as determined by the market analyses conducted by ART. Because this market analysis process is not yet complete, ART has not yet issued its recommendation on VoIP's place in the relevant markets.

3.1. General provisions

3.1.1. Taxes and fees

All electronic communication service operators are subject to legal obligations concerning the taxes and fees associated with their status of operator.

3.1.2. Interconnection and access

All operators have the right and duty to negotiate access and interconnection terms⁴³. They have the right to appeal to ART to settle disputes should negotiations reach an impasse.

The term interconnection includes, when applicable, IP-IP interconnection enabling voice traffic conveyance.

3.1.3. Numbering resources and portability

All declared operators have the right to be allocated telephone numbers, provided they comply with the ensuing obligations. The national numbering plan defines two categories of number for person-to-person voice calls on fixed networks: geographic numbers (beginning with 01 to 05) and non-geographic person-to-person numbers (starting with 08 7B), which ART made available in July 2003.

43) Art. L.34-8 of the Post and Electronic Communications Code.

Voice over IP service operators therefore have the right to request that numbers from both of these categories be allocated to them, just like a conventional operator, provided they comply with the terms of use. For geographic numbers in particular, the service has to be able to justify its use at a fixed geographic location.

As a result, VoIP services which currently use geographic numbers, often combined with portability, are essentially offers aimed at businesses (IP telephony), or residential offers based on full unbundling (VoB). On the other hand, potentially nomadic offers, or those seeking to deliver extended geographic portability, use 08 7B type numbers.

All of these person-to-person geographic and non-geographic numbers can be ported from one operator to another, provided that their usage (geographic or not) remains the same. This means that all operators have to offer all of their subscribers the option of keeping their existing number when switching to another operator, and this regardless of whether the subscriber switches from a classic telephony offer to a VoIP offer or, conversely, switches from one type of Voice over IP service to another (e.g. from a VoB service to an IP telephony service).

3.1.4. Universal service

a) For operators in charge of a universal service component

The first universal service component consists of fulfilling requests for access to the public fixed telephone network, and providing connection to the public phone network. The operator in charge of this component can use the technology of its choice to meet its obligations. So nothing prevents a candidate operator for this universal service component from proposing to use techniques other than circuit switching to deliver this service. In other words, nothing prevents it from using Voice over IP technologies to provide universal service.

b) For all electronic communications operators

In the same way as conventional phone operators, those providing Voice over IP services that fall under the category of publicly-available electronic communication services, must contribute to the universal service fund.

3.1.5. Subscriber lists and universal directories

All electronic communication service users or subscribers have the right to have their telephone number, along with personal information, listed in the universal directory, should they so desire.

This measure means that VoIP service providers who assign telephone numbers to their subscribers are obliged to supply their subscriber list to directory publishers and to directory enquiry services, and that these directory publishers and directory

enquiry service providers must include all of the numbers and personal data on electronic communication users in their products (print directories, online directories and directory enquiry services).

3.1.6. Legal interception

All electronic communication service providers are obliged to meet legal demands for call interception, and so deploy the technical means for performing these interceptions. This obligation applies to all services, both voice and data.

3.2. Particularity of the telephony service: emergency calls

All publicly-available telephony services must enable free conveyance of calls to emergency services, both the European 112 number, and national numbers (15 for ambulance, 17 for the police or Gendarmerie, 18 for the fire brigade, etc.).

3.2.1. Technical properties

One of the particular features of most emergency calls in France is that they have to be routed to a call centre located in the same geographic zone as the caller. The network therefore translates the single national number into a local geographic number. The technical challenge for an operator, once it knows the call centres' list of geographic numbers, is to determine where the caller is located to be able to route the call. This process is of course relatively simple for a fixed network where subscribers are at a fixed location, and much more complicated for services where subscribers are mobile or nomadic. Mobile operators have resolved this problem from a technical standpoint by locating their subscribers using the location of the base station receiving the mobile call signal. For VoIP calls, there can be a lack of subscriber location information, however.

3.2.2. The different caller location solutions

For all Voice over IP services delivered from a fixed location (e.g. VoB over a fixed ADSL), caller location does not change, and this information can be obtained when the service is opened.

More generally, for all fixed network services, even nomadic ones, a caller's temporary location is a piece of information that the network operator can determine and transmit, e.g. based on the operator equipment's connection port or the connection point's IP address.

The problem is more complicated for those fully nomadic services which are provided on public networks such as the Internet, or by service providers which are independent of ISPs (e.g. Skype's or Vonage's service). Unless there is a contractual agreement between the network operator and the service operator, or adequate standards and protocols have been implemented, in theory it is

impossible to automatically determine a subscriber's connection point, and so impossible to locate the subscriber.

It could nevertheless be possible for an operator to determine this location through other means, for instance by requiring that users identify their location when connecting.

3.2.3. An obligation to enforce gradually

44) Art. L.32-7 of the Post and Electronic Communications Code.

The law⁴⁴ defines a publicly-available telephone service as the: "commercial public provision of a service which conveys direct, real-time voice telephony between public switched telephone networks for mobile and fixed users."

ART therefore feels that, at the very least, Voice over IP services, which are publicly-available electronic communication services, and enable calls to the public switched telephone network, are concerned by the obligation to convey emergency calls. Furthermore, their growing use, and replacement of classic telephony services cannot make them exempt in the medium term, if only in a bid to ensure the public's protection.

MVNO's

I. Definitions

- 1) MSPs and MVNOs
- 2) MVNO typology

II. Growth of MVNOs

- 1) In Europe
- 2) In France

III. ART's analysis of MVNO contracts

- 1) Capacity to distinguish themselves in areas other than tariffs
- 2) Logic of complementarity with network operators
- 3) Tariff policies
- 4) MVNO contract lifespans
- 5) Methods for reviewing contractual terms

1. Definitions

1) MSPs and MVNOs

Two types of mobile undertaking developed in France up to June 2004: mobile network operators, and mobile service providers, or MSPs. In addition to offering service distribution, billing and customer service, MSPs also acted as intermediaries between distributors and independent service providers. They were not, however, fully in charge for service provision.

The ability to deliver mobile services under one's own brand without having frequency resources, i.e. a radio network, does exist, and this type of player has been gaining ground in certain foreign markets. They are generally referred to as mobile virtual network operators, or MVNOs. The term "operator" refers to the fact that the provider is indeed responsible for the service; the term "virtual" means that the provider, which has no infrastructure of its own, must sign an access agreement with an operator that does, referred to as the "host operator." Under this access agreement, the virtual operator purchases a wholesale access and mobile call origination service. This service, provided by a mobile network operator, must allow an undertaking with no frequency authorisation for the zone in question, to market a line of retail access and mobile call origination services.

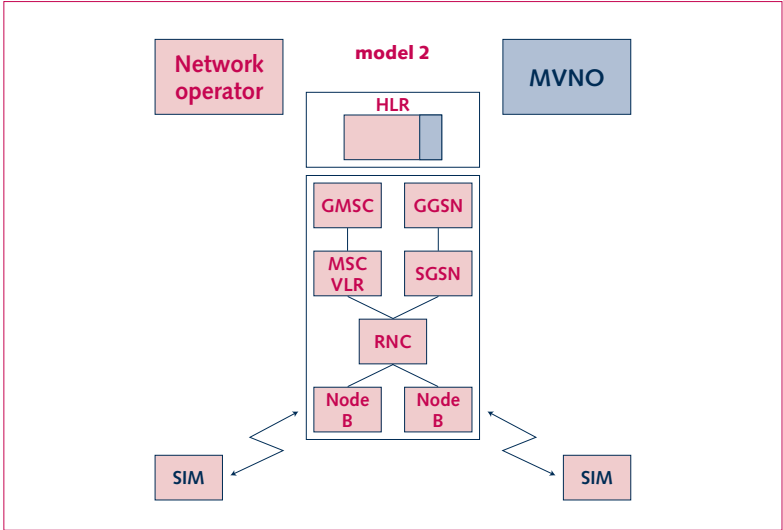
The terms of the agreement between the MVNO and its host operator define the extent to which the virtual operator is independent of the host (length of the contract, SIM card ownership, customer control, control over certain network core elements, etc.). Depending on the situation, in the different countries where MVNOs have developed these agreements have been signed either on a contractual commercial basis, or been enabled by the intervention of a public authority.

2) MVNO typology

In the case study⁴⁵ that ART requested from CCR (Radiocommunications Consultative Committee) in 2002, three types of technical schemes for MVNOs were distinguished:

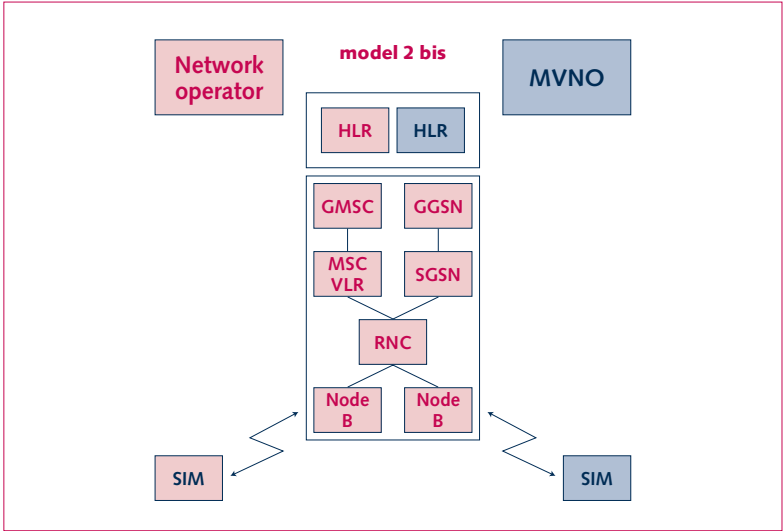
- Model 2, known as minimalist,
- Model 2 "bis" (or 2a), with customer control,
- Model 3, known as extended.

