Digital Terrestrial Television in France:
an attempt to enhance competition in an oligopolistic market[#]

Marc Bourreau
ENST, Département EGSH, and CREST-LEI

Only 17 per cent of French households received digital television in 2002.[1] Hence, for public authorities, digital terrestrial television (DTTV) is mainly a means to stimulate the development of digital television. However, cable and satellite operators (TF1, M6 and Canal Plus), which have been designated as leaders of the DTTV process, are reluctant, as they view DTTV as a competitor to their existing platforms.

TERRESTRIAL DIGITAL TELEVISION

In France, DTTV has been urged by public authorities. Its main goal is to increase the number of channels received by French households and to provide digital television to all. Indeed, in 2002, 52 per cent of French households received only the five unscrambled free-to-air channels (TF1, France 2, France 3, ARTE/La Cinq, M6). 20 per cent received an additional terrestrial pay television channel, Canal Plus. Only 28 per cent received an extended choice of channels, through either cable (14 per cent) or satellite (14 per cent).[2] Finally, only 17 per cent received digital television.

For the Jospin government, the second goal of DTTV was to stimulate the development of public television (for instance, see Le Guen, 2001). Since the change of government, the role of public television on DTTV has been unclear, as we will see.

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[1] Source: AFORM, TF1, Canal Plus, INSEE.

[2] On 30th September 2002, there were 3,433,731 cable subscribers (source: AFORM) and 4,788,000 subscribers to pay channel Canal Plus (source: Canal Plus). Mid-2002, there were 3,284,000 satellite subscribers (source: TF1 and Canal Plus). The total number of households is 23,808,000 (source: INSEE's survey, 1999).

Regulatory Framework

In France, the discussions about DTTV started in January 1996, when the Minister in charge of Culture and Information Technologies entrusted Mr. Philippe Levrier with the task of writing a report about the stakes of DTTV. The report concluded that DTTV was feasible. However, since then, DTTV has met many political and regulatory hurdles and its introduction has been delayed many times.

The law of August 1st 2000 established the legal framework and the timeframe for the development of DTTV in France. The law introduced the following key principles:

1- "simulcast" rule: according to this rule, incumbent analogue terrestrial television channels are allowed to be present on digital terrestrial television (Art. 30-1, III).
2- "additional channel" rule: incumbent analogue channels have rights for an additional DTTV national service.
3- private channels are allowed to control five channels *at most*, which implies that a provider cannot control a multiplex of 6 channels. Besides, companies outside the European Union cannot have a stake of more than 20 per cent in a national DTTV service.
4- The French communication regulatory authority, the Conseil Supérieur de l'Audiovisuel (CSA), should favour free channels over pay channels, and contribute to increase the diversity of operators and pluralism.

These four principles highlight the objective of the regulator and the government for DTTV to find a right balance between the protection of incumbent operators (principles 1 and 2) and entry of new players (principles 3 and 4). Since the law of August 2000, decrees have been published to specify the legal framework.

Two decrees introduced production and diffusion quotas for DTTV channels. The aim of these quotas is to protect the French production industry. Decree n°2001-1333 of 28 December 2001 established production and diffusion quotas for DTTV channels. Different production quotas apply to different types of service providers: free channel, music channel, pay channel, pay cinema channel. First, all service providers except cinema pay channels are required to invest 3.2 per cent of their net turnover[3] in the production or acquisition of European cinema programs and at least 2.5 per cent in French cinema programs.[4] The production quotas of cinema pay service providers are stronger: they are required to invest 21 per cent of their turnover in the production of European cinema programs and 17 per cent at least in French cinema programs.

Second, free service providers are required to invest 16 per cent of their turnover in the production or acquisition of French television programs. This quota is lowered to eight per cent for music channels, i.e., channels which offer music programs at least half of the time.

To stimulate the development of DTTV, the CSA might decide to alleviate some of these rules in the schedule of conditions for an introductory period of seven years.

Decree n°2001-1333 of 28 December 2001 also introduced diffusion quotas: channels are requested to broadcast each year 120 hours of European or French programs in prime time (i.e., between 20h and 21h). Other diffusion quotas are included in Decree n°2001-1330 of 28 December 2001, which modified Decree n°90-66 of 17 January 1990. In particular, service providers are requested to offer at least 60 per cent of European programs and at least 40 per cent of French programs. This rule applies to the annual schedule, but also during prime time (i.e., between 20h30 and 22h30).

Advertising constraints also apply to DTTV channels. According to Decree n°2001-1333 of 28 December 2001, channels will be allowed to introduce nine minutes of advertisement per hour on average per day, with a maximum of 12 minutes for one hour. Another decree, decree n°2001-1331 of 28 December 2001, regulates infomercials.

One of the most controversial rule is the "must carry" rules for cable operators. According to decree n°2002-125 of 31 January 2002, cable operators are obliged to offer free DTTV channels in their digital television bundles.[5] This "must carry" rule concerns only cable networks, not satellite. One possible justification for this difference is that the must carry rule

[3] Some expenses can be deduced from the turnover.

[4] "French programs" ("expression originale française") are French-speaking programs. Note that the rule applies only to "stock" programs (like films, series, documentaries, etc.).

[5] As for analogue cable television offers, only analogue terrestrial channels must be carried.

compensates the local monopoly power of cable networks, whereas the satellite television market is a duopoly. However, cable networks are strongly opposed to this rule. The French cable association (AFORM) and a cable operator UPC have filed an appeal to the Council of State against the Decree. Besides, AFORM has asked the Prime Minister in December 2002 to abrogate the Decree. In its complementary report to the Prime Minister (Boyon, 2003), Michel Boyon, member of the "Conseil d'Etat" and former CEO of the public radio group "Radio France", stated that the Decree was transitory. According to Boyon, in the opening phase of DTTV, the must carry rule will stimulate its development. He also proposed to launch discussions about the cost of the must carry rule for cable operators, and hence its possible compensation.

