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Terrestrial switchover has already been achieved in two countries, reports Robert Briel from Amsterdam.

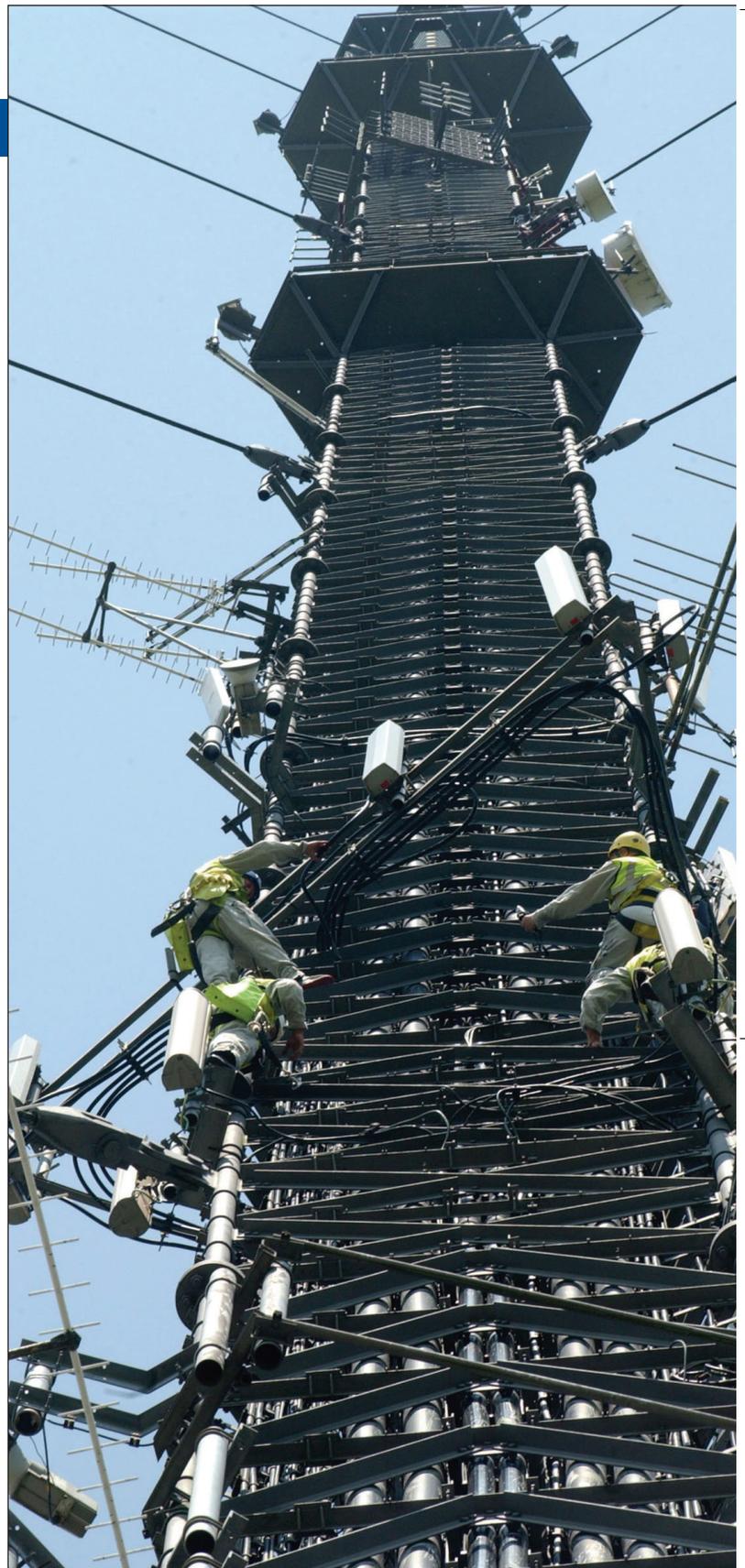
Terrestrial television in both Luxembourg and The Netherlands has already been exclusively digital since late 2006. No figures for DTT take-up in the Grand Duchy are available, but in The Netherlands, the sole DTT provider Digitenne counted over 400,000 homes at the end of September 2007. However, television in both countries is delivered mostly via cable.