45) Radiocommunications Consultative Committee's report on mobile virtual network operators (MVNOs), dated 22 March 2002 (<http://www.art-telecom.fr/publications/rapport/rapport-mvno.htm>)

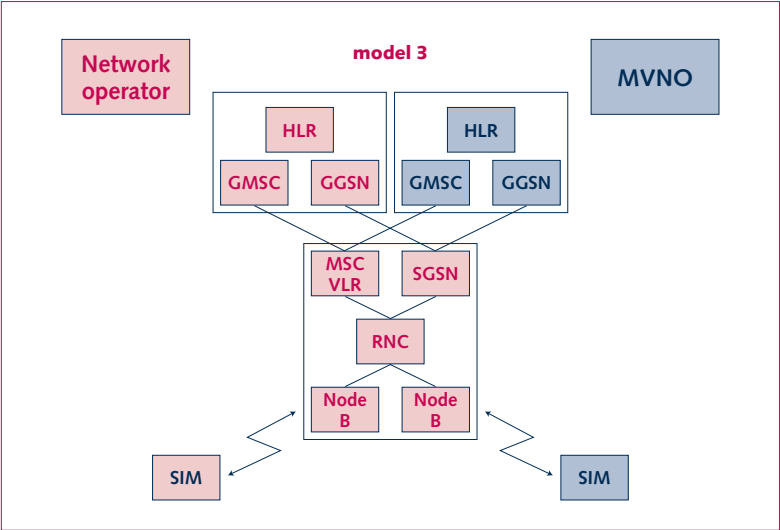


Source : ART

- HLR (Home location register):** server authentication and subscriber identification
- GMCS (MSC Gateway):** gateway between the mobile network and the fixed network
- GGSN (GPRS Gateway support node):** gateway between the mobile network and the fixed data network
- MSC:** Mobile services switching centre
- VLR (Visitor location register):** database for registering subscribers located in a given geographical zone
- SGSN (Serving GPRS support node):** database for locating GPRS subscribers located in a given geographical zone
- RNC (radio network controller):** base station controller
- Node B:** 3G base station
- SIM (Subscriber identification module):** the chipset installed in mobile phones that contains customer identification data



Source : ART



Source : ART

II. Growth of MVNOs

1) In Europe

Mobile virtual network operators have developed to a significant degree in several European countries, either with or without government intervention. The following table lists the leading MVNOs currently operating in Europe:

	Estimated number of MVNOs	Leading MVNOs
Austria	1	Tele2
The UK	Around 10	Virgin mobile, Sainsbury's, Fresh, One Tel
The Netherlands	4	Tele2 Mobiel, AlbertHeijn, Debitel
Belgium	Up to 10	Transatel
Sweden	Around 15	Campuz mobile, Sense, Tango (lancé par Tele2), Djuiice (lancé par Telenor en 2002)
Denmark	Around 12	Tele2, Telmore, Debitel, CBB
Norway	Around 9	Tele2, Sense, Zalto
Finland	3	Jippii Saunalahti, RSL Com, Tele2
Switzerland	1	Tele2

Different systems exist in these countries. The one chosen by Tele2 corresponds to the extended MVNO model described in the CCR report, whereas the one chosen by Virgin is closer to the minimalist MVNO scheme. In some countries, these independent providers now control up to 10% of the mobile subscriber base.

UK-based Virgin Mobile is the world's largest MVNO, with a base of some 4 million subscribers. Created in 1999, the operator positioned itself with basic offers aimed at customers already loyal to the brand. Virgin was also involved in developing prepaid offers, which were still relatively uncommon in 1999 and, on 21 July 2004, went public by launching an IPO.

2004 was the stage for a number of MVNO developments:

- in January 2004 in the Netherlands, mobile operator Orange signed an access agreement with the firm Scarlet;
- in February 2004, Finnish mobile operator Radiolinja signed an access agreement with the firm Tele2;
- in May 2004, Belgian mobile operator Base signed an access agreement with the firm Telenet.

From a regulatory standpoint, a certain number of European NRAs indicated to the Independent Regulators Group (IRG) that they encouraged this type of agreement, or obliged mobile operators to enter into them. In Norway, Sweden and Denmark, for instance, MVNOs have developed considerably, since network operators were obliged to open their network up to other providers via wholesale agreements.

2) In France

Prior to June 2004, no MVNO in Metropolitan France had yet managed to sign a commercial agreement with a mobile operator, despite requests having been made (notably Tele2 in late 2002). The sole exception was Transtel which signed an MVNO agreement with Bouygues Telecom in late 2001.

Since June 2004, however, seven undertakings (Debitel, Omer Telecom, Futur Telecom, NRJ, Neuf Telecom, Cegetel and Tele2) have signed MVNO agreements.

2.1. Improving competition in the retail market

ART is pleased by the arrival of these new players. On the whole, new entrants' arrival in a market brings with it innovation, a more diversified offering and lower prices, all of which help contribute to increasing the marketplace's overall welfare, in addition to benefiting consumers.

2.1.1. Reviving the retail market's momentum

A revival of the retail market's momentum could come about thanks to the fact that these new players position themselves differently from existing operators, e.g. in terms of marketing policy (low-cost offers, regional offers, content offers, etc.), in terms of distribution channel (Internet, news stands), and particularly in terms of services (fixed-mobile convergence).

These new players are coming onto a scene where, as noted by ART in its analysis of the mobile access and call origination market (cf. Part 4, chapter 3), the competition dynamic has been dwindling for several years now, and marked by operators' declining interest in light and occasional consumers. This situation could well explain why penetration rates in Metropolitan France are lower than in the other European countries.

MVNOs' entry into the mobile market can only help increase competition, particularly in the short term (in the absence of a fourth network operator), but in the long term as well.

New entrants can have access to a considerable portion of the mobile value chain (outgoing and even incoming traffic, handset sales); the strategies they develop can either complement or differ from incumbent mobile operators' strategies, since their variable cost economies may lead them to target a more restricted customer base, or one with lower buying power – targeting, in other words, only pockets of the market (light users, regions with low penetration rates).

Added to this, some MVNOs which are also fixed-line operators could also develop bundled or convergent offers, thereby removing the risk of having only mobile operators which are also present in the fixed market developing this type of bundled service, which would naturally have a detrimental effect of fair market competition.

2.1.2. Fixed-mobile convergence offers

Looking to the future, we could see convergent fixed-mobile⁴⁶ offers in the retail market by 2007. Examining what has transpired in foreign markets⁴⁷ provides a glimpse of those services which could be offered in the French market in the medium term.

ART is naturally in favour of all technical and tariff-related innovations that benefit consumers. Bundled, and particularly convergent offers already contribute, and will continue to contribute, to broadening the array of offers and choices available to consumers, both residential and business. Customers looking for simplicity may well be seduced by the ability to have their fixed and mobile calls conveyed through a single operator, thereby benefiting from single billing, among other things.

This is why the Authority feels it is important to encourage the development of this type of offer, while being mindful of the objectives it has been assigned, namely “to foster the development of innovation in the electronic communications sector, to the benefit of users.”

While it is the Authority's view that existing regulations are not likely to hamper

46) The notion of a convergent offer differs from a simple bundled fixed and mobile telephony offer in that it requires technical modifications to be made at the network level, in view of offering both capabilities over the same platform.

47) In some countries which have already made strides in this area, such as the US and the UK, so-called convergent services have been launched, as have integrated handsets that allow incoming calls to be conveyed seamlessly to a fixed or mobile network. The creation of the FMC Alliance (Fixed - Mobile Convergence Alliance) in the first half of 2004 was another sign that convergent offers were making real headway.

the emergence of these new offers, which benefit users, it nevertheless wants to ensure that the deployment of these innovations, which may involve the entire electronic communications landscape, does not impede fair and effective competition between network operators and electronic communication services providers, and particularly between undertakings which operate both fixed and mobile networks, and other operators.

2.2. Encouraging the entry of a fourth network operator

It is possible that an MVNO will initially use its access contract as a “stepping stone,” before later applying for the fourth UMTS licence in France, and so deploy its own cellular network, building on its existing customer base.

III. ART's analysis of MVNO contracts

The central elements of the analysis of the terms offered to existing MVNOs led ART to conclude that these terms are not enough to allow these players to have any real impact on the retail market.

1) Capacity to distinguish themselves in areas other than tariffs

The technical terms of provision contained in all wholesale agreements that currently exist between MVNOs and host operators in France are relatively similar. Noteworthy is MVNOs' lack of control over the network component and HLR access (i.e. Home Location Register, the subscriber location database), and the overall nature of the services provided by host operators (in the form of the sale of end-to-end minutes).

48) E.g. the Bluephone service announced by British Telecom in the UK, in cooperation with Vodafone.

To be able to provide certain innovative convergent services⁴⁸ operators need to have access to dynamic customer location data, which are contained in the home location register.

Furthermore, as the Competition Council pointed out in its Opinion n° 05-A-09, *“refusing access to the HLR also leads host operators to demand that virtual operators provide them with very detailed information on their offers and their promotions, to be programmed in the HLR, which naturally impedes their ability to achieve commercial autonomy.”*

Thanks to close and repeated cooperation with their host operators, it appears that virtual operators are capable of delivering offers which correspond to their development model. Nevertheless, the current technical conditions of wholesale provision, such as the lack of access to the HLR and the fact of being supplied

only end-to-end minutes, could in future make it difficult for MVNOS to create more innovative offers, and so limit their ability to distinguish themselves from their host operator in areas other than pricing.

2) Logic of complementarity with network operators

All of the contracts signed by mobile operators thus far operate under a logic of complementarity, or partnership, whereby the MVNO does not base its strategy on capturing the existing host operator's clientele but, on the contrary, targets primarily those segments of the market which are not part of the host operators' top priorities.

So the strategy deployed by existing MVNOs, and which in some cases is governed by contractual clauses, consists of:

- attracting new mobile telephony customers (by targeting light users or customers located in zones with low penetration levels);
- using alternative sales methods (e.g. e-commerce);
- targeting an existing customer base;
- positioning themselves on value-added services (e.g. musical content).

3) Tariff policies

3.1. Governing pricing policies

The structure and level of wholesale tariffs are likely to shape, indirectly, operators' commercial freedom and capacity to distinguish themselves in the market. Here, the Competition Council points out that *"the negotiated discount rates allow virtual operators to offer very competitive tariffs in certain target segments, compared to those offered by the host operator. On the other hand, because of the wholesale tariffs negotiated, for other types of products they are not able to offer a competitive price, compared to the one charged by the host operator. This tariff squeeze allows host operators to target the customer segments that they dedicate to MVNOs, while avoiding head-on competition. More explicitly, some MVNOs accept "partnership" agreements whereby they purposely target those customers not targeted by their host."*

Depending on the circumstances, tariff schedules are based on distinctions carried over from the retail market, which the MVNO must take into account to a certain degree when devising its retail pricing policy.

ART has pointed out that, in addition to any possible contractual clauses which explicitly state the strategy that the virtual operator must follow, under a logic of complementarity, the host operator may also predetermine the customers that the

virtual operator is capable of serving, through the choice of format and level of wholesale tariffs that it charges.

3.2. Changes to tariff policies

On the question of whether tariff conditions are likely to evolve, it should be noted that there is a marked disparity between the terms contained in the various contracts, particularly with respect to the principles and methods for reviewing wholesale tariffs, which are not always specified. It nevertheless appears that in all cases, the contractual clauses that apply to virtual operators are not sufficient to fully guarantee long-term viability in their economic region, particularly if the retail market evolves. This means that MVNOs' future appears to be contingent on perpetuation of the cooperative mode that apparently still exists between virtual operators and their host operators, even if it is not stated explicitly in their contracts.

To summarise, in terms of the structure, level and mechanisms in place for making changes to wholesale tariffs, current provisions do not allow MVNOs to distinguish themselves from their host operators from a pricing standpoint in any significant way, particularly if the MVNO adopts a development and distribution model which is similar to its host operator's. Nor would they allow virtual operators to maintain a given economic region if retail prices were to change.

4) MVNO contract lifespans

Based on the contracts that it received, ART examined the possible obstacles to the development of existing MVNOs' countervailing buying power. On this question, the Competition Council emphasised that *"the contracts signed are long-term, lasting as much as 9 years, and contain exclusivity clauses, albeit with a shorter lifespan of roughly two years."*

The length of the exclusivity clause corresponds to the period during which a virtual operator cannot undertake to diversify its supply sources. A minimal period of exclusivity may be justified to allow host operators to recuperate the eventual costs incurred by hosting an MVNO on their network. On the contrary, imposing long-term exclusivity commitments seems to be a method used by host operators to prevent virtual operators to exercise any countervailing buying power over the long term.