Finally, some rules are yet to be taken prior to the implementation of DTTV. First, a decree will clarify the production and diffusion quotas for local television channels. Second, currently, no person can own up to more than 49 per cent of a national DTTV service, but this rule applies only if the "average audience" of the channel is greater than 2.5 per cent. How the "average audience" is measured is still unclear; a decree is expected to clarify this point too.

DTTV Players

The French regulatory framework for DTTV distinguishes different types of players (see also figure 1 below):

- **Service providers or channels**. The CSA has first to select a list of advertiser and pay supported service providers for DTTV. Second, it shall establish a schedule of conditions for each service provider. As mentioned above, the conditions depend on the type of channel (advertiser or pay supported, cinema channel, music channel, et.). Note that this selection process implies that both the business model (advertiser or pay support) and the "genre" of the channel are fixed.

- **Multiplex operators.** There will be six multiplexes, each with five or six channels. Service providers have to join up to propose a multiplex operator to the CSA. If the CSA grants an authorisation to the multiplex operators, it delivers the frequencies for the multiplex. If not, service providers have a further period of two months to propose another multiplex operator.

- **Commercial distributor.** The commercial distributors commercialise bundles to end customers. They must make a declaration to the CSA.

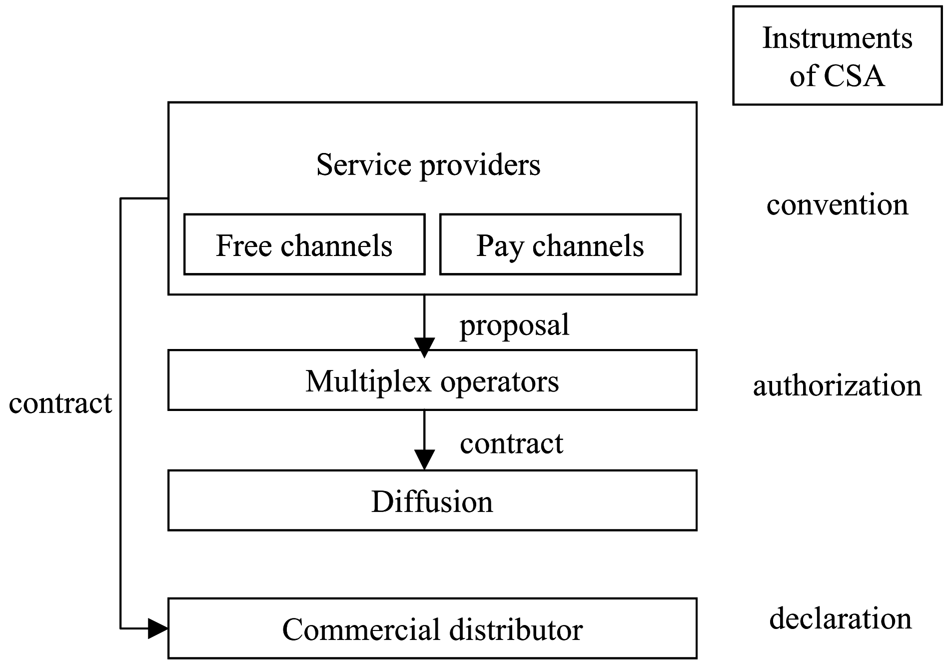

Figure 1: Digital Terrestrial Television Players

Now, I shall describe who are or could be the players.

Channels

Compared to analogue terrestrial television, DTTV provides room for more channels. The main ideas in France were, first, to have both free channels and pay channels and, second, to take the opportunity of DTTV to introduce local television channels. In its report to the Jospin government, deputy Jean-Marie Le Guen also suggested that one channel be reserved for associative television (Le Guen, 2001).

A third objective of DTTV was the introduction of “new” entrants. However, the number of available channels for new entrants was quite lower than the total capacity of 33 channels, as:

- Eight channels were earmarked for public channels and three for local television.
- Six channels were reserved for the three private analogue terrestrial channels (TF1, Canal Plus and M6): three for their existing channels (simulcast rule) and three additional channels (bonus channels).

Therefore, only 16 channels were available for new entrants.

On July 24th 2001, the CSA launched a call for bids for national DTTV services. On 22nd March 2002, 69 proposals were submitted to the CSA. On 9th April 2002, the CSA announced that 66 offers were valid, i.e., that they satisfied the basic conditions contained in the text of the call for bids. Since one applicant later withdrew, the CSA screened 65 proposals, and conducted public hearings. Three applicants resigned later on 18th October 2002 (TPS Cinétoile and TPS Cinéfaz) and 21st October 2002 (Odyssée).

The criteria for the selection were mentioned in the text of the call for bids. These criteria were related to *content* (ability to address large audiences and ability to stimulate the development of DTTV, pluralism, commitments in terms of production and broadcasting of programs), *technical aspects* (geographical coverage, distribution), and economic and competitive aspects (experience of the applicant, financial aspects, fair competition and diversity of players).

Among the 69 candidate channels, very few were new. Actually, most channels were already offered on either cable or satellite networks.

On 23rd October 2002, the CSA announced that it had selected 23 national service providers for DTTV (or 22 full time services, as two services proposed to share airtime on the same channel), out of which eight were advertiser-supported and 15 pay-supported (see also table 1 below). The selected service providers signed an agreement with the CSA in December 2002. Licences have been awarded for a period of ten years.