Dutch digital penetration is fast approaching 40% of all homes according to the latest figures from the Dutch Media Monitor from the Digital Expert Group, based on estimates from research by GfK. During the third quarter of the year, growth was about 10%, compared with a year before when growth was more than 40%. Cable and DTT showed the fastest pace of growth. The cable companies had varying speeds of growth: UPC is now only marginally extending its digital subscriber base with around 531,000 digital homes or almost 25% of all homes served with video. The three cable companies from Zesko Holding, Casema, @Home and Multikabel, are now catching up and connect almost 750,000 digital homes out of a total of 3.3m.

The exact figures from DTH platform Canal Digitaal are not known, but are believed to be around 700,000. Growth of the platform seems to have stopped after the surge in new subscribers that happened after analogue switch off of terrestrial transmissions. The operator is now also facing increased competition from the digital offer from cable companies.

In the Netherlands, the government does not promote digitalisation of the cable networks but in Luxembourg, the government has started a digital initiative, which will guarantee a basic digital offer on all cable networks. In 2001, the AAC (Association des Antennes Collectives) and the Luxembourg government set out to study the possible consolidation and upgrading of networks in the country. The result was the creation of a digital basic platform for the whole country, which will replace all analogue cable distribution by January 31, 2008.

The European Commission has indicated that, as far as is possible, member states should complete their digital switchover by 2012. Our correspondents report on progress in some of the continent's major pay-TV markets, and we discuss the practical implications with those charged with making it happen.



In Belgium, digitalisation is asynchronous in the Northern (Flemish) and Southern (French speaking parts of the country). Cable is the dominant means of viewing television in Flanders – and if the acquisition of the Interkabel networks will proceed as planned, Telenet will be the sole provider of cable television to about 2.4m households.

Analogue unnp

DTG plans for future

The Digital TV Group (DTG) is the industry association for digital television in the UK and is independent and platform neutral. It was formed in the mid 90s to facilitate the introduction of digital terrestrial TV in the UK. According to its technology director, Simon Gauntlett (right), it is already looking to life after digital switchover.

"The move from analogue to digital will allow the broadcast television industry to focus on added value services to improve viewer choice and experience," he explains. "The first, and perhaps the most talked about, is high-definition TV and the potential for consumers to receive HDTV services via the Freeview platform. We are currently working closely with Ofcom, advising them on the technical infrastructure required to ensure we achieve a service on Freeview that delivers a similar user experience to that available on cable and satellite."

The DTG has updated the D-Book specification, the rules of interoperability that all digital terrestrial products work to, accommodating the requirements for High Definition capable products. This, says Gauntlett, ensures that the High Definition platform will provide the same consistency of service as the current Freeview platform.

Gauntlett reveals that the DTG will also be looking at improved interactive, 'red button' services, which will allow viewers to take full advantage of the ubiquity of consumer broadband connections and have a better experience. "This use of the return path will allow broadcasters to deliver much more compelling interactive experiences. This work can then be extended to allow content providers to offer viewers video across the broadband return path."

Following research the DTG undertook with its members last year, which showed that the majority of content providers and manufacturers would prefer a common standard, DTG is



working on developing standards that will ensure compliant, standard products are delivered to consumers.

Gauntlett believes that HDTV has a place on digital terrestrial. "The DTG is working closely with Ofcom to ensure the technical infrastructure is there and help them with their proposal for taking the service forward. HD is the next step in the evolution of

television and we should ensure that all viewers experience it, regardless of their method of TV reception. Viewers continually seek new and improved service offerings, and the increased sound and picture quality HD services provide mean it is only a matter of time before these services become mainstream."

He recognises that emerging platforms will become part of the digital delivery mix. "It is essential emerging platforms and services such as IPTV and mobile TV have common specifications before being launched to consumers. Using Mobile TV as an example, if they are to share the same UHF spectrum as TV, it must be understood how TV products react to the mobile services without causing consumer confusion or how potential interference between the services can be handled. The DTG is currently doing lots of work in this area to identify the potential issues and advise manufacturers and broadcasters before products and services are launched to consumers.

At the moment there are some 350,000 digital cable homes.

Flanders will switch off its analogue terrestrial television signals at the end of 2008, the Flemish government has decided. Only the 60,000 homes that only receive television over the air will be affected. A further 80,000 to 180,000 homes with dual reception will also lose their analogue signals.

Currently only the Flemish public broadcaster VRT is available over the air, both digitally and analogue. Private broad-

casters, such as VTM and VT4, are distributed via cable and or satellite. After the switch-off digital licenses will be issued to commercial broadcasters as well. Also, mobile TV, (using DVB-H), is envisaged by Flemish media minister Geert Bourgeois.