Having completed its analysis, ART felt that the exclusivity clauses which are currently contained in all contracts cannot be attributed solely to network operators' need to recuperate their fixed costs. Their effect, if not their goal, can be to limit MVNOs' countervailing buying power, in such a way as to restrict their

ability to achieve a critical mass, and so their ability to have any significant impact on competition in the retail market.

5) Methods for reviewing contractual terms

As long as an MVNO has not reached a certain critical mass, it does not represent a significant source of revenue for its host operators, and can therefore find itself dependent on this host which could, in turn, without undermining its own interests in any significant way, elect to cancel the wholesale contract or to block its implementation ("reversibility" of wholesale contracts).

After the launch phase of its initial offers, a virtual operators needs to be able to adapt its market positioning with ease, by expanding commercially (new services, new offers) and by altering its prices.

Cooperative and fluid management of contractual changes, particularly following a request from the MVNO, can therefore involve a dual challenge: enabling the virtual operator to achieve critical mass under the best possible conditions, then allowing it to develop its commercial policy freely and in a timely fashion.

This means that an MVNO has to be able to roll out then expand its retail strategy, based on the clauses concerning the methods for reviewing wholesale tariffs, expanding the scope of wholesale service offers, expanding its product line and, finally, on all the provisions, such as non-discrimination, that allow it to benefit from any future, more advantageous terms offered to another virtual operator.

Having conducted its analysis, ART feels that the existing contractual situation does not fully guarantee the ability to revise certain contractual clauses that would enable operators to adapt to changes in retail market conditions, should the MVNOs so request. The Authority pointed out that, in addition to strictly contractual obligations, only the persistence over time of cooperative relations between virtual and host operators, is able to guarantee an MVNO's long-term growth.

5.1. Ensuring MVNOs' long-term viability

Given their lack of countervailing buying power, the Authority feels that virtual operators have very little room to distinguish themselves in any area other than tariffs. In the same vein, even their ability to distinguish themselves with prices appears to be severely limited by their contractual obligations, without there being any guarantee of their ability to maintain their existing distinction in terms of tariffs, should the retail market evolve.

The Authority nonetheless feels that MVNOs' can be viable and their scope of operations can expand, provided that agreements to this end are reached, and that their future growth be undertaken based on the logic of cooperation that appears to exist today.

On this question, ART stressed the need and importance of changes to the future contracts which are signed, with the view of enabling MVNOs to reach a critical mass and enjoy countervailing buying power and so, ultimately, be in a position to exercise real competitive pressure in the retail market.

5.2. Confirmation of the need for ART's temporary intervention

The points discussed here serve to reinforce ART's analysis of the wholesale access and call origination market on mobile networks. The regulator's intervention, in the form of an access obligation, is therefore required to ensure the viability of wholesale markets' opening up to competition, and the irreversibility of the signed agreements. This intervention will likely no longer be necessary once the wholesale market is occupied by MVNOs whose business clout has reached the point where it becomes strategically sound for host operators to uphold, and even improve, contractual relations.

The prospect of a future wholesale market where network operators share a common interest substantiates the need to uphold access obligations until such time as MVNOs reach a certain critical mass.

Local authorities & regional development

I. Broadband

- 1) National broadband coverage
- 2) Local authorities' new competence
- 3) ART's public consultation
- 4) ART publishes points of reference
- 5) ART's role in the new system
- 6) ART: an open institution

II. Mobiles

- 1) Regional mobile coverage
- 2) "Dead zone" programme deployments

I. Broadband

1) National broadband coverage

1.1. National breakdown of broadband coverage

According to Médiamétrie's Internet usage Observatory, at the end of 2004, France was home to some 24 million Internet users, whose time spent online increased by two hours every month. France is ranked number three in Europe in terms of broadband equipment rates, with over 6.5 million broadband subscriptions.

ADSL is still by far and away the most commonly used access technology, accounting for 6.1 million lines on 1 January 2005, followed by cable network technologies (around 450,000 connections) and other, primarily wireless technologies which account for a little over 3,000 connections.

Broadband use is growing quickly (there was a 97% increase in the number of broadband subscribers between 4Q 2003 and 4Q 2004). This healthy dynamic is not, however, playing out evenly across the country.

1.2. Geographic disparities

For reasons of convenience, observers have defined three zones based on the state of competition observed. A distinction can therefore be made between dead zones, where no broadband electronic communication service operator is present; grey zones where only a single operator is present, and competitive zones where competition exists between at least two operators, each of which has its own network. Of course, the notion of dead zone is up for discussion: satellite-based Internet access is theoretically available throughout the country. This offer is useful, if not essential, for isolated businesses, as it helps maintain their economic activity. In terms of price, however, this service cannot compete with those delivered by landline networks, particularly in competitive zones.

1.2.1. Dead zones

Dead zones, as defined here above, are disappearing steadily, and most will be gone by the end of 2006, if the "Broadband for all plan" announced by France Telecom (see below) is carried out as promised. These zones will be covered by deploying one or two DSL-enabled cross connect switches, or by installing an equipped distribution frame. Some zones will be harder to cover: since DSL is in part dependent on subscribers' distance from the central office, some households will not be eligible, and will remain in a dead zone. Forecasts up to the end of 2006 point to a 98% eligibility rate for households, essentially thanks to France Telecom's planned investments. The incumbent carrier plans to thus cover 70% of the national land mass. Under this plan, we can forecast that most of the dead zones that existed at the end of 2004 will be grey zones by the end of 2007.

1.2.2. Grey zones

Based on the typology being used, grey zones are serviced by only a single broadband operator, which is generally France Telecom. The situation for broadband users in these areas is naturally better than in dead zones, but the lack of competition between electronic communication networks leads to a more sluggish momentum in terms of prices and technical innovations. From a statistical standpoint, observers estimate that, at the end of 2004, these grey zones accounted for roughly 40% of the land mass and 40% of the population. By the end of 2006, we forecast that more than 45% of the land mass and close to 39% of the population will be in a grey zone.

1.2.3. Competitive zones

In competitive zones, at least two electronic communications operators are competing, using either their own infrastructures or infrastructures supplied by neutral network providers. Local authorities' intervention in these zones would be hard to justify since, by law, their market presence must be secondary to private enterprise.

From a statistical standpoint, competitive zones accounted for roughly 30% of the land mass, and 50% of the population at the end of 2004, and projections for 2006 point to roughly 35% of the land mass, and up to 60% of the population.

National broadband coverage (December 2004)

	% of the population	Number of districts	% of districts
Dead zone (no offer)	10,85	10,711	29,19
Grey zone (1 offer available)	41,40	22,498	61,33
Competitive zone (2 or more offers available)	47,75	3,478	9,48
Total	100	36,687	100

(Source : Ortel/ART)

1.3. Progress being made in broadband coverage

Beyond a purely statistical approach, we can examine the progress being made in broadband coverage in France by analysing the players' degree of involvement. Electronic communication operators, which now include ISPs, rolled out aggressive strategies in 2004, whose impact is being felt directly.

1.3.1. France Telecom's strategy

In 2003, the incumbent carrier launched its "Broadband for all Plan," which was stepped up in 2004. Through its "Départements innovants" (*Innovative regions*) initiative, the operator committed to moving its broadband Internet coverage objectives up by a year – completing the coverage initially planed for the end of

2005 by the end of 2004. By signing “Innovative region” agreements with local authorities, France Telecom agreed to equip business districts with broadband services. In exchange, those *départements* that sign an agreement with the carrier, commit to promoting and enabling the development and widespread use of broadband, and to make the tools required for digitising administrative procedures available to their citizens. Local authorities will also need to designate strategic interest zones, to be equipped ahead of the others. France Telecom reports that 70 such agreements had been signed by the end of 2004.

In September 2004, France Telecom announced the deployment of very high-speed access in business districts. At term, 2,000 business districts, representing 120,000 establishments, could have access a very high-speed Internet connection (up to 100 Mbit/s, and even 1 Gbit/s for the 20 largest cities), after being equipped with fibre optics. To achieve this, the incumbent plans to invest 250 M over three years (2005-2007).

ART was pleased by France Telecom’s proactive approach, while also pointing to the pitfalls that local authorities needed to avoid. The Authority indicated that the terms laid out in the contracts must not hamper competition and, on 9 April 2004, recalled the guiding principles, in its analysis provided as a response to the departmental councils:

- Information regarding infrastructure demand and availability which is collected by the *département*, must be made available to all operators;
- The terms of the partnership must not allow France Telecom to enjoy any direct or indirect advantage in any future government contracts or public procedures;
- broadband information and promotional campaigns must be conducted in a neutral fashion, and not ensure the promotion of a single operator’s or ISP’s services;
- the planned financial subsidies will be awarded based on methods that comply with national and regional laws and regulations.

This analysis was largely reiterated by the Competition Council, in its opinion of 28 July 2004.

1.3.2. Progress being made in unbundling

Unbundling is key in introducing competition to the benefit of regional digital development; its geographic expansion is consequently a measure of the real emergence of a competitive market which is structured in a viable fashion.

At the end of 2004, there were 1.6 million unbundled lines, of which 1.5 million shared access lines, and 100,000 fully unbundled lines. The base of unbundled lines in France increased six fold in the span of a year. France is ranked second in Europe in this area, second only to Germany (cf. Chapter on broadband).

2) Local authorities' new competence

By virtual consensus, the framework governing local authorities' general scope of intervention in telecommunications networks, as provided for by Article L. 1511-6 of the Local Authority General Code (CGCT), was too restrictive compared to the scope of their needs, particularly in terms of ensuring broadband's development in medium density and rural zones. Following an appeal from an active group of local authorities, the government and the legislator made the framework more flexible. From a concrete standpoint, their intentions translated into the ratification of Act n° 2004-575, dated 21 June 2004 (referred to as the Confidence in the Digital Economy Act, published in the OJ of 22 June 2004), and most particularly of Article 50 II, which introduces a new Article L. 1425-1 into the Local Authority General Code.

2.1. Article L. 1425-1 of the Local Authority General Code (CGCT)

2.1.1. Passive infrastructure provision

As it was in the past, local authorities can install infrastructures in their region, and make them available to operators. These are passive infrastructures, consisting of trenches, towers, ducts and dark fibre.

2.1.2. Establishing networks

Local authorities can establish electronic communications networks in their region which consist of both passive infrastructures and active equipment, and make them available to operators. Active equipment includes antennas, routers and transmission gear, in particular.

2.1.3. Network creation and operation

Local authorities can operate electronic communications networks in their region; in most cases they will operate a network that they have financed themselves. This competence can be delegated through concessions or farm management contracts. Providing retail services to households and businesses is excluded.

2.1.4. Provision of retail services

In certain cases, and under certain conditions, local authorities can provide electronic communication services to end users. In such cases, the region can operate a network, as detailed in the previous paragraph, but can also market its services directly to residential and business users in its region. This activity can also be delegated out.