Free channels	**Pay channels**
TF1 (TF1) M6 (M6) Direct 8 (Bolloré)	Canal Plus (Canal Plus) AB1 (Groupe AB) Canal J (Lagardère)

i-MCM (Lagardère) M6 Music (M6) NRJ TV (NRJ) NT1 (Groupe AB) TMC (Pathé)	CinéCinémas (MultiThématiques) Cuisine TV / Comédie (Pathé) Eurosport (TF1) i-télévision (Canal Plus) LCI (TF1) Match TV (Lagardère) Paris Première (Suez and M6) Planète (MultiThématiques) Sport+ (Canal Plus) TF6 (TF1 and M6) TPS Star (TF1 and M6)

Table 1: The 23 channels selected by the CSA for DTTV (the owner in parenthesis)[6]
Source: CSA.

In the selection process, the CSA has followed different goals: First, the CSA has tried to select channels to address different audiences with different genres of programs: young people (AB1 and Canal J), cinema programs (Cinécinémas, TPS Star, Canal Plus), sport programs (Sport+, Eurosport, Canal Plus, and TPS Star), news programs (LCI, I-Télévision), culture and lifestyle (Paris Première, Match TV), series (Comédie).

Secondly, the CSA applied an equal treatment to each major player in the French television industry: Largardère (three channels controlled at 100 per cent, two channels controlled at 50 per cent), Canal Plus (three channels controlled at 100 per cent, two channels controlled at 50 per cent), TF1 (three channels controlled at 100 per cent, one channel controlled at 50 per cent), M6 (two channels controlled at 100 per cent, two channels controlled at 50 per cent), and Pathé (three channels controlled at 100 per cent).

Thirdly, the CSA favoured "viable" channels, i.e., channels controlled by large companies. In particular, associative candidate TV channels were rejected. Similarly, existing channels were favoured, as their marginal cost of operating on DTTV is very low (it amounts only to the

[6] On top of these 23 channels (out of which two will share the same channel), there will be eight channels for public television and three channels for local television.

diffusion cost, which is around two million euros if 50 per cent of French population is covered).

Fourthly, if the CSA selected five new entrants in the terrestrial television market, namely, Groupe AB, Largardère, NRJ, Pathé, and Bolloré, only the latter is a real new entrant (with channel Direct 8), since the others already operate on cable or satellite networks.

However, the selection presents the following flaws: Despite the objective to improve the choice of programming available, the selection process has resulted in a duplication of channels. For instance, among the eight advertiser-supported channels, which have been selected, three will offer music programs: M6 Music, i-MCM, and NRJ TV. Similarly, four pay channels will offer a high proportion of sport programs (or only sport): Canal Plus, Sport+, TPS Star, and Eurosport.

In addition, the CSA has favoured incumbents, but their incentives to develop DTTV are ambiguous, as some of them have invested in cable or satellite television. Indeed, 12 DTTV pay channels out of 14 are controlled by companies which operate satellite or cable platforms (TF1, M6, Canal Plus, Lagardère). For these players, developing DTTV means cannibalising their existing offers.

Besides, all pay DTTV channels already exist on cable or satellite, hence program differentiation between cable/satellite and DTTV will be limited. This will be true in particular for cable and DTTV, as they will cover the same urban areas. However, the companies which control both DTTV pay channels and satellite and cable networks will have incentives to avoid cannibalisation of their existing platforms (see discussion above).

Finally, contrary to cable and satellite platforms, DTTV gave public authorities the opportunity to decide on the programs. There will be only six new advertiser-supported private channels (out of which three will offer music programs) and three public channels. Hence, the new “free” channels will be supported partly by an increase in public funding. However, if some channels fail to catch viewers’ attention, the lack of flexibility in DTTV programs will be an issue.

Public and local television

Eight channels are reserved for public television, out of which five will be devoted to existing public channels (France 2, France 3, France 5, ARTE and the Parliament channel). Therefore, three channels are available for new public channels. The idea was to try to maintain the audience share of public television, by increasing the number of channels. Indeed, in 2001, the report of deputy Le Guen explained that the major issue with DTTV is that the increased channel diversity might result in a decrease of the audience share of public television (cf. Le Guen, 2001).

France Télévision proposed three projects: a news channel, a repeat broadcast channel, and eight regional channels (on the same channel). However, the new government, the Raffarin government, has decided to wait before awarding the resources to France Télévision. Indeed, the Raffarin government thinks that the news program channel project is useless as two pay news channels have been selected by the CSA. Besides, it finds that the repeat broadcast project is unclear. Therefore, at the end of 2002, the government has decided to have further thoughts about public television before taking any decision about public DTTV.

One implication is that it is not clear at all whether these channels will be awarded to public television or to new private companies. If the government does not use the three channels, the CSA will have to select new DTTV projects.

As for local television, it hardly exists in France. Public channel France 3 proposes regional programs, but only for large regions. Only nine "real" local channels exist in France, which cover less than four million people. For public authorities, DTTV is also a means of developing local television. To that end, three DTTV channels have been reserved for local television channels. Since there are 110 planned diffusion sites, there could be theoretically 330 different local channels, each channel having a limited coverage area, but it is only an upper bound (Boyon, 2003). In particular, the 110 sites will be opened only in 2008 at the earliest; at the beginning, only 29 sites will broadcast DTTV.

The call for bids for local channels has yet to be launched by the CSA. However, the CSA is waiting until the legal framework for local channels is completed. Indeed, as already mentioned, the production and diffusion obligations for local channels are still undefined.

These obligations will be published in a decree. Boyon (2003) suggests to lift production quotas for channels whose maximum audience is lower than ten million people, hence for local channels.

