

Digitisation 2009

En route to the digital world

the convergence of broadcasting and the internet

ZAK

THE STATE MEDIA AUTHORITIES
OF GERMANY – REGULATORY
AFFAIRS COMMISSION



Digitisation 2009

**En route to the digital world
the convergence of broadcasting and the internet**

published by

Kommission für Zulassung und Aufsicht (ZAK) der Landesmedienanstalten

The State Media Authorities of Germany – Regulatory Affairs Commission (ZAK)



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With the present report on digitisation, the German regulatory authorities for the fifth time in succession present facts and figures on the state of digitisation of the media, outlining the development the world of the media has undergone over the past years.

Since the year 2005, the rate of digitisation has doubled; in June 2009, it reached 55 per cent. Terrestrial TV was the first traditional mode of transmission to complete switchover. In the light of 75 per cent of digitisation reached, talks about a switch-off date for analogue satellite are getting more concrete. This raises the question when analogue cable will be switched off - the rate of digitisation at one third is way behind.

Over the last years, new transmission infrastructures have emerged. Television watched via the internet is finding more and more users. And IP-TV in DSL networks as offered in Germany by Deutsche Telekom, Hansenet or Arcor might also present an alternative mode for receiving television even though the market share is still comparatively small at just one per cent. At the same time, media contents available via the open internet which are embedded in websites or in media libraries are also growing more popular. These contents are typically received directly on the computer. A number of manufacturers now also offer TV receivers including inter-

net access which brings online contents such as YouTube or media libraries directly into the sitting room as pre-installed services.

In 2005, only experts knew the meaning of the term triple play. Today, telephony and internet access form the focus of the marketing strategy of each network operator. For broadcast providers, refunding contents in the digital world continues to present a challenge. Alternative revenue models require addressability of receivers. While most cable networks now distribute commercial TV services in encrypted form, thereby establishing a new basis for business models, addressability appears still a long way away as far as the satellite is concerned. RTL Group is exploring a new approach by adopting MPEG-4 and basic encryption for DTT transmission in Stuttgart and Leipzig/Halle. And new HDTV platforms may possibly pave the way for addressability for satellite distribution.

The 2009 report on digitisation describes and analyses current developments in the world of the media and presents the date on the state of digitisation.



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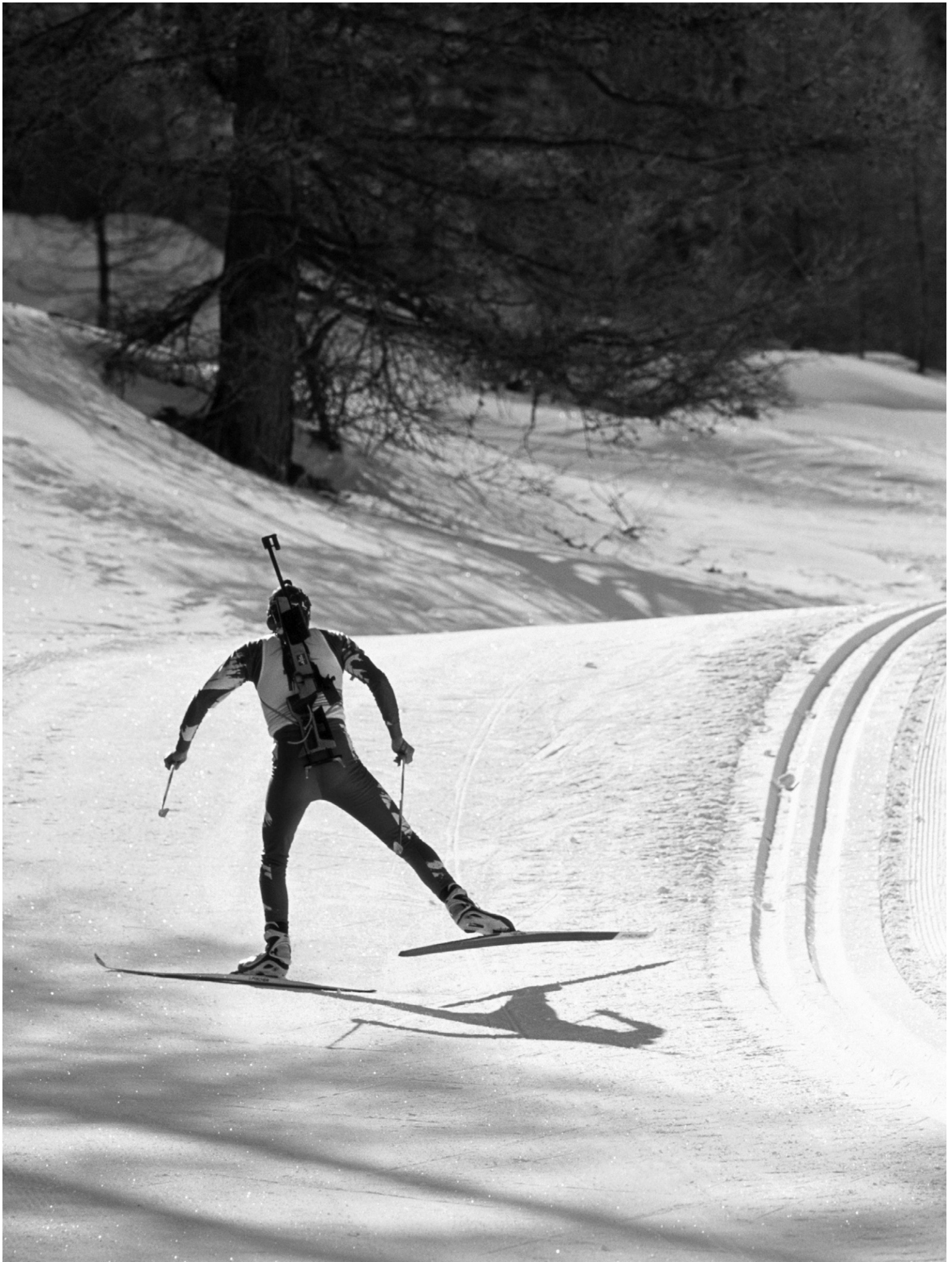
Imprint 48





En route to the digital world

the convergence of broadcasting
and the internet



Broadband meets Broadcast – challenges in the process of convergence of television and the internet

Dr. Hans Hege

The rate of households receiving digital TV has continued its upward trend. Terrestrial transmission is now exclusively digital after the last analogue transmitters were switched off in 2008. Digital satellite reception also continued to expand. The same applies for cable, but here, a switchover point is not yet in sight.

However, simply listing the digital reception figures for broadcast transmission infrastructures does not provide the full picture. Digital development demands an overall view to which this article is intended to contribute.

To start, four assumptions:

- Digitisation is a permanent process of change which will continue after analogue transmission has been fully digitised, and will gain in dynamism.
- Digitisation furthers the convergence of networks, receivers, contents and platforms; this necessitates a review of the rules based on the traditional separations.
- Digitisation allows for additional contents which require funding; at the same time, the classical business models are put into question. Financing variety and creativity thus becomes a key issue.
- Digital receivers expand the options for applications, but also turn into control instruments for the use of media, raising diverse issues concerning access for both providers and users.

The future role of broadcasting will depend on how it will deal with this changed framework en route to the digital world. As before, broadcasting still offers highly attractive contents which cannot be multiplied at will. This ensures a good position in the competition for the rarest of resources: the time and attention of the consumer.

Digitisation: a continuous process

That digitisation is far more than simply switching off analogue transmission can be observed particularly well by a look at the current development of the infrastructure which has already completed switchover: terrestrial spectrum and its use.

Switchover made it possible not only to preserve and extend the range of transmission infrastructures for consumers, especially in major conurbations. Terrestrial transmission experienced an unexpected revival. In Berlin where switchover started, its market share rose from 5 per cent in the analogue era to almost 20 per cent for DTT.

Switchover also made possible developments which exemplify convergence in the digital world.

Mobile TV can be distributed via DVB-H. Extensive technical trials were carried out, the German states allocated a national frequency capacity, and the regulatory authorities chose an operator. With these steps, however, the issue of funding was not yet solved.

■ digitisation is more than merely switching off analogue transmission

Mobile TV can also be received via mobile communications networks. It is available on mobile multimedia receivers, and consumers do not have to worry about whether it is delivered onto the handset via a broadcast transmission route or via the mobile telephony network.

■ convergence as shown by terrestrial TV

Linear television is now complemented by on-demand reception of individual programmes. At home or in the office, TV transmitted across broadband networks can be watched on mobile receivers, and DTT brings television onto the laptop and the first generation of mobile phones.

The chips which are installed in receivers today integrate various routes via which users will eventually be able to watch any video content at any time on any receiver using its respective screen.

■ digitisation comes in stages

The capacity spectrum which first brought television into the sitting room and which holds the advantage of extensive coverage also inside buildings now also proves to be particularly suited for the build-up of the wireless internet supply in rural areas at lower cost than higher-frequency capacities would allow for. During the era of exclusive terrestrial transmission of TV, supply aimed at reaching every village down to a limit of 100 inhabitants. Today, it should be standard for every household to have access to broadband internet, thus being able to participate in the provision of media distributed across the internet.

Broadband internet not only confronts the world of broadcasting with challenges, but also mobile telephony the next generation of which will be based exclusively on the technology of the internet. Mobile telephony is typical proof of the fact that with digitisation, developments are not completed, but are rather only starting. Alongside this development, communication is undergoing a transformation which could well be compared to the time when man no longer just travelled on the ground but started to fly. Being able to fly has changed the life of man again and again, and the same evolution will apply to digitisation.

Telephony will remain indispensable even in the world of broadband, and SMS will stay the most creative data service for the foreseeable future. However, telephony and SMS now only take up a fraction of the capacities available with the new technologies. On the other hand, the construction of new networks will involve such expenditure and require such enormous capacities that the simple model of establishing competition among various telephony providers who have only limited options for cooperation will have to be measured against the model of the open network for all providers. Some principles which appeared to belong to the past now gain in relevance again, including, above all, the separation between networks and uses. This applies not only to the German railway system, but also in the area of telecommunications.

Digitising broadcast infrastructures involves a lot more than merely switching off analogue transmission. Digitisation comes in stages and by generations. Consumers note the need to acquire new receivers. In the analogue world, the development of radio and television was a long-term development, receivers could be used for decades – but that was the era in which the issue was only listening and watching. The new applications available now, such as electronic programme guides, interactive services and the digitisation of transmission itself allow for progress in picture quality which does, however, require more efficient encoding techniques, as is the case, for instance for HDTV.

As was the case for analogue-digital switchover, the next stages of digitisation will be more than merely an extension of the existing world by more contents, with the current business models being put into question and new forces developing in the world of the media and telecommunications. The players holding a particularly strong position in the existing stages are traditionally less interested in developments being advanced any further.

This provides communications politics and regulation with the task of developing a framework which will permit digital opportunities to be tak-

en up and preclude misguided developments such as in particular the concentration of the power of opinion and the manipulation of users.

Tendencies in the process of the broadcasting world and the internet linking up

multifunctional networks

The success of their business model is driving operators of broadband networks to offer access to broadband internet alongside analogue and digital TV. Updated cable networks are more powerful than telephony networks, the new operators go for expansion rather than promoting additional TV channels. Broadband internet at low cost offers the benefit of easier promotion than digital TV where additional services initially have to be refunded with a low audience reach to start limited their attractiveness.

The operators of the old telephony networks are banking on TV and video-on-demand as an offer. DSL-TV which may currently still command a very small market share, holds a key function for establishing and developing the market position of telecommunications enterprises in the sector of broadband internet.

The expansion of broadband use has by now drawn the full attention of politics, the objective being to ensure access for all citizens. In the major areas of population, fibre optics networks are to provide a minimum of 50 Mbit/s while in rural areas, the spectrum allocated to broadcast transmission is also going to be employed in part for the provision of broadband.