2.2. Inter-ministerial circular of 25 January 2005

2.2.1. Supervision of legality

Article L. 1425-1 does not provide for a decree of application. The government nevertheless wanted to issue regional prefects an inter-ministerial circular; dated 25 January 2005, it was signed by the Deputy Minister of the Interior, the Minister of Equipment, Transportation, Regional Development, Tourism and Maritime Affairs, the Deputy Minister of Industry, and the Secretary of State for Regional Development. The aim of this circular is to provide prefectural departments with clarifications on their role in supervising of the legality of local authorities' actions, pursuant to regional digital development policies.

2.2.2. Principles governing local authorities' intervention

Article L. 1425-1 makes it possible to pinpoint six principles that must be adhered to, and which must guide local authorities' intervention. Any intervention must:

- Be coherent with public network initiatives;
- Guarantee shared use of the infrastructures;
- Adhere to the principle of fair and free competition, and be conducted under objective, transparent, non-discriminatory and proportionate conditions;
- Be conducted in compliance with all rights and obligations governing the business of telecommunications operator;
- Distinguish an activity defined under Article L. 1425-1 from a conventional local activity. The same entity cannot both undertake the business of telecommunications operator and be in charge of allocating rights of way used to enable the creation of publicly-available telecommunications networks. Furthermore, local authorities must keep separate accounts for the expenditures and revenues relating to the creation of publicly-available telecommunications networks, and to those relating to a business of telecom operator.
- Adhere to the subsidy system in force:
 - Local authorities' ability to make telecommunications infrastructures or networks available to operators at a price below cost, according to transparent and non-discriminatory methods;
 - Possibility of compensating public service obligations via subsidies awarded through a public service delegation or a government contract.

It is ART's view that the circular of 25 January 2005 sheds some much-needed light on the principles that government services must monitor. It also feels that the other grey areas in the initial text warrant elucidation as well, including the way in which all of the conventional legal tools available to local authorities must be applied to the exercise of each of the activities provided for in Article L. 1425-1. Similarly, the issue of providing services directly to end users, following fruitless calls to tender, is still far too open to interpretation when put into practice.

3) ART's public consultation

3.1. Description of the procedure

From July to the end of September 2004, ART conducted a public consultation on local authorities' intervention in the electronic communications sector, and on the implementation of the new legal framework. Some fifty contributions were sent back to the Authority, and a summary of these comments was distributed and made available online on ART's website. The responses received came from operators (24%), Departmental Councils (20%), Regional Councils (6%), other local authorities (16%), market analysts and consultancies (14%), and the remaining 20% from a variety of other structures (financial sector, elected officials associations, administrations...).

This consultation covered five chapters: the goals of local authority intervention, the framework for intervention, methods of intervention, competitive stakes and ART's role.

3.2. The goals of local authority intervention

3.2.1. Regional coverage

The goal of achieving regional coverage is considered the top priority for all of the players involved. It can be an urgent matter for certain regions, and even certain operators, since it is tied to a public service objective, which is itself tied directly to the goal of balancing tariffs throughout the zone of intervention.

Naturally, the coverage achieved depends on the means invested. The players' pragmatism forced them to allow for a system whereby the country's less profitable areas had to have access to at least one broadband service, while more competitive zones would benefit from new, competitive and innovative offers. The goal of full coverage would therefore be reached only by agreeing to the deployment of several tiers of service offers.

Coverage objectives can be achieved by putting several types of leverage into play:

- Technical leverage is contingent on the initiatives being technology-agnostic. The players agree that a rapport needs to be established between a type of technology and a type of need: this means that alternative technologies (PLC, Wi-Fi) can be the best-suited for covering dead zones. For collection network, fibre optics is the best solution.
- Political leverage favours the sharing of infrastructures which makes it possible to provide operators with networks in areas where they are lacking. According to the players, providing neutral public infrastructures is a guarantee of the complementarity between public action and the private initiative it seeks to encourage.

- Financial leverage involves local authorities' contribution, use of European funds and private investment. Regional balancing – the goal of many local authorities – is generally the guiding principle for those devising business plans.

A mechanism of national redistribution was mentioned: some less economically powerful regions suggested that they would benefit from a subsidy that compensated the additional expenditure they would have to make to achieve the same results as the “wealthier” regions.

3.2.2. Developing competition

Local players, both public and private, are awaiting access to affordable electronic communication services, which are part of a broad array of solutions. Here, public intervention is seen to provide considerable incentive: the creation of a shared collection infrastructure makes it possible to create the missing link, which would give alternative operators the incentive to serve the region.

Overall, there is no contradiction between the general interest objectives targeted by local authorities, and pursuit of the operational objective of introducing competition. On the contrary, these goals are considered indissociable in the long run.

3.2.3. Anticipating new services and applications

One of the questions that local authorities need to address is which technical solution to choose when seeking to enable future, and in part unknown, uses. This means that they need to think ahead, rather than invest in expensive and perhaps soon obsolete technical solutions – so the need to choose technology-agnostic electronic communications networks becomes all the more overt.

There is a consensus amongst the players that anticipating new uses and services is one of the top priorities for local authorities when planning their own services – e-government being a case in point. Local authorities are also viewed as being in the best position to identify and quantify the needs of the businesses in their area. Their knowledge of the local economic fabric can guarantee that the right match will be found between short and medium-term demands and the service offer put in place.

Most of those who contributed to the public consultation agreed that predictions on which new electronic communication services were likely to emerge should be made by the operators and service providers.

4) ART publishes points of reference

Thanks to this public consultation, ART was able to gain a better understanding of the situation in the different regions. The disparities between the regions themselves, in terms of their level of national representation and the socio-economic situation of the local players, fully justified this phase of dialogue and analysis of local realities.

The Authority was able to note that regional broadband development policies were following a variety of intervention schemes. It is, however, ART's view that any public intervention must seek to foster competitive offers, and establish viable local competition in those parts of the country where it is currently lacking.

It is with this in mind that, following publication of the summary of the public consultation, ART published a second document in December 2004, entitled "Points of reference." Drawing on its seven years of experience in regulating the telecommunications sector, the Authority sought to put itself at the disposal of local officials, with the goal of helping them meet their objectives, and guaranteeing fair competition in the regions.

4.1. Areas of public intervention

Public intervention cannot be justified equally in all parts of the country, and depends on whether or not a given region has no broadband coverage, is covered by a single operator or, on the contrary, is already a competitive zone.

4.1.1. Covering dead zones

Providing coverage in dead zones, in other words in those areas where there is no broadband offer available, emerges as the primary justification for public intervention. In such a case, local authorities can intervene in wholesale markets, and in the retail market under certain conditions.

In the case of intervention in the retail market, the law stipulates that a local authority can act as a direct retail service provider if it has established that a lack of private initiative exists. This lack is considered to exist after a call for candidates to fulfil end users' telecommunications service needs proves fruitless. Local authorities must inform the Authority of these results.

a) The problem in establishing a lack of private initiative

For ART, establishing a lack of private initiative is a "substantial" formality, in other words mandatory. Verification of this obligation is subject to supervision of legality by the prefectures (regional administrators). The law stipulates that the Authority will simply be informed of this confirmation of a lack of private initiative. In the case of a call for tenders, strict compliance with the law may lead to problems. Following the procedure defined by the Procurement Contract Code

reveals a legal grey area regarding public contracts for providing services to third parties. This is why, in its initial approach, ART feels that it would be possible for this process of establishment to be *sui generis*, with each local authority selecting the method it feels is best suited to the circumstances. In any event, it would be useful to provide the players with clarification of this legal stipulation in future, through an administrative provision concerning the text's legal interpretation.

b) Use of alternative technologies

Whether temporarily or permanently so, dead zones are very good candidates for the deployment of alternative local loop technologies. The regulatory framework governing powerline carrier systems (PLC) and wireless technologies (Wi-Fi, WiMAX) is now more flexible. A combination of wireless technologies, such as Wi-Fi or WiMAX for access, and other technologies like radio relay, satellite or WiMAX, can deliver operational responses to the need for coverage in zones outside the range of DSL.

4.1.2. Intervention in grey zones

By the end of 2004, there was effective broadband network competition in some 40 city zones, accounting for half of all households and businesses. Future unsolicited expansion of competitive zones will be more complex, according to ART. When moving away from city centres, fixed network operators have to contend with diminished subscriber density, hence lower revenues, while the distances between their future customers and network nodes, and so their deployment costs, increase. Furthermore, players lack a certain clarity on their deployment costs and the performance of wireless broadband networks. At the end of 2004, wireless broadband involved connections that numbered only in the tens of thousands, either in densely populated zones, or in areas where local authorities had subsidised its deployment.

This is a worrisome fact. And it is why, in addition to regulatory initiatives seeking to improve wholesale offers and the operational conditions of unbundling, the Authority is particularly concerned with local initiatives, particularly when their central purpose is to reduce the number of grey zones in the country.

a) The markets' various operating modes

The country's various markets operate differently, depending on whether they are located in a competitive or a grey zone. In grey zones, a single operator, usually France Telecom, has a *de facto* monopoly over broadband networks. Competition is therefore confined to the realm of services. The impact of competition over services and competition over infrastructures can vary considerably in a sector like telecommunications, where infrastructures represent the lion's share of costs, and are central to a vendor's capacity to innovate from a technological standpoint.

b) Objectives and means of intervention

The goal of local authorities' intervention in these zones is to eradicate the effects that a state of monopoly can have on the services offered to the region's households and businesses. When a local government sets the terms for network-based competition in their area, they provide a long-term structural guarantee of competition in the local electronic communications market.

4.1.3. Intervention in competitive zones

Public intervention in competitive zones is harder to justify, given its necessarily subsidiary nature to private intervention. It can nevertheless prove indispensable because of the topology of the networks connecting densely populated zones and sparsely populated zones, or to comply with a principle of continuity of public action.

4.2. Types of intervention

4.2.1. Structural intervention at the network level

The goal of public intervention is to create the missing link between the existing access network, generally the incumbent carrier's local copper loop, and long haul transport networks. In the same vein, local authorities may plan to build a network in view of providing very-high speed access to business districts and companies which are heavy broadband service consumers.

4.2.2. An optional public service

The legislator elected to place Article L. 1425-1 in Volume IV of Part I of the Local Authority General Code (CGCT), entitled "local public services." Local authority initiatives enacted pursuant to the earlier text (Article L. 1511-6 of the CGCT) lacked a certain legal security. They were based on a system of assisting businesses, leaving room for an ambiguity over the qualification of government aid.

From a strictly legal standpoint, the mere fact of inserting the text in the "local public services" subdivision was not enough to characterise local authorities' intervention as a local public service. On the other hand, this amendment does help clarify the debate, and encourages local authorities to intervene in regional digital development. In addition, the notion of local public service echoes the notion of services of general economic interest (SGEI), which are recognised at the European level. The European Commission has indeed justified local authorities' intervention in the area of broadband networks, specifically on the basis of their qualification as SGEI.

Legislative provisions do not determine any single local level (district, département, region) as being the only one or the most relevant. Moreover, a local authority can choose not to intervene in broadband development, since intervention is entirely optional.