Advertising rules for local DTTV channels have also to be specified. Boyon (2003) proposes to allow local DTTV channels a larger share of advertisements in their programs (15 minutes per hour), compared to national DTTV services. He also suggests to lift two anti concentration rules which apply to local channels. The first rule (article 39-III of the Media Law of 30 September 1986) states that no person can have a stake of more than 50 per cent in a terrestrial television company. The second rule (article 41 of the same law) forbids control of both a national and local television service.

Multiplex operators

DTTV will provide 33 channels. Three multiplexes will include five channels, the other three multiplexes will include six channels. Hence, quality of channels on the five channel multiplexes will be higher than the quality of channels on the six channel multiplexes. Service providers have to propose multiplex operators to the CSA by February 2003. In November 2002, the CSA proposed the following composition for private multiplexes (see table 2 below).

Multiplex R6	Multiplex R3	Multiplex R4	Multiplex R2
TF1	Canal+	M6	i-MCM
LCI	i-Télévision	M6 Music	Canal J
Eurosport	Sport+	TF6	Match TV
TPS Star	CinéCinémas	Paris Première	Direct 8
NRJ TV	Planète	TMC	AB1
		Cuisine TV/Comédie	NT1

Table 2: composition of multiplexes (proposal of the CSA)

Source: CSA.

In this configuration, each multiplex is led by one incumbent: TF1 (Multiplex 1), Groupe Canal Plus (Multiplex 2), M6 and Pathé (Multiplex 3), Lagardère (Multiplex 4). Each multiplex includes both free and pay channels. The two five channels multiplexes are given to the two major players (TF1 and Canal Plus).

The configuration proposed by the CSA aims at providing incumbents with high incentives to develop their multiplex. However, this configuration may also give rise to conflicts between incumbents and new entrants. Whereas the former have incentives to retard DTTV as it could cannibalise their investments in satellite or cable, the latter have strong incentives to make it develop fast. For instance, NRJ Group has proposed that the six new free channels (Direct8, iMCM, NRJ TV, NT1, TMC, M6 Music) be rounded up on the same multiplex.

Distribution operators

The role of the distributor is to commercialise DTTV offers to end customers. However, how DTTV will be commercialised is unclear. Boyon (2002) proposed the following solution. On one hand, large scale retailers would commercialise decoders for the reception of advertiser-supported channels. On the other hand, DTTV distributors will commercialise bundles of pay channels.

The commercialisation of pay channels is still an issue today. The first idea was to allow Canal Plus to be the sole distributor for DTTV. Indeed, Canal Plus has acquired a large experience in the commercialisation of pay television. Besides, it was argued that Canal Plus would have an incentive to make its pay analogue subscribers switch to DTTV, which would stimulate the development of DTTV. However, this argument has a flaw. Indeed, Canal Plus already owns two digital television platforms: a digital satellite network (Canal Satellite) and a cable network (NC Numéricable). Hence, it could have incentives to favour its digital platforms by preventing the take-up of DTTV, which raises serious antitrust concerns (Gallot, 2002). Besides, since it has been awarded DTTV pay television channels, Canal Plus could also try to favour its own DTTV channels.

Gallot (2002) proposed another scenario, in which DTTV channels would create a joint company to distribute DTTV to end customers. However, the French competition authority or the European Commission would probably have to endorse this joint company, which could take months, hence retard the commercialisation of DTTV.

A last solution would be to allow two distributors or more. Boyon (2002) states that each distributor should have access to all DTTV channels to elaborate its bundle. However, exclusivity agreements between service providers and companies which commercialise satellite or cable bundles might make Boyon's non discrimination rule difficult to obtain.

However, there were no candidate in February 2003 to commercialise DTTV. Canal Plus abandoned and Orange (France Télécom's mobile operator) which announced mid 2002 that it would be interested in commercialising DTTV is not a candidate any longer.

Diffusion of DTTV

Currently, Télédiffusion de France (TDF) has a de facto monopoly over the diffusion of analogue terrestrial television. Its monopoly might be challenged for DTTV. Indeed, new companies like Towercast (controlled by NRJ) or Motorola Labs have launched experiments to test the diffusion of DTTV. However, since diffusion sites are based on TDF diffusion sites, entry of new players will require that TDF allows competitors to install transmission equipment in its premises.

Technology and Spectrum Management

Technical aspects are dealt with by a commission of 150 experts from companies and public authorities. This commission, which has been set up by the CSA, examines the following aspects of DTTV: interoperability, transportability, signalling profile, unscrambled channels, update of terminals and adaptation of joint antennas.

One the main technical issues today is the reallocation of the reallocation of analogue frequencies (i.e., those frequencies used by DTTV). The CSA estimates that 1500 reallocations are required for the roll out of DTTV. These reallocations will have two consequences. First, they will impose a cost on customers in some areas, as after reallocation analogue television channels will not be available on the same frequencies (this will be the case for areas which are covered by secondary transmitters). Between 850,000 and 1.7 million households could be concerned by this problem. This is one reason why TF1 and M6 are opposed to frequency reallocations, as it will disturb their audiences.[7] In particular, TF1 has filed an appeal to the Council of State against frequency reallocations and M6 claims that that new entrants should pay the reallocation cost. In March 2003, the CSA threatened to ask the Council of State to force TF1 and M6 to agree to these reallocations.[8]

Second, reallocations will be costly for the diffusion network. In his report published in October 2002, Boyon (2002) recommended that DTTV channels should pay the frequency reallocation one-shot cost. ANFR proposed that the Government should advance funds for the first 500 reallocations which would cost 32 million euros. The DTTV channels will pay for the remaining 1000 reallocations (the total cost for the 1500 will be 64 million euros, i.e., around two million euros per channel). The Ministry in charge of Culture and Communication followed this advice and decided to pre-finance the first reallocations. DTTV channels are supposed to reimburse these funds later. The funds will be provided by the Fonds de Reaménagement du Spectre, managed by ANFR.

