

# Digitisation

All in flux – new forms and old patterns

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Friedrichstraße 60  
10117 Berlin  
Tel: +49 30 206 46 90 0  
Fax: +49 30 206 46 90 99  
E-Mail: [digitalisierung@die-medienanstalten.de](mailto:digitalisierung@die-medienanstalten.de)  
Website: [www.die-medienanstalten.de](http://www.die-medienanstalten.de)

**Responsible for contents**

Thomas Fuchs  
Andreas Hamann

**Editors**

Lisa Keimburg  
Dr. Kristian Kunow

**Lecturer**

Lisa Keimburg

**Translator**

Johanna Fell

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# Preface



**Dr. Jürgen Brautmeier**

Chairman of the Commission on Licensing and Supervision (ZAK) of the German media authorities



**Thomas Fuchs**

coordinator of the expert committee on communications networks, technology and convergence of the media authorities

The present report of the German media authorities presents the tenth analysis of the digitisation of broadcast reception and its progress. Traditional broadcasting infrastructures still have some way to go to complete digitisation; however, the report now also increasingly focuses on the internet. It is therefore no surprise that it has long since developed into a documentation of convergent television and video consumption, taking a further step in this direction this year.

Last year's report took an in-depth look at the question of the synthesis of broadcasting and the internet. This year, we have to state that everything is in a state of flux. The transitions among the modes of reception and receivers for TV and video content are blurring more and more and are hardly noticeable any longer – at least for viewers or consumers. However, digitisation per se also more and more resembles an unstoppable river. – What is being created by these developments can hardly be forecast. Frequently, completely new products are generated, for instance smart TV sets and smartphones allowing viewers to take Hollywood films directly from the sitting

room to the underground. Hidden below the surface of these new digital forms, however, familiar patterns shine through.

In his article entitled Cable-ization of the Internet, Dr. Hans Hege draws the attention to a familiar pattern which could re-emerge in a new form. Control of access to the consumer in the cable networks has always been the preserve of the network provider. This type of control is now also under consideration for the internet to permit offers of privileged access. Dr. Hege outlines the consequences of such a development for net neutrality and media pluralism.

In the section on facts and figures of the report on digitisation, the media authorities present the current status of digitisation. As in the previous years, the data concerning radio and TV reception were collected in Germany, and similarly to last year, the survey was extended to now also allow for findings concerning the personal relevance of the various types of digital end device, based on the results which are representative for the population and relate to the individual use of EPGs, connected TV, OTT offers and mobile receivers.

Lastly, the report on digitisation looks beyond Germany at the developments elsewhere in Europe. There, too, digitisation is making progress, as is outlined in the international data presented in the article by Mario Hubert.

The characteristics of digitisation, generating more and more new forms as a constantly moving river without displacing older patterns altogether, presents new challenges, not least for media regulation. It is evident that a strategy of forcing the river into a straight riverbed to channel it or of creating artificial reservoirs cannot be the solution. It is therefore all the more important to protect valuable biotopes where this is necessary.

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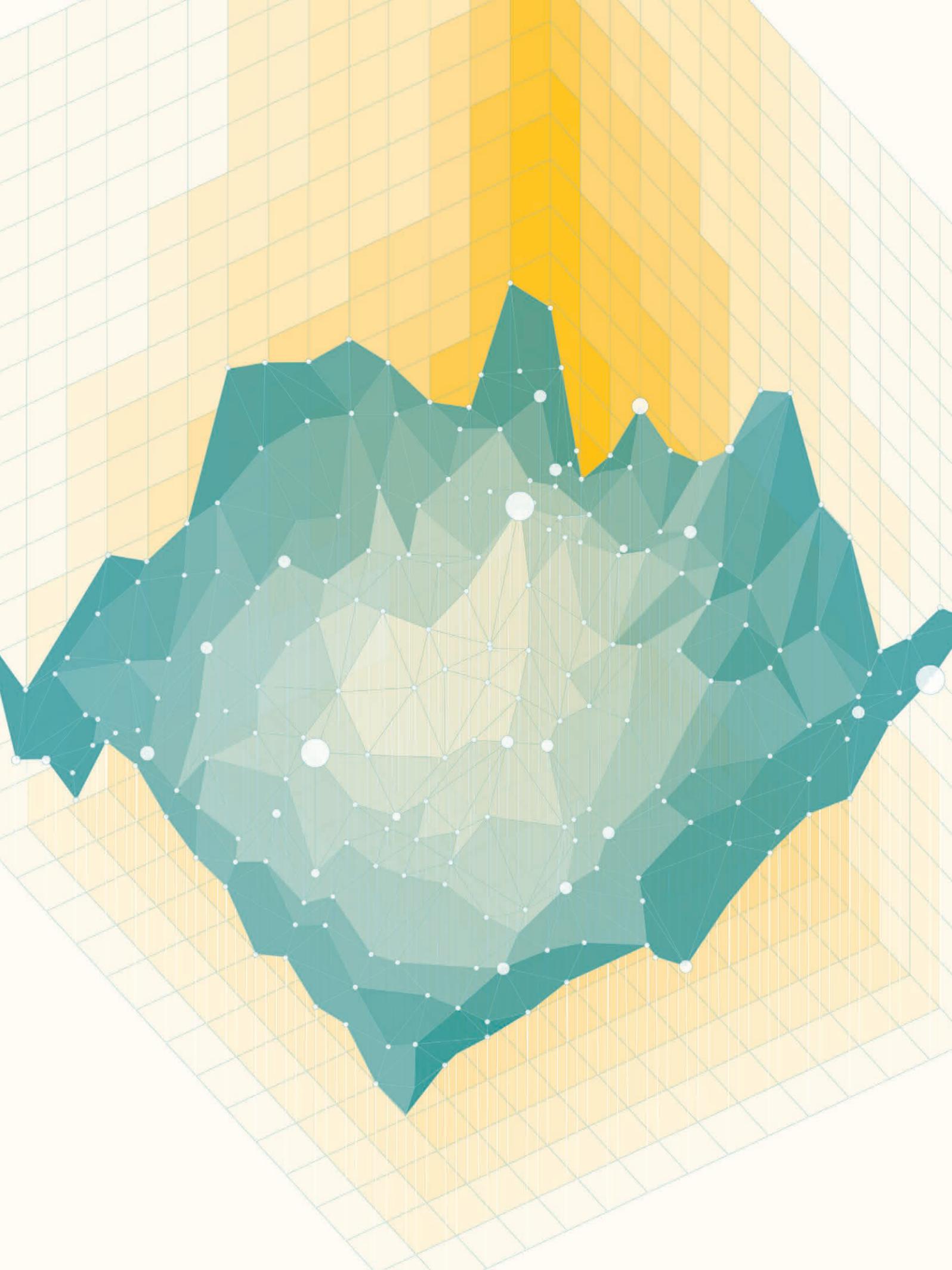
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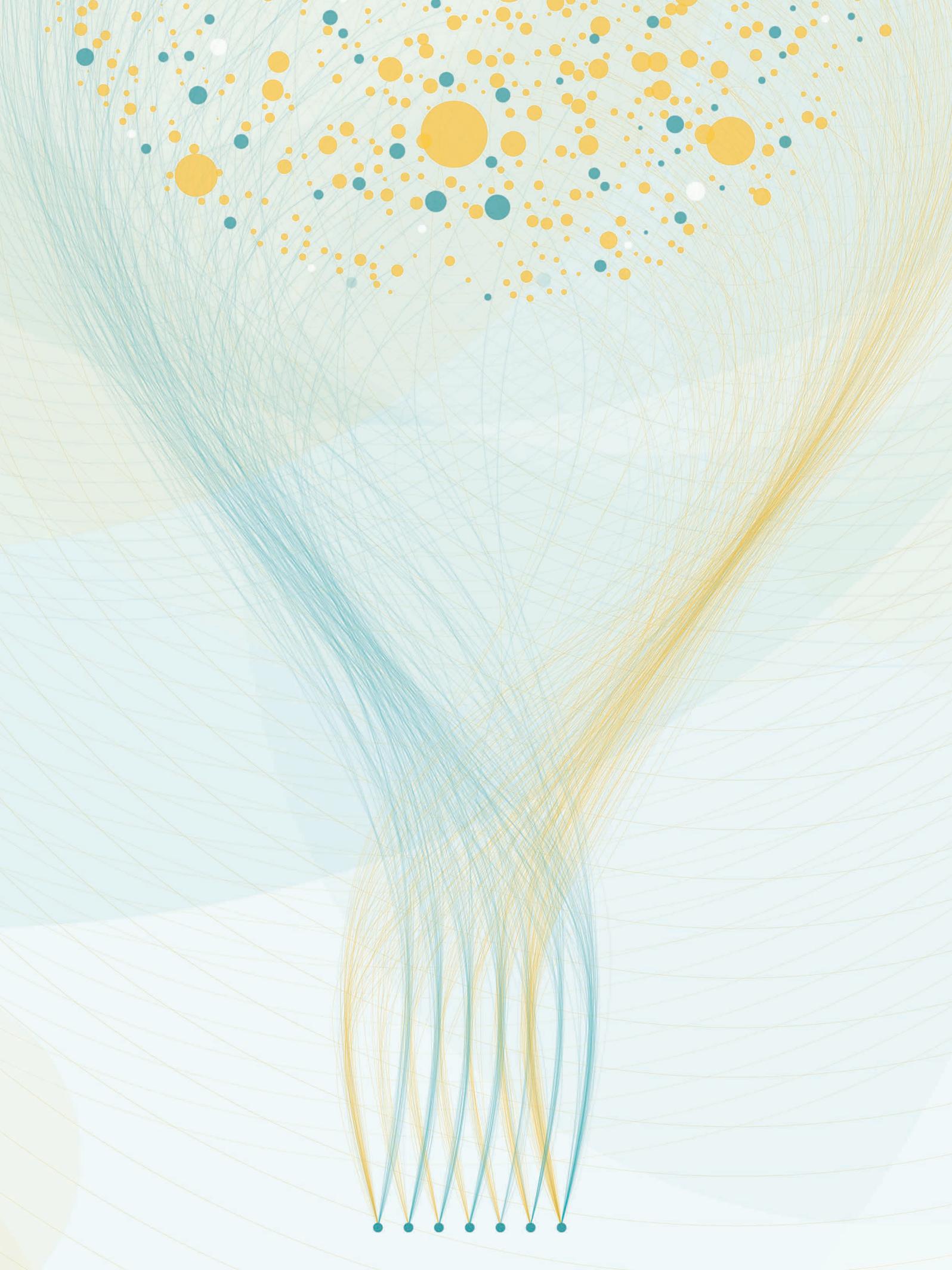
*Johannes Kors*

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# Cable-ization of the Internet – what TV cable can teach us about the importance of net neutrality for pluralism of the media

Dr. Hans Hege

The debate about whether and which additional safeguards for net neutrality are needed is led at all levels, be it in the European Union, for national legislation or for state media laws. A similar discussion is taking place in the United States. The telecommunications industry – using the argument of funding infrastructure – demands that alongside the best effort internet which on principle applies the same standards for all data packages, special services should be possible. Enterprises causing the greatest amount of data traffic (and striking deals with the data of users) should shoulder part of the costs. In return, they are offered the extension of a fast lane guaranteeing secure quality. In addition, they are to be exempt from the volume limitations that otherwise apply.

This would particularly negatively impact audiovisual media – from linear television right down to YouTube – due to the high data volumes needed per time unit, and the ever-growing duration of consumption. All forecasts predict that the lion share will continue to be made up by videos. The significance of the internet for the distribution of professional audiovisual media will grow further,

with consumption going towards non-linear usage and to portable and mobile reception on a large number of receivers.

Meanwhile, consumers are not ready to pay for transmission and audiovisual media content in line with the data volumes they use. This is challenging the traditional business models of network operators who used to generate considerable turnover with the small data volumes incurred in transporting voice telephony and SMS.

## The IPTV platform and the issue of licensing special services in the internet

One special service already exists: IPTV, a bundle of TV programmes and video offers transmitted via DSL in a separate section. Services are bundled in a manner similar to digital broadband cable. The offer is subject to platform regulation which is provided for in German media law. It presents a combination of a number of specific factors which cannot readily be transferred to the internet in general as it concerns a limited number of TV channels offered in competition to broadband cable, thus extending choice for consumers.

The key question therefore is whether special services for all audiovisual media offers are permitted as an alternative to the open internet, i.e. media libraries, video-on-demand platforms, audio platforms such as Spotify, or edited offers such as bild.de.

This issue can and must be looked at separately from other applications frequently quoted as examples proving the need for licensing special services – from the transmission of medical data to the control of driverless cars. Whereas these services still have quite some way to go until application starts in practice, the issues concerning the media are already of practical relevance, from Spotify to Netflix.

### Special services and their impact on media pluralism

As far as audiovisual media are concerned, the question is what impact on the media a situation exerts in which comparable services can be transmitted via the open internet, but also via a special service offering specific quality in the overtaking lane and/or without any relevance for volume limitations.

