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Development of Digital TV in Europe

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1 Digital TV market overview

1.1 Roll-out of digital services

1.1.1 Satellite digital services

Two satellite-based digital TV platforms were operating in the Spanish market via Hispasat in 1999: Canal Satélite Digital (February 1997) and Distribuidora de Televisión Digital (Vía Digital), (September 1997). In their second year of operation they continue to experience tremendous growth while taking advantage of the recent emergence of cable services. At the end of 1998, Canal Satélite Digital had 599,000 subscribers (+130%) and Vía Digital 355,000 (+294%).

1.1.2 Cable digital services

Analogue Cable TV started to develop in Spain in the early 90´s before any specific regulation for this sector was in place. In 1995, the Parliament decided to approve the Cable Telecom Act. Although the 1998 Telecommunications Act abrogated the 1995 Cable Telecoms Act, the latter was applied during all the licensing process and its broadcasting provisions still remain in force.

The Cable Telecoms Act divides the country in geographic areas: in each area up to two concessionaires are authorised to provide services (cable TV, Internet access and voice communications). One licence is reserved to Telefonica Cable (a subsidiary of the Telefónica Group) and the other is to be assigned through a call for tenders. However, Telefónica competes under a restriction: they can only begin operations two years from the day the licence was granted in each market to a competitor. The Ministry for Development recently rejected the request, from other digital cable operators, to extend the moratorium to 5 years.

By the end of 1998, the Spanish Government had awarded 38 licences to provide digital cable telecommunication services. The two main players in the bid for these licences have been **Cableuropa** and the **Electric Utilities/Telecom Italia Group**, a major shareholder in Retevisión, the second telephone operator.

With the support of local partners, both groups were rivals in almost every bid, with the exception of Catalonia. There they now jointly provide service through local digital cable operator Cable i Televisió de Catalunya (CTC), that offers its services package, which includes TV, in Barcelona (one of the three Catalonian territories: the capital, NE Catalonia and NW Catalonia). Services in Catalonia and Castilla y León are planned to start at the end of August 1999, when the two-year moratorium expires for both regions.

Electric Utilities and their partners have managed to acquire rights over the largest share. The Electric Utilities Group will have access to more than half of the households in the market (53.9%) excluding the region of Catalonia. The Electric Utilities/Telecom Italia Group investments in cable networks are expected to benefit also Retevision, the second telephone operator, by making available local loop connections. Retevision presently operates a mobile network and provides fixed telephony services through Telefonica local loop. Five of the Electric Utilities/Telecom Italia‘s companies recently began offering TV, Internet and telephony services, in six regions (País Vasco, North Madrid, SE Madrid, SW Madrid, Castilla y León and Andalucía III) and four cities (Sevilla, Gijón, Oviedo and Avilés).

Cableuropa has gained control over 17.7% of the market. Once Catalonia is included, the Electric Utilities Group would control 63.6% of the market, while Cableuropa´s share would reach 23.1%. Cableuropa plans to offer a set of services ranging from digital TV with interactive broadband services and Internet access to telephony. Cableuropa has created the brand Ono to unify the identity of its subsidiary local cable operators. In May 1999, Ono had started providing these three services in five of its twelve territories. Sources close to Ono say theat the company is getting a residential telephony penetration of between 20 per cent and 25 per cent of homes passed, but only about 10 per cent to 15 per cent of homes are taking cable television.

Other local operators were granted licences in smaller cities (Sanlúcar de Barrameda and Vélez-Málaga). These operators will remain independent of the large groups.

Six territories were not awarded a licence due to the lack of candidates: the regions of Castilla-La Mancha and Extremadura, Ibiza-Formentera and Menorca Islands and the cities of Ceuta and Melilla in North África. In economic terms, these regions are of secondary importance and population is very sparsely distributed. Telefónica is the only operator in those territories. From June 1st 1999, Telefónica Cable will provide cable services in all capitals of Castilla-La Mancha, except Albacete, and in three cities in Extremadura (Cáceres, Mérida and Badajoz).

It is expected that the new operators will invest in excess of Euros 4,800 million over the next ten years. That sum could reach Euros 9,000 million if investments announced by Telefónica, the leading telecom operator, were included. The Commission for the Telecommunications Market (CMT), the national regulator, will follow cable operators very closely, as investments of Euros 3.600 million are required between 1996 and 1999.

According to CMT estimates, both digital cable and satellite operators will reach a penetration of 4 millions households, with a potential annual market of Euros 1,500 million over the next five years.