4.2.3. Legal intervention options

Local authorities wanting to take advantage of the provisions of Article L. 1425-1 to exercise a decisive influence on information society development in their area, are quickly faced with the need to choose a management system. Two main types of management mode are possible: direct management or delegated management, both of which local authorities have been practicing for some time.

a) Direct intervention and its limitations

There are a certain number of problems involved with direct management of electronic communications networks. The method allows regional authorities to manage their own public services, whereas the goal of delegated management is to have third-party undertaking intervene between the local authority and the public service. The public corporation is a legal tool used by local authorities to manage a public service directly.

Paragraph II of Article L. 1425-1 nevertheless stipulates that “the same corporate body cannot both undertake the business of electronic communications operator and be in charge of granting the rights of way used to enable the establishment of publicly-available electronic communications networks.” Since they are the authorities in charge of managing their region (except in case of transfer of power), local authorities are ipso facto responsible for granting rights of way used to enable the establishment of publicly-available electronic communications networks, pursuant to Articles L. 45-1 and subsequent of the Post and Electronic Communications Code.

Because of this restriction introduced by Article L. 1425-1, local authorities wanting to undertake the business of telecommunications operator cannot develop this type of operation through a public corporation or a financially autonomous public corporation, insofar as these types of corporation constitute a method of direct management whereby the local authority directly manages the public service in question.

b) Public corporation endowed with corporate personality

The limitations to direct management introduced by Article L. 1425-1 do not apply in cases where a local authority wanting to undertake the business of telecommunications operator creates a public corporation endowed with a corporate personality and financial autonomy, insofar as the service will be managed by a corporate body that will intervene between the local authority and the public service.

Nor do they apply to groups of local authorities wanting to undertake the business of telecommunications operators, regardless of the type of public corporation planned, provided that they have not been assigned the power to grant rights of way which are used to enable the establishment of publicly-available electronic communications networks, by the local authorities.

c) Public service concessions

Because of these various considerations, local authorities tend to favour the public service delegation method, through a concession or farm management contract. These two forms of legal status correspond in fact to a logic of structural intervention on the networks: first, the timetables for the projects, ranging from 10 to 25 years, correspond to the time required to amortise telecommunications networks' passive infrastructures, which represent the bulk of costs. Second, the existence of reversionary interests, including the concession, allows local authorities to regain control of the perennial infrastructures that they subsidised, notably the civil engineering and towers, once the delegation has expired.

4.3. Characteristics of the public initiative networks offer

4.3.1. Intervention geared to wholesale provision

The law steers local authorities' intervention towards the creation of wholesale offers geared to operators and service providers. The latter can use local authorities' or their delegate's offers to, in turn, market their own retail services to end customers. In most cases, France Telecom markets satisfactory retail offers. Local authorities' intervention in retail markets is hard to justify, except of course in dead zones. Under the Confidence in the Digital Economy Act, this form of intervention is in fact contingent on having proven a lack of private initiatives.

Nevertheless, if there is only a single operator in a local market, it will necessarily be less dynamic than competitive zone, both in the short and the long term. The availability of wholesale offers tailored to the needs of operators and service providers, and possibly delivered at below-cost prices, allows these vendors to offer attractive retail tariffs in the region, and ensure regional digital development. ISPs can take advantage of these wholesale offers to provide services in dead zones where they had previously been absent. In medium density grey zones, operators which had previously been reselling France Telecom's end-to-end activated offers (option 5), could buy intermediary offers to reduce their costs. And operators which had been buying intermediary offers, such as bandwidth or capacity, could purchase fibre to extend their networks, improve their cost structure and diversify their services.

4.3.2. The delegatee's service catalogue

A delegatee's catalogue of services is the principal instrument for carrying the benefits of the local authority's intervention over to the marketplace: the diversity of the services and the tariff schedules are key to the success of any regional digital development project, when a system of delegated management has been chosen.

a) Access to passive infrastructures offer

Leasing fibre on the collection network allows operators wanting to invest locally to connect their points of presence to the network concentration nodes (e.g. France Telecom's distribution frames for grouping copper pairs, cross connection points for business districts or isolated villages, high points for installing wireless equipment or electric transformers for installing PLC gear).

Leasing dark fibre is the offer best suited to the needs of operators in the collection segment, since it guarantees their independence and enables technological differentiation, with each one managing their own active routing and transmission equipment. Furthermore, the cost of the fibre is independent of the transported bitrate, which means that user operators have an incentive to offer end customers high bitrates. TV broadcasting over the copper pair (TV over ADSL) is offered only by operators who have control of their own fibre networks. Operators often purchase fibre in the form of long-term indefeasible rights of use (IRU), which may be subject to a single initial payment. This means that there is little likelihood that an operator will withdraw, even if local market conditions decline.

b) Leasing bandwidth for collection

This type of offer can appeal to operators with low capacity consumption. The client operator is, however, responsible for quality of service, and the price that it will have to pay will be higher the more bandwidth it uses to offer retail services, since bandwidth pricing is based on consumed or reserved bitrates. Bandwidth pricing is a delicate matter, and needs to evolve constantly to adapt to changes in the market.

c) Broadband subscriber line offer

This is an access service completed by a collection offer. The wholesale operator takes charge of subscriber access, and routes the traffic to the access provider's national or local point of presence. A broadband subscriber line offer is therefore likely to enable exhaustive regional coverage if the local authority subsidises equipment of the distribution frames served by its network. The authority may demand that subscriber lines be offered at the same price throughout the region. In practice, this offer comes up against two problems. The first derives from the fact that ISPs have a national pricing policy, and local savings in the wholesale market do not necessarily translate into reduced retail tariffs. The second problem comes from the fact that, for an ISP, switching wholesale suppliers entails an added cost (adapting order interfaces, billing chain, after sales service, etc.).

These obstacles do not affect the business market, since ISPs' tariffs differ from zone to zone, so it is more likely that any savings in wholesale tariffs will be passed on to retail prices.

d) Very high-speed subscriber line offer

In France, very few buildings are connected directly via fibre optics. But companies' needs will evolve very quickly, so it is likely that this type of offer will be geared initially to business districts. Those local authorities planning to favour deployments in economic zones would be wise to make their intentions explicit, so that the situation will be clear to private operators when managing their own investments.

4.4. Tariff principles

For a delegatee, the process of establishing a tariff schedule is a delicate matter. If they are too low, tariffs will attract client operators but will require massive public subsidies. If they are too high, they will be ineffectual. They therefore need to be situated at a level that allows existing private operators to compete. Local authorities thus need to adhere to certain principles to ensure that their intervention bears fruit.

- First, they need to respect the private investments that have been made. To do so, the lower limit of tariffs applied by local authorities must be close to the tariffs charged by existing operators. National and international comparisons can help local authorities set these lower limit values.
- Secondly, tariffs must be balanced. Closely bound up with the notion of public service, balancing is one of the goals of regional development often evoked in public initiative projects. But local authorities have no control over the wholesale tariffs charged in their area. They cannot prevent competitors from coming in and offering lower tariffs in competitive zones. It therefore does not seem viable over the long term to impose rigorous balancing on a delegatee.
- The third principle involves the tariffs' evolution over time. Local authorities must plan on implementing mechanisms for reviewing the tariffs charged by their delegatee, since the market will evolve rapidly; players and offers will change. Under the timetable generally chosen for a delegation (15 or 20 years), tariff review systems must be clearly mapped out. These considerations are particularly valid for activated services. In the case of passive infrastructure offers, the tariffs defined at the outset will change very little over time.

5) ART's role in the new system

5.1. Consensus reached through public consultation

The majority of public players expect ART to guide them in their projects. Private players prefer that the Authority focus more on its role of regulator, with the task of consulting being left to other organisations.

In any event, the Authority is viewed as a sector expert. It therefore intends to make its experience available to the players and to distribute its analyses widely, putting to use its long-standing regulatory expertise.

More specifically, to meet demands, the Authority can:

- Conduct information campaigns. This involves the publication of market reports, summaries, information on local authorities' projects, global market analyses, legal information, etc.
- Lead and coordinate. ART has an educational role to play, which can involve highlighting best practices detected through national projects or through observation of foreign markets.
- Settle disputes. This task is in fact provided for by Article L. 1425-1 of the CGCT.
- Propose changes to the regulatory framework. Because of its experience in regulation, and thanks to its many contacts with local authorities and its knowledge of their projects, ART can contribute, when so requested, to enabling the legislative and regulatory framework to evolve.

5.2. Role assigned to ART by law

In addition to reaching a consensus on its missions in the public and private sectors, which the Authority feels is fully within reach, the law clearly defines the role that ART must play. In March 2004, ART structured operations to ensure its missions, notably by creating a unit devoted specifically to local authorities' projects. This unit is part of the "Local Authorities and Regulation of Broadband Markets" Department, thus translating its analysis that local authorities' intervention is a determining factor in the broadband market's development.

5.2.1. ART's promotional and information-related obligations

The law stipulates that, prior to establishing and operating infrastructures, or providing electronic communication services to end users, local authorities must first inform ART of the launch of their projects.

The information they supply must include a description of the project, and specify the way it will be executed. It must allow ART to assess whether local interests have been taken into account, and to ensure the benefits to users, and the exercise of fair and effective competition (Article L. 32-1 II of the Post and Electronic Communications Code). Due to a lack of specific legislation on the information to be supplied, the Authority provided local authorities with a list of the documents it recommends be submitted:

- a summary description of the project
- a plan of the constructed network, and existing interconnected networks
- the catalogue of services
- the signed agreement between the local authority and the contracting party

In cases where local authorities want to provide communication services to end users, Article L. 1425-1 requires that they inform the regulator of the procedure they conducted to establish that there was a lack of private initiatives capable of satisfying end users' requirements.

5.2.2. Obligations of local authorities undertaking the role of operator

The business of operator, developed in accordance with Article L. 1425-1, is conducted under the more general framework of the Post and Electronic Communications Code. Local authorities undertaking the business of operator, as defined by Article L 1425-1 of the Local Authority General Code, in other words the establishment and operation of telecommunications networks or the provision of services to end users, are thus required to comply with a certain number of obligations.

The system of declaration in force, which replaces the former licensing system, allows undertakings exercising a business of operator, to file an unsolicited prior declaration with the Authority. In exchange, ART sends them an acknowledgement of declaration. In cases of delegated management, it will be the third-party corporate entity, which intervenes between the local authority and end users, which must declare itself to ART when undertaking the business of operator. Under this scheme, the local authority does not need to declare itself. Let us recall that, in the case of a public corporation or financially autonomous public corporation, local authorities cannot act as operators since they are in charge of granting rights of way.

Declared operators are subject to a variety of provisions, and must pay an administrative tax, in accordance with the terms defined by financial laws.

5.2.3. Dispute settlement

ART has the power to settle disputes, pursuant to Article L. 36-8 of the Post and Electronic Communications Code. Disputes may concern a refusal to provide access or interconnection, may occur when commercial negotiations reach an impasse, or in cases of disagreements over the conclusion or execution of an interconnection agreement. The dispute may also arise from a disagreement over the conclusion or execution of an electronic communications network access agreement.

Furthermore, in accordance with Article L. 36-8 II-1, ART can be called upon to settle disputes concerning the implementation of operators' obligations (notably infrastructure sharing).