After a number of years of test transmissions, the Walloon public

broadcaster RTBF has now officially launched its DTT service in November. The public bouquet consists of four TV channels – La Une, La Deux, La Trois and Euronews – as well as all five RTBF radio stations. The French language DTT offer is expected to expand after analogue switch-off in 2011 with room for commercial broadcasters. When consolidation of the Walloon cablenets will have been completed, an accelerated rollout of digital services is expected.



France

Formal legislation has now set an end-date for analogue, reports Sotires Eleftheriou from Paris.

Since DTT first started broadcasting in March 2005, coverage has reached 80 to 85% of the population of Metropolitan

France by the end of 2007 and is expected to reach 89% by the end of 2008. A secondary network of 200 transmitters will eventually bring coverage to 95% of population. Finally, satellite will cater for the remaining 5%, free of charge but encrypted to prevent viewing from outside France. Transmission began (via the Astra satellite 19.2°) in July 2007.

Under the 2007 'Television of the Future' Act, the final date for

plugged

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analogue switch-off in France has been set at 30 November 2011 at the latest. Overall control of the transition comes under the Comité Stratégique pour le Numérique (CSN), chaired by the Prime Minister.

The act also created a 'Groupement d'Intérêt Public France Télé Numérique', whose role is to ensure a smooth transition to analogue switch-off. It is chaired by former Conseil supérieur de l'audio-visuel (CSA) member Philippe Levrier, and its members are from the government and the public and private broadcasters who finance its work. It is based in the Prime Minister's office and will be dissolved six months after the last analogue transmitter is switched off.

Its tasks include: a national information campaign and a fund to help less well-off homes acquire an adapter. A consultative committee of professionals (manufacturers, installers, retailers) is to be created in early 2008 within the GIP Tele Numerique. From March 2008 all TVs sold must incorporate a DTT tuner.

A parliamentary commission to study the reuse of frequencies freed up after analogue switch-off also resides in the Prime Minister's office. It is to file its preliminary conclusions by the end of Q1 2008.

CSA has launched a public consultation on the switchover process, inviting comments from all sectors with a total of 58 questions. The deadline for submitting comments is 4 February 2008. The conclusions will be put to the Prime Minister for approval.

In addition to its role as broadcasting regulator, attributing the licences, the CSA works with the Agence Nationale des Frequences over problems of reception. It also has the task of determining the deployment of DTT and the switch-off by withdrawing the analogue licences region by region.

Two private companies provide pay-TV on DTT: Canal+ and TV Numeric.



Germany

The move to digital has been slow, but steady, reports Dieter Brockmeyer from Frankfurt.

Germany's digital TV evolution has

proved a slow process. However, in 2007 it gained some momentum. In fact, the year saw the last German analogue terrestrial enclave upgraded to digital; quite something for a country where overall digital penetration remains so low.

A mere 5% of the German TV reception is terrestrial – including those homes that are using DTT only for secondary TV sets, such as in their children's rooms or their mobile homes. In 2006 only 0.7% of the 34m TV homes were terrestrial only. Full-year figures for 2007 are only expected to show moderate growth. Until now, satellite has proved the pace-setter for the country's digital evolution. By the end of 2006 almost 16% of homes were linked to a digital satellite, with less than 6.1% subscribing to digital cable. That is in inverse proportion to the ratio of TV distribution, where 54% of homes have subscribed to cable, while 42% own a satellite dish. However, both distribution channels reported significant digital growth during 2007.

Digital satellite STBs had record sales and both satellite bouquets, Kabelkiosk and Arena Sat, had an increase in digital channels available to their subscribers. Digital cable also picked up some



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momentum and it will continue in 2008 when analogue subscriptions will be priced slightly higher than digital ones. However, a full analogue switch off is not likely in the foreseeable future. CEO of KabelBW Klaus Thiemann says customer contracts require the availability of analogue services until 2012, and even then, the switch-off can only be made at the client's request.



Italy

After a rapid start, DTT in Italy is slowing down, paying the price of the limits and inefficiencies of the analogue TV system, reports Branislav Pekic from Rome

The duopoly of broadcasters (RAI and Mediaset), and the lack of new TV channels available exclusively on digital have hindered the development of the market so far. In attempts to kick start the market preference has been given to decoder rebates instead to the creation of new channels. More than 40% of the decoders in Italian homes were acquired with the subsidies available in 2004-2005 (in 2006-2007 they were only available in Sardinia and Valle d'Aosta).

Communications regulator AgCom has recommended that RAI and Mediaset should make some of their frequencies available to smaller broadcasters and potential start-ups, as the two control about 80% of the country's analogue frequencies.