But there is some concern about the sustainability of competing cable, satellite and DTTV operators in the Spanish market. Cable networks development is behind schedule because of construction problems and delays in getting planning permissions, which is reducing the expected growth of subscribers. This delay may play to the adantage of satellite operators and forthcoming DTTV operators. Telefònica new ADSL service, if swiftly implemented, may also attract customers for highspeed internet access services, who might otherwise have opted for cable modems.

1.1.3 Situation of MMDS

Digital MMDS is currently at an experimental stage in Spain. In February 1997, CellularVision de España (a subsidiary of CellularVision of the U.S., one of the most important companies in this technology), requested a provisional access licence for the 27,5 to 28,5 GHz band for a non-commercial test in Madrid.

Other companies, such the public broadcaster TVE, the Madrid Stock Exchange and 4B, a payment systems consortium, have expressed interest in this TV technology.

1.1.4 Situation of terrestrial digital television

In 1998, the Spanish Government approved a Decree on the National technical Plan on Digital Terrestrial Television (DTTV) in order to establish DTTV services in Spain. The legal basis for this Decree is the Forty-fourth Additional Provision of Law 66/1997, of December 30 1997, which refers to the possible introduction of these new services.

According to the Decree, there would be several “multiplexes”, each one able to carry at least four different programme services. The Decree reserves programme services in some of the multiplexes for existing national and regional public service broadcasters, in order to allow them to simulcast their analogue and digital programmes. For these purposes, the Plan reserves two programme services in a digital multiplex for TVE (national public service broadcaster), two programme services for the regional public service broadcasters and a programme service for each of the three private broadcasters (Antena Tres, Telecinco and Canal +). If the existing private broadcasters keep their present concessions, which are to be renewed in the year 2000, they must start providing DTTV services no later than two years after the renewal of those concessions.

The remaining DTTV programme services available will be operated by one or more private broadcasters, who will be awarded a concession following a public tender. The National Plan for DTTV states that the current analogue TV operators aren’t allowed to apply for the national licence, nor their shareholders.

Once a new concessionaire begins providing DTTV services, the existing broadcasters may be allowed to operate their own multiplex.

The new concessionaires of DTTV services must broadcast free-to-air programmes for at least four hours per day and thirty-two hours per week. For the rest of the week, they may broadcast free-to-air TV services or pay-TV services, depending on the conditions set out in their licences. If any of the concessionaires provide digital pay-TV services, they must use decoders that comply with the Spanish provisions in this regard (i.e. Law 17/1997, implementing EC directive 95/47/EC). The Telecommunications Market Commission (CMT) must ensure that digital TV operators comply with these provisions.

In January 1999 the Government invited tenders for the national digital terrestrial TV services to be operated by a new concessionaire. The successful company could manage three multiplexes and two programme services in another multiplex..

The only company that applied for the licence is Onda Digital, whose main shareholder is Retevision, the second Spanish telecom operator, which also owns the telecom network currently used for the transmission of terrestrial TV signal. Onda Digital was awarded a ten-year national licence in July 1999.

Onda's shareholders are:

- ✓ Retevision (49%)
- ✓ Productions Company Media Park (15%)
- ✓ Sodiscable-98 (15%)
- ✓ Six savings banks (12%)
- ✓ British audiovisual group Carlton (7.5%)
- ✓ Regional Basque telecom operator Euskaltel (1.5%).

Onda's service will be provided by means of three channels that allow the broadcasting of four programmes each (twelve in total) plus two additional programmes (totalling fourteen).

Emission will begin when at least 20% of the total Spanish population can receive the signal. According to Retevision's digital terrestrial TV proposal presented at the bid, Onda Digital would start emissions by November 15th 1999. Retevision is in charge of the DTTV networking roll-out.

The planned schedule for network roll-out foresees 50% coverage before June 30th 2000, 80% by June 30th 2002 and above 95% in the next ten years. Onda Digital forecasts investments of more than 600 million Euros. The digital terrestrial TV proposed offers the possibility of having pay-per-view channels and interactive services, such as Internet access. The National Development Plan for Digital Terrestrial TV states that analogue terrestrial TV emissions will have to be shut down by 2012.

There will be a maximum of 54 channels available as soon as Retevisión and the established terrestrial TVs begin operating in digital: up to 14 for Onda Digital and up to 4 for each of the existing operators (TVE, A3TV, Telecinco, Canal + and regional operators in Madrid, Catalonia, Basque country, Andalusia, Valencia and Galicia. Every regional broadcaster will be available only in its local area.