The linear transmission of television services in the open internet including the platforms which bundle them (e.g., Zattoo or Magine) presents a special case which is a consequence of enabling IPTV. It does not guarantee the same transmission safety and quality as IPTV and broadcast transmission infrastructures based on separate network structures. The transmission in the open internet – at least so far – is considered a complement rather than a substitute by consumers.

The situation becomes more complex as far as video-on-demand platforms are concerned where cable and IPTV provide specific quality for the offers of the network operator, including the use

of the transmission technology of the linear services. This concerns media libraries provided by television broadcasters which can be received in better quality via the offers of cable companies than over the open internet. What must be prevented on principle is that – as is the case for cable television – an operator's own offers are given preference at the expense of the offers of third parties. Although it would be technically possible, network operators are rarely required to open their networks for virtual platforms of other providers. This could be an argument to underline that one's own video-on-demand service is acceptable as long as it is based on the same technology and as long as the development of comparable platforms in the open internet is not impeded.

A different situation applies for the general offer of a fast lane or for exceptions from the volume limitations against specific payment. This directly affects the competition among external providers. It can be linked to complex agreements which may even include marketing elements and the sharing of risks.

Special services of this type build on a central element of the cable which does not exist in the open internet: access to the end-customer is controlled. Only providers who have taken out an agreement with the network operator will get through (in the open internet, every provider has to take out his own necessary technical arrangements for bringing content into the internet, with economies of scale applying for the majors, but the provider does not have to seek the agreement of the respective network operator to reach his end customers).

The last mile is key as concerns access to the media. The greatest part of audiovisual media consumption is effected via fixed-line networks and their extension by WiFi. In this constellation,

competition is limited. If – in the medium term – there will be only one broadband connection which in return is very effective, then the operator potentially controls the media consumption of the connected households.

### TV cable as a model?

A large percentage of households in Germany to this day has no choice of cable operator. In these homes, there are two physical fixed lines allowing for sufficient media offers. A large percentage is controlled by just two companies: Telekom and Vodafone (Kabel Deutschland). The higher the costs for investments required for extending the networks, the fewer providers will be able to shoulder them. Telephony and broadband cable in the homes could still be provided via copper cable and be set up and funded separately; for fibre optics, only one network can be funded. This affords these providers more influence than might be suggested by examples quoted in favour of special services: Media content transported to the end customer is claimed to be comparable to preferential and specially funded sales areas in a supermarket or the presentation of highly attractive media at the newspaper kiosk. The difference is that special sales areas in a supermarket or a special presentation at a newspaper stall will have no impact on the quality of the product itself. If, however, the HD stream of a video will only reach the customer smoothly as a special service, this is clearly the case.

Compared to the television cable, at least two extensions of the options to those regarding special services are under debate. However, neither of them is particularly suited to do away with the risks for innovation and plurality:

Firstly: In the open internet, each provider can still reach consumers without specific agreements,

but some are better able to do so (and at higher costs, be it for the providers, be it for consumers). This does not only result in the problem of reduced opportunities of use in the open internet, but also reduces the chances of the open internet being extended: The fast lane will become all the more attractive, the greater the tailbacks become on the standard lanes. How well such scarcities are suited to fund business models can be seen in the very development of broadcasting, the broadcasting frequencies just like the scarce analogue cable channels. It will be rather difficult to fight against the economic incentives by regulating a minimum standard for the open internet.

Secondly (and so far by no means a matter of course): The fast lane should be open to all, there is on principle no selection as is the case for IPTV, but rather a non-discriminatory offer to all. Due to the lack of choice, this is currently not subject to platform regulation under media law.

What does non-discrimination mean in practice? There are examples which do not present any problem: For the speedy delivery of a letter you pay more than for standard delivery, the ICE is more expensive than the regional train, the cost of internet access increases in line with bandwidth. All these examples are characterised by a transparent pricing policy, as is the case for the transport model for broadcast transmission infrastructures: HD is more expensive than SD. Platform regulation under media law requires fees to be laid open and enables non-discriminatory treatment to be supervised.

### From transport model to marketing model

As is the case in telecommunications law, this is all based on a clearly separate section of transport and technical services. If they are further developed it could be acceptable for network ope-

rators offering comparable services such as external delivery networks (CDN) which are commissioned by broadcasters so that their offers are consumed by many users in good quality.

In real life, however, what is at stake is not separable technical services, but marketing. And this is the parallel to cable and satellite: Ever since negotiations between the privatised cable operators and the major broadcasting groups started, there is formally still a transport model, while in the negotiations, however, a marketing model was pushed through. This model envisages money returns to the providers which are generated through additional income charged to customers or TV viewers by the cable operators and ASTRA for HD distribution; these are specific services offering special quality.

Transport fees are paid only to the cable companies having a particular clout in the market while the smaller companies do not charge extra for content distribution. This is a development which might also be adopted for special services in the internet. The major content providers will negotiate only with the major network operators concerning special access while the small network operators stay empty-handed. Why should Google take up negotiations with a small city council provider operating the local fibre-optics network? This will result in a further concentration among access providers and will thus reduce choice for consumers which is limited anyway.

On the other hand, the winners in negotiations are those who have major negotiating power thanks to specifically attractive content, i.e. the major television groups. Money returns are agreed in relationship to audience reach, the measurement parameters of which are fixed through negotiations by the major TV groups. The market clout of public-service broadcasting can be judged by

the fact that even though public-service content is not encrypted, ARD and ZDF no longer pay for cable distribution – unlike the small content providers.

The HD model does not provide for equal treatment terms for content providers in relation to the transmission effected, but rather for a differentiation according to their contribution enabling the network provider to charge additional fees to television audiences. For this concept, RTL is of major relevance while smaller providers play no role in this respect.

Ultimately, this scheme results in the small providers continuing to pay while the major providers make extra money at the end of the day. It is therefore not surprising that the major TV groups set up more and more channels and little competition develops outside of the outlets of US companies.

### Insufficient transparency

And what about transparency? So far, money flows have not been laid open; they are declared business secrets. The same applies for the Comcast-Netflix model, the agreement which the biggest US cable network provider has struck with the most successful video-on-demand provider. Control at present is insufficient and does not even allow for establishing whether distribution really is in accordance with audience reach or whether additional benefits are granted to companies which are major competitors in the market. This is the free interplay of forces in which the big companies get even bigger and access is made more difficult for small contestants. There is no mechanism for compensation so far in the way in which it was established for copyright issues or the wholesale system for print products.

The effects have so far been limited due to the fact that the Federal Cartel Office has succeeded in getting the major television groups to agree on the unencrypted distribution of their commercial channels with a large audience reach in SD quality via cable and satellite for ten years. The majority of TV households so far do not pay for commercial television transmitted in HD quality. The considerable concentration noticeable in the television sector had already existed before the HD model was developed; television is a far cry from the innovative power and dynamics of the internet.

The HD model is not, however, suited as a blueprint for the continued development of audiovisual media in the internet – not even in the event of greater transparency being secured. As it is the powerful companies in the market which benefit first and foremost – at the level of the network providers as much as among providers of services and content – the model jeopardizes the dynamics and innovative power in the internet and the plurality and creativity of content. The fast lane implies priority by financial power. This is the very opposite of a media order which prioritises content and quality and which incorporates safety mechanisms for smaller providers for broadcast transmission routes similarly to the regime governing the wholesale system for print products.

### Special services: what for?

Special services are not even required for funding the extension of the network. If consumers increasingly opt for audiovisual services via the internet, they will have to pay for the network extensions this necessitates. The flat rate is no law of nature; telecoms companies have already developed schemes for mobile telephony which imply payment according to the data rates consumed and differentiate between transmission speeds.

The funding of the network extension must be geared along fees for consumers which are differentiated by the bandwidth used and the data volumes as is the case for other services. Nor is there any objection to be raised against incentives for all involved for transmitting content as efficiently as possible and for using the most economical routes, e.g. by developing broadcasting technologies allowing for multiple supply, or by storage options.

This can, however, apply only if the billing definitely relates to bandwidths and data volumes with no exceptions designed to enforce new business models benefitting specific providers and services, as is the case with Comcast-Netflix or Spotify-Telekom.

In the end, it will still be the consumer who pays for network extensions; it would therefore make sense to leave control to him as regards the scope and data intensity of services he uses at which available bandwidth and for which he pays, rather than leaving this to the negotiation processes among companies the results of which can barely be made transparent for consumers.

In the digital world, money is not the only currency with which users pay – they also pay by providing data. From the viewpoint of the telecommunications companies it would be beneficial to also participate in schemes in which users pay with data, i.e. the value thereby created by Google, YouTube, Facebook, Netflix etc. Currently it is the large companies that have greater negotiating power at their disposal for getting better terms than smaller internet providers.

In addition to that, a matter of principle has to be raised: What is the justification for permitting network operators to participate in business models which they do not develop themselves? Energy providers do not participate in the value

created by RTL, YouTube etc. And in traditional television in which the currency paid by the viewer is his attention for advertising messages, no transmission provider participates in the revenues generated through advertising.

### Prevention safeguards for the open internet for protecting media pluralism

It is problematic for the telecoms providers that distributing content as a business brings less and less revenue while the profits shift from the networks to contents and applications. Telcos no longer want to act as mere transmission agents. There is no reason to object to anyone investing in creative companies, but there is every reason to object strongly to a dominant position among infrastructures being exploited for participating in the success of companies in which the telcos have no share.

Arguing the point from the perspective of media legislation, the future access to the internet is more than a mere matter of regulation. What is at stake is our most important infrastructure. The high investment in the next generation of networks which will be solely dominated by the internet will result in further concentration. It is therefore all the more important that structural safeguards are put in place in good time for securing open access and net neutrality. The present legal provisions are not sufficient to achieve this objective.

The principle developed by the Federal Constitutional Court in the context of media concentration, according to which potentially wrong developments must be countered in good time since retroactive amendments are not possible also applies to the new positions of power which have developed in the internet. This is in stark contrast to the position of allowing new business

models to develop first and taking action to correct wrong developments only afterwards. Adopting this argument, it could also have been left to the major publishing houses to build up the distribution network for newspapers as cartel law also aims at prevention rather than first allowing developments which would later have to be corrected.

And the conclusion? A clear No to special services for the distribution of professional audiovisual media content in the internet.



# Digitisation of the broadcast market: facts and figures

# Current status of digitisation in German (TV) households

June 2014

Dr. Kristian Kunow

*There is a rift dividing the country in two: on the one side, TV households which receive digital and in part also HD television, while on the other side, homes that still opt for analogue rather than digital TV signals. It will still take some time for this digital divide in relation to TV reception to disappear, but it is growing smaller year by year – this is proven by the hard facts and figures. They also convincingly prove that the process of digitisation has by no means come to its conclusion with the reception of digital television signals. Rather the use of end devices for TV and video consumption is undergoing a process of dynamism which is partly yielding dramatic changes. Leaving the younger age group aside, however, the developments show greater consistency than might be assumed.*

In 2005, the German media authorities presented the first report on digitisation. In the early summer of this year, TNS Infratest surveyed the facts and figures concerning the process of digitisation of broadcasting in Germany for the tenth time in succession, continuing the route chosen last year by not only establishing data in relation to households, but also monitoring developments

providing information on personal use of the various modes of reception, end devices and digital services. Without losing sight of the digitisation of television reception which still awaits completion, the facts surveyed allow for an analysis of the further-reaching effects of the digital opportunities brought about for television and video use – put another way: the digitisation of television 2.0.

## **Digitisation rate successively on the increase, but quite some way to go yet**

In the past, the switch-off of an analogue transmission route always resulted in a clear increase in the rate of digitisation, often in the two-digit range; the last time this happened when analogue satellite transmission was stopped. With no switch-off happening over the last year, the increase in 2014 is comparatively modest for the second year running. In Germany, 83.8 per cent of the television households have already opted for digital TV reception; this is an increase by 3 percentage points, resembling that of the year before. While the rate of analogue-only reception last year still came to 19.2 per cent, it went down to 16.2 per cent

for 2014. Similarly, the share of TV households opting for both digital and analogue signals declined by close to 2 per cent and in 2014 comes to a mere 5.6 per cent (Fig. 1).

Around 32.3 million German households have opted for digital television by now. The number of digital-only consumers has topped 30 million for the first time while a little under 2.2 million homes use at least one TV set in the home for watching analogue television alongside digital TV.

However, 6.2 million households – quite a sizeable figure – would see a blank screen, were analogue TV transmission switched off over night. This would affect only cable households. Adding the 2.2 million households which still receive analogue cable signals via at least one TV set, a sizeable 8.4 million homes still await (full) digitisation irrespective of the fact the figure has gone down by 2.7 million compared to last year.