6) ART: an open institution

ART is an institution focused fully on the sector's players. On this issue of local authorities' intervention, it organised a national meeting with the players at UNESCO, on 1 December 2004. Several initiatives aimed at furthering the dialogue were announced on this occasion.

6.1. Creation of a Public Initiative Networks' Committee

In early 2005, ART created a Public Initiative Networks' Committee (CRIP), under the Board's direction. It brings together members of parliament, local officials and operators, to better define the conditions required to ensure the success of projects undertaken as part of regional digital development. The Committee will create dedicated working groups, each one having an operational target, the goal being to help local authorities overcome any eventual problems in interpreting and applying the law, and of course to exploit its full potential.

6.2. ART's communication work

6.2.1. Seminars

In 2004, ART took part in a number of national and international seminars (OECD Convention in Porto, "Rencontres d'Autrans", Multimédiaville Conference, Summer University of Communication, Hourtin). At national conferences, the Authority takes part in technical workshops, during which players from the field are able to outline their plans, and inform ART of particular local issues.

6.2.2. Training

ART is called up on to intervene in training activities performed by the market's leading organisations. The Authority was involved in a number of training sessions for engineering students (ENST, INT) and university students. The Authority also helps train a growing number of university students involved in research on regional digital development (geography, sociology, economics, law).

6.2.3. The website

ART's website (www.art-telecom.fr) was further enhanced in 2004 by the creation of a space devoted to local authorities. Several rubrics can be accessed, structured under the following themes: sharing experience with other local authorities, making use of ART's expertise (Points of reference), analysis of the different regulatory texts published in 2004 provided by the Authority's various departments.

Certain information, such as specification sheets on different technologies, business models (unbundling cost model), cost benchmarks, etc. are also made available to public and private undertakings.

Available too are a number of independent studies: a study on local authority intervention in broadband telecommunications network infrastructures, a study on the installation of telecommunications networks in the public thoroughfare and private property, the Regional Networks report, Ortel (Regional Telecommunications Observatory) data, etc.

ART has also launched a weblog (a space for conversing on the web), to hold discussions and debates on public intervention in the telecommunications sector, and aimed at local authorities. The topics addressed are new for both ART and the players, and the views expressed do not constitute local authorities' or operators' official positions.

6.3. Outside working meetings

Either at the request of local authorities, or on its own initiative, ART travels to the regions to meet with local authorities, to exchange information and analyses, preferably during a project's design stage. These meetings can concern both large cities and small rural structures, since the law authorises all levels of local authority to intervene.

II. Mobiles

1) Regional mobile coverage

1.1. Current mobile coverage

The licences held by France's three existing mobile operators require them to provide 90% coverage of the country's population. Nevertheless, because extended coverage is a key sales argument, and because of the highly competitive nature of France's mobile market, in addition to providing access to a broader market, all three operators have well surpassed their obligations. The current rate of coverage is close to 98% of the population for Orange France and SFR, and around 97% of the population for Bouygues Telecom.

1.2. Dead zone programme

In July 2003, ART, local authorities and operators signed a national agreement to extend mobile coverage, called the dead zone programme (*programme zones blanches*). The programme began by identifying those districts that were not covered by any of the three operators. ART designed a method for obtaining a precise assessment of actual regional coverage, district by district, by simulating real usage conditions, and by measuring the rate of successful and acceptable quality one-minute voice call completion. Three thousand "dead zone" districts were identified using this method. It was then estimated that 1,250 sites would be required to ensure coverage of these districts' town centres.

The "dead zone programme" only concerns districts where not a single operator is present. Operators that cover a given zone single-handedly naturally have a competitive advantage in that area, which is referred to as a "grey zone."

According to the programme's outline, coverage of dead zones must be ensured primarily with a technique of local roaming, which allows all three operators to provide services using a shared infrastructure. The first deployment phase of this programme, co-financed by operators and local authorities, plans on coverage for 1,800 town centres. The second stage, financed entirely by operators, targets coverage of the remaining 1,200 town centres, which will bring the total rate of coverage to 99% of the population.

1.3. Obligations tied to operators' licence renewals

In March 2004, a provision was added to Orange and SFR's terms of licence renewal, stipulating that operators in Metropolitan France must collectively pursue the commitment to cover dead zones, which was made as part of the government

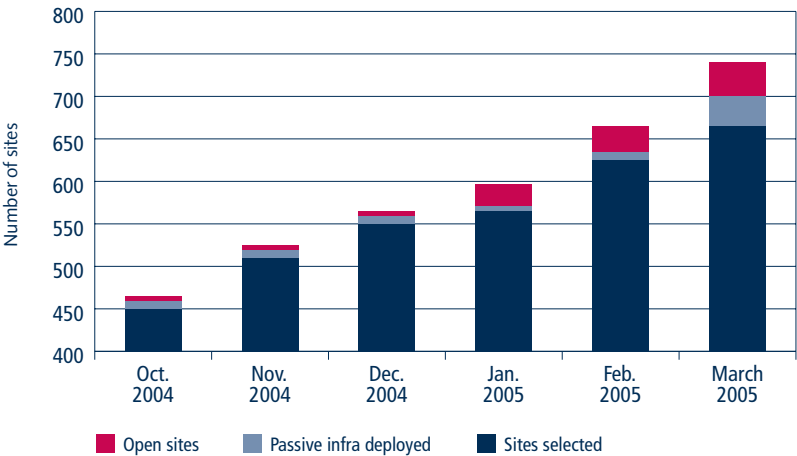
programme, by ensuring coverage of the districts targeted for the plan's second stage by the end of 2007.

Furthermore, by taking into account the obligation to cover dead zones, Orange France and SFR must cover 99% of Metropolitan France's population, compared to the current 90% obligation, as well as the main roads in each *département*. Bouygues Telecom, whose licence is valid up to 2009, agreed voluntarily to expand its network's coverage.

1.4. Progress made by the dead zone programme, as of 1 March 2005

An assessment made on 1 March 2005 of these actions revealed a recent acceleration in commercial deployments. The programme has moved ahead from the project management stage (studies and negotiations over the installation sites), to a deployment stage (construction or adaptation of passive infrastructures, commercial launches).

2) "Dead zone" programme deployments



Source : ART

	01-oct-04	01-nov-04	03-dec-04	01-jan-05	01-feb-05	01-mar-05
Sites selected	456	511	552	569	623	664
Passive infra in place	14	14	14	13	18	36
Open sites	4	5	8	26	32	34

Source : ART

57 protocol agreements have been signed between Departmental Councils and operators, to build relations between the two parties at the departmental level. 19 still await signature.

Phase II of the programme began on 1 January 2005. Meetings between the project's various players are currently underway in a bid to define a specific timetable, and a means of monitoring deployments.

With a steadily increasing rate of deployment, 500 new sites could be operational by the end of 2005, according to forecasts from the Secretary of State for Regional Development.

International

I. ART's role within international organisations

- 1) International Telecommunications Union (UIT)
- 2) The european conference of postal and telecommunications administrations (C.E.P.T.)
- 3) Organisation for economic co-operation and development (OECD)

II. Bilateral exchanges

III. Cooperative actions amongst francophone regulators

- 1) Francophone Telecommunications regulatory Network (FRATEL)
- 2) The ART-ENST Paris-ARTEL agreement

I. ART's role within international organisations

1) International Telecommunications Union (ITU)

With headquarters in Geneva, Switzerland, the ITU is an international organisation within the United Nations system. Its membership currently includes 189 Member States, 627 sector members (operators and corporations) and 103 associates (small businesses, research institutes, consultancies). The ITU's goal is bring together public authorities and members of the private sector to coordinate networks and global telecommunication services.

ART is involved in preparing the French government's positions, coordinated by the Ministry of Foreign Affairs and the Deputy Ministry of Industry, which are represented in international decision-making bodies, notably the Plenipotentiaries Conference and the Council. At the government's request, ART has the power to represent France at certain events, such as the World Summit of Regulators. ART participates in its area of expertise in the ITU's three sectors of activity: telecommunications development (ITU-D), radio-communication (ITU-R), and telecom standardisation (ITU-T).

1.1. ITU-D

The goal of the ITU's telecommunications development sector is to implement programmes aimed at facilitating access to telecommunications, to encourage network development and regulatory policies, to train personnel for developing countries, to formulate financing strategies and to assist businesses in integrating e-commerce.

ART is particularly involved in the work being done within ITU-D on the decisive role of market competition regulation for the development of ubiquitous access to Information Society services. The issues of universal service and access are of particular interest to the Authority, in several respects.

In addition to its expertise in this area, universal service and access was one of the fundamental components of the Authority's international cooperation policy in 2004. ART is chairman of the ITU-D working group in charge of the dossier on managing and funding universal access and service. The results of the work performed by this group were the subject of a speech given at the World Summit of Regulators (8-9 December 2003), on the topic of the practical tools available to regulators to promote universal access, and of a talk given at the first phase of the World Summit on the Information Society (WSIS), which was held from 10 to 12 December 2003 in Geneva. In preparation for the next World Telecommunications Development Conference, taking place in 2006 in Doha, Qatar, the creation of a new area of study on broadband service access was

proposed at the 5th World Summit of Regulators (8-10 December 2004).

Since September 2004, ART has been chairing the ITU-D Study group 1. The group's central area of expertise is national telecommunication development regulatory policies and strategies, financial and economic issues, tariff policies, private sector development and partnerships.

The Authority is also a member of the Telecommunication Development Advisory Group (TDAG), which advises the director of the Telecommunication Development Bureau (BDT) on setting priorities, formulating strategies, and preparing and implementing the ITU Development Sector's budget and the operational plan.

1.2. ITU-R

The task of ITU-R is to determine the technical properties and operational methods of services delivered by radio technologies. This sector plays a vital role in the management of the radio-frequency spectrum, finite natural resources which are increasingly in demand due to the swift development of new radiocommunication services, and mobile technologies.

ART took part in the World Radiocommunication Conference (WRC), alongside France's National Frequency Agency (ANFr). It monitors the work being done by the Radiocommunications Advisory Group (RAD), and the work performed by the sector's study groups.

1.3. ITU-T

ITU-T is devoted to the Union's most long-standing activity, namely the definition of international technical and operational standards which, although applied on a voluntary basis, are nevertheless recognised worldwide.

In October 2004, the World Telecommunication Standardisation Assembly (WTSA), which meets once every four years, was held in Rio in Brazil (cf. Chapter 9: standardisation). The Assembly approved the ITU-T's work programme, set standardisation priorities and urgencies, and defined the corresponding timetable. The Assembly approves, amends or rejects the ITU-T's draft recommendations, and examines the reports issued by the Study groups and the Telecommunication Standardization Advisory Group (TSAG), a body which manages the sector between World Assemblies, and in which ART is involved. Among other things, it decides on the study groups' structure, and the issues to be examined by each. At the WTSA in 2004, ART was appointed Chairman of the Study Group in charge of Operational aspects of service provision, networks and performance, and particularly service definition, numbering and routing (Study Group 2), a position that it had been occupying for the past two years. ART has held other positions as well: Deputy to the head of the French delegation, spokesman for CEPT coordination (The European Conference of Postal and Telecommunications Administrations), and Chairman of the Editorial Committee.