1.1.5 Market development

1998 TV market revenues amounted to 2,400 million Euros. In the second year of activity, digital TV operators achieved a market share of 11.5%. Digital channels received only 1% of the total investment from TV advertising, but achieved 38.5% of the revenues generated by subscriptions.

At the end of 1998, nearly one million Spanish households were subscribed to a digital TV service. The growth rate with respect to the previous year is nearly 300%. Digital satellite plays by far the most important role, totalling 950.000 subscribers. Following assignment of the licences by the Government, digital cable is now in its pre-launch phase and some of the operators have already begun the trial phase.

Situation of the analogue pay TV market

Spain's major analogue terrestrial pay-TV channel is Canal+ Spain. It is owned by Sogecable, and has developed rapidly in recent years. The reason for the success of this channel was the relatively small number of television channels in Spain. Canal+ provided a successful blend of programming and successfully introduced the notion of pay-TV into the market. Its recent launch of a digital package has resulted in a slow-down in the growth rate of analogue subscribers number as viewers slowly move over to digital reception. In 1996 they achieved a growth rate in the number of subscribers of 13.4%. Once satellite digital TV was introduced in 1997 the rate remained at 7.2%.. At the end of 1998, Canal+ had 1.6 million subscribers with the subscription fee fixed at 22.5 Euros per month.

Analogue cable operators provide 20/30 TV channels. The subscription rate is more or less 11 Euros per month. The offer consists mainly of a local channel, public TV channels (with the benefit of must-carry rules) and TV channels that are also distributed by satellite. The main problem of the cable TV operators is that they often depend on satellite digital TV platforms to have access to the premium contents needed to successfully operate in the digital pay-TV market., Its main advantages are that cable's own services are cheaper than Canal + and operators can bundle different services (telephony, TV and Internet access) for a reasonable price.

Situation of the digital TV market

Canal Satélite Digital was the first digital platform to start operating in Spain. This group, which is backed by Canal+, built its package on the existing analogue pay-TV of Canal+. Operations started in February 1997 and by the end of 1998 it already had 599,000 subscribers. Securing the rights to broadcast Professional Football League matches until 2003 has considerably enriched the contents it offers to subscribers.

Distribuidora de Televisión Digital started in September 1997 under the commercial name of **Vía Digital** and backed by Telefónica, the largest telecom operator in the Spanish speaking world with a 50% share of the market. At the end of 1998 the number of **subscribers reached 355,000.**

Other partners include the Mexican operator Televisa, the American company Direct TV, the Japanese company Itochu, the Spanish media group Recoletos (controlled by Pearson), the Spanish content producer Mediapark, several regional Tv networks and some Spanish media. RTVE, the Spanish public broadcaster, had a 17% share in Via Digital, but sold it to Telefonica in December 1998. RTVE 's relationship with Via Digital is only that of a content provider. Recently, Vía Digital acquired the rights to broadcast the main bullfighting events as well as all football matches in the European Championship League for the next four years for which they expect to gain some 200,000 new customers throughout 1999 and reach the break-even point in year 2000 with subscribers in excess of 1 million.

There have been persistent rumours about a merger between the two satellite digital pay-TV platforms. In July 1998 and January 1999, both satellite operators reached an initial agreement to merge, but the merger did not happen due to problems raised by valuation issues and regulatory approval. The effect of this process was a relative flattening of growth, since uncertainty about the future solution probably discouraged some potential clients.

Digital cable operators have started emission in some geographic markets and it's expected that the service will be gradually extended to all the territories where a licence has been granted to provide digital services

The competitive scenario after 1999 will therefor be tougher as satellite platforms will not only compete between themselves but also against digital cable operators.

In addition, digital terrestrial television will be ready by mid 2000. A period of strong competition is expected.

In urban areas, satellite TV platforms will face competition from two cable operators (local operator and Telefónica Cable) and digital terrestrial TV. In rural areas, satellite and digital terrestrial TV are the only alternatives.

Each technology has its own advantages: satellite allows cheap deployment and interactive services using PSTN return which is already in place; cable allows broadband interactivity; digital terrestrial TV allows the use of existing infrastructure with easy access to local content and access to interactive services using PSTN return.