In the development of the next generation networks, public responsibility should be afforded more attention than has been the case during the privatisation processes of the last few years. Politicians in Germany recognised the significance of developing infrastructures for broadband internet and its economic relevance far later than was the case, for instance, in the United States where the

promotion of full-coverage supply is equated with the supply with newspapers, telephony services and electricity supplies.

Now the next-generation networks both for stationary and for mobile reception have to be planned. This will affect both cable and telephony networks as well as broadcast and communications networks. Models dating from the phase of competition for telephony supply and lower rates compared to the old monopoly era are suitable for this scenario as little as is an isolated examination of the broadcasting sector.

The challenge to be faced is a comprehensive, rather than an isolated approach to the developments of broadband and broadcasting respectively; and the framework conditions to be developed must allow for the optimum use of broadband for broadcasting as well as other contents and services.

hybrid receivers

The traditional separation between the internet accessed via the computer and television watched on the TV set in the sitting room will give way to varied forms of use: Not only will the portable computer turn into a TV receiver allowing simultaneous access to the internet. Vice versa, internet contents can be accessed via the TV screen, but not – as in the early days – as a replay of the internet destined for the computer which offered little attraction, but rather for time-shift access to films and TV broadcasts, access to media libraries, video platforms and especially to internet contents lending themselves particularly to the presentation on a TV screen. The possibilities of digital storage allowing use whenever it suits consumers are gaining increasingly in popularity.

Hybrid receivers permit the limited use of the internet on the TV screen, thereby providing advantages for TV providers who can offer additional complementary services. But they also carry the risk of enabling other providers to access the TV screen. This results in new issues concerning access both for content providers and for consumers.

■ the infrastructures for broadband and broadcasting must be jointly developed

■ access to internet contents on the TV set with hybrid receivers

■ public responsibility for the networks

As has been repeatedly the case, the development is commencing in the form of "walled gardens", and it remains to be seen how long they can retain their position in the competition against the open internet.

The further development of the market will be determined by the users. Not every technical option for convergence will turn out a success. For the foreseeable future, digital TV will provide stability, speed and comfort via integrated sets or set-top boxes in a form from which the PC is still a long way away.

contents and applications - opportunities for the creative industry

The digitisation of the transmission routes for broadcasting will by itself not be enough to put the opportunities resulting from the connection between broadcasting and the internet to full use. Many new types of content have developed in the internet which lend themselves to being combined with broadcasting, but are currently realised largely via the computer. The broadcast world has so far excelled in developing standards for digital transmission while developing standards for other applications and uses which would enable them to be used via any TV set has not been a success. This in turn is one of the strengths of the open internet in the competition for the optimum solutions.

Media politics is facing the challenge of whether and how to support the connection occurring between television and the internet in a way which will prevent a multitude of proprietary solutions hampering developments but will generate space and opportunities for the creative industry.

platforms and routes of transmission - forcing open the old structures

TV contents are transmitted via more and more platforms without, however, suffering in their relevance for media use. For video portals, too, they hold a key position since professional contents can

be generated and funded to a limited extent only, being superior to home-produced contents at least as far as longer broadcasts are concerned.

It will be interesting to observe development of the traditional subscription TV model bundling films and sports. What chances will thematic channels have which frequently repeat contents according to a set pattern if consumers can easily download such contents from the internet?

The growing bandwidths of the networks could bring a repetition of a development in the video content and the film sectors which has been reality for music for some time: a large number of platforms across which these contents can be transmitted, and a combination of contents decided by the user rather than pre-fabricated albums and programme schedules.

Navigation - the self-determined viewer

The electronic programme guide holds the potential of promoting the use of non-linear TV. It not only eases the topical overview of contents on air, but also allows for tailor-made choices determined by consumers themselves. Programme guidance will become ever more important, the more digital storage options are used. Viewers will not necessarily become TV directors, but it is not in their interest either to be directed by the concept of audience flow of a broadcaster if an easy-to-use alternative is available.

regional TV and citizens' media - new ways to viewers

The regulatory authorities must have a specific interest in the development of local television which for its distribution currently depends on broadcast transmission infrastructures which however, it mostly uses in loops in which the same content is frequently repeated and which - in particular in the states in the east of Germany - almost exclusively reaches homes connected to cable networks.

Will it become more attractive in the future to be able to access them at any time via the TV screen if they are transmitted via the internet?

The key issue of how contents can be found in the increasingly varied world of broadcasting is also shared by so-called "open channels" and citizens' channels which are easier to find in a scenario in which consumers only zap through a limited number of channels.

The internet is a worldwide open channel which has generated new forms of search and find: Apart from search engines, social networking sites in particular can influence media consumption by giving recommendations and by exchanging experiences.

Funding contents: the key challenge

The traditional models of funding contents are put into question by digitisation which at the same time requires investments into new opportunities far exceeding the savings resulting from analogue transmission being given up. The recession sparked off by the worldwide economic crisis exacerbates the downturn of traditional opportunities for the generation of revenue available to the commercial media providers.

In Germany, only the public-service broadcasting corporations can bank on a periodical increase of their income on the basis of the current funding model. This results in a shift of the balance within the German dual broadcasting system on the one hand and a shift between the commercial press and public-service broadcasting on the other.

For decades, the press had no problem to finance quality contents due to its powerful position in the market. The commercial TV providers initially developed many new formats including high-quality contents in the boom period. On this basis, internet activities could be developed and often be offered for subscription.

To this day, Germany can still pride itself in a uniquely varied range of contents for which the only cost due is the licence fee. This, however,

generated the problem which persists to this day, too, namely funding contents also via subscriptions, or put in other words, developing the forms of funding which typically represent the financial basis of the press.

The hopes held by both TV content providers and network operators of opening up new sources of revenue through digitisation have been largely disappointed thus far. Consumers are not prepared to the extent expected to cover the resulting higher cost incurred. In the internet, a parallel development could be observed: Contents which have to be paid for in the printed media, can be accessed free of charge in the internet.

Broadband internet which especially attracts younger users interested in video and audio contents is thus presenting an alternative to TV consumption for them.

The economic problems facing the commercial content providers are becoming even more pressing as a result of the options for copying and distributing contents in the digital world. Securing copyrights and exploitation rights is a new challenge to be mastered. Excessive protection mechanisms will only result in attempts to avoid them. What the film and the TV industry can learn from the experiences of the music industry is an open question. Advertising revenue generated in the internet is on the increase, but rather than content providers, it is usually the search engines which benefit.

For media politics, the issue to resolve is whether, and if, with what means it should support options in the digital world permitting contents forming the basis for the formation of public opinion and cultural diversity to be funded in the future.

The legislator can exert massive influence by determining the remit of the public-service broadcasters. The more contents they provide free of charge, the more difficult it will become for commercial providers to fund comparable contents which have to be paid for.

■ to date, digitisation has brought hardly any new sources of revenue

■ local services and open channels must also be found in the digital world

■ EPGs can drive the use of non-linear television

■ even digital receivers do mostly not feature addressability

■ additional contents offered by public-service broadcasters will hamper fee-based contents of the commercial sector

This applies to television where commercial providers attempt to fund contents transmitted via HDTV by additional pay: As it is not possible to generate additional advertising, the additional cost incurred cannot be recouped. Will consumers be prepared to pay if they can watch any type of sport unencrypted without any extra cost?

The impact of public-service broadcasters taking away users is even greater on commercial internet providers which suffer losses in their core source of funding, namely advertising revenue.

It would be problematic to conclude from the limits showing up for advertising revenue that quality can be offered only by public-service broadcasting and via the collective funding of the licence fee, turning the licence fee into a media fee with which internet contents are financed as well.

This would mean that politics would determine the scope of public funding in this area, thereby exerting corresponding influence rather than consumers determining the development of the media through their choice.

The press system in place until now offers the incentive of providing attractive, high-quality contents which are funded by both advertising and by fees. The challenge which the press sector now faces is bringing contents into the digital world which can be compared to the publications available at the newsstand which have been made possible by the press distribution system in Germany.

Addressability and new approaches

As far as broadcast transmission infrastructures and the reception via the TV set are concerned, addressability holds a key function. As long as most set-top boxes for satellite reception and no DTT box offers this option, Germany is therefore only half way along the route to digitisation.

Developments in the internet, however, raise doubts as to whether the opportunity to pay for individualised contents will be sufficient for generating up new development options for the creative industry.

The strict insistence on copyrights results in increased resistance, which is sharpened by the deficits in realising user-friendly models. It would therefore make sense to discuss fee models both for receivers and for contents ("flat rate for culture").

Solutions for options should be checked which - unlike the licence fee - do not allow decisions by state institutions on contents to be promoted but enable billing according to the actual use and thus the real demand of consumers.

There is, after all, already a comparable approach in place for the use of music on radio where every station can play it and the billing takes into account the frequency and the reach of transmission.

This debate is still in its infancy, and a perfect solution encompassing all media is unlikely to be found. All the same, the connections between the media and their traditionally separate modes of funding should be taken into consideration in the debate.

A particular challenge will relate to solving the issues of data protection. The possibility of using media contents anonymously and without leaving data traces must be preserved.

Analogue-digital switchover in the context of digital developments

Digitisation per se is an objective for consumers as little as for politics to start with; what matters are new uses and their added value which justifies higher expenditure. This is the reason why progress regarding digitisation differs so widely and poses diverse challenges.

How fast and in what way switchover is realised will be decisive for the relevance which broadcasting will have in the digital world of the future. Digitisation can therefore not be the only issue to be determined, but its connection with addressability,

the use of more efficient encoding techniques and hybrid receivers which connect broadcasting and the internet must also be looked at.

Switchover of the various transmission infrastructures is as follows:

terrestrial TV transmission

Following switchover, other issues concerning the use of transmission capacities are at the centre of the debate (see above). Commercial providers are now also participating in DTT provision in Stuttgart and Halle/Leipzig; however, this comprises a new model of basic encryption and a more efficient encoding technology.

As in the case of analogue-digital switchover in the cable networks which is very slow due to the success analogue cable is enjoying thus far, the success of DTT to date presents an obstacle on the way to the next stage of more efficient encoding technologies allowing more channels to be provided. They require new receivers, and consumers first need to be convinced of the added benefits they offer. On the basis on today's distribution of television via DTT, this is far more difficult than prior to transition when the range of services available via analogue transmission was much smaller. Pay-TV via DTT could further a more efficient encoding technology, but this - as the entire development of contents via DTT - is also dependent on the progress digitisation will make via cable and satellite. For the foreseeable future, therefore, DTT is more likely to benefit from a different use of convergence, namely the simple reception of the most attractive TV channels in combination with the use of the internet, which in the case of the laptop, is possible via the same device.

analogue-digital switchover of satellite - and the connection to cable

Progress can be noted not only concerning the increase of digital satellite households, but also concerning a key issue which thus far hampered switchover. The plans for encrypting commercial TV channels in standard quality and make them

available against additional pay only have been dropped. For the foreseeable future, switchover can be realised only if consumers who bought digital boxes not suited for addressability can continue using them.

Progress has been achieved further insofar as the need for addressability has now also been accepted by public-service broadcasting even if it will not encrypt any services.

For the commercial providers, but also for SES Astra it is obvious that the plans which were given up regarding standard television should be realised where this brings a real additional value, namely HDTV transmission for which the additional costs must be refunded. Lessons have been learnt from the mistakes made with the specifications imposed on the receiver industry and the communication strategy vis-à-vis consumers. Whether the new marketing model will turn out a success remains to be seen.

Switch-off of analogue satellite transmission would save considerable costs for providers. But here, too, the key is that consumers must be won for changing to digital satellite TV.

This would not be a problem if it affected only the DTH households. The costs for set-top boxes have gone down so dramatically that the digital added value should be enough to invite change, especially since the central benefit for many users will be retained, i.e. saving the cost of the cable fee.

However, a large number of cable head ends are also connected to the satellite. If analogue satellite feed is stopped, the operators have two alternatives to choose from: They either also discontinue analogue channels in the cable network, or they take up the digital channels, reconvert all or some of them for analogue reception ("re-analogise") and supply their customers with them as before.