ART also monitors the work being performed by the sector's other two commissions, on a regular basis: one, which it chairs, on numbering, and the other on tariff principles and cost calculation methods.

2) The European conference of postal and telecommunications administrations (C.E.P.T.)

A pan-European organisation representing 46 Member States, CEPT is a major centre for frequency coordination and planning on the European continent, which explains ART's active involvement in the work performed by a great many of its expert committees.

Efforts to harmonise regulations across Europe, which was one of CEPT's original *raison d'être*, has evolved along with the European Union's expansion in May 2004, coinciding with the ratification of the new community framework. CEPT's work in this area, which does not cover exactly the same scope as the European Union's groups and committees, provides a forum for cooperation with the EU's new Member States.

Over the course of 2004, ART was represented:

- At CEPT's two Assembly meetings. The Assembly is in charge of the adoption of general policy and strategy decisions and recommendations, concerning the postal and electronic communications sectors,
- At the three meetings of the Electronic Communications Committee (ECC), and its various working groups and project teams (on radiocommunications, and on numbering, service definition, routing and interconnection);
- At the ITU working group, which is in charge of coordinating CEPT actions, and drafting common European proposals for upcoming ITU meetings. In preparation for the World Telecommunication Standardisation Assembly in 2004, an expert from ART chaired the project team created for this purpose.

3) Organisation for economic co-operation and development (OECD)

With headquarters in Paris, the OECD is made up of 30 member countries, including France. ART is associated with the French government departments involved in providing economic data, covering the field of information and communication technologies (ICT), used for the publication of the OECD's key indicators.

The Authority is also involved in the work performed by committees focused on ICT competition issues, as the OECD considers this sector as central to ensuring long-term economic growth, more and higher paying jobs, the expansion of global trade and a higher standard of living.

3.1. The ICCP Committee

The OECD's Committee for Information, Computer and Communications Policy (ICCP) addresses the issues created by the digital economy, the development of a global information infrastructure and the transition to a global information society.

Along with the Deputy Ministry of Industry, and under the aegis of the Secretary General of Inter-ministerial Coordination (SGCI), ART is involved in the ICCP Committee, and the related Working Party on Telecommunication and Information Services Policies (WPTISP).

3.2. Local authorities workshops

The OECD, which examines telecommunications and Internet policies, encourages exchanges between Member States, and analyses the evolution of information infrastructures (regulatory reform, telecoms convergence, Internet, cable TV and broadcasting networks). In 2004, ART was involved in this work, taking part in a workshop devoted to broadband access in rural zones.

II. Bilateral exchanges

From the onset, ART has undertaken a policy of active exchange with other countries. It has formed a relationship with its counterparts, public authorities and the private sector. These exchanges take the form of in-depth discussions on liberalisation of the electronic communications sector, and on the economic and technical aspects of regulation. They enable a better understanding of the changes taking place in foreign markets, notably in the area of broadband, fixed and mobile telecommunications system, and in view of convergence with audiovisual platforms.

In 2004, the Authority met with Tanzania's Minister of Transport and Communications, representatives of a consumer association from Brazil, delegates from the Chinese Ministry of Information and Communication, and with Japanese researchers and industry players. Several other delegations can be added to the list, notably from India and Ukraine. These meetings are generally followed by a regular exchange of information through correspondence.

ART also played host to representatives of the Jordanian regulatory authority (TRC), Gabon's Telecom Regulation Authority (ARTEL), as part of a several day training session, and with representatives of Morocco's National Telecommunications Regulatory Authority (ANRT), on the topic of Wi-Fi and local authorities. And lastly, in collaboration with Mexico's national regulator, COFETEL, ART has organised and chairs a regular forum devoted to discussing subjects such as convergence, market indicators and quality of service.

2004 was also marked by three missions: to South Korea, the United States and to Canada. These visits provided an opportunity to further an exchange of

viewpoints on telecom regulation with public authorities, operators and industry players in those countries, to present the French experience, and to meet with ART's counterparts.

III. Cooperative action amongst francophone regulators

International cooperation on regulation is one of the central goals of European directives and the ITU's policy, as defined by the World Telecommunications Development Conference in Istanbul, and the Plenipotentiaries Conference in Marrakech. ART also ensures that relations with foreign organisations coincide with the French government's external policies, at whose behest certain relations have been established.

Because of high demand in French-speaking countries, ART has given particular priority to sharing its efforts within the Francophone Telecommunications Regulatory Network (FRATEL), and limiting bilateral actions with its member States.

1) Francophone Telecommunications Regulatory Network (FRATEL)

ART is particularly invested in francophone cooperation. There is a pressing need for regulators to address common issues when undertaking their functions. Because of the novelty of this type of institution, the specific nature of regulatory issues, the need to master new analytical techniques in terms of cost calculation and player strategies, the emergence of specific regulatory laws, and the need to have a thorough grasp of these issues requires high level training and, above all, one which is tailored to the needs at hand.

FRATEL'S creation in 2003 is an example of the increasing role that ART is playing in foreign initiatives in the area of telecommunications, a role that draws both on its expertise in the area of regulation, and on the emergence of a growing number of similar institutions around the globe over the past few years, which explains why regular dialogue between regulators has become a common practice.

The 2nd annual meeting of FRATEL, which was held on the invitation of Morocco's National Telecommunications Regulatory Agency (ANRT), underscored the importance of this dialogue between regulators. Over 130 participants, representing international institutions (ITU, European Commission, World Bank), and the sector's industries (Itissalat al Maghrib, Meditelecom, Morocco Connect, Inquam, Nokia, Ericsson, Alcatel, Nortel, etc.), took part in the two-day event, which was held in Fez on 4 and 5 October 2004. The work focused on mobile networks' role in socio-economic development, and allowed regulators from north and south to share their experience and views.

During this meeting it was decided to distribute the minutes of the first seminar, which was organised by the network in Paris, on 29 and 30 April 2004, at which regulators from 22 countries were involved in drafting a detailed report on universal service and access best practices.

Another highlight of the meeting in Fez was the launch of the organisation's website (<http://www.fratel.org>), whose creation had been decided at the previous annual meeting, held in Bamako in 2003. This site, which was designed by ART France, will act as a hub for the different regulators, and make it possible to forge relations with those interested in the work being done by FRATEL.

In its plan of action for 2005, FRATEL voted to hold its next annual meeting on the theme, "Internet and development" and, on the invitation of the Multisectoral Regulatory Authority of Mauritania, to organise a seminar for exchanging information and views on the topic of "Internet regulation and access technologies," in Nouakchott, on 30 and 31 March 2005.

2) The ART-ENST Paris-ARTEL agreement

In December 2004, ART signed a three-party agreement with the Ecole nationale supérieure des telecommunications/*National college of telecommunications* (ENST-Paris) and the Telecommunications Regulatory Authority (ARTEL) of Burkina Faso, as part of a telecommunications regulation training degree programme, aimed at telecommunications regulatory agency personnel in West Africa, in partnership with Senegal's Ecole supérieure multinationale des telecommunications/ *Multinational Telecommunications College* (EMST) and the World Bank.

Graduates of this training programme, which began in January 2005 and attended by 33 participants in Ouagadougou in Burkina Faso, are given a "badge" in "telecommunications regulation," a diploma from the Conference of French National Colleges (known as *grandes écoles*).

Standardisation and the future

I. Standardisation

- 1) ART's action at the national level
- 2) ART's action at the international level

II. Prospective view

- 1) Evolution towards next generation networks
- 2) Fixed/mobile convergence

I. Standardisation

Economic and commercial trade is made more fluid by standardisation, which allows new markets to open up, and manufacturers to generate economies of scale. Standardisation is taking on a more and more strategic role with the growing effects of globalisation, and the emergence of developing zones (China, Brazil, India) which are having a major impact on the worldwide electronic communications market. Standardisation conditions and structures a market's growth path, well before the intervention of a regulator, whose actions are generally carried out over a shorter term.

1) ART's action at the national level

ART plays a considerable role in coordinating standardisation on a national scale. The creation of the General Commission on Telecommunications and Electronic Communications (CGTEC) in 2004, under the aegis of AFNOR, made it possible to streamline the various national standardisation coordination bodies. It promotes better "horizontal" coordination on the major issues which are often handled by different standardisation bodies: ITU⁴⁹, ETSI⁵⁰ (European Telecommunications Standards Institute) and private forums. The CGTEC includes a structure that coordinates the work performed by ITU-U, which is chaired by ART and which, in 2004, played a key role in defining French positions for ITU-T's major meetings, such as those of the Telecommunications Standardisation Advisory Group, and the World Telecommunication Standardisation Assembly (WTSA). CGTEC also contains a structure for coordinating the work done by ETSI, including preparatory work for the European Telecommunications Standards Institute's general assemblies. ART also plays an active role within GIN (Interministerial Standardisation Committee), and its specialised groups (ICT, training, etc.).

After having backed the creation of an observatory of the forums (Standarmedia) steered by AFNOR, ART'S participation is currently confined to certain meetings of Standarmedia's editorial committee, which entered a commercial phase in 2004.

49) www.itu.int

50) www.etsi.org

2) ART's action at the international level

ART is also involved in the standardisation process at the international level, taking part in several of the ITU's and ETSI's key structures.

2.1. ITU

Through its ITU-T Sector, the ITU, the international organisation of the United Nations' system in charge of the telecommunications sector, shares the role of global standardisation body with the ISO (International Organisation for Standardization) and the IEC (International Electrotechnical Commission).

2.1.1. Structural evolution

At the World Telecommunication Standardisation Assembly (WTSA), which took place in Rio, Brazil, in October 2004, and which defines the sector's strategy and structure every four years, the decision was made to group and better promote ITU-U's work on NGN (New generation networks), through an ad hoc study group. This was the wish expressed by private sector players. ART worked with the Minister of Industry to bring the relevant decisions before the Assembly. Next generation networks are a focal issue for ITU for the coming years. In addition, the WTSA has maintained the study groups focused on service definition, numbering and routing.

2.1.2. ART and the ITU study groups

For a long time now, ART has been part of the ITU's study groups focused on network provision and services (including numbering), and on aspects of international tariff principles. The Authority chairs Study Group 2 devoted to aspects of networks and services, and to service definition, numbering and routing in particular, added to which one of its experts was appointed vice-chairman of the Commission's Study Group 3, which is dedicated to international tariff and accounting principles.

As concerns the other study groups, ART, along with the Ministry of Industry, has created a network of technical correspondents from the private sector, who keep it informed of the latest developments.

2.1.3. ART and ITU-T's decision-making bodies

In its position of deputy head of the French delegation, ART is actively involved in the work being done by the Telecommunications Standardisation Advisory Group, which manages the ITU-T Sector between WTSA meetings, and makes all of the operational decisions. 2004 was a particularly work-intensive year for the group, as it was involved in preparing the decisions of the World Assembly in Rio. During the meetings held by these bodies in 2004, ART also played the role of CEPT coordinator and spokesman.