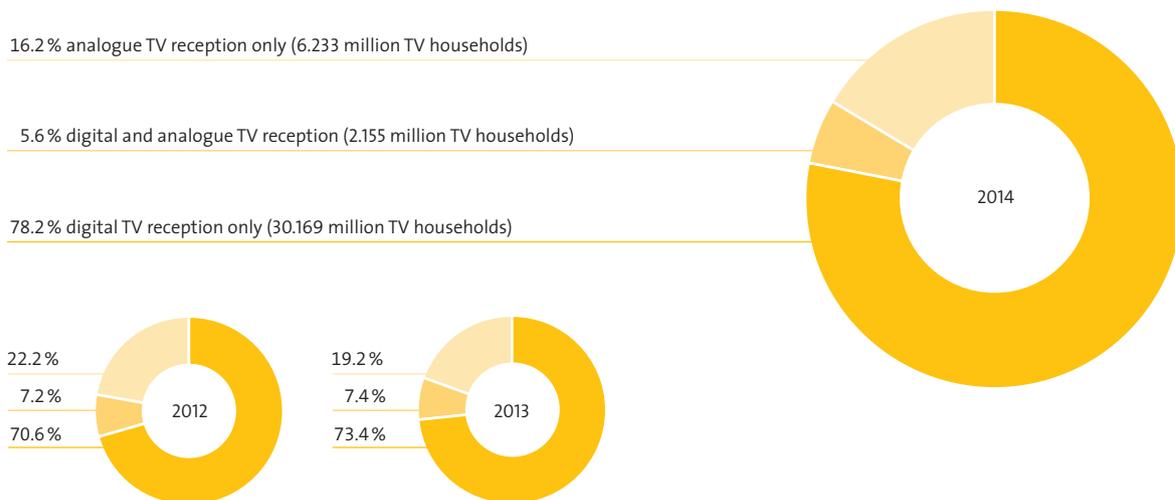
**The cable networks have long since been fully digital: time for switch-off?**

Full digitisation of Germany’s television households is not a matter of a thin thread, but a matter of cable. This is not to say that the network infrastructure would not allow for full digitisation – the cable networks in Germany have long since been „digital ready“ everywhere. Transmission of analogue signals via the cable networks continues, however. The rate of digitisation of cable TV in Germany went up by 7 percentage points and came to 62.9 per cent by mid-2014. This means that for the third year in succession, the increased clearly exceeded 5 percentage points (Fig. 2).

Terrestrial transmission was fully digitised in 2008, satellite transmission followed four years later. When the preparations for the switch-off of analogue satellite went into the concrete stage, the rate of digitisation had already reached 80

Fig. 1

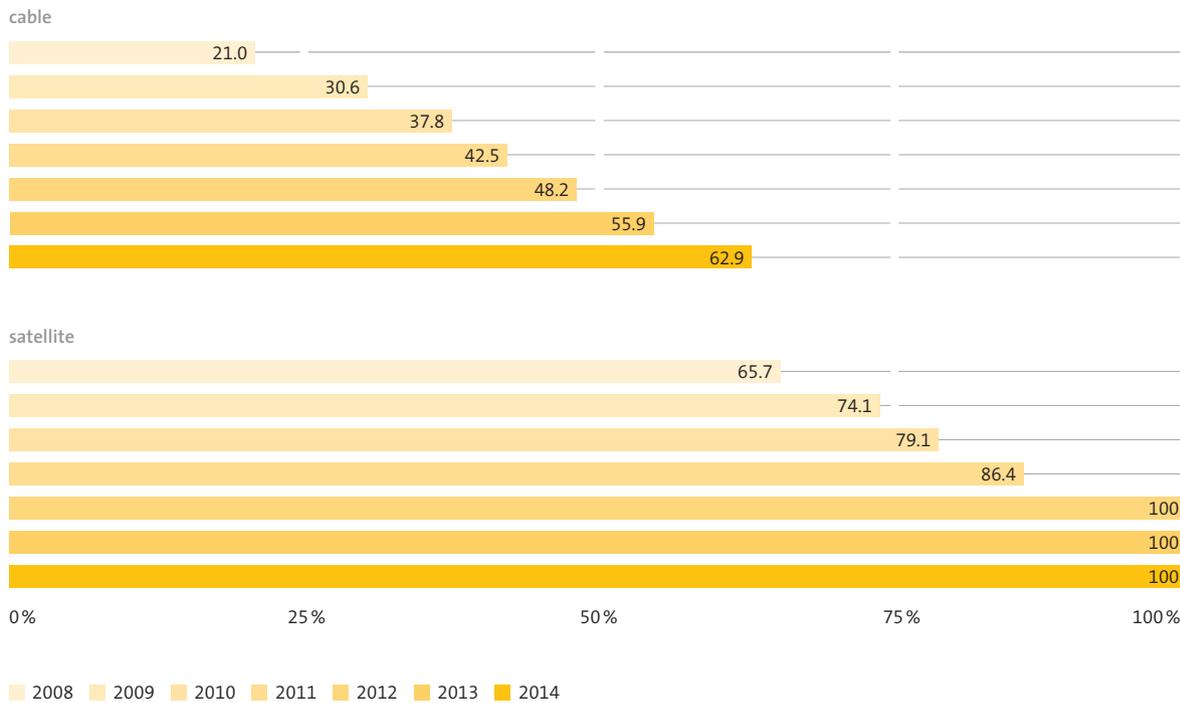
**State of digitisation of TV households**



Quelle: TNS Infratest; Basis 2014: 38.557 million TV households in Germany (Basis 2013: 38.157 million and 2012: 37.977 million)

Fig. 2

### Digitisation by transmission platforms



Source: Digitisation Report / TNS Infratest; Basis: 19.558 / 19.765 / 19.273 / 18.928 / 18.201 / 17.656 / 17.860 million cable-TV households // 15.657 / 15.733 / 16.048 / 16.843 / 17.320 / 17.624 / 17.779 million satellite TV households in Germany

per cent. By contrast, there is still no definite date under debate for switching off analogue cable transmission. If analogue satellite switch-off were adopted as a model, digital cable would first have to pass the 80 per cent limit with more households being won over to the benefits of digital TV than in recent years to secure additional momentum for digitising cable. This would be the decisive point after which initiatives could be started for switching off analogue cable transmission, especially by means of communication campaigns. However, switch-off might also be effected by one cable island after the other, be it by individual regions or by cable networks. In Baden-Wuerttemberg, for

instance, close to 70 per cent of cable households receive digital signals already – this is above the German average.

#### Basic encryption stopped with little effect on digitisation only

In the opinion of the media authorities, the discontinuation of basic encryption marked a major step en route to full cable digitisation. Until May 2013, many commercial TV services were transmitted in encrypted form only in the digital cable, requiring cable customers to obtain a smart-card alongside the DVB-C tuner for unscramb-

ling the channels; on top a monthly fee was paid. Thanks to directions issued by the Federal Cartel Office, basic encryption of the commercial channels transmitted in SD quality in the networks of the major cable providers Kabel Deutschland and Unitymedia KabelBW has been stopped, and many medium-size and small cable providers followed this example. For receiving digital television via cable, customers thus only need a DVB-C tuner which is already an integrated feature of the newer generations of TV sets. Almost half (48 per cent) of analogue cable households already own an HD-ready TV set which means that for many homes it would take no more than one channel scan to benefit from the variety on offer via digital television.

#### Many pensioners and low-income households watch analogue cable TV

Although basic encryption has been stopped, the rate of digitisation was a mere 7.7 per cent and 7.0 per cent respectively over the last two years. One reason might be that cable households that are not particularly technology-savvy are possibly not sufficiently informed that the hurdles to overcome when going digital or the cost incurred have been reduced to a minimum.

Almost half (or 45.4 per cent) of the households receiving television via analogue cable are homes of pensioners as the head of the household. And despite the fact that no monthly fee has to be paid any longer for receiving commercial SD channels via cable, it is also noticeable that a disproportionately large number of analogue cable households has a comparatively small net income at their disposal. For more than half, the monthly net income is less than 2,000 Euros. By comparison to last year, the rate has gone down by more than 10 percentage points to 53.4 per cent at present, but when looking at households featuring digital cable TV

or other modes of reception, this income group still features particularly numerous among analogue television households.

The question surveyed in some German states whether there are any plans to switch to digital cable reception proves that especially among lower-income analogue cable homes and households of older main income receivers, a great deal of convincing appears necessary. While 62 per cent of analogue cable households stated that they did not plan to switch to digital reception in the foreseeable future, the rate in the group of households having a disposable monthly income of below 2,000 Euros is as high as 80 per cent. In analogue cable homes with a household aged 60 years or older, the rate is yet higher at 82 per cent. This calls on both the network operators and the housing industry to breach this gap – in many instances informing the households in question about existing options for digital reception could be sufficient, with the odd digital settop box otherwise doing the trick.

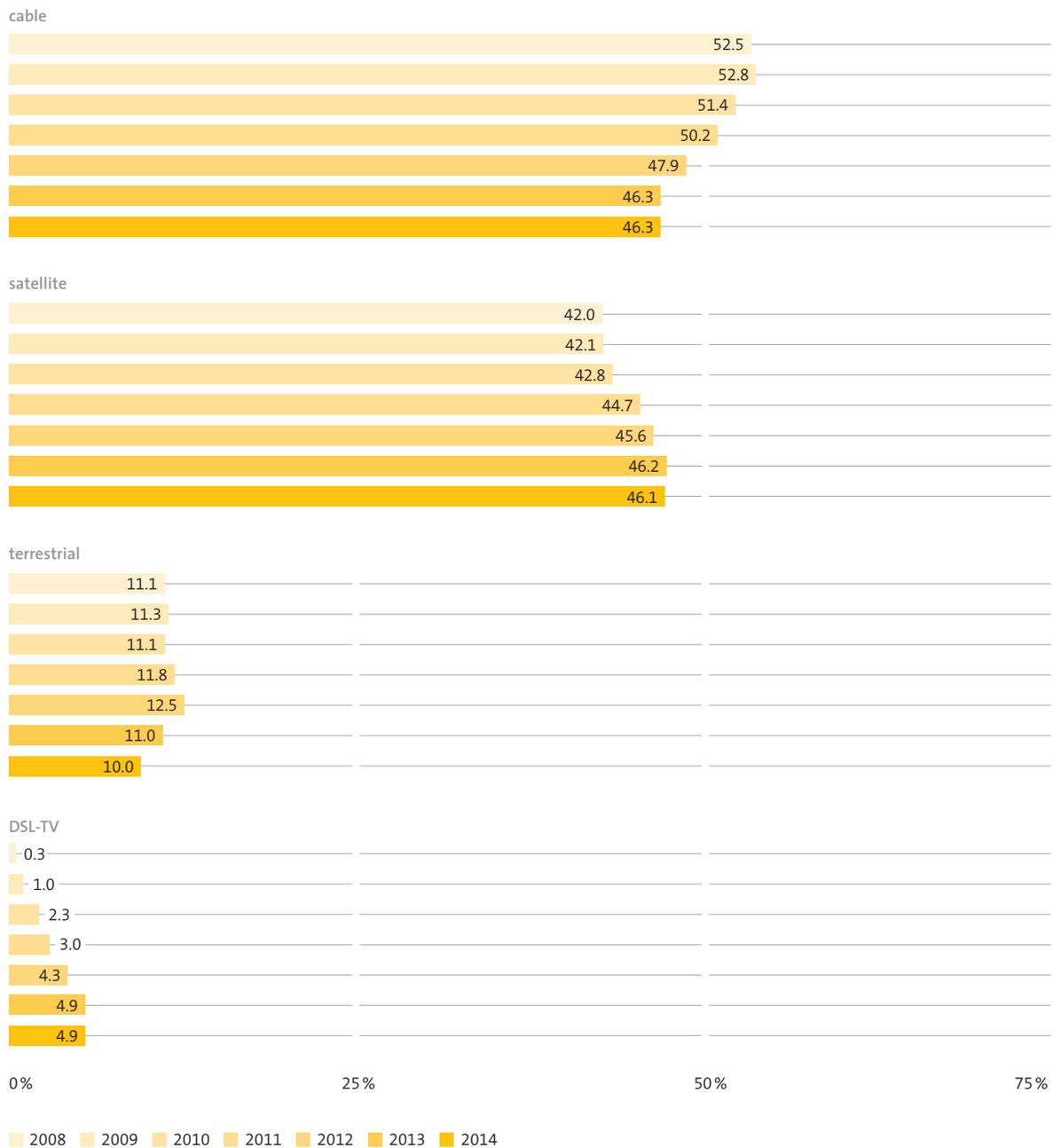
#### Shares of transmission routes largely stable, IPTV slowing down

The absolute reach of the various routes of transmission has seen only slight changes for some years now. Last year, satellite could gain ground compared to cable with the resulting rates for cable at 46.3 per cent and 46.1 per cent for satellite being almost identical this year, too. The gains for satellite appear to have stopped for the time being. In absolute figures, cable this year reaches just under 17.9 million German homes, thus matching satellite households at almost 17.8 million German television households (Fig. 3).