For the content providers, but also for the regulatory authorities, the question of the impact on audience reach arises if only some of the channels would be re-analogised; for the cable operators and

■ efficient encoding technologies and addressability for DTT require new set-top boxes

■ switching off analogue satellite channels and audience reach in the cable networks

■ public-service broadcasting recognises the need for addressability

the service providers, the issue to solve is the cost incurred either by converting the cable head-ends or by providing set-top boxes.

Assuming that an agreement can be reached concerning analogue satellite switch-off, a communication problem will arise if the benefits of digital transmission are to be presented on the one hand while on the other, the major cable operators continue to invest in analogue transmission. Worse still: The incentive to create digital added value which starts from the total audience reach of digital homes, will remain limited and the hen-and-egg problem will persist.

In Germany, cable is the lead infrastructure for digital added value in the same way that it allowed the wide variety of services to develop in the analogue mode. Cable was the basis for the added value which DTT can offer with its extended options for transmission. The additional commercial channels which secured the attraction of DTT were basically funded through cable transmissions.

The success of satellite reception in Germany also has its roots in cable transmission. Under the cable structure, content providers must pay for transport and must thus aim at the high audience reaches that were benchmarked by free-to-air television. The failure of the Entavio project underlines the difficulties which the introduction of pay-TV which is quite established in other countries is facing in Germany.

Now, however, cable is coming up against the limits of the old funding model which combined the licence fee and advertising. New contents would have to offer additional attraction; they try to do so, but refunding is limited to a fraction of the households total.

Digital cable offers one added value: alongside additional contents, there are the electronic programme guide, digital storage (although this is also available with analogue cable transmission), shortly there will be the HDTV standard, and the additional cost incurred for consumers is limited.

However, as far as consumers are concerned, breakthrough has not yet been achieved; digital cable is less convincing than fast internet which many leading cable operators now concentrate on in their communications strategies.

The interests of network operators and content providers are directed at scoring additional revenues through digitisation. This, however, presents the problem for consumers for whom digitisation does not appear to be a satisfying option unless it really offers a lot more.

Switching off a transmission infrastructure is possible only if the overall majority of consumers can be convinced of the benefits of digital reception. In the case of DTT it worked. The additional costs incurred for satellite reception are negligible meaning that switch-off should not present a problem either. As far as cable is concerned, it is not possible to save the fee already due now but users may well have to pay more, possibly also for the second set. The success of analogue cable is also built on the fact that all TV sets were and continue to be cable-ready. As far as digital cable is concerned, there is still a long way to go in this respect.

Politicians will be loath to take action that appears to be directed against the interests of consumers, and the housing industry will not act against the interests of tenants either. If two-thirds of cable reception is still analogue, it is not possible to set a concrete date for switch-off, nor is a regulatory measure likely to bring much success. In the US where terrestrial analogue television is in the process of being switched off completely, the FCC has pointed out that there is no corresponding obligation for cable TV.

Non-binding debates as conducted, for instance, by the Forum Digital Media or appeals in which politicians speak up for digitisation will not really contribute to progress if the real interests of providers and operators give reason to assume that their objectives are directed elsewhere.

market only, or support as well?

For the next steps, there are two basic ways which offer differing advantages and disadvantages:

The market-driven development, letting things develop by themselves. After all, we do not specify the deadline by which the former telephony operators completely switch to internet technology. Why should there not be competition among cable network operators for the best possibility to satisfy consumer demand under which one operator switches to digital transmission while others re-analogue the channels - after all, unlike in the early days, uniform solutions no longer exist. And cable is competing against the other transmission infrastructures.

The other option is state support for digital developments. In the past, there were successful models such as the introduction of broadband cable in Germany. Without state subsidies and privileges regarding the use of infrastructures, the dual broadcasting system in Germany would not have achieved the success it can pride itself of.

But there were also some failures. At present, broadband internet is in the focus of state promotion, is awarded cheap spectrum and financial support. The most important broadband applications involve video and audio contents, the linking with television presents the greatest challenge for the creative industry. It could thus be a public objective to promote the development of cable, but also progress of other transmission infrastructures in order to improve the operating framework for the content providers and the creative industry overall.

Switching off analogue transmission on its own would not be enough. Digital transmission allows for extending the range of contents, but it does not solve the question of funding. In addition, addressability, options for billing and individualised use of the media gain core functions. In this respect, Germany lags behind as shown by the overall figures on digitisation. The majority of satellite boxes and

basically no DTT boxes offers addressability, and the approaches regarding common interface so far are no longer of any use.

Alongside analogue by digital television, any sensible digitisation strategy must make use of the opportunities offered by convergence, the connection of television and the internet. But to achieve this, more is needed than just "simple digital boxes".

HDTV and MPEG 4 are other key terms for the fact that digital development does not stop once switchover has been effected, but presents a permanent revolution. For the foreseeable future, however, a basic problem will remain unsolved: consumers need receivers, and the old sets must be replaced once the next stage has been reached.

Concepts for support could and should therefore be geared at consumers, e.g. in the form of vouchers allowing sets to be partly subsidised if they offer certain minimum standards from addressability via MPEG 4 to presenting internet contents. This approach resembles the system of the scrappage bonus for car replacement, with the difference that the old boxes can be used on for the second sets.

This route is not without risks, as the limited success of the MHP promotion programme adopted in Austria and Italy proves. But sometimes, even latecomers may have a chance learning from the experiences and failures of others.

■ a push forward for addressability, the use of the internet and HDTV

■ support for sets as an impulse for the media industry?

■ state support for speeding up digitisation



Digitisation of the German television market facts and figures

Current state of digitisation in German TV households, June 2009

Andreas Hamann

Objective of the survey

With its 2009 report, the German regulatory authorities (ALM) for the fifth time in succession present facts and figures on the status of digitisation in Germany. For this purpose, market research company TNS Infratest carried out telephone interviews with 6,000 households during the period 20 May - 27 June 2009 regarding their mode of TV reception.

The survey focuses on the degree of digitisation of German TV households today. This issue is getting ever more relevant considering the speed which the process of switchover has gained. It also has some bearing on the medium-term planning both for the television industry and for network operators and lastly, obtains an ever greater role in the media policy debates. The report on digitisation is intended to provide an objective presentation of the current state of digitisation. In spring, the methodology underpinning the survey was therefore evaluated, and the regulators found that the responses given by the so-called "person who knows best" supplies largely reliable results on TV reception in German households.

Since 2007, the ALM report on digitisation has been published alternatively with the data of the German Satellite Monitor provided by SES Astra (GSM) in a six-monthly interval. Both surveys are based on the same methodology, while for a direct comparison, two differences in the presentations should be noted.

The digitisation report includes as cable households also the homes connected to satellite master antenna systems converting high-frequency satellite signals for transmission in low-frequency cable signals (SMATV-CH). Compared to 2008, their number dropped by almost half to around 400,000 TV households and in effect no longer plays a major part.

Besides, the SES Astra monitor traditionally presents the market shares for the various transmission infrastructures. For households watching TV via different modes of transmission, only the best mode of reception considering the number of channels received was counted. This additional presentation is also available in the chart report which can be downloaded from the ALM homepage (www.alm.de). The survey conducted for the ALM digitisation report, on the other hand, takes into consideration all transmission infrastructures named by viewers, resulting in the sum total of the shares of the various modes of transmission in some instances exceeding 100 per cent (Fig. 2).

Rate of digitisation on the increase

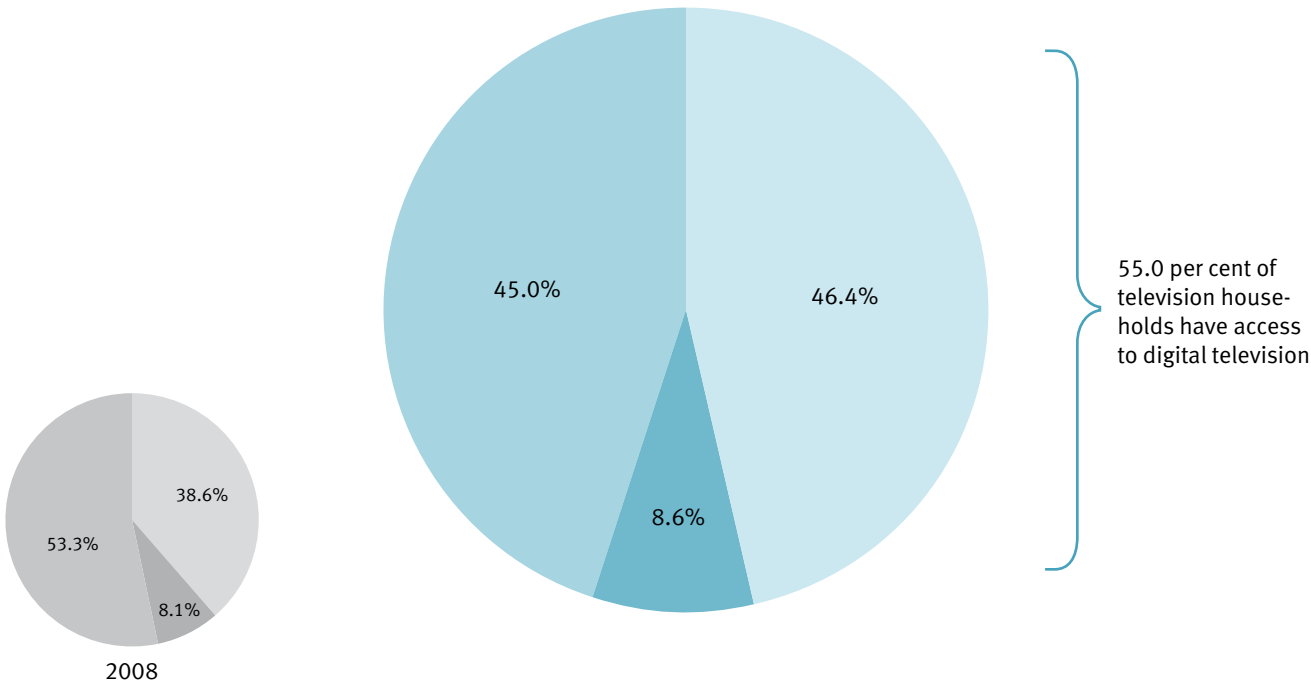
By mid-2009, clearly more than half of the German TV households (55 per cent; see Fig. 1) had at least one digital mode of reception at their disposal. Compared to 2008, the rate of digitisation rose by 8.3 percentage points, slightly more than in previous years. During the last year, some 3.2 million households in German opted for a digital receiver. Traditionally, consumers go for external set-top boxes, and according

to market researchers, gfu/GfK, some 1.04 million sets left the shops during the first quarter. Sales figures for flat-screen sets reached more than double that figure, with 2.15 million flat-screen TV sets being sold during the first quarter of 2009. As a rule, these are integrated sets (ID-TV) featuring an integrated encoder, usually a DTT tuner. Sales figures for ID-TV sets with DBV-C tuners or DVB-S tuners are still comparatively low. However, it is to be expected that this will rapidly change once the issue of the open interface (common interface plus; CI+) has been resolved and platform providers release the respective modules.

The number of digital TV households overall totals 20.6 million, with the clear majority favouring digital reception only. Only some 3.2 million digital households also use analogue reception alongside digital TV.

When comparing the latest figures to the first survey which was conducted five years ago, the rate of digitisation has more than doubled. If this rate is adjusted linearly, complete switch-over could be completed within a further five years, i.e. in 2014 at the latest.