2.2. ETSI

ART is involved in the European Telecommunications Standards Institute, in concert with the Ministry of Industry; the Authority is a full-fledged member and occupies positions in the organisation's strategic bodies. ART is represented on ETSI's Board, of which it has been the vice-president since May 2004; it chairs the ad hoc group focused on the links between standardisation and the new regulatory framework (OCG ECN&S), and takes part in the general assemblies and coordination committees (OCG), and in the work performed by ad hoc technical committees (Impact, etc.). ART is a member of the ETSI delegation within the third generation mobile systems project coordination group: 3GPP PCG OP⁵¹.

51) www.3gpp.org

The activities of this group are conducted in close collaboration with the Directorate-General for Enterprise (Enterprise DG), born of the merger of DiGITIP (Directorate General for Industry, Information Technologies and Post), DARPMI (Directorate for Regional Action and Small and Medium Industry), and ANFr (National Frequency Agency).

These activities help deepen the regulator's understanding of the sector's underlying trends, and allow it to enhance and maintain its technical knowledge which is so critical to regulation. Drawing on prior national consultations, the regulator remains a key player, given the necessary coherence between standardisation and regulatory actions.

Several elements stand out as particularly significant with respect to ETSI and ART's actions in 2004.

2.2.1. ETSI faced with upheavals in the sector

After the crisis weathered by telecom players starting in 2001, ETSI has been struggling to stabilise its membership, which declined sharply in 2003. ART took an active role in the discussions which began in 2004 on the Institute's positioning up to 2010. This work took into consideration the sector's transformation due to the impact of new business models, successive consolidation phases, and the emergence of high-potential zones in terms of standardisation (China, Brazil, India). It also takes into account the need to strengthen community ties from a strategic standpoint (DG Info Society), and from an operational standpoint in the area of electronic communications. Here, ART was involved in the Institute's alliance with CoCom (Communications Committee). The French regulator also supported ETSI's project to reposition itself on interoperability issues, incorporated into regulatory objectives. Although ETSI's work remains focused on the lower layers of the different access modes (fixed, satellite, wireless and radio), the Institute has revealed its intention to become more involved in the applications layers. ART is in favour of taking this approach, in concert with the actions performed by Europe's other standardisation bodies, at a time when the players' business models have gone well beyond the scope of telephony.

2.2.2. ETSI's role in the growth of 3G

Because of its financing capacities and the influence of its members, ETSI continued to be a driving force in the standardisation of UMTS 3G mobile networks in 2004 within its project structure, in partnership with regional standardisation organisations (3GPP). The area of new mobile services, steered by the OMA forum, is somewhat beyond its grasp, however. Having an ART expert on ETSI's 3GPP delegation also allows the regulator to be at the centre of the UMTS standardisation process, to increase its visibility in the debates which are currently underway, and to strengthen its ties with the national players involved.

ETSI's "reasonable and non-discriminatory" (RAND) patent policy is gaining increasing support in the partnership project debates taking place between 3GPP and OMA.

2.2.3. Development of new generation networks

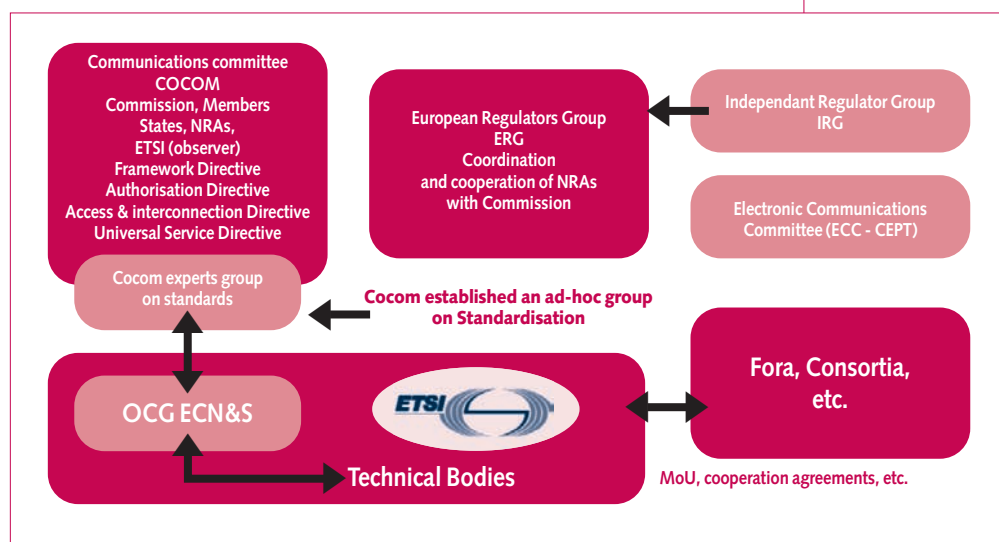
In 2004 ETSI took a proactive approach to new generation networks (NGN), which conflicted in some respects with the ITU's stance. The work underway seeks to pinpoint synergies with the options chosen by the mobile sector (3GPP), and could go a long way in structuring the sector's evolution. Several incumbent carriers are taking an active part in the process. The lack of input from new entrants was pointed out recently. On the whole, ART supports these standardisation efforts at the European level, but does encourage the sector's national players to become involved directly, in a bid to create a balance in the standardisation process.

2.2.4. Standardisation and the regulatory framework

ART chairs the technical committee focused on the ties between standardisation and the new regulatory framework. (ETSI OCG ECN&S). This committee published a report (ETSI SR 220 211) which addresses the central challenges of the new framework, and the links with associated standards and specifications. This action is a response to a European Commission mandate (M 328), pursuant to the objectives contained in Article 17 of the "framework" Directive.

Furthermore, in a bid to stimulate debate on these issues across Europe and between regulators, ART, with the support of DGE, took an active part in creating the CoCom experts group on standards (see diagram below), and attended the ad hoc meetings in 2004. These actions fuelled a closer link between standardisation and regulation, as well as a more solid grounding for the Institute at the European level, at a time of increasingly globalised standardisation. A concrete gateway between CoCom and ETSI is expected to be created in 2005.

Links between ETSI and CoCom



Source : ETSI

II. Prospective view

Unabated innovation, along with manufacturers' and operators' R&D programmes are continually changing the shape of the electronic communications landscape, and can lead to major technological disruptions. IP is a perfect case in point: originally developed for computer networks, it later took hold in telecommunications networks as well. To gain a view of the future shape of the sector, ART conducts an process of ongoing monitoring to keep track of the latest trends. Two main paths of evolution come to fore: Next generation networks, or NGN, and fixed-mobile convergence.

1) Evolution towards next generation networks

The deployment of next generation networks depends a great deal on the different players' position in the market: incumbent fixed carrier, new fixed entrant, mobile operator, MVNO, etc.

All incumbent carriers who operate a PSTN are gradually deploying next generation networks (NGN), in other words all-IP networks that enable voice-data and fixed-mobile network convergence, with the goal of marketing multimedia broadband services that can be easily accessed from the various networks.

Integrated operators who provide fixed and mobile telephony as well as broadband access to the Internet are working towards equipping themselves with

hardware that is compatible with both fixed and mobile, which is expected to generate economies of scale.

With the exception of Telecom Italia, which has already begun replacing some of its switches, most of Europe's incumbent carriers are taking a cautious approach, but are nevertheless planning to have replaced all of their switches by 2010-2015, to reduce their network nodes and to harmonise their transmission solutions.

Britain's incumbent carrier, BT, has adopted an approach deriving from the inherent restrictions of its positioning on the fixed market, and its desire to reinvest in the mobile market. In June 2004, BT laid out a development strategy for its network, that it plans to implement over the next few years. Efforts will focus on the network's core, even if the operator also plans on unifying its transmission network, its switching and on reducing its traffic nodes to around one hundred. The operator will maintain an access network based on some 5,000 distribution frames. The migration timetable will be spread out over less than 10 years, with the goal of transferring more than half of all subscribers to the new network by 2008. This network integrates an interface with Vodafone's mobile network, with which BT signed an agreement in 2004, and enables the NGN's cohabitation with the declining fixed network for several years. Broadband and wireless nomad (Wi-Fi) access are occupying an increasingly prominent position in the operator's policy.

New entrants are relying on more recent and future-proof solutions, and are already equipped with configurations which are at odds with the majority of incumbent players' network cores. They enjoy preferred relations with their suppliers, most of which come from the computer universe, when adapting products to local features.

In France, all three mobile carriers operate networks which have evolved in successive stages: extension and densification of coverage, upgrading base stations for the migration to GPRS, recomposition of the network elements for conveying data traffic associated with new uses. The evolution towards NGN configurations within their network is expected to be carried out later than for fixed network operators. Their investments over the past three years have been chiefly in wireless 3G access, and Voice over IP has not yet had any significant impact on their voice revenues.

Given incumbent carriers' and mobile operators' position in the national marketplace, any move towards NGN, which will be spread out over several years depending on the inherent restrictions of existing networks, will naturally have an

impact on competition. Their strategies will be geared towards a vertical integration model, with the goal of marketing an increasingly broad array of services. Following the first announcements of NGN deployment at the international level, we can already get a preview of the regulatory issues that will force a rethink of current analyses. It has now become necessary to take technological shifts into account, such as the drop in the number of fixed, and later mobile, concentration and interconnection points, the gradual reduction of interconnection points with the incumbent network, the evolution of interfaces with the existing fixed network and mobile networks (ubiquitous IP-based network interconnection), user data and profile repatriation in the networks (which are key to service offerings), emergency call positioning, legal call interception, etc.

2) Fixed-mobile convergence

Fixed-mobile convergence, identified as one of the main reasons behind an operator's decision to migrate its switched networks to next generation networks, is now enjoying a revival of interest, as revealed by incumbent carriers' (France Telecom, Deutsche Telekom, Telefonica, Telecom Italia), fixed-mobile-Internet consolidation strategies, and by the array of trials being conducted on innovative nomadic services (BT's BluePhone project, France Telecom's launch of fixed and mobile videophony services).

Even if the pioneer services launched in Europe in the early 2000s were not terribly successful, the convergence trend is now taking place in a variety of ways: service access continuity (nomadicity for corporate users, integrated services on several platforms, unified customer service, etc.), mobile replacing fixed-line calling (unmetered mobile calling, high volume mobile telephony offers, etc.), and even fixed replacing mobile (BT's Bluephone service, the rise of IP telephony, etc.). This trend is expected to maintain its momentum in the short term, and will likely lead to a growing number of partnerships between players from different backgrounds. Mobile handsets and multifunction gateways will therefore take on a strategic role.

Furthermore, the introduction of IP connectivity for fixed (broadband over DSL, fibre optics, PLC, WLL, etc.), nomadic (Wi-Fi) and mobile (2.5G, 3G) access makes it possible to establish a link with end users, without necessarily having control over the access segment. To a certain extent, this shift has revived the momentum of fixed-mobile convergence. Users can now subscribe to services independently of their access provider. The race for ever-higher bitrates will only enhance the range of services available. Voice over IP is the current focus of attention, but other services too are taking shape. A wide variety of peer-to-peer applications (voice, content...), will only further consolidate this trend.

These technological innovations, which will come to the fore over the next two years, are forcing a re-examination of regulations which are still highly segmented between fixed and mobile.