Terrestrial transmission retains third place despite the fact that the number of households in Germany opting for DTT is clearly lower than those choosing cable or satellite TV. The established

Fig. 3

### Shares of the transmission platforms



Sum > 100% due to multiple reception

Source: Digitisation Report / TNS Infratest; Basis: 37.277 / 37.412 / 37.464 / 37.668 / 37.799 / 38.157 / 38.557 million TV households in Germany

reach of 10 per cent of TV households was one percentage point below last year's value. By mid-2014, just under 3.9 million households in Germany resorted to terrestrial television reception; this is 300.000 homes less than last year. However, terrestrial reception continues to enjoy considerable popularity in all core areas in which both public-service and commercial services are available. An analysis of the DTT core regions alone shows a DTT reach of 17.2 per cent of the television households.

This would indicate that the slight decline in DTT households is due to the announcement made by RTL in summer 2013 of stopping DTT transmission; in Bavaria, RTL actually went off air at that time. RTL has since reversed its decision – but only for the event that technology is advanced to permit HD resolution and a greater range of channels. All content providers – both public-service and commercials – and network operator Media Broadcast agree in this respect; together with the media authorities, they work on switching to a new standard of technology. For advancing terrestrial transmission, however, sufficient frequency spectrum and the time required for migration are essential conditions; after switchover, the capacities can be put at the disposal of the mobile industry for the purpose of full broadband coverage.

The data available are proof that terrestrial television reception is still attractive – irrespective of the fact that reception technology has not changed since its introduction in 2008. Disregarding the slight downward movement, the number of terrestrial households using DTT as the sole mode of reception is virtually unchanged at more than half or 2 million. Counting not only reception via the TV set, but also via mobile end devices such as laptops, portable DVD players as well as stationary PCs and laptops allowing for reception of DTT, the rate of DTT reception in Germany in 2014 totals 18.8 per cent or 7.3 million TV households.

IP-based television reception (IPTV) in recent years always enjoyed an upwards trend. This year, IPTV reach has remained stable at 4.9 per cent of German TV households. Similar to last year, 1.9 million households receive their television signal via the DSL connection. Unlike web TV, IPTV is not transmitted across the open internet, but in a separate section of the DSL network featuring quality safeguards. Irrespective of the stagnant reach in 2014, however, IPTV has firmly established itself as the fourth mode of transmission alongside satellite, cable and DTT.

#### Watching TV on mobile receivers: often at home, rarely on the move

Watching television on the large TV set in the living room has been a thing of the past for quite some time now. Many viewers also use mobile end devices such as tablets or laptops to watch TV there, in the kitchen or in bed. Mobile networks or WiFi hotspots even allow TV consumption on the move in the underground or in a coffee shop.

A total of 14.3 per cent of persons aged 14 or older in Germany use linear TV streams via mobile receivers featuring an internet connection. This corresponds to 10.1 million persons in Germany. This form of TV consumption, however, still largely takes place at home, with just 3.7 per cent – or 2.6 million viewers - using TV services also when they are on the move.

The low rate of mobile TV consumption using mobile telephony and WiFi hotspots could be due to the high data rates required for this activity. For one thing, the mobile networks reach capacity peaks, for another, additional costs become due when the agreed data volumes are exceeded by mobile customers. Secondly, TV consumption on the move clearly differs from watching television at home, and is less suited for linear TV consumption.

Terrestrial reception presents an alternative for mobile and nomadic TV consumption. While only a small fraction of laptops, tablets and smartphones features a DTT tuner „ex works“, it is always possible to upgrade the end device with an external DTT receiver. TV reception on the move is also possible using mobile DVD players and so-called mini TV sets including an integrated DTT tuner. A total 10.9 million per cent of the population aged 14 years or older in Germany can enjoy mobile TV via at least one mobile end device. This corresponds to just under 7.7 million persons having mobile terrestrial TV at their disposal. However, only 3.2 million stated that they actually make use of terrestrial reception on the move; this corresponds to 4.6 per cent of those aged 14 years or older in Germany.

#### EPG use up, individual adjustment down

The digitisation of television brought with it the electronic programme guide (EPG) as a feature in German TV households. EPGs integrated into the TV set or the settop box supply viewers with an electronic overview of services and individual programmes. At the push of a button it is possible to change a channel, look for a specific programme or directly programme a recording.

Of those surveyed, 35.5 per cent of TV consumers aged 14 years or older which have digital reception at their disposal stated that they used the EPG at least rarely. This corresponds to just under 21 million viewers in Germany, an increase of almost 4.9 million – or 30.4 per cent – compared to last year. Two thirds – or 67.2 per cent – of them frequently or basically always use the functionalities of the electronic programme guide.

As was already the case last year, major differences can be noted concerning the frequency of using the various functions of the EPG. More than two

thirds or 69 per cent use the programme listings and information virtually always or frequently. However, the search function for selecting individual types of service and programmes is used always or frequently by a mere 24.7 per cent.

For 2014 it was confirmed that the functionality of the EPG used less frequently than all other functions is setting it to one's individual preferences. As last year, 43.4 per cent of EPG users never or hardly ever change the pre-set order of TV channels. Setting up or adjusting the individual channel list is never or hardly ever performed by as many as 56.7 per cent – this is an increase of 10 percentage points on 2013. It must therefore be assumed that the preset channel listing of the manufacturer is retained in most cases, determining access to content according to the preset channel listing.

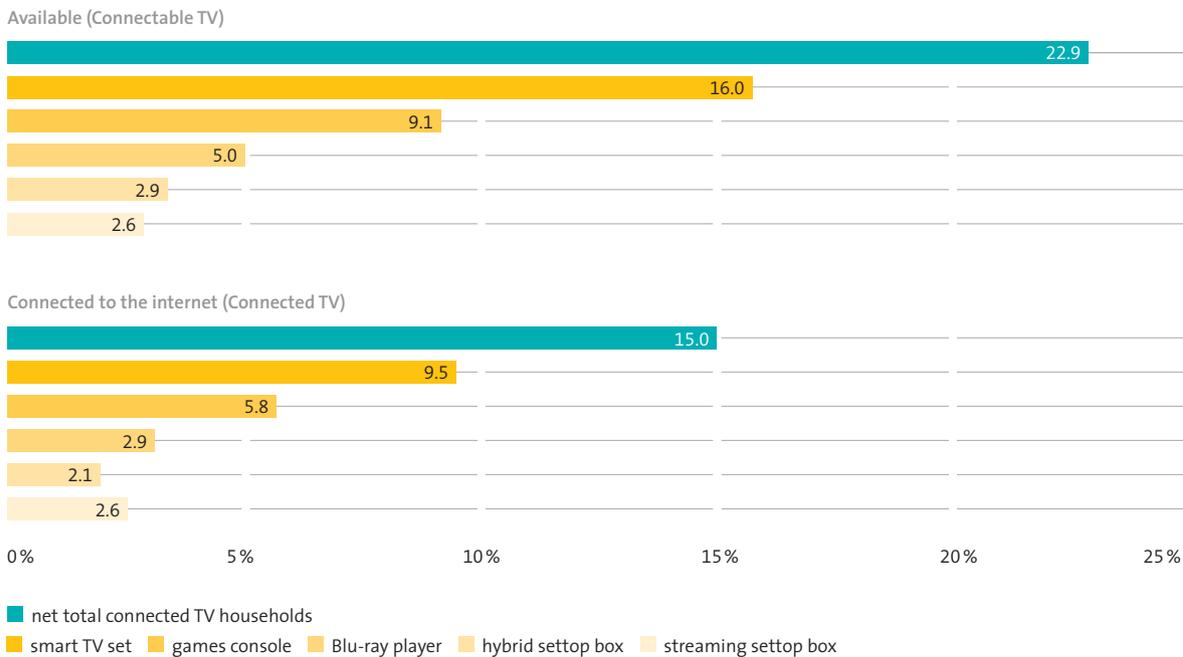
#### Moderate rise of smart TV or connected TV

The digital world of television today has a lot more to offer than electronic programme guides. In the process of „convergence in the sitting room“, the television set of yesteryear has already mutated to so-called connected television. Today's TV set or settop box are not only connected to a television transmission infrastructure, but can also be connected to the internet. Broadcast and internet contents and services merge into a total media offer via such connected TV sets. Presently, 70.9 per cent of German TV households have broadband at their disposal enabling them to bring audiovisual content even from the internet onto „the large screen“ in high quality, provided the necessary equipment is acquired.

The number of TV households that is aware of owning an internet-ready TV receiver has been continually on the increase in recent years. In 2014, 16 per cent stated that they have at least one so-called smart TV at home, i.e. a TV set which can be

Fig. 4

### Connected TV – connected to the internet



Source: Digitisation Report / TNS Infratest; Basis: 38.557 million TV households in Germany

directly connected to the internet. This is an increase of around 45 per cent within one year. Adding to that peripheral devices permanently connected to the TV which can feed content from the internet via their own internet connection (e.g. internet-ready settop boxes, streaming boxes, Blu-Ray players and games consoles), the share of TV households with connectable TV rises to 22.9 per cent; this is some 6 percentage points higher than last year (Fig. 4).

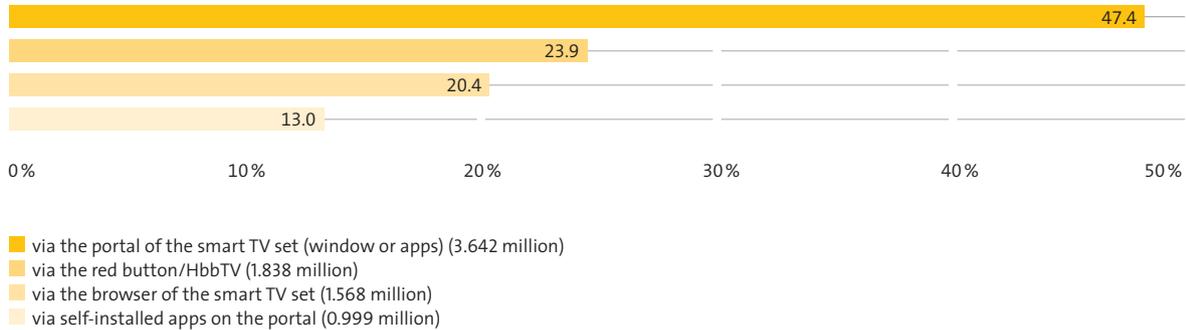
Internet content can also be loaded onto the large screen using a PC, laptop or tablet via cable or WiFi. Including this option in the calculation, a total 35 per cent of TV households in 2014 have at least one option for connecting their TV set to the internet at their disposal – an increase of 6.6 percentage points compared to 2013.

These figures, however, go down considerably when taking into account only TV households in which at least one of the internet-ready TV sets or peripheral devices is actually connected to the internet, or in which „connected TV“ in the strict meaning of the term is used. At total 15 per cent of German TV homes (5.8 million) have connected TV at their disposal in 2014. In 9.5 per cent of TV households (3.7 million), the TV set itself is connected to the internet, and is thus practically „smart“. The rate of connectable TV sets thus comes to 65.7 per cent, that of genuine smart TV sets to 59.5 per cent. Compared to last year, the rates went up slightly by 3.7 per cent and 6.5 per cent respectively.

Some industry representatives consider this rate of connectable TV sets to be lower than expected;

Fig. 5

**Consumption of internet content directly via the smart TV**



Source: TNS Infratest; Basis: 68.447 million persons aged 14 years or older in TV households // 7.691 million persons with access to smart TV set connected to the internet

the cause can, however, be determined when analysing the reasons stated for purchasing a smart TV set. Most households (86.1 per cent) stated that picture quality was a very or rather important factor impacting the choice; the next-important reason being the size of the screen (83.2 per cent). Only 37.2 per cent of households questioned stated that internet accessibility was a very important or important criterium when purchasing a new TV set.

**Manufacturers’ portals are first choice, VoD consumption via smart TV on the up**

The virtual location of convergence on the large screen in the sitting room is either the smart TV portal of the manufacturer which offers apps known from smartphones and tablets as well as internet services, but above all video-on-demand offers (VOD) and often an open internet browser. Users can also select HbbTV allowing them to access the internet offer or media library of a channel directly via the red button on the remote control.

The majority of persons aged 14 years or older who own a smart TV connected to the internet opt for the portal of the set as a route. Almost half (47.4 per cent) of smart TV users chose the app portal provided by the manufacturer including the pre-installed offers. The alternative route via the red button allowing direct access to the internet offers of a channel via the respective service is used by 23.9 per cent of persons of the age group quoted. At least 20.4 per cent use the internet browser provided by the manufacturer for accessing internet content. Only 13 per cent of those having access to a smart TV set which is connected to the internet have themselves installed apps on the portal for accessing internet services (Fig. 5).