Fig 1 Digitisation in German television households



Basis: 37.412 million TV households in Germany
Source: ZAK 2009 digitisation report

analogue TV reception only = 16.850 million TV homes
digital TV reception only = 17.332 million TV homes
digital and analogue reception = 3.231 million TV homes

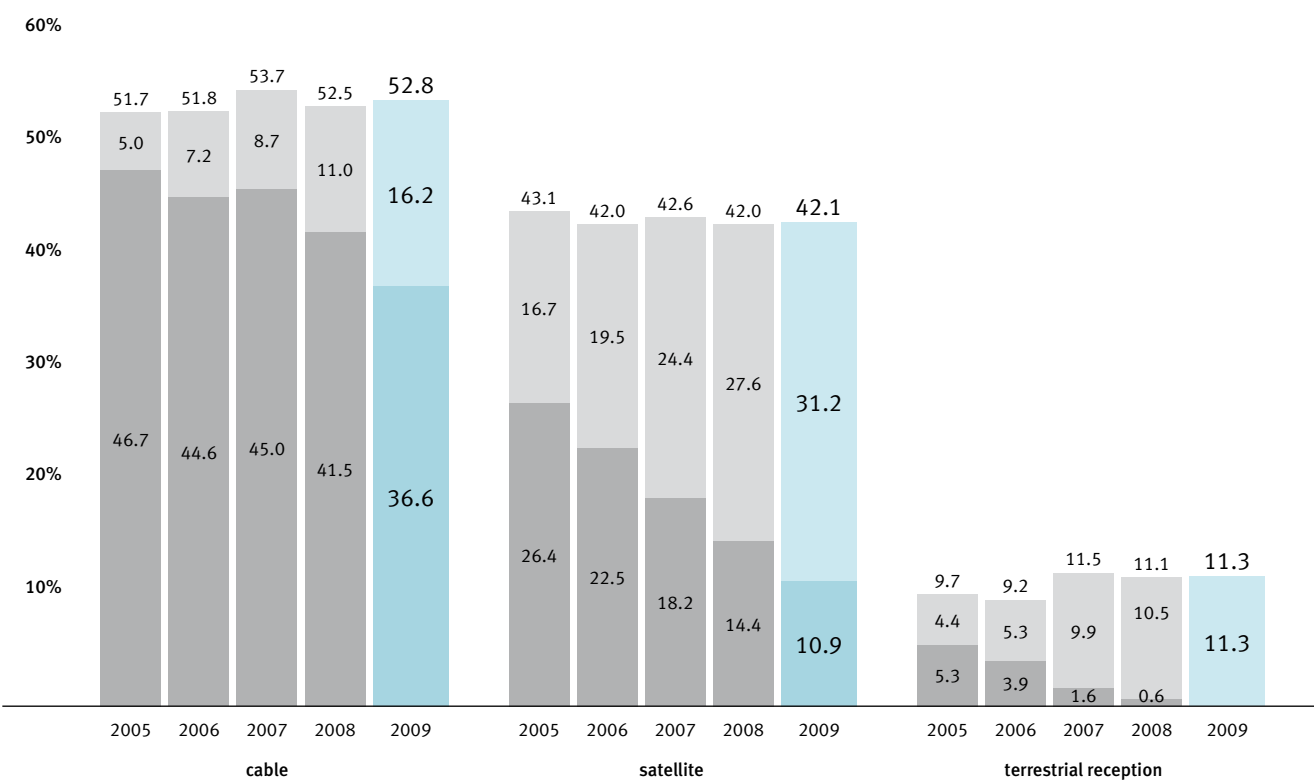
Transmission routes: ratio stable

Looking at the numbers of users resorting to the different transmission routes, two points come to attention: the ratio among the three main modes of transmissions has remained almost unchanged, and a new transmission infrastructure has emerged. DSL-TV, i.e. TV reception via a dedicated DSL network which can be compared to the classical cable TV, has reached one per cent for the first time. Irrespective of that, the relation among the various transmission infrastructures remained stable: Cable is still the most popular mode of transmission for TV reception serving 19.8 million TV households, corresponding to 52.8 per cent of all homes. It is followed by satellite which is available in 15.7 million TV households

(42.1 per cent). More than two thirds of these homes receive their satellite signal via their own dish, the rest being connected to a SMATV system. Terrestrial reception which by now is synonymous with DTT, was used by some 4.2 million TV households or 11.3 per cent in 2009.

Compared to 2008, absolute figures also remain almost unchanged, indicating that options or the wish for a change of the transmission route does not appear particularly pressing for users.

Fig. 2 Access totals via cable, satellite and terrestrial reception



Basis: 33.904 / 33.904 / 36.981 / 32.277 / 37.412 million TV households in Germany
Source: ZAK 2009 digitisation report

■ digital
■ analogue

Digitisation by transmission routes

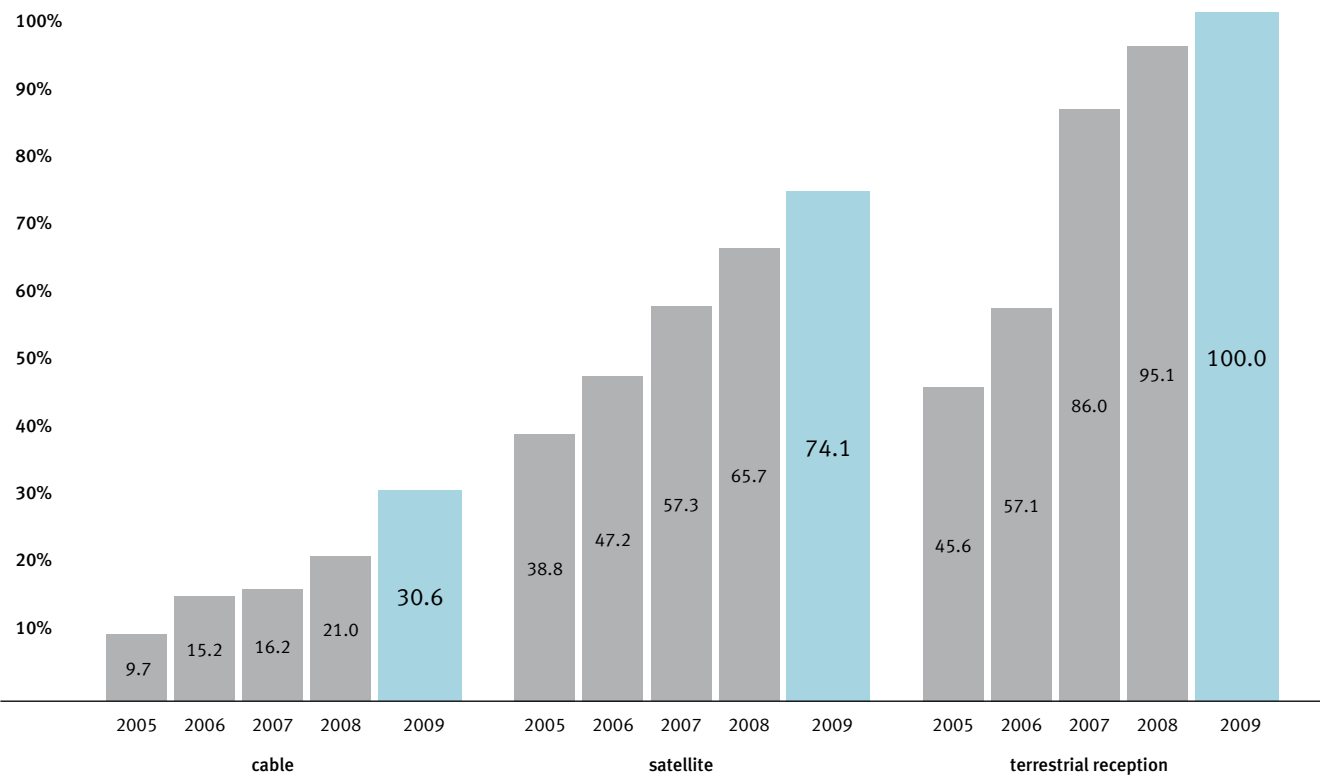
A look at the digitisation rate of the individual routes of transmission (see Fig. 3) proves that two of them are already fully digital: terrestrial and DSL-TV transmission. Regarding DSL-TV, this presents little surprise since the technology has been digital from the start. For DTT it can be stated that six years after switch-off of the first analogue terrestrial frequencies in Berlin in 2003, switchover has been fully achieved. And digitisation of the two most important modes of transmission for broadcast reception has also expanded with almost one third (30.6 per cent) of cable homes and around three quarters (74.1 per cent) of satellite households now being digital.

Digital cable continues to grow

Within the last twelve months, nearly two million TV households decided to at least also receive digital cable TV (CVB-C). This is more than twice the number of homes than during the previous year. One reason for the increase could be the marketing efforts of the cable network operators, another might be the fact that viewers consider the range of services, the picture quality or the pricing sufficiently attractive for changing to digital reception.

Irrespective of the fact that more cable than satellite homes went digital during the last year, the fact remains that digital cable still lags far behind. This may be due to the fact that DVB-C reception requires more effort than analogue cable

Fig. 3 Digitisation by transmission platforms



Basis: 33.904 / 33.904 / 36.981 / 37.277 / 37.412 million TV households in Germany
Source: ZAK 2009 digitisation report

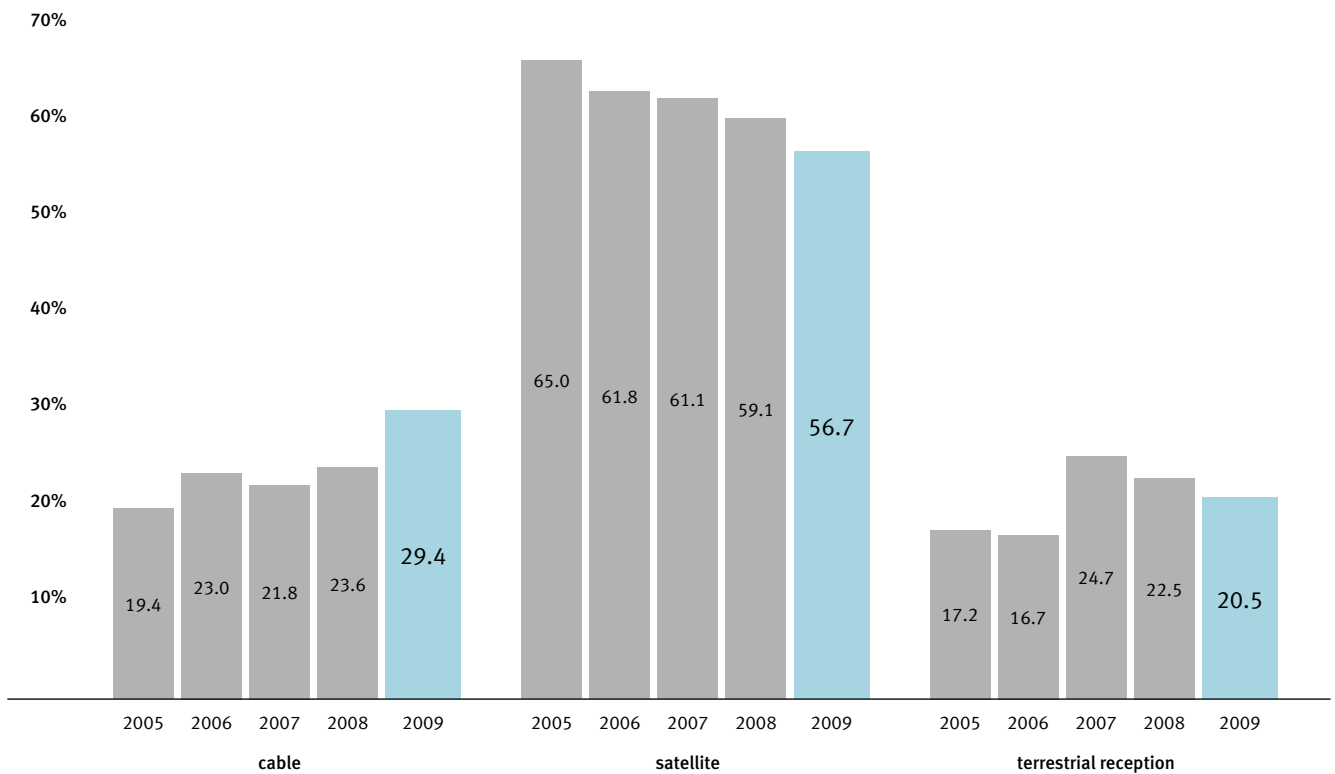
reception which allows an unlimited number of sets per home to be connected. In addition, the range of analogue services still comprises between 30 and 40 channels and can thus still be rated attractive.