The reallocation cost is the only frequency cost which the DTTV channels will incur, since they will not pay for frequency use, as it was already the case for analogue terrestrial television.

The frequencies currently used by the six analogue networks will be freed up in the "long run", hence there will be a period of time in which analogue and digital terrestrial TV will coexist. The 110 sites which are used currently to deliver analogue terrestrial television signals will be used for DTTV. According to the CSA, these sites will result in a coverage of about 80 per cent of French population. However, according to a study made by the French spectrum management agency (the Agence Nationale des Fréquences, ANFR), only four multiplexes will cover 80 per cent of the population; the two others will cover only 60 per cent of the population (see ANFR, 1998). When analogue terrestrial television stops, 20 per

[7] Another reason is that it delays the introduction of DTTV.

[8] "Le CSA s'apprête à sanctionner TF1 et M6 pour leur refus de réaménager leurs fréquences", Le Monde, 3 March 2003.

cent of French population will not receive terrestrial television any longer. Besides, covering the last 20 per cent of population with DTTV would be probably very costly. Satellite-based solutions could be a better option.
Contrary to some countries, there is no commitment in France to stop analogue television after some date. The use of freed frequencies has not been planned yet. In 1999, Roger Chinaud from the College of the French Telecommunications Authority (Autorité de Régulation des Télécommunications, ART) proposed to allocate these frequencies to 3G mobile telephony, but this project is no longer mentioned. Some experts have also proposed to organize a bid for these frequencies whose revenues could be used to subsidize the switch of the last analogue subscribers to DTTV.

To stimulate the switch to DTTV, Boyon (2002) proposed to impose a progressive digitalisation of television sets. He estimates that with a renewal rate of eight per cent, all television sets will be able to receive DTTV within 12 years.

Another technical issue is that DTTV will generate interference with cable networks. This is because cable networks use some frequencies, which were left free by analogue terrestrial television, to broadcast both analogue and digital cable television to their customers. Since DTTV will also coexist at the beginning with analogue terrestrial television, interference problems will arise between cable and DTTV. This will be the case for customers whose connections with the cable network are defective. According to AFORM, the French cable association, this might concern between 20 and 30 per cent of cable subscribers. Two solutions to this problem are looked at (Boyon, 2003). First, cable networks might solve this problem on a case-by-case basis. Second, cable networks might change the frequency plan of their networks. Anyhow, Boyon (2003) recommended that DTTV service providers should not pay for solving these interference issues.

Advertising

French Decree n°92-280 of 27 March 1992[9] excludes four industrial sectors from advertising on television: alcoholic beverage (i.e., beverage with more than 1.2° of alcohol), press,

[9] This decree is available online at http://droit.org/jo/19920328/MICT9200113D.html.

cinema, literary publishing, large scale retailing.[10] The rationale for this exclusion is to subsidize indirectly the national and regional press, in which these four sectors can advertise.

In May 2002, the European Commission gave a notice to France with regards to the exclusion of these four sectors from television advertising. In September 2002, the government launched a consultation about television advertising for the four excluded sectors. The government faces the following trade-off. On one hand, deregulating advertising on television would increase revenues of advertiser-supported DTTV free channels and/or local DTTV channels. On the other hand, it would hurt the press industry, in particular the local and regional press. According to Boyon (2003), the government is looking for intermediate solutions. For instance, it might allow advertising on television for small scale retailing while maintaining the exclusion for large scale retailing. It might also allow advertising at given hours. But no decision has been taken yet.

Consumers

DTTV is supposed to provide viewers with higher quality for sound and images, and a wider choice of programs. However, French authorities have favoured diversity (33 channels) over quality; hence, quality improvement over analogue television will be limited. Portability is another possible feature of DTTV. Portability means that with a single antenna inside or attached to the television set, viewers can receive DTTV signals everywhere in the house. However, offering portability requires the installation of additional transmitters, hence increases the cost of DTTV diffusion. In France, DTTV will probability not offer portability in the short-run, as nothing has been planned yet.

The reactions of French consumers to DTTV, i.e., their willingness to switch to DTTV, will depend on alternative television offers and on their switching costs.

A survey of 1000 persons made by Ipsos in France in September 2001 revealed that people who were planning to subscribe to digital cable or satellite were the most interested by DTTV (72 per cent of them were). Half (54 per cent) of existing cable, satellite and Canal Plus

[10] When advertisements were introduced on French television in 1968, 29 industrial sectors were excluded.

subscribers were also interested by DTTV.[11] Finally, 38 per cent of those who had not subscribed to pay television and did not plan to were *not* interested at all by DTTV. Taking into account that approximately half of French population does not subscribe to pay television, it can be estimated that around 20 per cent of French population (i.e., 38 per cent of 50 per cent) is not willing to switch to DTTV. It follows that the commercialisation of DTTV will be probably a difficult task. Besides, this survey suggests a paradox: whereas public authorities targeted consumers who had not subscribed to pay television offers, the early adopters will be probably pay television subscribers or potential subscribers.

The second driver of consumer choice will be the cost of switching to DTTV. Switching costs will include:

- The cost of a new antenna (for some customers)

According to a study cited by Gallot (2002), 32 per cent of individual antennas will have to be upgraded to receive DTTV. The upgrade cost would be lower than 150 euros for 11 per cent of antennas, lower than 275 euros for 18 per cent of antennas, and lower than 380 euros for 3 per cent of antennas. The same study estimates that 52 per cent of collective antennas will receive DTTV without any intervention; 43 per cent will have to be upgraded for a cost between 230 and 700 euros and 5 per cent for a cost of between 900 and 1800 euros. The average cost for collective antennas is estimated at 23 euros per household.