DTT in Italy was launched with PPV, but the FTA offer remains a simple duplication of the available analogue TV channels. Mediaset and RAI, for example, each launched only one new DTT channel in 2007 (Iris and Gulp). The audience for DTT channels is very low, at 2.7%. Only 5.6m of Italy's 22m TV households (25% of the total) are equipped with DTT decoders, compared to 6.2m digital satellite households (4.2m of which subscribe to Sky Italia). Over the past year, the growth of digital homes in Italy was 9.2%, the lowest in Europe.

Italy has twice postponed the analogue switch off (from 2006 to 2008 and now to 2012), creating uncertainty for the operators. Sardinia and Valle d'Aosta have been selected as the pilot regions, where analogue will be switched off in March and October 2008, respectively. Next up will be Piedmont and the Province of Trento in Northern Italy.

Although Italy's Communications

Minister, Paolo Gentiloni, claims that the 2012 deadline is "credible and realistic", two TV channels in Valle d'Aosta are not so convinced. Rete St-Vincent and the E21 Network have said they will switch back to analogue because laws governing the TV sector make it too difficult to broadcast using digital signals while staying within the law.



Spain

The countdown for the analogue switch-off has already started in Spain, two years ahead of the Government-imposed deadline of April 2010 for complete migration, reports David Del Valle from Madrid.

The process will be progressively implemented in four phases from 2008, with the cities of Soria and A Fonsagrada –where digital pilots

are underway- being the first to press the off button in the first half of 2008. Around 1,000 Local TV channels and several Regional TV networks should also be migrating to digital during the year.

The country has been divided into 73 technical areas with a total of 90 transition projects divided into three different groups: areas with less than 500,000 inhabitants and high DTT coverage; regions with 500,000 to 700,000 inhabitants; and the third group with more than 700,000 inhabitants.

In 2008 the analogue switch-off is likely to cover one per cent of the population, reaching 12% by mid 2009 and 32.4% by the end of that year, completing the process in April 2010. Today, DTT covers 85% of the country, with more than 4.3m watching each day, representing an average share of 9%, according to Pro DTT Association, Impulsa TDT.

In less than three years, around seven million boxes have been sold in the country, albeit most of them are not ready for MHP functionalities. DTT coverage is expected to reach 96% (private TV channels) and 98% (public TV channels) in 2010.

The DTT take-up has grown significantly in recent months, despite the fact that there are many questions still to be answered, such as: Who is to pay the bill for the DTT deployment? Will the Administration provide the channels and the industry with state subsidies or financial aids to boost the sale of DTT

Finger on the switch



UK broadcast transmission specialist Arqiva is at the centre of the nation's digital switchover project. In mid-November 2007, it confirmed that the second stage of Digital Switch Over in Whitehaven, Cumbria, had been a technical success. Peter Heslop, DSO programme director at Arqiva,

described the exercise as a "flagship project", adding that the company was in the thick of things at the moment. Although a technical success, it was just a small stage in a much more extensive plan.

He explained that for Digital UK it had been a chance to test their communications plan. "Arqiva is in a technical support role," he said. "The project included three small relay stations, but there was still a lot of plumbing and replumbing to be done. It wasn't a great engineering challenge."

Although other countries had already achieved DSO, and in much shorter timescales than the UK, he didn't necessarily feel that there were lessons to be learned. "We're unique in the UK. Analogue and digital aren't being simulcast, there's no available spectrum – there are a lot of challenges around that."

The UK's weather was one of the main challenges, according to Heslop. "A lot of critical activities are taking place a thousand feet in the air at exposed sites. You'd normally carry out such work during summer months. It was typical that 2007 saw some of the worst summer weather on record! All projects suffered significant delays, and it's essential to recover lost time and get work finished so as not to impact on 2008 dates." He pointed out that engineers also had to work around existing services, such as analogue TV, radio and DTT.

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boxes, as they have requested?

For the time being, Spaniards are receiving 21 DTT channels. The state-owned group RTVE is operating six channels; the private TV networks Antena 3, Tele 5 and Cuatro are each operating three channels; La Sexta and the digital operators Net TV and Veo TV are each operating two. From 2010, each broadcaster will operate one multiplex (four channels) except for RTVE with two (eight to nine channels).

Spain's 17 regions (the so-called Comunidades Autónomas) will each be able to operate up to two multiplexes (eight channels) if technically possible. So, at the end of the process, there will be at least 32 national channels, 136 regional DTT stations and more than 1,000 local DTT channels across Spain.