By now, professional VoD offers are used by some 28.5 per cent of viewers at least once a month directly via the smart TV set connected to the internet. The rate has thus more than doubled within one year. Last year, a mere 12.3 per cent of the group questioned stated that they directly accessed professional internet content via their smart TV.

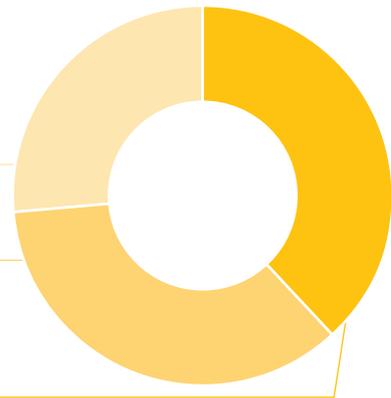
Fig. 6

### Use of second screen/spread of attention

26.3% attention equally divided between TV set and second screen

35.4% attention mostly focused on TV set

38.3% attention mostly focused on second screen



Quelle: TNS Infratest; Basis: 54,171 persons aged 14 years or older in TV households with access to at least one further end-device

#### Will the second screen go first?

The direct use of internet services such as social networking sites or online gaming via the internet-ready smart TV set is clearly lower than the consumption of VoD offers. A mere 9.7 per cent and 9.3 per cent respectively of persons 14 years or older having a smart TV at their disposal which is connected to the internet use such services via the smart TV. Instead, the so-called second screen in many instances lies at the ready on the table for interactive forms of internet consumption while watching television. More than half (54.0 per cent) of the persons with an internet-ready end-device (smartphone, tablet or laptop) at their disposal use this device as a second screen. In the light of this fact, the question does gain in significance not least for the advertising industry which of the two screens, television set or second screen, is given the main attention by the viewer. Of the second-screen users questioned, 26.3 per cent stated that they divide their attention equally between the two screens. For 35.4 per cent, the attention is directed mainly to the large screen of the TV set, while 38.3 per cent of users focus their

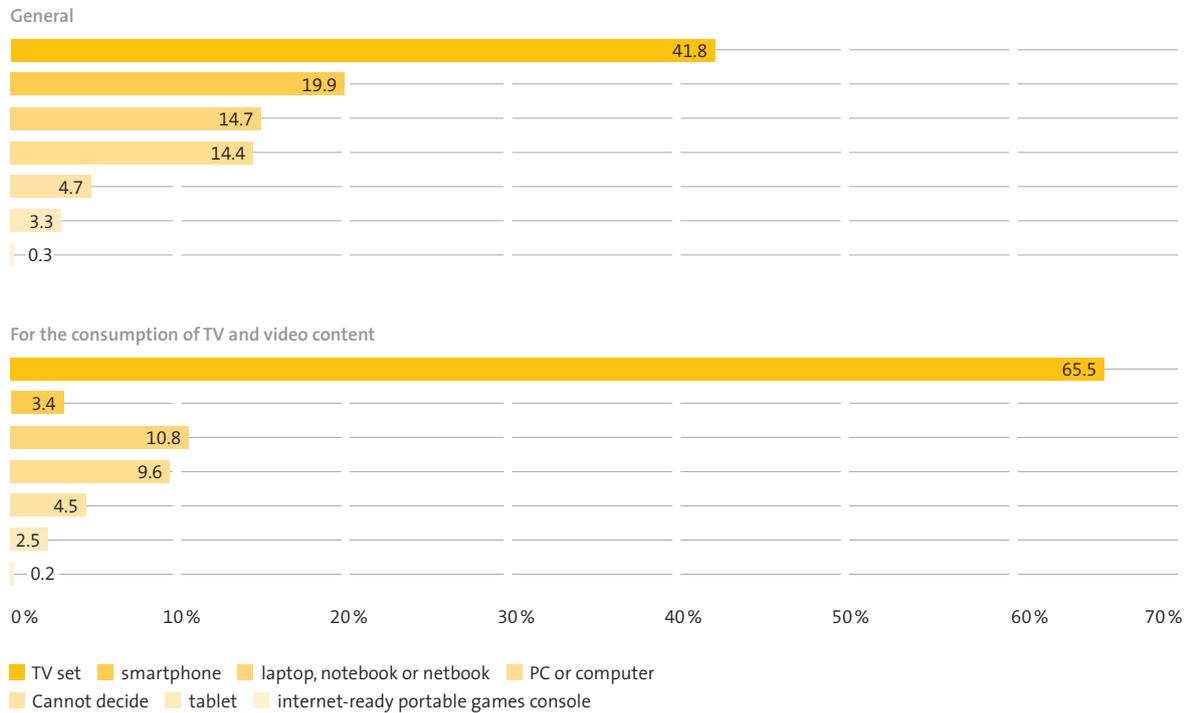
attention on the second screen. For the majority, the second screen has thus already evolved into the first screen (Fig. 6)

#### The TV set remains the most important receiver, but not for all age groups

The media authorities this year for the first time questioned those aged 14 or older which was the most important end-device for them. As the results show, the TV set is the most important receiver when looking at the population as a whole; 41.8 per cent of those questioned were least willing to do without their television set. For 19.9 per cent, the smartphone presents the most important device. Laptops and PCs at 14.7 per cent and 14.4 per cent respectively are almost level while the tablet scored a mere 3.3 per cent (yet). This result becomes even clearer when analysing the responses to the question for the preference as regards the use of TV and video content. For 65.4 per cent of the audience aged 14 year or older in Germany, the TV set is quoted as first choice for TV and video consumption, following by the laptop (10.8 per cent) and the PC (9.6 per cent) (Fig. 7).

Fig. 7

### Most important available end-device



Source: Digitisation Report /TNS Infratest; Basis: 70.326 million persons aged 14 years or older in Germany

However, this is only part of the truth, and there are signs that these preferences are subject to exceptional dynamics benefitting the smartphone, laptop and tablet. An analysis of the 14–19 age group reveals that only 36.6 per cent vote the TV set in first place for their TV and video consumption, followed by the laptop (25.7 per cent). Disregarding TV and video consumption and raising the question in general terms only, 52.1 per cent of the age group identified the smartphone as their most important end device by far. In this age group, the TV set is well beaten at 8.2 per cent or fourth place – behind the laptop and the PC. A similar picture emerges for the 20–29 age group and those aged 30–39 years. Only the age group

starting at 40 years (still) generally put the television set in front.

It is not least these findings which indicate that the digitisation of broadcasting will not be completed with the switchoff of analogue cable or the bridging of the divide mentioned at the start of this analysis. The process will go beyond that – television and video content is not, after all, limited to the large screen in the sitting room, nor does the TV set hold the same relevance for young viewers and consumer groups that it enjoys among the older audiences. The digital journey therefore continues, and the media authorities will carefully travel along.

# Digitisation of radio in Germany is gaining speed

Johannes Kors

Digital radio in Germany is now clearly gaining in acceptance on the basis of the DAB+ standard having overcome major starting problems. A good 5.4 million listeners aged 14 or older are now using a DAB receiver for their radio consumption in Germany. Compared to last year, this presents an increase of close to 60 per cent. In terms of population, some 7.7 per cent are now receiving DAB radio channels. This development is all the more remarkable considering that terrestrial digital radio had not won any sizeable audience reach at the start of the decade. The restart of digital radio on the basis of the DAB+ standard in mid-2011 therefore seems to have provided a strong impetus for the development of digital radio. Since the national DAB multiplex went on air, providing 13 channels, reception has expanded to ever greater segments of the German population. This in turn appears to have strengthened the confidence of both the consumer electronics industry, the automobile industry and consumers as regards investing in DAB.

The present data on DAB distribution and the supply of radio sets in the German population overall

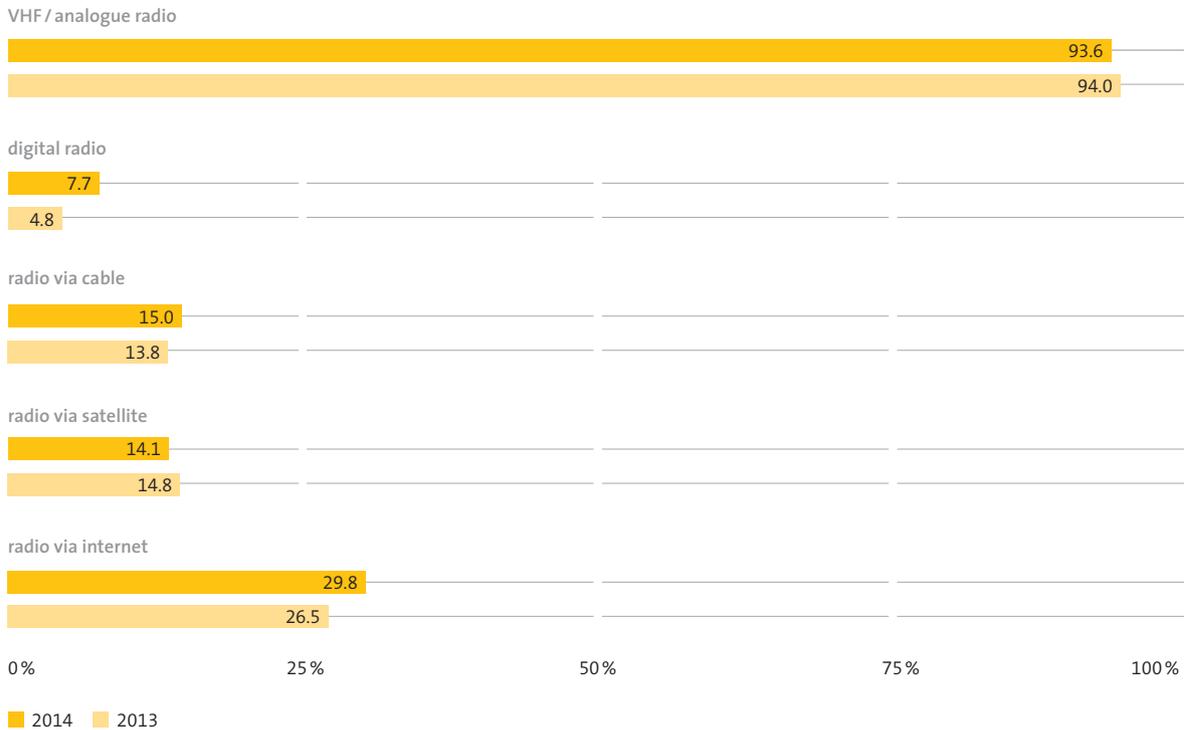
were collected by TNS Infratest in the course of the annual survey of digital reception which was conducted on behalf of the Commission on Licensing and Supervision (ZAK); this follows the 2013 survey. (see methodology, p. 38).

## VHF reception still firmly rooted among listeners

Notwithstanding this very positive development, Germany still lags far behind as regards DAB market penetration. In Switzerland, switch-off of VHF transmission in 2024 is already under consideration; for Germany there is still a long way to go in this respect. Demands for a definite switch-off scenario for VHF in Germany raised by DAB supporters were so far largely rejected by both private radio providers and politics for good reasons: For one thing, DAB market penetration is still too low to allow for a definite switch-off date to be fixed, and for another, VHF still presents the primary transmission source for radio in German homes. Radio listening via VHF in Germany still accounts for an audience of 65.8 million persons aged 14 or older. And even though the figure has gone down

Fig. 1

### Radio reception in Germany



Source: Digitisation Report / TNS Infratest; Basis: 70.214 million persons aged 14 or older in Germany using one or more modes of radio reception at least occasionally

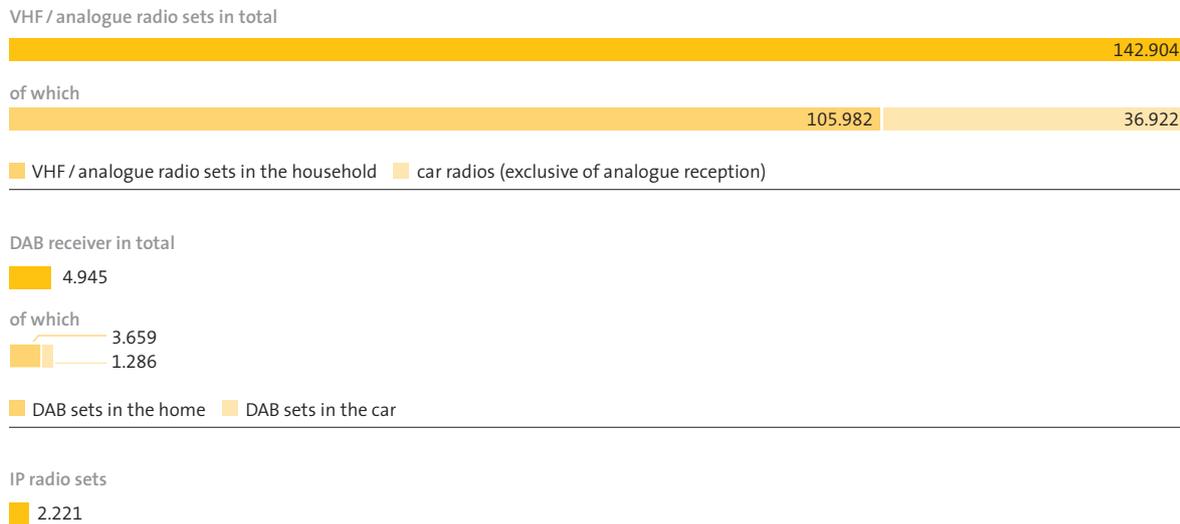
by 0.2 million compared to 2013, market penetration of VHF at 93.6 per cent of the population is still way ahead of all other transmission technologies. For a very long period, therefore, radio content providers will not be able to do without VHF, both as regards universal access to consumers and as regards the attraction as an advertising media which requires as many listeners to be reached as possible. VHF transmission will therefore continue to present the prime form of distribution for securing the economic viability of commercial radio.