Table 1 : DTV platforms in Spain

Name of the service	*Ownership End of 1998*	*Date of launch*	*Nb of subscribers End of 1998*
Canal Satélite Digital	Sogecable (92.5%), Promociones Audiovisuales Reunidas (5%) Antena 3 TV (2.5%).	February 1997	600,000
Via Digital	Telefónica (68,6%). Televisa (8.77%) Direct TV (6.9%), Recoletos (5%), Media Park (3.21%), Itochu (1.43%) Regional TV broadcasters (6.09%).	September 1997	350,000
Ono	SpainCom (32,4%) Banco Santander (32,4%) Ferrovial (17,6%) Multitel (17,6%)		
CTC	Cableuropa (32,5%) Electric Utilities / Telecom Italia (59,1%)		
Madritel	Union Fénosa (24,25%) Endesa (23,25%) Telecom Italia (23%) Cable (15%) Supercanal (7,5%) Ineuropa (7%)		

1.1.6 Barriers to competition

Telefónica's dominance in the Spanish telecom sector is very clear. In 1998, Telefónica had a 74% share of the total market turnover, which amounted to 17,4 billion Euros. In granting the licences for the operation of digital services, and to allow for the growth of the new cable operators, the Spanish Government established a 24 month period during which Telefónica cannot provide cable services. Some operators continue to complain about Telefónica's dominant position however, particularly because it offers its customers the joint supply of telephony, digital TV (through Vía Digital) and Internet access, all for a a fixed monthly rate. Cable operators regard this practice as an attempt to eliminate competition before they can offer these services throughout Spain.

Spain should see a strong increase in competition among digital pay-TV broadcasters in the years to come, as new cable operators start servicing all areas, the moratorium for Telefónica Cable expires and digital terrestrial TV is introduced.

1.2 Details of the services

1.2.1 Number and type of services

The increased demand for content from Canal Satélite Digital and Vía Digital along with the high expectations created by the new cable networks have fuelled the growth of the content business in Spain: there are 200 independent TV/ thematic TV / production companies and their turnover amounts to 250 million Euros. It is nonetheless a small market when compared to other European countries.

More than 50 new channels have been created to satisfy the needs of satellite operators. These new channels are covering new genres such as travel, fashion or 24-hour news that were not widely available on the free-to-air TV offer previously.

Entrants in the digital TV channel editing business come from many different related backgrounds: platform operators (Sogecable and Vía Digital), generalist TV companies, both public (such as RTVE) and private (Antena 3), new ventures in content production backed by investors from outside the industry (such as Media Park) and multinational corporations (Multithematiques or Disney).

Multinational corporations are also interested in the Spanish market. The French producer Multithematiques supplies Canal Satélite Digital with Seasons and Meteo, having reached an agreement to develop specific content for Spain. Disney offers their Disney Channel translated into Spanish. A smaller share of contents is provided by other multinationals such as NBC or Time Warner without any translation or adaptation to the Spanish market.

In order to compete with cable operators, satellite based digital TV operators also offer Pay per view, Electronic banking, Software download, Remote and Tele shopping services.

There are about 130 digital satellite TV channels. Via Digital offers more than 75 channels and Canal satélite Digital offers more than 55.

Most digital TV channels are in Spanish (either made in Spain or adapted to the language). Only a small amount of the channels are in foreign languages (Eurosport, MTV, BBC Prime, BBC World).

The Interactive TV services currently offered are: language selection, weather reports, games, tele-shopping and pay-per-view, banking information, software download services.

1.2.2 Details of the DTV offers

Digital TV operators generally offer a similar structure, comprising a basic package with a variable number of channels (between 22 and 50) and different additional options which can be combined. These include cinema channels, cartoons, theme-specific channels and pay-per-view events.

It is worth mentioning that the most popular and successful channels are included in the packages of most digital operators The exclusive rights to major sport events, specially football matches which sets one apart from the other This has resulted in a race among satellite operators when seeking the rights to major sports events. Canal Satélite Digital is currently ahead of Vía Digital in the race. Premiere movies and sport events, bullfighting and music are usually offered as pay-per-view.

Both Vía Digital and Canal Satélite Digital’s interactive services are offered using the return channel through the public switched telephone network, which requires the installation of a modem in the set top box. It has been said that both satellite operators will gradually increase their interactive offering.

Cable operators who currently offer TV services launched their activities recently. All of them offer the possibility to obtain integrated telephone, TV and Internet services. In order to reduce the gap between cable operators and digital satellite operators (who have been alone in the market for two years and have therefore gained a considerable number of customers), cable operators are offering lower prices than satellite providers, in particular for the registration and decoder rental fees.

Canal Satélite Digital

Canal Satélite Digital was the first digital operator in Spain.