- The cost of a decoder

Many French studies state that the reservation price for a basic decoder is around 150 euros. Decoders could also be rented for a rental price around 7 to 8 euros per month. Decoders should be "plug and play". The upgrade of decoders should also be easy. For instance, consumers who purchase a decoder for free DTTV channels should be able to upgrade their decoder easily to receive pay DTTV channels.

Prospects of DTTV in France

[11] Studies have shown that only half of satellite and cable subscribers are satisfied with the service.

In June 2000, the head of the CSA, Hervé Bourges, stated that DTTV would be launched in France at the end of 2001 or at the beginning of 2002. However, since then, regulatory delays have retarded the roll out of DTTV. In October 2001, the CSA announced that DTTV would be launched at the end of 2002. In its report to the government, Boyon (2002) estimated that DTTV might start in December 2004 over 29 diffusion sites which cover around 40 per cent of French population. In a second step, in December 2005, 50 per cent of population will be covered. It is only in 2008 that 110 diffusion sites will be used to cover 80 per cent of population.

However, a few regulatory uncertainties remain, which may delay the roll out of DTTV further:

1- Three DTTV channels have yet to be awarded. They have been reserved for public television. However, the government is bringing the question up again. Besides, three channels are earmarked for local television. However, since the legal framework for local television on DTTV does not exist yet, the CSA cannot launch a call for bids. It seems difficult to launch DTTV in France, as long as these six channels are not specified.

2- Multiplex operators have not been announced. As service providers have to agree on a multiplex operator, which could be a source of delays.

3- The CSA has to reallocate analogue frequencies, which may take time. Besides, TF1 and M6, two leading terrestrial channels, are opposed to the reallocation of analogue frequencies.

4- Last but not least, there is no candidate today to commercialise DTTV. One is needed to commercialise pay DTTV channels and to stimulate the development of DTTV. The way decoders for free channels will be commercialised is also unclear.

In addition to regulatory uncertainties, there are market uncertainties. Since the beginning of the DTTV process, leading television companies have been reluctant about DTTV. They argue that DTTV is mainly another diffusion network and as such it is useless, as satellite or cable networks already exist. For instance, in an interview in La Tribune on 14th September 2001, Patrick Le Lay stated that he wished the French government would abandon the DTTV project. In June 2002, TF1, M6, Canal Plus and producers joined up asking the French government to stop the DTTV process.

OTHER DIGITAL PLATFORMS

Cable and Satellite

In France, cable networks started to develop in the 1980s[12], whereas the analogue Canal Satellite platform was launched in 1992. The two existing digital satellite platforms, Canal Satellite numérique and TPS, were launched later, in 1996.[13] Despite this late start, satellite has almost caught up with cable. In June 2002, there were 3.2 million satellite subscribers (2.1 millions for Canal Satellite and 1.1 million for TPS) and 3.4 million subscribers to analogue or digital cable television (see also figure 2 below).[14] The three cable leaders, Noos, France Télécom Câble and NC Numéricâble control 76 per cent of cable subscribers.

[12] The first commercial cable network was launched in 1985. For an analysis of the French cable industry, see Perani (1999).

[13] Canal Satellite was launched in April 1996, whereas TPS was launched in December 1996. Canal Plus stopped its analogue satellite television service in 1997. Canal Satellite is controlled by Groupe Canal Plus, whereas TPS is controlled by TF1 and M6.

[14] Source: Canal Plus Groupe, Groupe TF1, AFORM.