A non-representative survey conducted by the regulators in cooperation with SES Astra and Arbeitsgemeinschaft Fernsehforschung (the major TV broadcasters' association for quantitative TV research) revealed further reasons: For instance, a number of persons questioned did not know that cable is already digital and offers analogue and digital signals for reception in parallel. Some viewers also assumed that their old TV set would have to be replaced if they wanted to receive digital TV. Informing consumers accordingly might therefore increase the wish to digitise cable reception.

Another effect might bring additional increases: The quality of the digital image can be enjoyed much better via the new large flat-screen sets than on the old receivers. The boom of flat-screen sales will thus also drive digitisation.

Surveying the regional differences it is noticeable that the two regions with the highest cable network density, Berlin/Brandenburg and Hamburg/Schleswig-Holstein, do not feature the highest degree of digitisation. Digitisation of cable reception is highest in Northrhine-Westphalia and Baden-Wuerttemberg. The rate of digitisation therefore does not appear to be directly linked to cable penetration. Two aspects may be decisive in this respect: the cable structures of the respective German states, i.e. the question to what extent a cable network operator has control over the entire route to

Fig. 4 Modes of reception in digital households



sum total > 100 due to homes with several reception platforms

Basis: digital TV households in Germany

Source: ZAK 2009 digitisation report

customers, and the state of extension of the networks, i.e. the technical availability of digital contents. Apart from that, the marketing activities of the network operators also impact developments. According to the observation of the German regulators, they continue to feature internet access and telephony services more prominently than digital television reception.

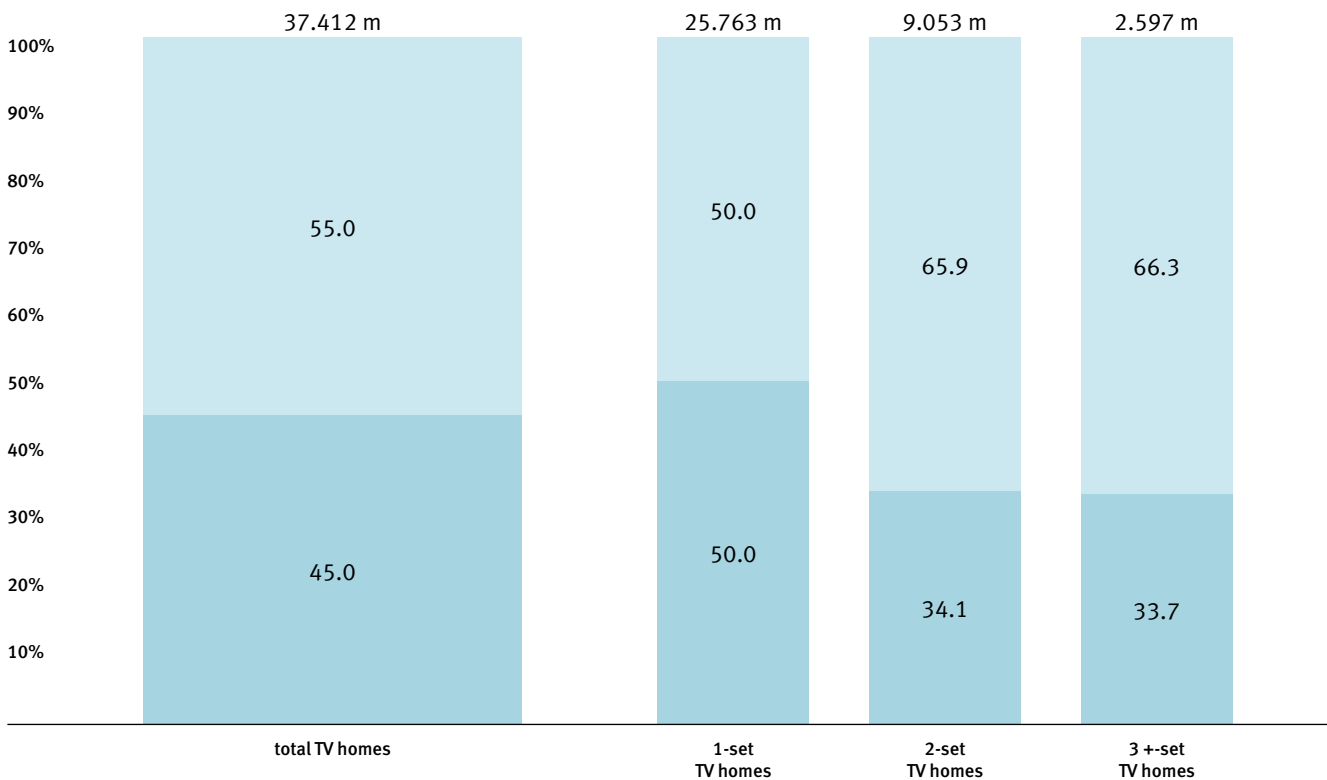
Switch-off of analogue satellite in sight

Even though cable still trails behind other transmission infrastructures as far as digitisation is concerned, switchover scenarios are already under debate. This is sparked off by the considerations relating to satellite where the positive devel-

opment would speak for switching off analogue transmission during the next two to three years. The decision will ultimately be taken by the broadcasters.

Three quarters of the satellite households already receive digital signals, meaning that they use at least a digital satellite receiver. As last year, the rate of digitisation rose by approx. 8 percentage point to 74.1 per cent (June 2009). Of the 15.7 million TV households picking up the satellite signal with their own receivers, approx. 11.7 million own at least one digital receiver. In other words: For a complete switchover of satellite transmission some 4 million households still need to be won over. Updating the current development linearly, 100 per cent would be reached in three years' time. It has to be taken

Fig. 5 Digitisation of TV sets according to mode of reception



Basis: 37.412 million TV households in Germany
Source: ZAK 2009 digitisation report

digital
exclusively analogue

into consideration on the one hand that such curves tend to level out towards the end as the last households still retaining analogue reception tend to be the hardest to convince of switchover. On the other hand, marketing efforts of the players are usually intensified for this very reason. SES Astra this year already started a major campaign promoting switchover to DVB-S. And lastly, it can be assumed that public-service and commercial broadcasters will switch off the last analogue transponders only once a "critical mass" of satellite households has opted for digital reception. The rate may be assumed to be between 90 and 95 per cent. Unlike in the UK, there is no legal specification in this respect. In solid figures, the rate of five per cent of satellite households corresponds to approx. 800.000 households.

The receiver situation

Following the look at TV homes, the analysis of the receiver situation provides the following picture: Just under one third (31.1 per cent) of German TV households own more than one TV set, the average being 1.4 receivers per household. Interestingly, the rate of digitisation increases with the number of sets in a household (Fig. 5). Some 65.9 per cent of households owning two sets are digital, while the rate for households with three or more sets lies at 66.3 per cent.

When looking at the total number of TV sets of 52.657 million, some 50.4 per cent are digital receivers; the rate is thus lower than the household average. For complete digitisation, approx. 6.1 million satellite receivers would have to be replaced while in the case of cable, it would be around 20.1 million sets.

This analysis could be relevant for future development. Broadcasters and network operators need to decide before switchover whether they want to define the "critical mass" according to whether in a household at least one receiver or all receivers are digital. This is an important issue for audience reach of the broadcasters, but also for the number of subscribers to cable. On the other hand, the question relates to the expense incurred in switchover. Switching off analogue satellite will not only force the remaining analogue satellite households to obtain new receivers, but with analogue satellite switch-off, analogue signal transport can be dispensed with. The network operators have two possible responses at their hands: either converting the digital signal into an analogue signal for trans-

mission without customers noticing at all ("re-analogise"), or stopping analogue cable transmission completely. As a consequence, cable customers would also need digital receivers. If replacement costs approx. 100 Euros per set, the expenditure for converting cable will come to around 2 billion Euros which have to be borne by the network operators, the customers or both.

From the viewpoint of the cable network operators, two factors need attention. One is the competition for so-called business customers which the Federal Network Agency noted, i.e. businesses active in the housing sector, or operators of level 4 networks. As long as there is still some demand for analogue contents, there will be providers prepared to satisfy this demand. Switching off the analogue signal would ideally require an agreement or a rule to secure simultaneous switch-off in all cable networks.

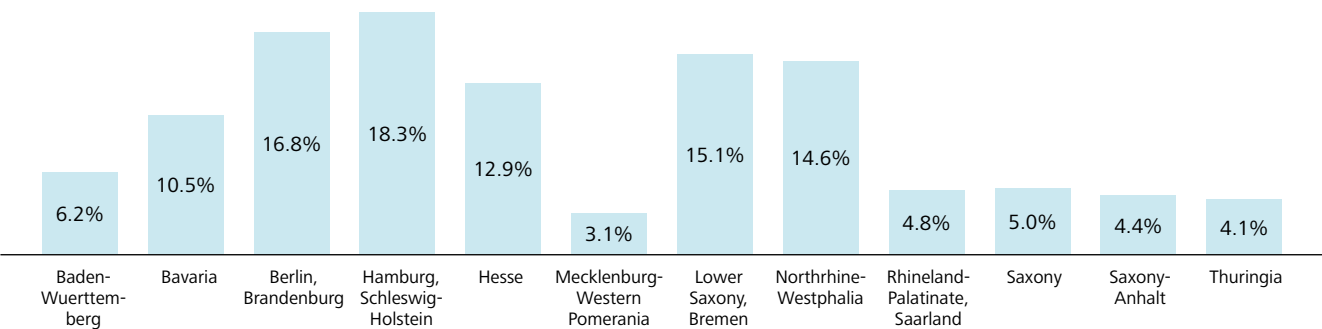
The second factor regards private customers. The stable relationship among the three classical transmission infrastructures may well be attributed to the fact that the cable operators have left their range of services unchanged for years in the past. Converging to exclusively digital satellite reception which would spark off additional expenditure for second and further sets might well cause viewers to consider whether to change their mode of reception. However, the cable operators are interested in retaining or possibly even extending their turnover base.

Switchover to DTT completed

Five years after the first analogue transmitters were switched off, terrestrial transmission is now completely digital. At the end of 2008, ARD and ZDF switched off the last analogue transmitters. Some 11.3 per cent (4.2 million TV households) use DTT for their TV consumption (Fig. 2). The rate of terrestrial reception thus remained stable. Last year, DTT rose by some 300.000 households as compared to 2008. The share of DTT households in relation to digital homes went down further, partly because DVB-C continued to grow (Fig. 4).

At this point it should be noted that the data quoted only refer to the type of reception by TV sets in the home. PCs or laptops with integrated DTT tuners were not counted.

Fig. 6 DTT transmission by German states



million TV homes
 Basis: 37.412 million TV households in Germany
 Source: ZAK 2009 digitisation report

DTT

The overall majority of DTT homes (87.6 per cent) uses this type of reception on the first TV set in the household, i.e. the television receiver most frequently used. DTT is therefore definitely used differently than merely on the second or third set in the home.