Sogecable, its main shareholder, which is a Spanish pay TV holding company, is owned by Grupo Prisa, the most important Spanish multimedia group (25%), Canal Plus France (25%) and Eventos (7.9%). A group of banks holds 42.1% and is headed by Banco Bilbao Vizcaya (BBV) and Grupo March (15.79% each one), along with Bankinter and Caja de Madrid (5.26% each one). Canal Satélite Digital broadcasts 60 television channels, 32 radio stations and some interactive services (Electronic banking, Tele-shopping, Software download). Canal Satélite Digital was the first operator in Spain to offer national football on a pay-per-view basis and, although Vía Digital secured some significant football rights, it has a dominant position in sport content. Canal Satélite currently offers the possibility of viewing some movies in 16:9 format.

The basic tier includes 50 channels for a price of 15.6 Euros per month. The premium channel Canal + Digital is sold for 22.5 Euros. There are also packages that combine in different ways the basic tier, Disney Channel, Cinemania and Canal+ Digital. The most complete bouquet is sold for 45.6 Euros per month.

Canal Satélite Digital offering is completed with focused channels in Real Madrid (a major football club), nature and medicine.

A significant share of the broadcasted content comes from foreign producers. Canal Satélite Digital has reached agreements with Paramount, Disney, Time Warner-Turner, Universal and Columbia.

Vía Digital

Vía Digital, backed by Telefonica has changed its strategy and reduced its fees and the number of channels offered. The basic tier offers 40 TV channels, 30 audio and 16 radio channels for Euros 15 per month. There is also a cinema option with four channels for Euros 4.2 and a premium option that offers movies and the most important bullfighting events for Euros 9 per month. The Play Boy channel option is sold for a Euros 9 per month.

Vía Digital recently acquired the broadcasting rights to the football matches in the European Championship League for the next four years.

Interactive services will offer electronic banking with three major firms (BBV, La Caixa and Argentaria) from June 1999.At a later date, meteorology on line, teleshopping, stock market information and Internet access will be added.

Ono

Cableuropa was established in 1992 with the aim of playing a leading role in the starting market of the digital cable services. Its shareholders are SpainCom (Spanish Telecommunications Limited), which includes General Electric, Bank of America, Callahan Associates International and Capital Communications CDPQ, who holds a 32.43% share, Banco Santander, 32.41%, Ferrovial, 17.58% and Multitel, 17.58%.

Cableuropa has created the brand Ono to unify the identity of its eleven subsidiary local cable operators. Since May 1999 Ono provides digital TV, telephone and Internet services in five territories: the cities of Albacete, Cádiz and Valencia and the regions of Mallorca and Murcia.

Ono´s TV basic offering includes 25 digital video and 10 audio channels for Euros 17.1 per month. Cinemania and Disney Channel can be contracted for Euros 4.8 per month each. Fila Ono offers premiere movies on a pay per view basis.

Canal Digital has agreed with ONO a rights cession of pay per view National Football League matches.

Cable i Televisió de Catalunya (CTC)

Cableuropa and Electric Utilities/Telecom Italia, the rival groups, are together in CTC with 32,5% and 59,1% stakes respectively. CTC is currently supplying telephone, Digital TV and Internet services in the city of Barcelona.

CTC offers two basic TV options with 22 and 44 channels for Euros 11.3 and 22.5 per month. There are also packages including Cinemania’s three additional channels for Euros 23 and 34.3 per month.

Madritel

Madritel is the Electric Utilities/Telecom Italia Group local cable operator in Madrid. Its shareholders are the utilities Unión Fenosa (24.25%) and Endesa (23.25%), Telecom Italia (23%), Cable Total (15%), Supercanal (7.5%) and Ineuropa (7%).

Madritel offers two basic TV options with 21 and 32 channels for Euros 8.9 and 17.2 per month.

1.3 Operators and market structure

1.3.1 Concentration of the pay-TV market

Spanish pay TV market shows a high degree of concentration.

Indeed, the telecommunications and media industry has seen the developments of three major groups that account for the majority of the business :

- ✓ The first group was built around **Telefónica,** major shareholder of Vía Digital (digital satellite), Telefónica Cable (digital cable) and Antena 3 (terrestrial analogue).
- ✓ The second group comprises **Prisa**, one of the major shareholders of Canal+ (terrestrial analogue) and Canal Satélite Digital (digital satellite) through Sogecable, who manages both companies and also provides audio-visual contents.
- ✓ Finally, companies in the **Electric Utilities/Telecom Italia** Group, owners of Retevisión (second operator of basic telephony) and Amena (third operator of mobile telephony), which have shareholdings in several cable companies (Ono, Madritel) and in Onda Digital, the only candidate for the digital terrestrial TV licence.