#### Radio consumption via the internet on the increase

The findings of the Infratest survey indicate a notable progress concerning digital radio reception via the world-wide web. Radio listening via the internet already accounts for 30 per cent of the audience, with consumption using the PC/laptop, tablets or smartphones at 25 per cent of the population making up the lion share of internet radio listening. In addition, IP radio is also gaining more and more listeners: In spring 2014, 5.5 per cent of homes (2.221 million) had an IP radio at their disposal. Aggregated radio consumption

Fig. 2

### Penetration of radio receivers in Germany (in million)



Source: Digitisation Report /TNS Infratest; Basis: 39.866 million households in Germany

via the internet comes to 20.945 million listeners aged 14 or older; this presents an increase by 2.3 million persons or 12.5 per cent over last year.

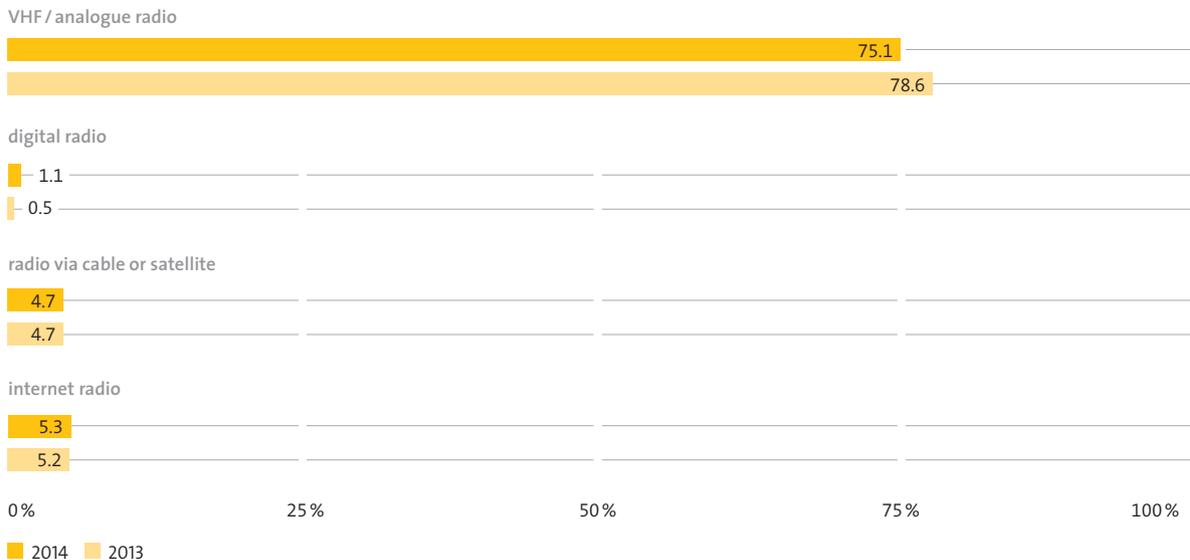
By contrast, reception via digital satellite radio suffered a downturn by almost 0.5 million compared to 2013. The number of listeners aged 14 years or older resorting to radio consumption by means of a satellite receiver came to 10.359 million persons which corresponds to one seventh of the population (14.1 per cent). On the other hand, radio listening via cable went up by around 9 per cent or 861.000 listeners; cable radio thus now accounts for 15 per cent of the population (10.521 million persons aged 14 years or older). Both cable radio and satellite radio, however, allow for stationary consumption only; this explains the lower rates in relation to reception figures for cable and satellite overall.

### DAB receiver penetration up by 82 per cent – in-car DAB more than doubles

By contrast, reception of digital terrestrial radio is possible in almost every location in the transmission area. This is the strength of both VHF and DAB. For radio providers, the continued increase in receiver numbers is a positive signal. Some 2.97 million households (7.5 per cent) by now own an average 1.7 DAB sets – an increase by 82 per cent to 4.95 million DAB receivers used in homes by comparison to last year. Another important factor for the radio industry is the increase of DAB reception being also based on a strong upturn of DAB listening in the car. The number of DAB receivers in cars almost doubled within the last year, going up from 0.6 million to just under 1.3 million sets. This brings the market share to 4.95 million DAB receivers or 26 per cent at present. As a remarkable parallel, the same the ratio applies for VHF

Fig. 3

### Listening to radio: most frequently used mode of radio listening

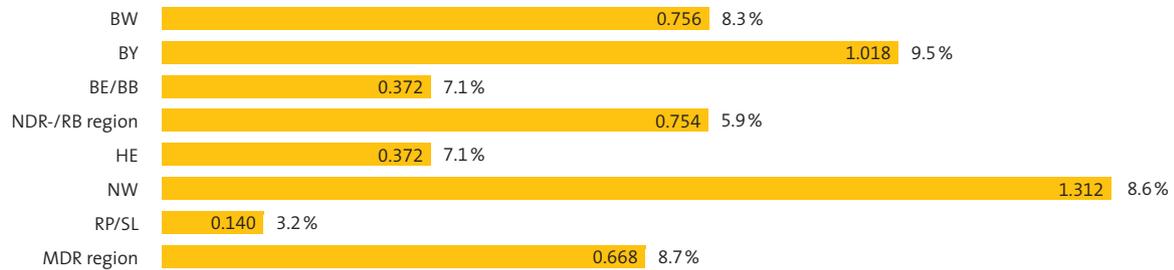


Source: Digitisation Report / TNS Infratest; Basis 2013: 70.214 million; Basis 2014: 70.326 million persons aged 14 or older in Germany

listening: Of the total 142 million VHF sets, 36.9 million are car radios. The decline of 0.5 million VHF car radios is fully compensated by the increase of DAB in-car radios – an important trend for the radio industry as a changing media supply in cars can present a key risk for radio consumption. The current ma Radio 2014 II survey finds that listening duration in the age group 10 – 29 years has gone down by around 8 per cent. Compared to the year 2000, the listening duration among the young audience has experienced a downward trend of as much as one third even though daily audience reach has remained relatively stable at 71 per cent. The surveyed audience behaviour appears to indicate that young listeners do not switch on the radio less frequently, but now listen to radio for shorter periods. It can be assumed that one reason for this development is the type of radio reception. Listening to the radio via

VHF still presents the dominant type of reception for 62.3 per cent of young adults aged 20 – 29 years. However, this figure is below average when compared to the population overall (75.1 per cent) and constitutes a marked decline by 8.4 percentage points over the last year (70.7 per cent). By contrast, one seventh of the population most frequently resorts to the internet for listening to the radio; the comparable ratio for the population overall is still only 5.2 per cent. Another remarkable finding is that listening to the radio via the world-wide web as the type of reception used most frequently it stagnant by comparison to last year. This would indicate that the clear majority of the population prefers conventional radio consumption via terrestrial reception. Furthermore, listening to the radio via the mobile internet will incur costs for consumers from a certain point in time onwards unless they have a flat rate arran-

Fig. 4

**DAB receivers in Germany (in million)**

Source: TNS Infratest; Basis: 70.326 million persons aged 14 or older in Germany

gement. Additionally, high internet radio reception results in considerable costs for providers streaming their content via the internet.

### Regional distribution of digital radio

As was to be expected, regional distribution of DAB is more pronounced in the three largest länder than in the rest of Germany. In Northrhine-Westphalia, 1.3 million persons aged 14 years or older listened to the radio via DAB; in Bavaria, the rate is 1.0 million while in Baden-Wuerttemberg it comes to 0.75 million listeners. Alongside these absolute figures, market penetration is also above average in these three states at 9.5 per cent in Bavaria, 8.6 per cent in Northrhine-Westphalia, and 8.3 per cent in Baden-Wuerttemberg.

For some states the figures were combined due to the low number of persons surveyed. In the regions covered by the North-German Broadcasting Corporation (NDR) 0.75 million people now consume radio via DAB, in the regions supplied by the Middle-German Broadcasting Corporation (MDR), the figure is 0.66 million while in Berlin/Brandenburg and Hesse respectively, 0.37 million listeners aged 14 years or older chose DAB as their transmission infrastructure.

### Conclusion

The data prove that radio digitisation in Germany is picking up momentum. The DAB standard is clearly gaining ground. By now, some 5.4 million listeners aged 14 years or older resort to DAB reception. Market penetration for the population has thus increased from 4.8 per cent last year to 7.7 per cent this year. The number of DAB receivers in the market went up by 82 per cent to 4.95 million sets. Another positive factor is the number of in-car DAB receivers sold which more than doubled within one year. However, these developments still hardly dent the dominant position of VHF transmission which is still used by 94 per cent of the population resorting to almost 143 million receivers in the market and still ranking in first place as regards the most frequent form of listening for three quarters of the audience. Digital radio reception via the internet continues its moderate increase with around 30 per cent of radio listeners at least occasionally using the world-wide web for their radio consumption.

# Methodology

The survey was conducted on behalf of the media authorities by TNS Infratest MediaResearch. As in the previous years, it employed computer-assisted telephone interviews (CATI). -For better providing for the increased percentage of persons exclusively or mostly available via mobile phones the survey was conducted in the form of so-called dual frame telephone interviews, i.e. as a combination of landline telephones and mobile phones. The selection was based on the telephone random sampling system used by the „Arbeitsgemeinschaft der deutschen Marktforschungsinstitute“ (association of German market research institutes, ADM). The share of the interviews conducted with mobile phone users was 17 per cent. Both sampling frames were thereafter merged by use of design weighting to provide a representative picture of the overall population basis. The interviews were conducted during the period 19 May – 04 July 2014.

The overall population basis for the survey was presented by the population aged 14 years or older in German-language households. This corresponds to the definition used by Media-Analyse (ma) for German-language households (= German households with an EU 28 head of household plus households with a non-EU head of household with completed school education).

In 2014, the overall population basis was 39.866 million households. Of these, 96.7 per cent own at least one TV set. These 38.557 million TV households present the basis for the findings on TV reception.

The 2014 survey is based on a net number of some 6.000 interviews. Until 2012, the person in a household with whom the interview was conducted, was the person stating that they knew best about TV consumption. As last year, the person to be interviewed for the 2014 survey was

selected at random in order to also obtain information on personal consumption in addition to household characteristics. The overall basis relating to persons interviewed was 70.326 million aged 14 years or older; of these, 68.106 million live in TV households.

As during the preceding years, the interviews were conducted disproportionately to warrant a sufficiently solid minimum basis for each state. In each state, at least 200 interviews were conducted (in previous years 500 interviews were held). The disproportionality was later balanced during weighting for obtaining representative results on a „total“ basis or for all persons/households respectively.