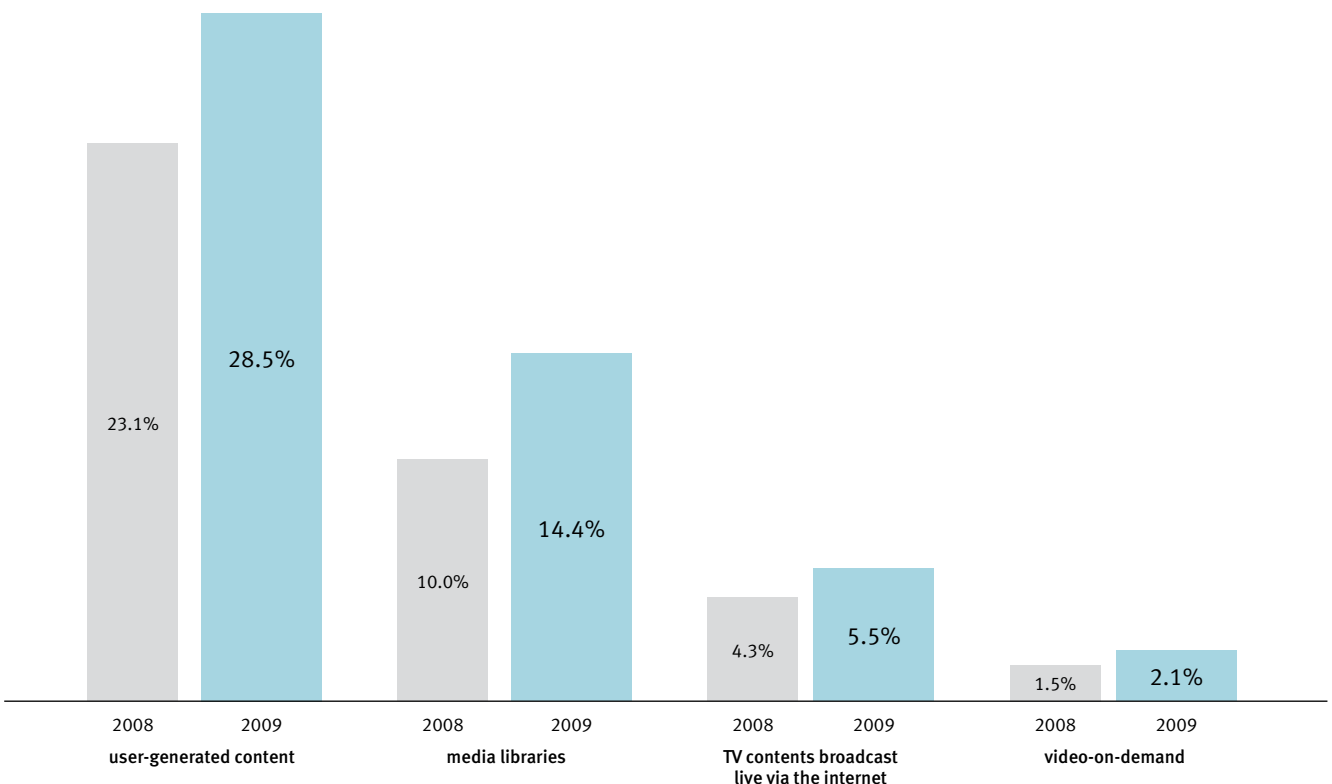
No major change could be observed regarding the regional distribution of DTT reception (Fig. 6). While regions where both public-service and commercial channels are available figure above average, other regions show below-average DTT reception rates. The start of the channels of the RTL Group in the Stuttgart and the Halle/Leipzig regions which is scheduled for this autumn will only be rateable in hard figures next year. This will be particularly interesting as RTL will go on

air with a new compression technology and some encrypted contents for which the receivers currently in the market cannot be used.

DSL: picking up speed

The number of households watching television over a closed DSL network is listed for the third year in succession, showing an increase for the first time. The share of DSL-TV households has now reached approx. one per cent. In line with the roll-out of DSL networks, the use in densely populated areas is above average while in less populated regions, DSL-TV is resorted to far less frequently.

Fig. 7 Video services available via IP-TV – already used



use in TV homes
 Basis: 37.412 million TV households in Germany
 Source: ZAK 2009 digitisation report

Media use in the internet

As last year, the German regulators in 2009 again surveyed the use of media in the internet. As a first finding, the number of homes with access to broadband internet has gone up. According to the persons questioned, around 37.1 per cent of TV households have access to bandwidths of 2 MBit/s or more; in 2008, the rate had been 32.6 per cent.

In the survey, four categories of media contents in the internet are distinguished: Web 2.0 contents such as YouTube, media libraries, web TV and video-on-demand. The share of households having used one of these categories once has risen for all four categories, with especially pronounced increases for the first two types. Compared to 2008, the number of Web 2.0 users increased by 5.4 percentage points to 28.5 per cent, while for media libraries, the share rose by 4.4 percentage points and now lies at 14.4 per cent (Fig. 7). The use of web TV, on the other hand, remained basically unchanged compared to 2008 at 5.5 per cent, while the rate for video-on-demand was stable at 2.8 per cent.

Looking at the results of the survey on the use of video contents in conjunction with the age of the person earning the main income of the household, a well-known observation can again be confirmed: It is above all "young homes" which use media contents in the internet. However, the discrepancy is larger for the so-called Web 2.0 contents than for media libraries. In the 14-29 age group, the share of TV households which have resorted to Web 2.0 contents already is already as high as 56.9 per cent, more than twice the rate among the 50-59 year olds (26 per cent). For media libraries, the rates are 27.3 per cent and 15.2 per cent respectively.

The media libraries available to date are only just being built up. A further increase in their use may well be expected if users integrate these archives in their media portfolios. In the light of the wide range of contents offered by the public-service broadcasters, use will certainly not be restricted to the young generation.

Every second TV home in Europe is digital

Christoph Limmer

During the last year, digital television in Europe could achieve a major breakthrough: At the start of 2009, for the first time every second home received its television contents via a digital infrastructure (satellite, cable, terrestrial or IP)¹. Some 122 million of the 243 million TV households thus watched digital TV, an increase of more than 24 million (or 25 per cent) compared to 2008.

The rate of digitisation varies from region to region. While in Western Europe, an average 58 per cent of households resort to a digital infrastructure for their television consumption, the share in Eastern Europe only just tops 20 per cent. One reason for this difference is the fact that in Eastern Europe, digitisation started much later than in Western Europe, while digital reception in the countries in central and Eastern Europe is dominated by satellite. In this content, it is worth taking a look at the state of digitisation of the various infrastructures across Europe. At the start of this year, nine out of ten satellite homes could get their TV channels in digital quality; digital terrestrial transmission is far lower at 35 per cent, as is digital cable (27 per cent). To further digitisation in the future, these two infrastructures in particular require increased investment in technology and comprehensive programme contents.

As in the last few years, the majority of TV households covered by the ASTRA footprint at the beginning 2009 watched digital TV via satellite. Around 52 per cent or just under 64 million TV households are primarily supplied via this in-

frastructure². This corresponds to an increase of 7.1 million households or 12 per cent compared to last year. In 2008, the largest increase in absolute figures among the infrastructures was noted for digital terrestrial television. Over the last 12 months, more than 8.6 million new homes opted for DTT, an increase of 38 per cent. DTT thus supplies 32 million or 26 per cent of all digital TV households. As last year, digital cable reception holds third place with 19.7 million households (an increase of 5.4 million over 2008) while 6.9 million households at the start of 2009 primarily watched television via an IP-based infrastructure – an increase of 80 per cent.

As is the case for the rate of digitisation, the reasons for choosing digital TV reception also differ widely across Europe. New technologies and applications such as high-definition television (HDTV), personal video recorders (PVR) or triple play lent dynamic drive to markets especially in Western Europe. By contrast, the majority of viewers in central and Eastern Europe went for digital infrastructures mainly because of the variety of channels and the better audio and video quality of digital services, thereby pushing various markets to three-digit growth rates.

In the international comparison, Germany with a digitisation rate of 53 per cent maintained its position in the middle of the field and ranks just slightly above average³. At the start of 2009, 20 million households received digital television, an in-

1 Source: SES ASTRA Satellite Monitor

2 35 countries within the ASTRA footprint

3 As this digitisation report analyses Germany only, the data of the ASTRA Satellite Monitor are used for the international comparison (survey conducted at the end of 2008).

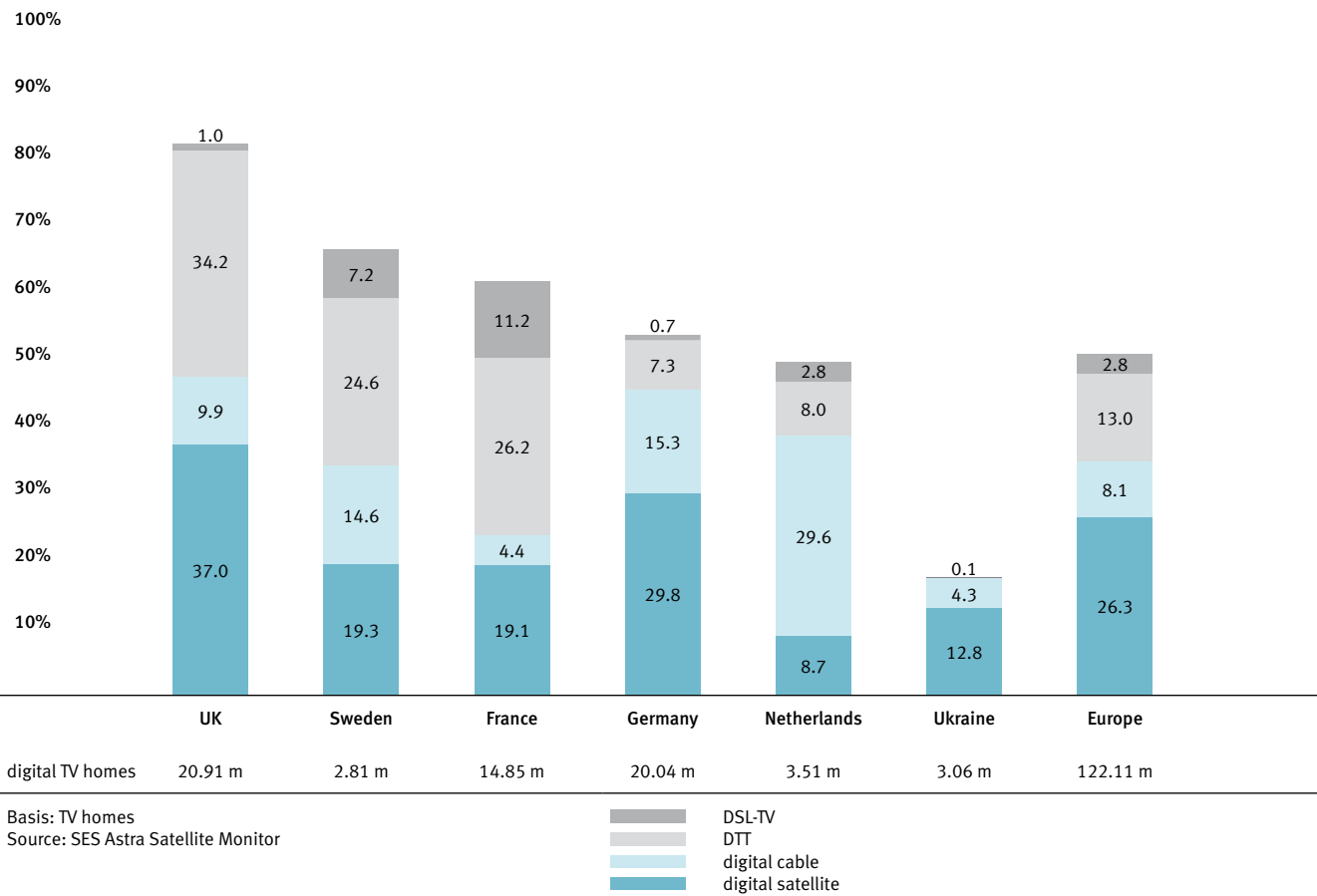
crease of 28 per cent. A comparison of the rate of digitisation for the various infrastructures shows considerable differences across the German TV market. While analogue-only terrestrial reception has basically disappeared, almost 18 million homes in Germany continue to watch TV via analogue satellite or cable, with the latter certainly having a longer way to cover to become fully digital.

The Netherlands face similar challenges in relation to the digitisation of cable which is used by as many as 80 per cent of homes. Last year, almost half a million households decided to switch to digital cable reception, pushing the share of digital cable up to 37 per cent, but more than 3.5 million households continue to watch analogue cable TV. The fact that cable reception overall went down in the Netherlands in 2008 while digital satellite reception saw a slight rise could be due

to the fact that analogue cable households increasingly resort to alternative infrastructures to go digital. Being forced to get a set-top box anyway appears to promote thinking about whether to stick with the old mode of reception or not.