1.3.2 Agreements between satellite operators, cable operators and DTT operators

There are several programming agreements between TV operators in the Spanish market. Canal Satélite Digital includes Canal+ programming in their Premium pack; they also broadcast international emissions by the Andalusian TV. CTC and Sogecable, shareholder of Canal Satélite Digital, have reached an agreement for cable emission of 16 TV channels. Vía Digital airs theme-specific channels produced by RTVE; it also offers programmes of the regional televisions that participate on its capital.

1.3.3 Vertical integration

Despite the strong vertical integration process which has taken place between the service provision and the television channels provision, strong international brands (such as Disney or Viacom) as well as “independent” TV services editors have managed to enter the market. e.g. Citsa, a Canal Satelite Digital subsidiary, and RTVE. Only a few independent TV channels with private financing however, offer thematic programmes in Spain.

Sogecable, the main shareholder in Canal Satélite Digital, has established a subsidiary, Citsa, to create channels such as Futbol Mundial (24 hours football), + Música (music), Estilo (fashion), Album TV (TV oldies) and Viajar (travel and tourism). Citsa also supplies the cable operators Ono and CTC with contents.

Vía Digital has developed cinema channels such as Club Cinema, Cine 600, Canal 18 and Gran Vía.

RTVE has developed focused channels for Vía Digital, such as Cine Paraíso or Canal Nostalgia, that offers classic movies and TV oldies. Regional TV companies supply regional channels. RTVE and Forta (the regional TV association) have also developed 24-hour news channels.

Table 2: Main TV market players' in the new Spanish thematic TV channels capital

Market player	*Control*
Sogecable	Futbol Mundial, +Musica, Estilo, Album TV, Viajar
RTVE	Cine Paraìso, canal Nostalgia
Via digital	Club Cinema, Cine 600, Canal 18, Gran Via

But vertical integration also takes place in other steps of the value chain.

The first example is that of companies linked to Telefónica, the most important telecom group in Spain. : Telefónica owns 23% of Hispasat, the Spanish communications satellite operator. Telefónica currently owns 68.6% of Distribuidora de Televisión Digital, parent company of Vía Digital. Moreover, Telefónica is allowed to provide cable TV services through its subsidiary Telefónica Cable.

Other Vía Digital shareholders, such as Televisa (8.77%), Media Park (3.21%) and local TV broadcasters, are content suppliers for Vía Digital and other TV operators. Media Park also participates in Onda Digital, the digital terrestrial TV project, with a 15% share.

A second example can be found in the link between Multicanal, another Spanish content provider, and Cableuropa (Ono): Multitel Cable, a shareholder of Lince, the third operator in the basic telephony market, owns 17.6% of Cableuropa and 3% of Multicanal.

1.4 Technical issues

1.4.1 Decoders

The Directive 95/47/EC of the European Parliament and the Council of 24th October on the transmission of TV signals is incorporated into the Spanish legal system through Law 17/97 . This Law also introduces additional measures aimed at the liberalisation of the industry and develops the framework for the TV signal transmission and conditional access system regulation.

The Law aims to protect the public interest in terms of access to information and to guarantee healthy competition in TV services both through digital satellite and digital terrestrial systems.

The Law was modified by the Royal Decree-Law 16/97. It deals with requirements for conditional access, definition of services and regulation for the transition from installed decoders to the future decoders. The Royal Decree-Law 16/97, that guarantees freedom of choice to the final user in terms of decoder, closed the dispute regarding multicrypt and simulcrypt decoders.

Under the new regulation the market will decide which is the dominant system, provided it is open and compatible. Both operators can agree to use the same conditional access system or use compatible systems. If the operators fail to reach an agreement the CMT, (national telecom regulator) will intervene, and impose a common interface for conditional access systems. This regulation is similar to the UK regulation. Under this legal framework, Canal Satélite Digital opted for a Simulcrypt solution while Vía Digital chose to implement Multicrypt module in its decoders.

As far as STB provision is concerned, there are no Spanish manufacturers of decoders for Digital TV. Existing satellite digital TV platforms have signed procurement agreements with foreign suppliers: Canal Satélite Digital signed an agreement with Philips and Sony for the supply of decoders. Nokia and Echostar supply the system used by Vía Digital.

Some new operators are providing cable digital TV services without a decoder facility. Operators using decoders have mainly chosen equipment which require using the Simulcrypt solution. Digital terrestrial TV will allow for the use of current TV systems, although it will be necessary to use digital signal decoders.

Decoders are rented by the pay TV operators and are not available for purchase in Spain.

There are currently 4 APIs on the market: Open TV (Thomson), MediaHighway (Canal +), Beta Technik (D-Box) and Windows CE (Micrososft).