In parallel, the new Spanish Government (that will follow elections in March) is likely to regulate the mobile TV market in the second half of the year, paving the way for the launch of around 20 DVB-H mobile TV channels by the beginning of next year, one year later than initially expected.

One multiplex will be awarded to mobility TV, whose content will be accessible to mobile phones, portable computers or PDAs. A public tender will be called to award the licence to operate the network (with potential bidders such as Axion, Abertis or even cellcos -Telefonica, Vodafone or Orange).

So far, several mobile TV pilots have been implemented throughout the country, with results indicating that the service was used an average of 16 to 25 minutes per day, watching mainly music clips and traditional TV broadcasts.



UK

Digital satellite had a head-start, but terrestrial is now driving digital take-up, with the mammoth

switchover project well underway, reports Colin Mann from London

The Broadcasting Act 1996 established the statutory basis upon which digital terrestrial television services were to be licensed, with the prime multiplex licences B, C and D being granted to what became ITV Digital, which collapsed in March 2002. The licences were re-awarded to the BBC and transmission company Crown Castle, who launched the Freeview service in October 2002.

The ITV-owned service's November 1998 launch

Project planning

IT and communications specialist NEC UK is a 'preferred supplier' to Arqiva of digital terrestrial transmission equipment. David Lyons, social infrastructure systems manager, reveals some of the practical considerations in DSO. "Currently across most of the UK, digital broadcasts share the same radio spectrum as analogue transmissions. This means that, currently, the power on the digital transmitters must be kept at a low level to avoid interference with the analogue signals. DSO involves the replacement of all the old analogue transmitters with new digital ones to allow for a stronger signal to be broadcast by the digital transmitters. This will enable the broadcasters to maximise the population coverage because the potential for interference is removed.

NEC is confident that the DSO project will prove successful. "One of the reasons for this is that the DSO will have a phased roll-out, region by region," says Lyons. "This compartmentalised approach means that while the DSO is a large project in totality, it is in reality broken up into a series of smaller and more manageable implementations."

He points out that there are few unknown variables around the technology itself, and that the DSO project has a single goal and agenda, meaning there is no room for project creep and associated delays, overruns and failures. "The entire project has been specified down to the smallest detail meaning that there is a very low possibility of increased costs or delays through unforeseen eventualities," he claims.



had been preceded by BSkyB's October 1998 launch of Sky Digital. With Sky's existing analogue customer base and swiftly-executed analogue switch-off by 2001, digital satellite became the dominant digital platform.

Cable TV in the UK had been hampered by funding and disparate ownership, and it was only in 2006 that the long-anticipated merger of the two main players, ntl and Telewest, took place. Separately, the cable MSOs (who rebranded as Virgin Media) had been upgrading their networks.

The launch of Freeview with its increased programming choice and low-entry costs – with set-top boxes being available for as little as £25 (€33) – has seen DTT surge into the lead in terms of digital platforms. The latest research from comms regulator Ofcom suggests that the number of UK households with digital television on their main set has risen to 21.7m homes. Findings also suggest that multichannel television take-up has risen

to 86.1% of households, an increase in take-up of 1.1 percentage points. The growth was mainly driven by Freeview which saw its second-ever largest quarterly increase, with almost 2.4m purchases.

The report also shows that many consumers - having already converted their primary television sets to digital - are now upgrading their secondary television sets in increasing numbers.

The total number of second television sets converted to digital now stands at nearly 12m, up by 1.3m during the quarter and up by 50% over the past year.

In terms of digital satellite, Sky increased its customer base by 67,000 during the quarter to over 8.1m, with 335,000 additions year-on-year. When combined with free-to-view satellite homes, total satellite households were over 9.1m at the end of the quarter.

For cable TV, which is predominantly Virgin Media services and a handful of smaller operators, the total number of homes with digital cable television continued to rise with over 3.4m subscribers at the end of the quarter, up by over a 100,000 homes year on year.

The success of the flagship switchover project in autumn 2007 (see separate boxes) will be followed progressively by other UK TV regions between 2008 and 2012.

UK DSO by numbers

DSO is the biggest and most challenging broadcast engineering project ever to be undertaken in the UK, if not the world: 5,000 analogue transmitters to be removed, along with 500 old digital transmitters; 4,000 new digital transmitters to be installed; two new 1,000-ft (300 metres) high structures to be built; others to be upgraded; 100 major antennas to be replaced at up to 1,200 feet above ground level; £500m total industry capital cost; 600 man years of effort.