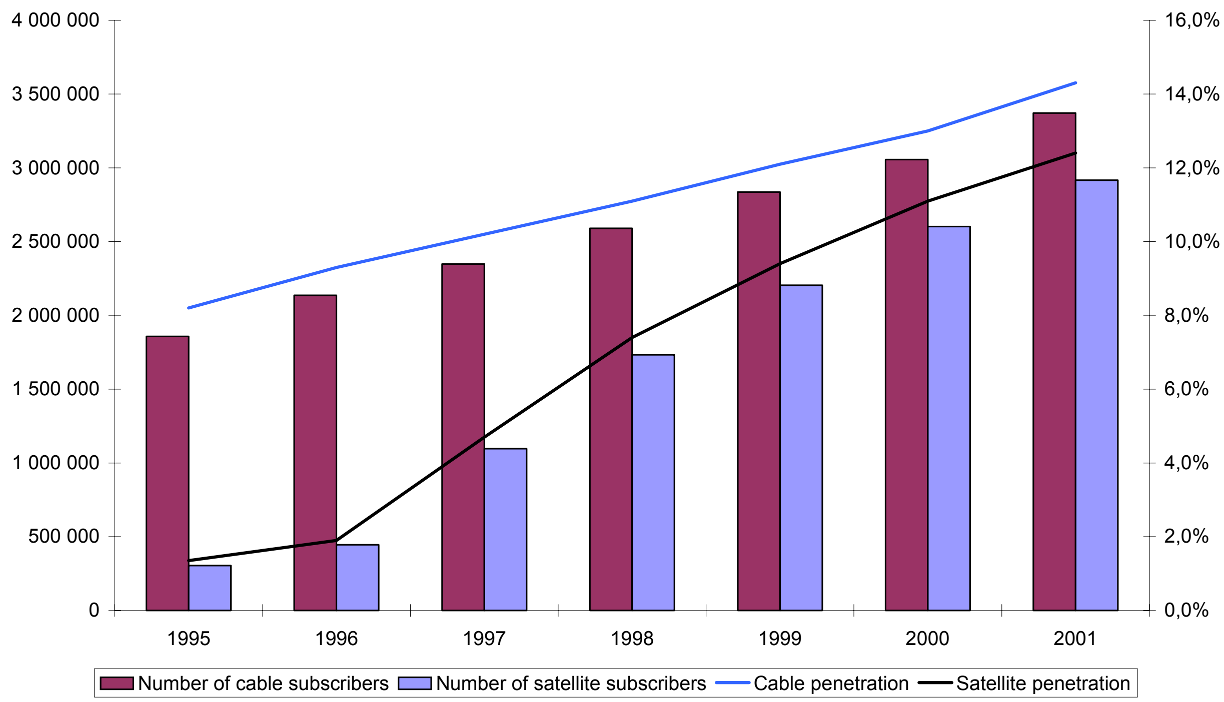

Figure 2: Cable and satellite subscribers (number and penetration)

Source: ART (2003) and AFORM (www.aform.org).

Whereas satellite is 100 per cent digital, only 22 per cent of cable television users received digital television in September 2002. Besides, the digitalisation of cable subscribers is going slowly, as table 3 below shows.

	1998	**1999**	**2000**	**2001**	**Sept 2002**
Number of cable television subscribers	2,580,830	2,819,840	3,020,418	3,239,411	3,433,731
Number of digital subscribers	219,297	380,976	517,191	664,212	758,296
Digitalisation rate (in per cent)	8.5 per cent	13.5 per cent	17.1 per cent	20.5 per cent	22.1 per cent

Table 3: Digitalisation of cable subscribers

Source: AFORM.

The low digitalisation rate is not related to technical issues, as 85 per cent of cable connections can receive digital signals. The reasons seem to be twofold. First, consumers find digital bundles too complex or too expensive. Second, cable networks have failed to generate higher revenues with digital cable than with analogue cable. Therefore, cable operators continue to commercialise their analogue offers.

Competition between DTTV, cable and satellite

Cable and satellite platforms have failed to deliver digital television to end customers: only 17 per cent of French households received digital television in 2002, though for instance satellite covers 100 per cent of the population. Besides, growth rates are low.[15] Limited competition between cable and satellite players (in particular, there have been rumours about a merger between TPS and Canal Satellite since 2001)[16] might explain the inability to address the mass market. For the French authorities, as I already stated, DTTV is a means of stimulating competition, hence the development of digital television.

The roll out of DTTV is likely to impact cable and satellite television in different ways. There is probably a geographic niche for satellite television, as satellite covers 100 per cent of French population and DTTV will cover 80 per cent of population at most. Besides, satellite television benefits from low diffusion costs and low regulatory constraints. Finally, satellite offers digital television, hence it is not at a disadvantage compared to DTTV.

Contrary to satellite, cable television could suffer from the competition of DTTV. First, DTTV will cover the same areas as cable networks, i.e., urban areas, hence consumers will be able to trade off between cable and DTTV offers. Second, cable television is mainly analogue whereas DTTV will offer digital video and audio quality. Third, the regulatory constraints imposed on the cable industry are strong. In particular, cable networks will have to carry free DTTV channels (whereas satellite networks are not obliged to). As there will be between 16 and 19 free DTTV channels, possibilities of differentiation will be diminished for cable. The

[15] For instance, the growth rate for satellite television is about 12 per cent.

[16] In July 2002, the head of TF1, Patrick Le Lay, said to the media journal CB News that he ‘did not exclude a merger between TPS and CanalSatellite’. In December 2002, daily newspaper Le Monde stated that Vivendi Universal, which controls Canal Plus, was thinking about a merger between the two satellite platforms.

development of cable is also impeded by other regulatory constraints, which were set at the early stages of cable television.

The transposition of the Telecom Package in French law will provide public authorities with the opportunity to adapt cable regulation. In particular, currently, a cable network is not allowed to cover an area of more than 8 million inhabitants. This rule is probably not consistent with the new authorisation framework contained in the Telecom Package. If it were lifted, cable networks would have the opportunity to merge.

Television over ADSL

In 2002, 38.7 per cent of French households (i.e., 9,524,000 households) owned a personal computer. In January 2003, Médiamétrie estimated that 39.5 per cent of the population over 11 had accessed the Internet in the previous month, compared to 33.5 per cent in January 2002.[17] One of the main drivers of the growth of Internet access in France is ADSL, which is developing very fast (see table 4 below). In particular, the number of ADSL subscribers nearly doubled in the last six months of 2002.

	1998	**1999**	**2000**	**2001**	**June 2002**	**31 Dec 2002**
Number of ADSL subscribers	0	35,000	220,000	430,000	650,421	Over 1.4 million

Table 4: Number of ADSL subscribers
Source: Médiamétrie

Because of high growth rates and because France Télécom plans to cover 80 per cent of French population by the end of 2003 with ADSL access (71 per cent of population is covered today), television over ADSL might represent a substitute to DTTV in the following years.

[17] Source: Médiamétrie, Baromètres Multimédia, November 2002.

For instance, Patrick Le Lay, the head of TF1, stated in its public hearing to the CSA about DTTV that the future of television was the Internet protocol.

There are different ways to offer television programs over ADSL. Numerous French WebTV programs are available on the Internet: local programs (Issy Net TV, Chauds.net), associative television stations (Zaléa TV), thematic programs (Monbébé TV, TV Mountain), etc. Television channels have also web sites which propose some programs online. For instance, TF1 proposes its news program on its web site.