The National Association of Electronics and Telecommunication industries (ANIEL) supports the use of API MHEG-5 European Profile, but there is no common API at present., The mandatory common interface in new generation sets will only reach the market in the mid term because of the durability of the TV sets currently installed.

Table 3: Decoders on the Spanish market

Operators	*CA Technology*	*Interactive services technology API*	*Free to air compatibility (Y / N)*	*16 : 9 compatibility (Y / N)*	*Integrated modem (Y/ N)*
Canal satellite Digital	Mediaguard	MediaHigway	Y	Y	Y
Via Digital	Nagravision	OpenTv	Y	Y	Y

1.4.2 Widescreen (16:9)

Panoramic-format TV has a low market share in Spain, and therefore 16:9 broadcasting does not play an important role in Digital TV offers. There are no statistics available, but latest estimates show that 1% of households have a 16:9 TV set. There is currently only one satellite operator offering some programmes (movies) in panoramic format.

1.4.3 xDSL

Telefònica, through its unit Telefònica Interactiva, launched in september 1999 a high speed Internet access service (GigaADSL) based on the Asymmetric Digital Subscriber Line Technology. The service will be available to Telefònica's Internet access service provider, TeleLine, as well as to rival service providers. According to observers, if swiftly implemented this service could undermine the cable operators offer of highspeed Internet access via cable modem.

Over the next three years, Telefònica will invest Euros 240 million in its ADSL service.

Even if Telefònica considers the Video On Demand service really interesting (trials are going to be started), the company doesn't presently declare any definite plan for its commercial launch.

1.5 Conclusion

The Spanish TV market entered a new era with the launch of the first digital channel in February 1997. Viewers are benefiting from an increasing diversity in programmes and channels, as well as from the availability of new interactive services. However, the digital TV market is growing slowly. In 1998, it achieved revenues of Euros 278 million, an 11.5% share of the total Spanish TV market. Digital TV via satellite experienced the highest growth: in 1998 it reached 954,000 customers (8% of Spanish homes), and subscription revenues reached approximately Euros 260 million.

There is a high degree of concentration in this sector, as three big groups (telecom incumbent Telefónica, Prisa and Electric Utilities/Telecom Italia) control most of the pay TV operators. The Electric Utilities/Telecom Italia alliance controls also Retevisiòn, the main competing telecom operator, and through it Onda Digital, which in 1999 won the national Digital Terrestrial TV licence.

In 1999 competition accelerated as Digital Cable TV, Digital Terrestrial TV and DSL-based services were launched. Digital cable operators started to provide digital TV services, voice telephony and highspeed Internet access in some areas, but delays in network building slowed their growth and their perspectives seem less bright than at the beginning of the year. DTTV national licence was assigned in July to Onda Digital, the only applicant, with commercial services launch planned for November 1999.

Telefònica's GigaADSL service for residential highspeed Internet access, also to be launched in November 1999, is expected to compete with cable operators similar offers. The incumbent operator also profited from the government's refusal to extend the two years ban on its provision of cable TV services, which is now expiring in most regions. The year 2000 will start to show how consumers react to so many alternative choices, and whether the Spanish market can sustain so many competing operators.

Analogue TV is expected to disappear within a period of 12 years, when Digital Terrestrial TV will be fully developed and the expansion of the current channels offer completed. The number of open channels could reach 50, in contrast with the current 5. Forecasts in the sector point to a co-existence of open channels and pay-TV ones. A balance must be achieved between quality of contents in both types of services, to maintain both sources of revenue: advertising for Free-to-Air services and subscriptions for Pay services.

Since the appearance of digital operators there has been a strong growth in the development of the Spanish industry of content production. A trend towards vertical integration of businesses is also apparent. This is particularly evident when looking at the business links between operators and most of the content providers. The size of this industry is, however, still smaller than in other EU countries.

2 Key figures for the Spanish market

2.1 Country fundamentals

	1993	1994	1995	1996	1997	1998	1999
Population (millions)		39,220	39,260	39,300	39,330	39,600	
Households (millions)		11,700	11,700	11,800	11,800	11,855	
GDP (in Euros billions)		388,852	419,378	442,708	468,168	496,890	