## Definition of cable and satellite reception:

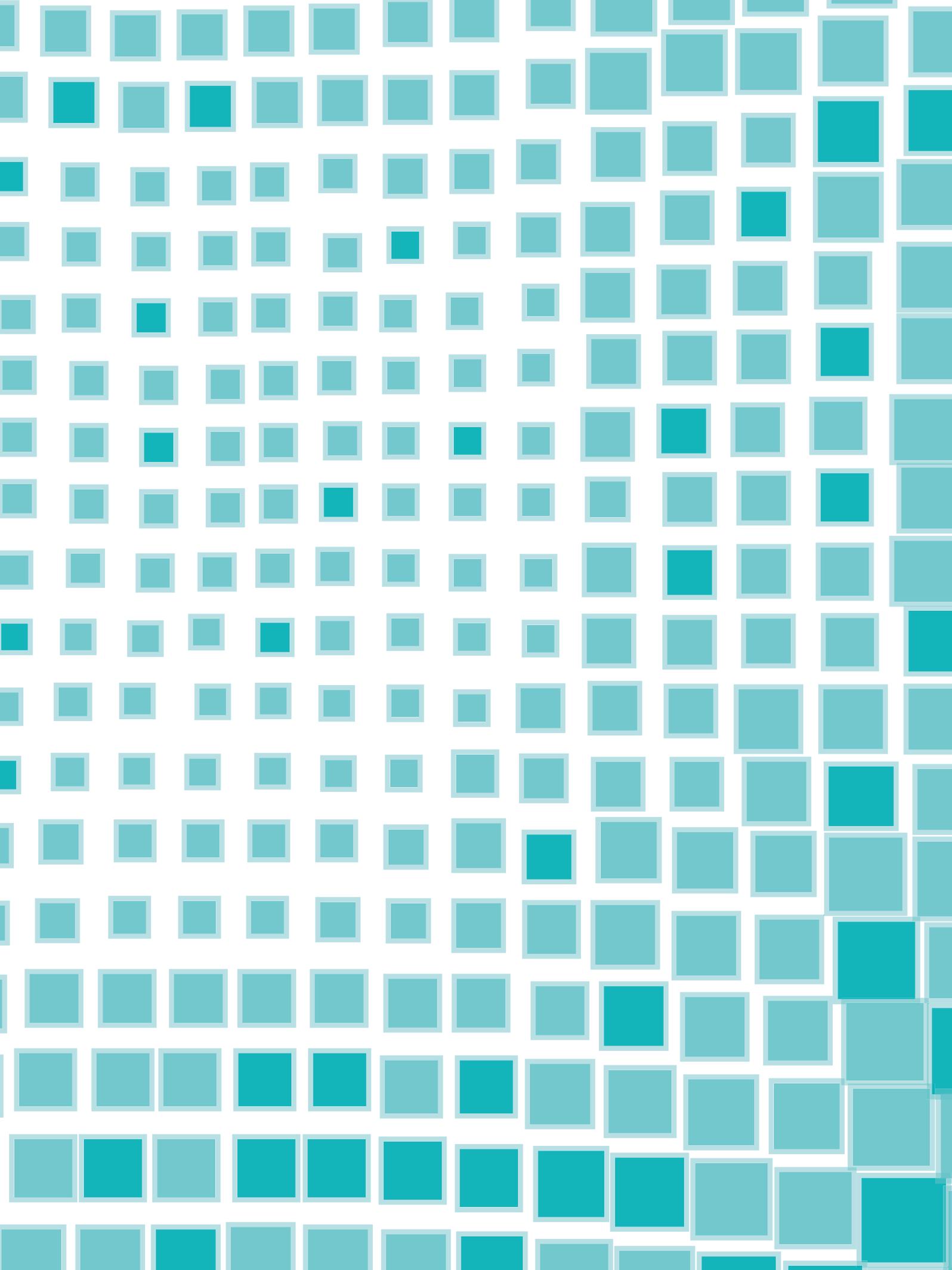
Television sets connected to a satellite master antenna system (SMATV) which do not require a separate receiver for TV reception are counted as cable reception. In these households, the high-frequency satellite signals employed for transmission are converted for transmission in the low-frequency SMATV 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. This definition is underpinned by the rationale that the survey was devised for analysing reception from the viewpoint of the TV household.

## Establishing transmission platforms and transmission technologies:

For the first television set in the home, all available transmission platforms were analysed. Where necessary, for further TV sets available in a household an aggregated survey was conducted for the first time this year. Regarding households

receiving both terrestrial and satellite channels using the first, second or further sets, both transmission categories were included in the data for transmission modes available in TV households. In some constellations, this can result in a sum total exceeding 100 per cent (e.g. Fig. 3, p. 24). The PCs or laptops used for TV reception in the households are not included in this 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 can continue watching analogue services. As this form of simultaneous analogue and digital reception does no longer exist for satellite distribution or terrestrial transmission, all cable television sets with a digital receiver are counted as digital units for the benefit of uniform presentation.



# Digital TV development in Europe

# En route to full digitisation

Mario Hubert

There are processes which simply cannot be stopped: Just like black-and-white television, the vinyl record, the VHS video cassette or countless other well-known examples, analogue television reception is close to being fully replaced by a more advanced technology. Continuing the unbroken trend of the last years, the European television market in 2013 took another great step forward en route to full digitisation. This is underlined by the data collected in the annual Satellite Monitor survey conducted by SES which monitors the progress of TV reception within the footprint of the European SES satellite fleet.

## Status of digitisation in Europe

At the end of 2013, digitisation of European TV households had increased from 79 percent (2012) to 84 per cent at present. Expressed in the number of households in Europe, 210 of the 249 million TV homes now have digital TV reception resorting to one of the four modes of reception (satellite, cable, DTT, IPTV and/or DSL-TV). Compared to the end of 2012, this represents an increase of just under 13 million households or 7 per cent.

High-definition (HDTV) once again proved to be the driver of digitisation. HDTV has been continually advanced, thus offering one of the key benefits of digital television reception: 10 million new HD households push the number of digital homes up by a further 13 per cent to more than 86 million now, corresponding to 35 per cent of all TV households. This includes in excess of 38 million satellite homes lifting satellite to top position as regards the audience reach of HDTV platforms. The share of HDTV households among satellite homes has now reached 45 per cent. A further 21 million households receive their HDTV channels via digital cable, 15 million via DTT and 12 million via IPTV.

## Progress of transmission routes

In the course of this development, the share of digital households related to the various transmission routes did not see any major changes: Despite the fact that analogue satellite supply as a television infrastructure ceased in 2012, digital direct satellite reception could increase its reach by almost 2 million to more than 86 million homes. The market share of 41 per cent puts it top

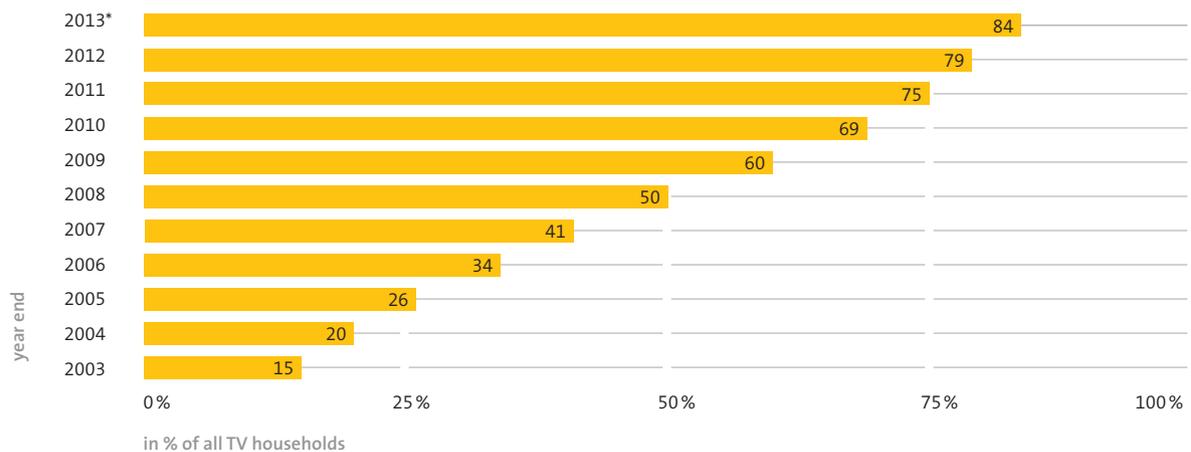
of the digital reception league, followed by DTT at more than 62 million households (corresponding to a market share of 30 per cent) and digital cable attracting more than 39 million households (19 per cent) while IPTV brings up the rear with just under 22 million (10 per cent). Having won 4.4 million within one year, however, IPTV is the fastest-growing route of transmission. France which is home to almost half of the IPTV households in Europe (just under 10 million) not only holds pride of place as the most advanced IPTV market in Europe, but also ranks second in the world, topped only by China. The remaining 40 million analogue television households in Europe are supplied via cable or traditional terrestrial transmission. The majority (29 million) of analogue homes receives its television diet via cable; this means that still nearly half (42 per cent) of the cable homes across Europe still await digitisation. Regarding terrestrial supply, 85 per cent of homes now receive digital television providing an extended range of channels.

### Comparison by regions

As could already be noted over the last years, there is still a clear West-East divide. In Western Europe, 91 per cent of TV households have already gone digital whereas in Eastern Europe, digitisation has only reached 63 per cent to date. The regional discrepancy is also evident when comparing the status of cable homes at 68 per cent of digital cable households in Western Europe versus 40 per cent in Eastern Europe. The difference is even more marked for terrestrial reception: While in Western Europe almost all terrestrial TV homes use DTT (96 per cent), the rate in Eastern Europe is just over half (52 per cent). In six West European countries digitisation has reached or is nearing completion: Ireland, Finland, Italy, the United Kingdom, Spain and France. A further eight countries rank above the European digitisation average of 84 per cent and are thus well en route to full digitisation while the other half of the countries surveyed partly still ranks below the average level of digitisation. This is the case

Fig. 1

### The Status of Digitisation in Europe



\* 23 of 35 countries updated by the end of 2013 | Source: Satellite Monitor

mainly for markets in Eastern Europe where both the cable networks and the terrestrial infrastructure are lagging behind. The difference between Western and Eastern Europe can also be noted when analysing HDTV: In excess of 72 of the 86 million HD homes are located in Western Europe, corresponding to 42 per cent of all TV households in the respective regions; the remaining 14 million HD homes in Eastern Europe correspond to a regional share of 22 per cent. A similar picture emerges when looking at satellite reception: 31 million satellite HD households in Western Europe (56 per cent of satellite homes overall) compare with 7 million satellite HD households (or 40 per cent) in Eastern Europe.

### Status of digitisation in Germany<sup>1</sup>

The German market is characterised by great stability of the reception routes. After the exceptional year 2012 which featured the switch-off of the analogue satellite signal with a resulting great leap in digitisation, there has been hardly any change regarding the rate of digitisation last year at a minimum increase from 80 to 81 per cent putting Germany close to the average rate of 84 per cent in Europe. All transmission routes are fully digitised, and cable is the last infrastructure still supplying more than 7 million or almost half (44 per cent) of cable homes with analogue television. Similar to the comparison across Europe overall, the shares held within the digital market showed hardly any changes over last year: Digital cable is the mode of supply for 31 per cent of digital television households, DTT is available in 7 per cent and IPTV is used by 5 per cent of German homes while satellite reception in Germany at 58 per cent presents the most popular route of transmission for digital television; this is a clearer lead than elsewhere in Europe as a whole. HDTV development is also on a stable course in Germany. Between the

end of 2012 and the end of 2013, more than 1.3 million television households in Germany upgraded their equipment to allow for HDTV reception, thereby cracking the 14 million mark for HD homes. This corresponds to a HD share of 37 per cent of all German television households, which is clearly below the average in Western Europe (42 per cent). Satellite continues to dominate HDTV reception at more than 8 million HD homes corresponding to a market share of 59 per cent. Cable follows in second place with close to 5 million and an HD market share of 35 per cent. IPTV has moved up to just under 1 million and takes 7 per cent of the HD market while DTT does not supply any HD content. Interestingly Germany features one of the lowest shares of HD satellite homes compared to other countries of Western Europe. While in France 55 per cent of satellite homes receive content in HD quality, the rate in Italy is 60 per cent and in the UK as much as 73 per cent, Germany only comes to 46 per cent.