Irrespective of the difficult economic situation, Ukraine last year scored the highest increase in digital reception. The number of households receiving digital content went up by more than 180 per cent to 3.1 million homes. This development is driven particularly by satellite reception which rose by 1.7 to 2.3 million households, corresponding to a market share of 85 per cent of the digital market in Ukraine. The cause of this dramatic increase is the greater choice among attractive contents including channels from abroad which are available free for consumers. In the past, satellite reception in Ukraine had basically been of minor relevance only; however,

Fig. 8 Digitisation in Europe



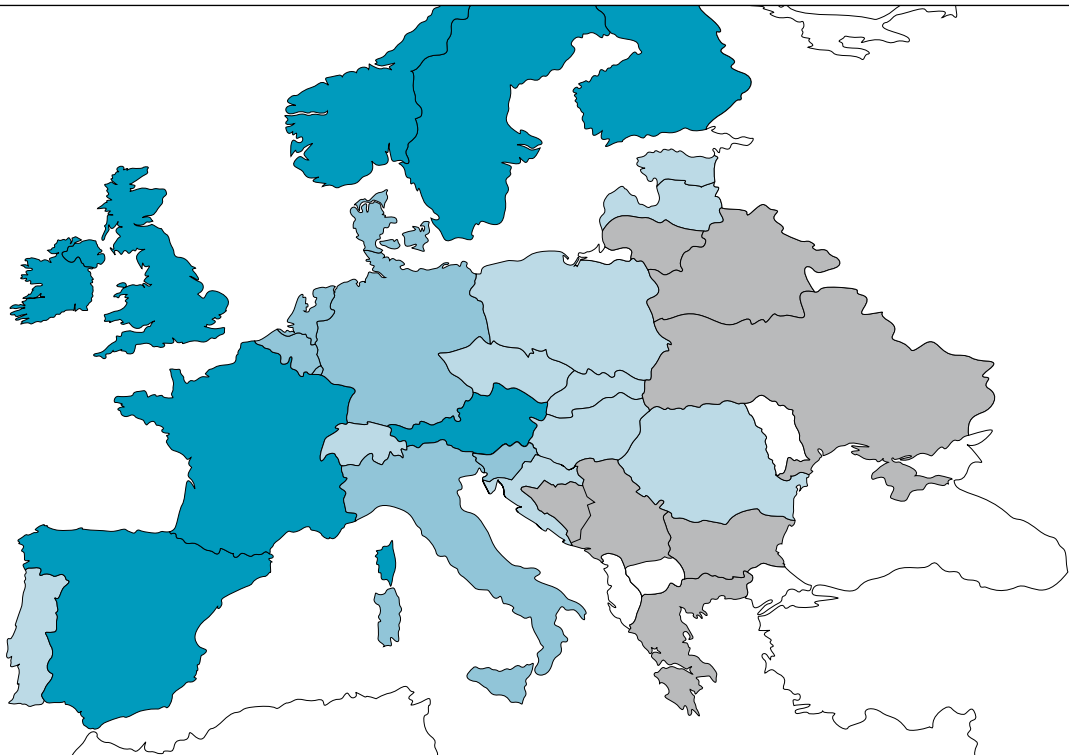
it experienced a major change with the first pay-TV platforms going operational in the middle of last year. Consumers discovered the benefits of the digital world and the opportunities on offer, resulting in a very high demand for digital contents within a very short period of time. Digital terrestrial transmission in the Ukraine is still at an early testing stage, and consumer interest in digital contents can therefore be met only via satellite.

The highest rate of digitisation can still be observed for the United Kingdom which even managed to extend its lead over all other countries in the ranking last year. Continued success is due mainly to the fact that with the exception of terrestrial TV, all infrastructures are already digital and the benefits of digital TV are persistently communicated to television households. At the start of this year, some 82 per cent of the 26 mil-

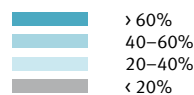
lion British TV households had digital TV, an increase of ten per cent over last year. Among the digital infrastructures, digital satellite reception, above all BSkyB with its "SkyDigital" range of pay-TV channels and the "Freeview" DTT service hotly competed for the lead in the market.

In the UK, the influence of applications such as personal video recorders (PVR) or high-definition television (HDTV) on digitisation can be particularly well observed, with the trend noticeable for both pay-TV and free TV services.

Fig. 9 Digitisation of TV households



Source: SES Astra Satellite Monitor



Of the 9.3 million BSkyB subscribers, more than five million already use a digital video recorder while more than a million homes have opted for high-definition television (HDTV)⁴. As regards Freesat, a successful initiative launched jointly last year by the BBC and ITV, consumers mainly use an HDTV-ready box for receiving contents via satellite. Of the more than 400,000 Freesat homes, 80 per cent can receive HD contents as well as more than 140 TV and radio channels without any extra cost; a receiver including a digital video recorder has also been available for a little while now⁵. As a result, more than 1.3 million households in the UK watch high-definition television, roughly the figure of HD viewers in all other countries of Europe put together.

The large number of digital programme contents as well as added-value services will continue to persistently push digitisation forward, with the UK becoming the first major European TV market featuring full coverage with digital TV infrastructures.

In the digitisation league, the UK is followed at some distance by the Nordic Countries (Norway, Sweden and Finland). In all three markets, two out of three TV homes receive their range of TV services via a digital infrastructure; however, penetration of digital reception did not change greatly over the last year. This could be mostly due to the fact that digital service providers last year concentrated more on competing against each other than on winning over the last analogue households. In Sweden, IP-based and digital cable services last year acquired more homes at the expense of DTT and digital satellite reception. The number of analogue homes, however, remained comparatively static at 1.5 million. As terrestrial supply is available across large areas and all infrastructures are well established, digitisation can be expected to continue despite the short breathing space with full digitisation to be reached over the coming years.

Lastly, a look at France shows that ongoing digitisation resulted in an increase by almost 30 per cent last year. Some 15 million homes are now digital, corresponding to a rate of digitisation of 61 per cent. Comparing the major European

TV markets⁶ as regards digitisation, France has thus reached second place behind the UK. Progress results above all from the great acceptance of TNTSAT and the success of IP-based contents in the French market. Similarly to Freesat in the UK, TNTSAT additionally distributes the digital terrestrial channels via satellite; at the start of the year, more than one million smart cards had already been activated for Freesat reception⁷. French consumers, however, also continue to strongly demand IP-based contents, and the available high bandwidths in combination with low prices contribute considerably to driving customers to opt for IP-TV reception. Of the 6.8 million households across Europe which exclusively watch TV via this infrastructure, 40 per cent are located in France, putting the country in the lead in Europe. This proves that an offensive strategy for triple play as driven by the internet service providers offering comparatively low prices can provide consumers with attractive options.

In the coming months, public opinion and the political debate at the European level will focus on the issue of the considerable gap in the rate of digitisation between Western and Eastern Europe and how to narrow it. The current economic difficulties worldwide will impact developments especially in the countries of central and Eastern Europe as the digitisation of analogue infrastructures requires considerable financial input. For reasons of efficiency, cooperation between digital infrastructures of one form or another such as the Freesat or TNTSAT models demonstrate, could take place more frequently to drive digitisation as quickly and at as little cost as possible.

But even the German-language areas (Germany, Austria, Switzerland) still has some way to go to reach the rate of digitisation of France or the UK. At the beginning of this year, almost 21 million homes (47 per cent) still watched TV using an analogue infrastructure. Some effort is thus still needed to win these households over to digital reception in the coming years.

4 BSkyB Quarterly Report per 31 March 2009, see www.sky.com

5 www.freesat.co.uk

6 The major European TV markets include the UK, France, Germany, Italy, Spain and Poland.

7 www.tntsat.tv

Methodology

This survey employed computer-assisted telephone interviews (CATI) on the basis of the telephone random sampling system used by the "Arbeitsgemeinschaft der deutschen Marktforschungsinstitute" (association of German market research institutes, ADM). The interviews were held during the period 20 May – 27 June 2009. The survey was carried out by TNS Infratest MediaResearch on the basis of a questionnaire which largely corresponds to the German Satellite Monitor of SES Astra. By aligning the survey instruments, the results of the two surveys can be better harmonised.

The overall population basis for the survey was represented by all German-language private households in Germany. Since the 2007 survey, the projection has no longer been based on German households only, but also includes households of non-Germans, resulting in a total of 39.14 million households. Of these, 95.6 per cent (37.41 million) own a television set, forming the basis for the presentation of results. The survey was based on a net number of 6,000 interviews. In each case, the interview was conducted with the person in the household stating that they knew best about television consumption and reception in the household.

The 6,000 interviews were conducted disproportionately in order to warrant a sufficiently solid basis for each German state. In Northrhine-Westphalia, Hesse, Baden-Wuerttemberg, Bavaria, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt and Thuringia, 500 interviews each were carried out. In Lower Saxony, 350 interviews were conducted while in Bremen, 150 households were interviewed. In Schleswig-Holstein, 300 interviews were held. In Hamburg, 200 interviews were conducted. In Rhineland-Palatinate, 300 interviews were carried out while in Saarland, 200 interviews were conducted. In Berlin, 300 interviews were carried out while in Brandenburg, 200 interviews were held. This disproportionality was balanced later during weighting to give representative results on a "total" basis.

Defining cable and satellite reception

Television sets connected to a satellite master antenna system (SMATV) which require no separate receiver for TV reception are counted as cable reception. In these households (approx. 375.000 homes), the high-frequency satellite signals employed for transmission are converted for transmission in the low-frequency SMATV cable networks. The range of services available is pre-defined as is the case for customers supplied by level 3 network operators. Satellite reception therefore only comprises television sets using a satellite receiver. The rationale for this definition is that the survey was devised to analyse reception from the viewpoint of the television households.

Establishing transmission platforms and transmission technologies

For each of the television sets in the households investigated (with up to nine sets being counted), all available transmission platforms were analysed. Households receiving both terrestrial and satellite services with the same set were included in both transmission categories for the analysis of television reception in the homes. As can be seen in Fig. 2, this can in some cases result in a sum total exceeding 100 per cent. The 2.7 million PCs which can receive television are not included in the analysis.

In the analysis of the transmission technologies (analogue or digital), cable reception forms an exception: Television households with cable reception using a television set which is connected to a digital cable receiver tend to use the receiver for reception of digital pay-TV only. The services available free-to-view are usually watched in analogue transmission mode. As this form of simultaneous analogue and digital reception does not exist for satellite distribution or terrestrial transmission, all cable television sets with a digital receiver are counted as digital receivers for the benefit of uniform presentation.



Regulating platforms and securing digital access: the remit of the regulatory authorities

Digitisation means radical change: It widens the range of contents available and thus generates a need for a new basis of funding, it overcomes the barrier that traditionally separated media and thus puts their traded financing models into question. Digital transmission infrastructures and digital receivers bring new challenges for users facing navigation and orientation. Even if television still retains its lead position for the formation of public opinion and broadband cable holds on to first place among infrastructures in Germany, the classical positions of power are waning. In their place, new key players battle it out for top place, especially as concerns platforms.

Digitisation means major new tasks for media legislation and media politics: The issue at stake is no longer the allocation of scarce and therefore valuable transmission capacities to foster the variety of services on offer. The classical objective of securing and supporting a varied range of media contents now has to be achieved by resorting to new means which are determined by the digital era, independently of transmission infrastructures, receivers and technologies. The convergence of the media is matched by the broadcasting order evolving into a media order.

Regulating platforms

The former clear separation between media contents and their distribution is giving way to vertical integration: Network operators are no longer mere transporters of contents, but put together contents and market them to their customers. They gain influence on receivers and the way in which they are used. The principle of receiving all broadcast contents on

one set which was a truism in the old days can nowadays be realised only under complex technical and economic conditions.