2.2 Equipment

As of 31 of December	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
TV households (millions)	11,620	11,630	11,720	11,740	11,810		
TV households (% of total households)	99,3%	99,4%	99,3%	99,5%	99,6%		-
TV Households with 2 TV sets or more (millions)	5,840	6,170	6,430	6,820	7,550		
TV Households with 2 TV sets or more (% of TV Households)	50,3%	53,1%	54,9%	58,1%	63,9%		-
TV Households with 16:9 Television sets (millions)	0,000	0,000	0,020	0,060	0,120		
TV Households with 16:9 Television sets (% of TV Households)	0,0%	0,0%	0,2%	0,5%	1,0%		-
VCR Households (millions)	6,240	6,550	7,000	7,390	8,000		
VCR Households (% of TV Households)	53,7%	56,3%	59,7%	62,9%	67,7%		-
Digital STB Households (millions)	0,000	0,000	0,000	0,350	1,000		
Digital STB Households (% of TV Households)	0,0%	0,0%	0,0%	3,0%	8,5%		-
IDTV Households (millions)	0,000	0,000	0,000	0,000	0,000		
Digital TV Households (% of TV households)	0,0%	0,0%	0,0%	0,0%	0,0%		-
Digital Households (millions)	0,000	0,000	0,000	0,350	1,000		
Digital Households (% of TV households)	0,0%	0,0%	0,0%	3,0%	8,5%		-

2.3 Access to digital television

Cable

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Home passed (millions)		0,750	0,900	1,500	2,300	2,500	
of which digital (millions)		0,000	0,000	0,000	0,500	0,700	
Home passed (% of TV households)		6,5%	7,7%	12,8%	19,6%	21,2%	-
of which digital (% of TV households)		0,0%	0,0%	0,0%	4,3%	5,9%	-
Analogue Basic Subscribers (millions)		0,140	0,140	0,290	0,420	1,600	
Digital package subscribers (millions)		0,000	0,000	0,000	0,000	0,010	
Analogue Basic Subscribers (% of TV households)		1,2%	1,2%	2,5%	3,6%	13,5%	-
Digital package subscribers (% of TV households)		0,0%	0,0%	0,0%	0,0%	0,1%	-

Satellite

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Satellite households (millions)		0,300	0,400	0,550	0,710	1,400	
Satellite households (% of TV households)		2,6%	3,4%	4,7%	6,0%	11,9%	-
Satellite subscribers (millions)		0,020	0,040	0,100	0,350	0,954	
Satellite subscribers (% of TV households)		0,2%	0,3%	0,9%	3,0%	8,1%	-
of which digital (millions)		0,000	0,000	0,000	0,350	0,954	
of which digital (% of TV households)		0,0%	0,0%	0,0%	3,0%	8,1%	-

Terrestrial TV

	1993	1994	1995	1996	1997	1998	1999
Analogue Pay-TV services							
Pay-TV subscribers (millions)		-1,000	1,205	1,366	1,465	1,594	
Pay-TV subscribers (% of TV households)		-8,6%	10,4%	11,7%	12,5%	13,5%	-
***Digital TV services**							
Homes covered (millions)		0,000	0,000	0,000	0,000	0,000	
Homes covered (% of TV households)		0,0%	0,0%	0,0%	0,0%	0,0%	-
IDTV households (millions)		0,000	0,000	0,000	0,000	0,000	
IDTV households (% of TV households)		0,0%	0,0%	0,0%	0,0%	0,0%	-
Pay-TV households (millions)		0,000	0,000	0,000	0,000	0,000	
Pay-TV households (% of TV households)		0,0%	0,0%	0,0%	0,0%	0,0%	-

2.4 Television market estimates*

Millions Euros	1993	1994	1995	1996	1997	1998	1999
Analogue TV Market							
Public funding	0,000	0,000	0,000	0,000	0,000		
Advertising	1276,892	1328,958	1382,304	1478,544	1686,740		
Subscription	242,985	314,615	385,948	393,663	421,680		
Total analogue TV	1519,877	1643,572	1768,252	1872,207	2108,420		
Digital TV Market							
Public funding	0,000	0,000	0,000	0,000	0,000		
Advertising	0,000	0,000	0,000	9,039	19,160		
Subscription	0,000	0,000	0,000	88,954	331,320		
Total digital TV	0,000	0,000	0,000	97,993	350,480		
TV Market							
Public funding	0,000	0,000	0,000	0,000	0,000		
Advertising	1276,892	1328,958	1382,304	1487,583	1705,900		
Subscription	242,985	314,615	385,948	482,617	753,000		
Total TV market.	1519,877	1643,572	1768,252	1970,200	2458,900		

** "**Public funding**" comprise grants and licence fees; "**Advertising**" also includes sponsoring expenditures whereas "**Subscriptions**" cover subscriptions to the basic multi-channel package as well as subscriptions to Premium pay-TV services.*