Television over DSL is more promising. TPS has started an experiment of television over DSL (‘Dream TV’) in Paris, Boulogne-Billancourt and Issy-les-Moulineaux (for 200 households). TPS uses unbundled lines from LD Com, DSLAM from Alcatel and digital decoders from Thomson. Dream TV offers a bundle of around 20 channels from TF1, M6 and TPS. France Télécom, together with France Télévision and M6, will also launch an experiment in Lyon in Spring 2003. Free, an Internet access provider, plans to offer television services to its ADSL subscribers.

Finally, in February 2003, Monaco Telecom, Alcatel and Moviesystem have launched a video on demand service over DSL, ‘Sesame TV’. With this service, viewers can choose a movie for five euros in a catalogue of 400 films, which will be renewed every month.[18]

The current hype about television over DSL in France is supported by TF1, Alcatel and Thomson. TF1 might view TV over DSL as a means of retarding the launch of DTTV; Alcatel and Thomson propose technical solutions for TV over DSL. However, the prospects of television over DSL are uncertain. First, for all players except the incumbent telecom operator France Télécom, TV over DSL requires access to unbundled local loops; but unbundling rates for co-location, unbundled lines, etc., result in higher diffusion costs than for cable and satellite, which questions the viability of this service. Second, the incumbent, France Télécom, is heavily indebted and will probably not be able to invest in television over DSL in the next five years, though TV over DSL might be a viable service for it.

[18] Cable network Noos also proposes ‘NetCine’, a video on demand service, to its Internet users. NetCine proposes video on demand for prices around four to five euros per film for VHS quality.

DVD Players

In 2002, 49.2 million DVDs were sold, compared to 32.7 million VHS cassettes. Besides, the number of DVD players doubled in 2002. There are now 5.6 million DVD players in France, which represent 24 per cent of households (source: Syndicat de l'édition vidéo, SEV). If one takes into account consoles and personal computers which can read DVDs, roughly one third of French households own a DVD player.

CONCLUSION

In France, the CSA and the government have been influenced by DTTV experience in other countries, and in particular the UK case. However, a few French specificities remain. To begin with, the CSA decided to select channels and not multiplexes. This choice may have some consequences, as it will provide limited flexibility to multiplex operators. It may also be a source of conflict between channels. The reallocation of analogue frequencies is also currently an important issue in France, whereas it seems that it is not the case in other countries. Finally, diffusion and production quotas will apply to digital terrestrial channels, as to analogue terrestrial channels.

Though this is the expected schedule, DTTV will be launched in France in December 2004 *at best*. Indeed, three factors may retard DTTV further. First, the CSA chose leaders for its DTTV project, namely, TF1, M6 and Canal Plus, which were paradoxically strongly opposed to DTTV. Indeed, these three companies fear that DTTV could cannibalize their existing cable and satellite platforms. Whether DTTV can develop with reluctant leaders is unclear. Second, as Boyon (2003) notes, any delay in the DTTV process would postpone the launch of commercial services beyond December 2004. Hence, TF1, M6 and Canal Plus have strong incentives to retard the DTTV process. This is already the case (TF1 and M6 are opposed to the reallocation of analogue frequencies). Third, the governement has not decided yet what will be the role of public television. DTTV cannot be launched before this delicate issue is solved.

Last but not least, a few uncertainties remain about the French television industry. Will French cable networks merge? If yes, a major could emerge, otherwise the cable industry might suffer from the competition of DTTV (ART, 2003). Will the two satellite platforms (TPS and Canal Satellite) merge, as persistent rumours indicate? If they will, competition would be weakened. Finally, will Canal Plus, the French leading premium pay channel, disappear? If Canal Plus disappears, the question of the subsidization of the French production industry will be brought up again.

REFERENCES

France: Autorité de régulation des Télécommunications (ART), 2003, *L'économie du câble en France : contexte, marché et perspectives*, Etude réalisée par le cabinet JLM Conseil pour l'Autorité de régulation des télécommunications, January.

France: Agence Nationale des Fréquences (ANFR), 1998, *Etude sur la planification des fréquences pour la télévision numérique de terre – DVB-T*.

Boyon, M., 2002, *La télévision numérique terrestre*, Rapport établi à la demande du Premier Ministre, http://www.ddm.gouv.fr/rapports_etudes/documents/RAPPORTBOYON.rtf (accessed 25.02.03).

Boyon, M., 2003, *La télévision numérique terrestre*, Rapport complémentaire établi à l'intention du Premier Ministre, http://www.ddm.gouv.fr/rapports_etudes/documents/boyon_complementaire.rtf (accessed 25.02.03).

Gallot, J., 2002, *La télévision numérique terrestre : enjeux et modalités de mise en œuvre au regard des règles de concurrence, notamment au travers de la question de la distribution*, Rapport sur la mission confiée par le Ministre de l'Economie, des Finances et de l'Industrie, http://www.minefi.gouv.fr/DGCCRF/consommation/telecom/tnt0202.htm (accessed 25.02.03).

Le Guen, J.-M., 2001, *Rapport d'information de M. Jean-Marie Le Guen, au nom de la commission des finances, de l'économie générale et du plan sur la télévision numérique terrestre*, document d'information de l'Assemblée Nationale n°2963, http://www.ladocfrancaise.gouv.fr/BRP/notices/014000294.html (accessed 25.02.03).

Loi n°2000-719 du 1er août 2000 modifiant la loi n°86-1067 du 30 septembre 1986 relative à la liberté de communication, http://www.legifrance.gouv.fr/citoyen/jorf_nor.ow?numjo=MCCX9800149L (accessed 25.02.03).

Perani, J., 1999, *Le pouvoir de monopsone : une analyse économique de la télévision par câble*, Thèse de Doctorat de Sciences Economiques, Université Paris II.