The convergence of transmission infrastructures on the other hand generates new choices for the consumer: he can now watch TV via the fixed telephony line, make telephone calls or surf the internet using the cable network. Television becomes portable and mobile, as does the internet. Regulation has to face the challenging task of securing variety of choice for consumers and warranting identical conditions for the competition of platforms while at the same time taking into consideration the specificities of each use with regard to their relevance regarding the formation of public opinion.

The 10th amendment to the Interstate Broadcasting Treaty has adopted a technology-neutral approach concerning platform regulation for which the regulatory authorities now have developed concrete provisions. The statute on access and platform regulation which entered into force on 03 March 2009 merges platform regulation and the rules for securing digital access.

Digital access

Access to media represents a core element of any media order. Securing access has to take various forms: For one thing, access to networks and technical platforms must be ensured for the providers of contents and services. For another, the concentration of power of opinion must be prevented as has been the case for a long time. Access in particular for new and innovative enterprises is much more important for the forma-

tion of public opinion than in industrial life in general. The negotiating clout which the major television groups hold in the digital world must also be taken into account. And lastly, access to a varied range of media contents must be safeguarded for consumers and citizens. They have to be protected in their sovereign choice and navigation through contents, irrespective of the extension of technical options impacting their behaviour as users of media.

Analogue–digital switchover

The transition from analogue to digital transmission holds great opportunities both for the media industry and for consumers. Organising it to the benefit of all involved presents a great challenge for media regulation. In the case of terrestrial TV transmission, the regulatory authorities successfully moderated an extension of the range of contents which respected the interests of consumers. For cable as the most important transmission platform, this challenge has yet to be mastered. The satellite switchover process also lends itself to the support of the regulatory authorities.

Tools of regulation and convergence of the media

Moderating and balancing the differing interests constitutes a major element of platform regulation which takes its position between content providers and platform operators, consumers and media providers.

When it comes to the digital world, managing scarce resources is no longer the key concern. The issues at stake are specifications for digital receivers, provisions for channel listings and electronic navigation, specifications for the packaging of contents and fine-tuning the framework applying to individual providers.

Digitisation has led to increased overlaps between media and telecommunications law; as a consequence, cooperation with the Federal Network Agency has been strengthened. The changes of the economic framework which characterise the process of digitisation also raise competition issues. However, media politics still has to take on the challenge of deciding on the structures of the industry and ensuring openness, not only with a view to economic considerations.

The regulatory authorities in their neutral position can follow up the objectives set by the legislator and safeguard the interests of consumers and citizens. They meet the task of ensuring transparency for digital developments and offering advice to politics.

The Regulatory Affairs Commission (ZAK) is bundling these remits through its representative for platform regulation and digital access and his senior staff who prepare the decisions of the ZAK with the support of the expert staff of all regulators.

Copy date: July 2009

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Glossary

Addressability

A receiver or connexion will be clearly and individually identified by a service. This enables service providers (e.g. cable operators) to activate a service or channel for specific receivers, for instance for subscribers of programme packages while keeping it disconnected for others. Activation is usually effected employing encrypted signals and a so-called smart card. In the case of IP networks, every connexion is identified by its IP address. In contrast to broadcast networks, the signals or contents are not automatically available for every consumer, but are targeted at users who have requested specific contents. Addressability differs from the identification of users; e.g., smart cards can be obtained anonymously.

basic encryption

encryption of all contents transmitted via one transmission platform to allow access for entitled users only.

bouquet

bundle of programmes and/or services (e.g. → EPG).

Common Interface (CI / CI+)

standardised interface via which a conditional access module (CAM) in the form of a plug-in card can be inserted into the set-top box. CI+ as the CI successor system is to provide better copy protection. The date for introduction has not yet been fixed.

digital dividend

transmission spectrum freed up as a result of digitisation, as digital transmission of contents takes up less frequency capacity than analogue transmission.

DSL (digital subscriber line)

telephone line used for high bit rate transmission. ADSL: asymmetrical digital subscriber line. Data rates in the downlink are up to 6 MBit/s; ADSL2+ up to 20 MBit/s. VDSL: very high bit rate digital subscriber line: up to 50 MBit/s in the downlink.

DSL-TV

DSL-TV: transmission of contents and telemedia services via wired DSL networks. Transmission is based on the internet protocol (IP); the term "IP-TV via DSL" is therefore equivalent to DSL-TV → IP-TV.

DSL networks are comparable to traditional cable networks in that they are accessible only for closed user groups against subscription and the content provider offers only a pre-defined, limited range of TV contents or telemedia services.

As a system-inherent feature, each customer point is individually connected to the point of delivery for the TV and telemedia services of the network and provides a return channel. This permits the definite addressability of the user. In addition, interactive applications can also be realised at acceptable cost.

DTT-2

successor standard to DTT, aiming in particular at more efficient encoding and allowing for encryption.

EPG (electronic programme guide)

electronic programme guide, an application allowing search and selection of digital TV services in the form of an "electronic" TV magazine and in many cases also offering other functions such as programming for recordings or access to recorded broadcasts, media libraries or similar.

HDTV (high-definition television)

high-resolution technology using a 16 : 9 aspect ratio and a minimum rate of $1280 \times 720 = 921.600$ pixels (full HD: 1920×1080 pixels).

IP-TV (internet protocol television)

television delivery using the internet protocol. The term does not, however, specify the network used for transmission. This requires additional data, e.g. IP-TV via DSL. In general terms, IP-TV is often equated with DSL-TV for the purpose of distinction from → Web-TV.

MHP (Multimedia Home Platform)

standard permitting the transmission of digital contents in the sense of an extended, more modern videotext as well as interactive applications. MHP could not establish itself in the market; in Germany, there are hardly any MHP-ready sets available in the market.

mobile TV

transmission of multi-media contents to handheld devices. Transmission can be along different routes, e.g., mobile internet or broadcast infrastructures featuring standards such as DMB (digital multimedia broadcasting) or DVB-H (digital video broadcasting for handhelds).

MPEG (Moving Pictures Expert Group)

related group of standards compressing audio and video signals. For TV transmission, MPEG 2 and MPEG 4 are usually employed with MPEG 4 offering higher compression rates. MPEG 4 is used for HDTV transmission.

navigator

system indicating and starting digital programmes based on service information (SI) transmitted in the DVB transport stream. The navigator or base navigator provides only basic technical functions; by contrast, the EPG also offers contents and extended services.

set-top box (STB)

receiver device for digital television. For the various transmission platforms (satellite, cable, terrestrial, DSL), different types of set-top box are required.

simulcast

simultaneous transmission of contents (programmes, services) of the same type on different platforms (e.g., analogue and digital cable).

SMATV

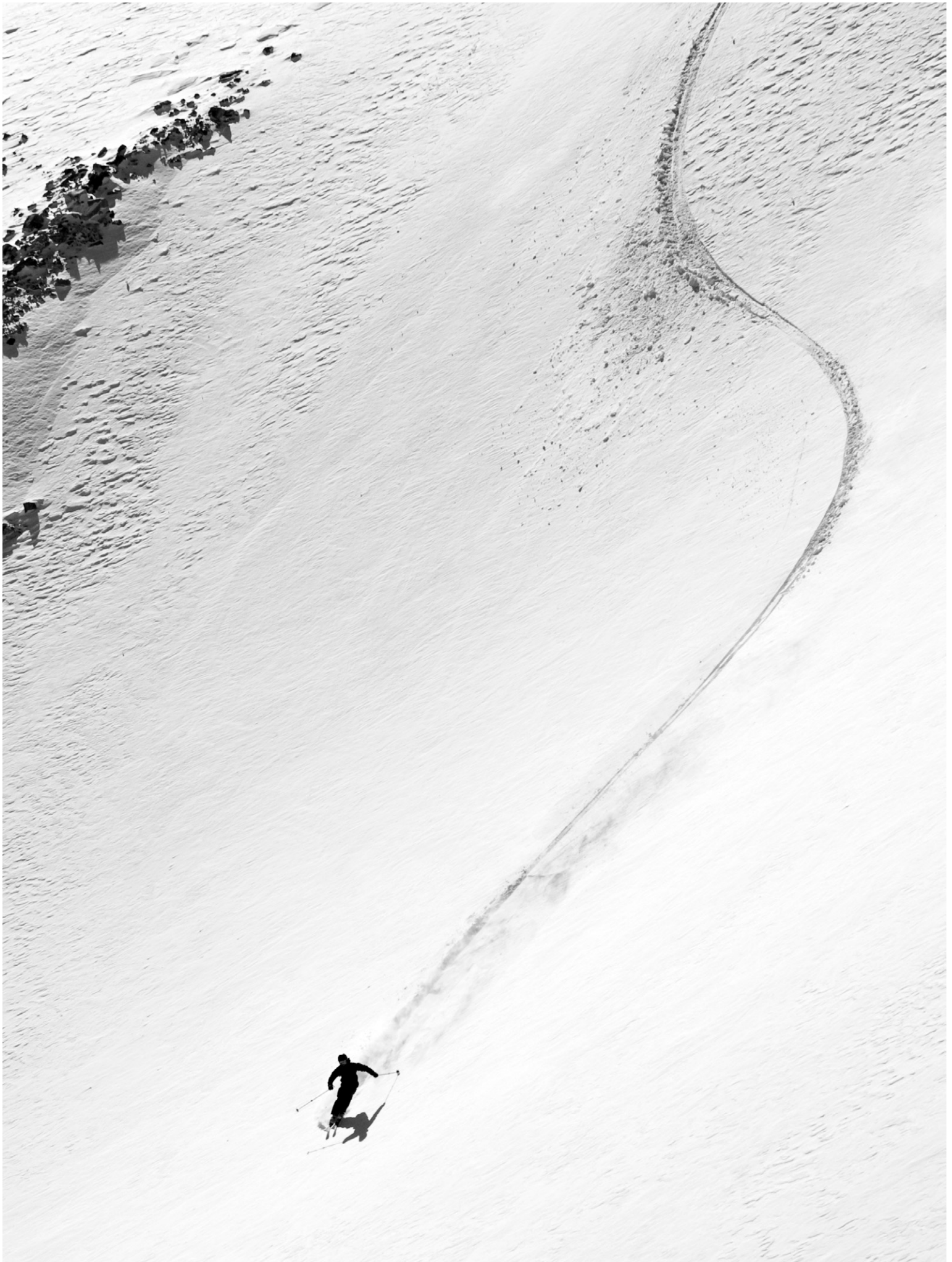
satellite master antenna system using multiple satellite and broadcast cable signals to create a single integrated cable signal for distribution to a cabling network for several flats or houses.

triple play

Simultaneous supply of broadcast contents, internet access and telephony services.

Web-TV

"internet television" accessible in the open internet. In contrast to DSL-TV, the range of services is not linked to a specific (internet) provider whose contents are packaged by the provider of the infrastructure. Web-TV is available across the entire world-wide web as long as the bandwidth permits sufficient transmission quality. Independently from the unrestricted distribution across the www, contents can be encrypted and necessitate registration and/or activation.



Published by Kommission für Zugang und Aufsicht (ZAK)
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SES ASTRA, Luxemburg

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der Landesmedienanstalten
Regulatory Affairs Commission
of the State Media Authorities of Germany

design Rosendahl Grafikdesign, Berlin

The fifth report on digitisation presented by the German regulatory authorities shows that since 2005, the rate of digitisation in Germany has doubled. Today, 55 per cent of television households can receive TV via a digital infrastructure. As the first classical platform, terrestrial transmission has completed analogue-digital switchover. Cable, satellite and terrestrial transmission have been complemented by DSL-TV as an additional distribution platform. Media libraries blur the line between broadcasting and the internet. A number of manufacturers offer TV receivers featuring internet access which brings online services such as YouTube or media libraries into the sitting room as pre-installed contents.

For the providers of professional broadcasting, funding has turned into the key issue. The option of time-shift use makes advertising revenue for financing in the traditional manner more difficult while very few homes as yet have receivers featuring addressability for subscription or pay-per-view offers.

The 2009 digitisation report describes and analyses current developments, outlining aspects such as navigation and the use of media usage by young consumers. It also presents the results of the surveys on digitisation.