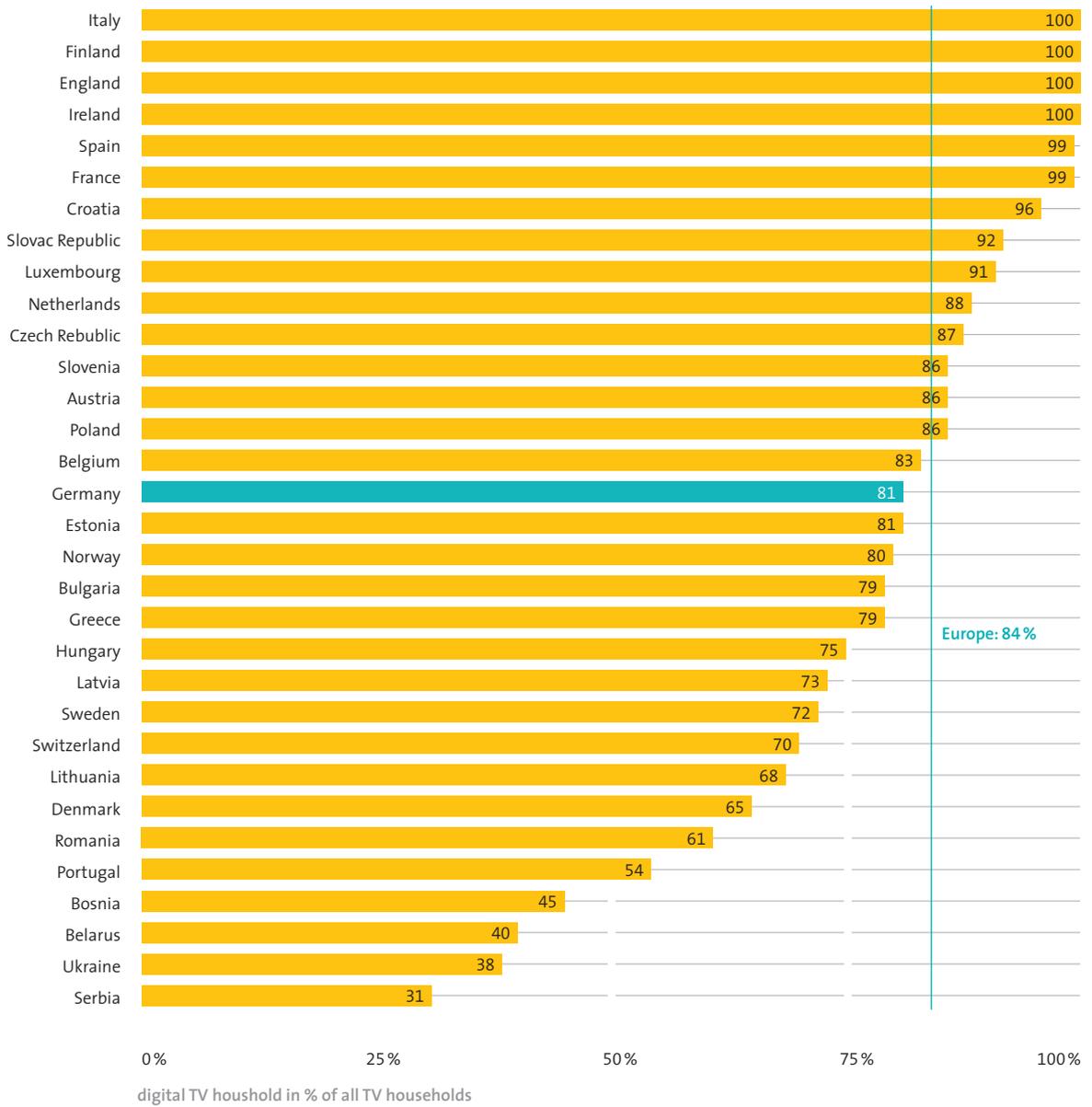
### Conclusion and outlook

There is no way of stopping full digitisation of the television markets in Europe. In 2013, many countries again took major steps forward towards full digitisation, have almost reached or already completed it. For the remaining analogue homes the question is not whether they will switch to a digital television infrastructure, but only when this will happen. Alongside the varied range of contents and other benefits such as electronic programme guide, HDTV will continue to act as the main driver for digitisation over the coming years. In the more advanced markets meanwhile

<sup>1</sup> To allow for a comparison with the data available for the other countries in Europe, the figures are based on the data of the ASTRA Satellite Monitor (March 2014); it explains the difference to the data contained in the Facts and Figures section of this report. Further information on the differences can be found in the „Methodology“ section.

Fig. 2

Rates of digitisation in Europe

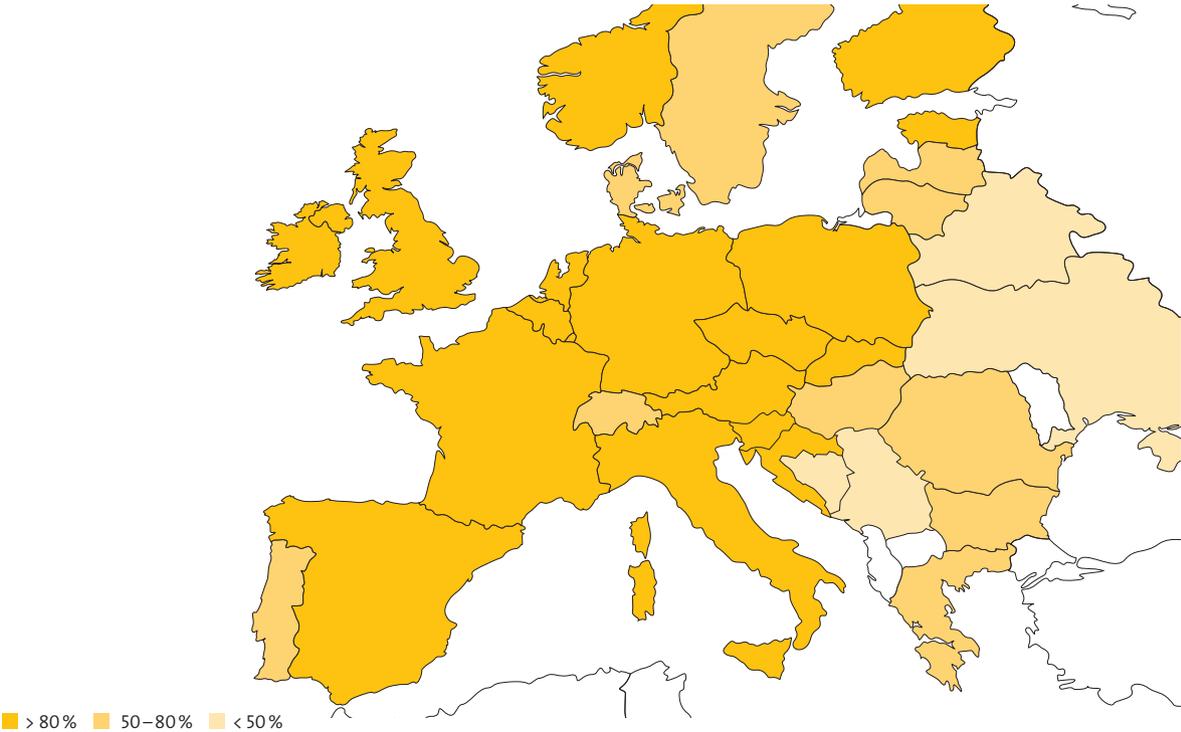


\* 23 of 32 countries updated by the end of 2013 | Source: Satellite Monitor, Year End 2013

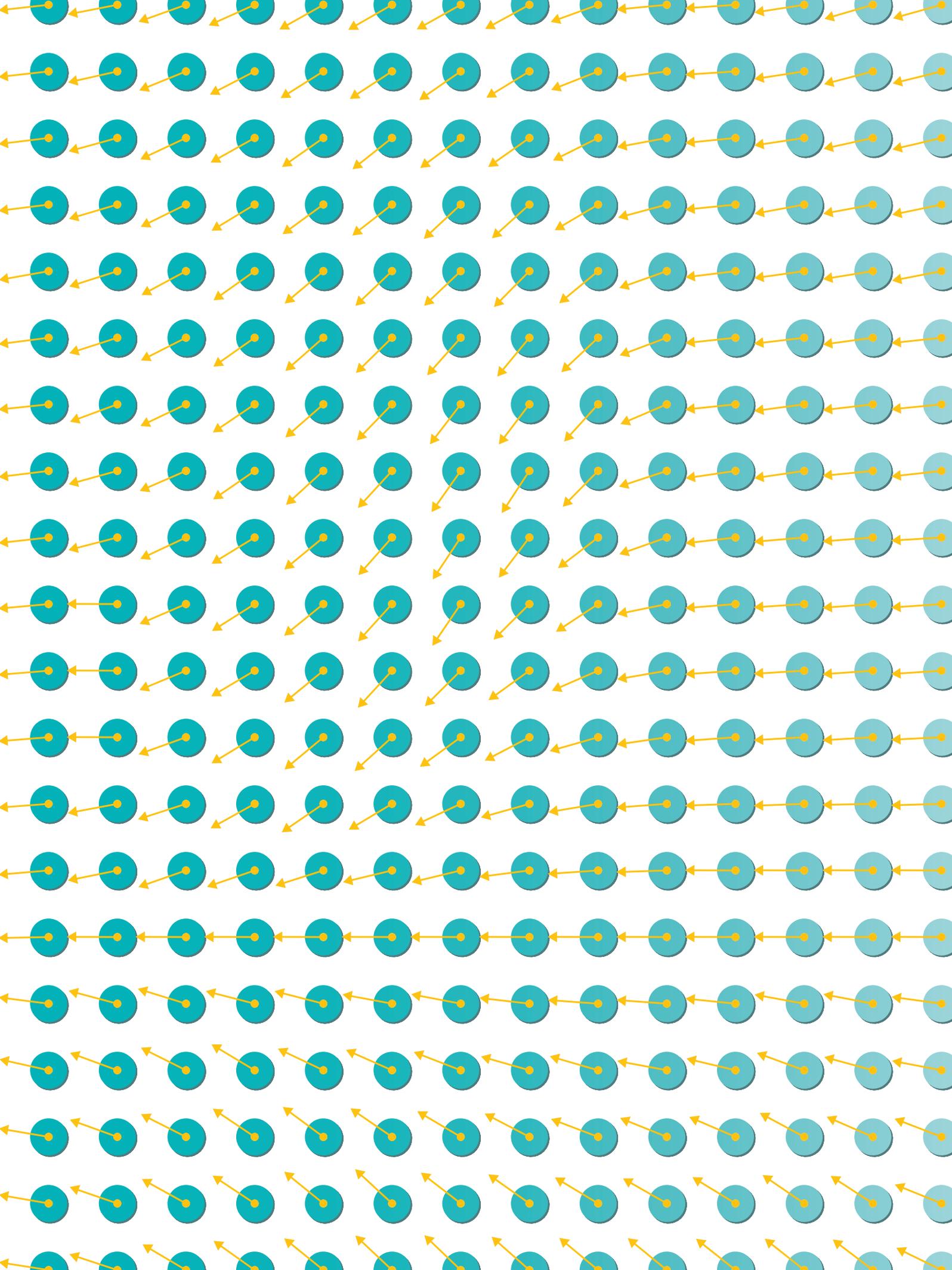
the next stage of the evolution is already waiting on the doorstep: Ultra HD or 4K will allow for an incredible television experience at four times the resolution of HDTV, and will ensure that the future of television will be anything but boring. The first transmissions of the new Ultra HD television have already been successfully completed via SES satellites.

Fig. 3

**Digitalisation of TV households – Year End 2012**



Source: Satellite Monitor



# The remit of the media authorities

## Regulating platforms and securing digital access

Digitisation brings radical change: It widens the range of contents available and thus generates the need for a new basis of funding; it overcomes the barriers that traditionally separated media and thus puts their traded financing models into question. Digital transmission infrastructures and digital receivers present new challenges for users facing navigation and orientation. Even if television still retains its leading position for the formation of public opinion, and broadband cable and satellite together hold first place among infrastructures in Germany, the traditional positions of power are waning. In their place, new key players battle it out for top rank, especially as regards platforms.

Digitisation means new major tasks for media legislation and media politics: The issue at stake is no longer the allocation of scarce and correspondingly valuable transmission capacities to foster the variety of services on offer. The classical objective of securing and supporting a varied range of media content 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.

### Platform regulation

The old and clear separation between the content and the distribution of media is giving way to vertical integration: Network operators are no longer mere transporters of content, but put together and market content to their customers. They gain

influence on receivers and the way in which they are used. The principle of receiving all broadcast content on one set which was a truism in the old days can today be realised under complex technical and economic conditions only.

On the other hand, the convergence of transmission infrastructures generates new choice 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 its relevance for the formation of public opinion.

The Interstate Broadcasting Treaty has adopted a technology-neutral approach concerning platform regulation for which the German state media authorities developed concrete provisions. The statute on access and platform regulation merges platform regulation and the provision for securing digital access.

### Digital access

Access to media is 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 content and service providers. For another, concentration of the power of opinion must be prevented as has been the case for a long time. Access is much more important for the formation of public opinion

especially for new and innovative enterprises than in the economy 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 content must be safeguarded for citizens and consumers. They have to be protected in their sovereign choice and navigation through content, irrespective of the extension of technical options impacting their behaviour as users of media. In the light of more and more technical possibilities of influencing the behaviour of the user, the protection of his sovereignty in selecting and navigating media at stake.

### 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 media authorities successfully moderated an extension of the range of content which took regard of the interests of consumers. In April 2012, the switchover of satellite to digital transmission was also completed. For cable as the second transmission platform of major importance, this challenge has yet to be mastered.

### Tools of regulation and convergence of the media

Moderating and balancing the different interests constitutes a major element of platform regulation, taking its place 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 which must be dealt with are specifications

for digital receivers, provisions for channel listings and electronic navigation, rules for the packaging of content, 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 is a key element. 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 of ensuring openness, not only with a view to economic considerations.

The media authorities can work towards realising the objectives defined by the legislator and safeguard the interests of consumers and citizens from their neutral position. They want to master the challenge of ensuring transparency for digital developments and offering advice to politics.

The Commission on Licensing and Supervision (ZAK) coordinates these tasks. Its expert committee dealing with communications networks, technology and convergence prepares the decisions of the ZAK, drawing on the support of the specialists of the media authorities and their joint management office.

# The authors



**Dr. Hans Hege**

Dr. Hans Hege is the director of the Berlin-Brandenburg media authority (mabb) and a member of the Expert Committee of the Commission on licensing and supervision (ZAK) dealing with communications networks, technologies and convergence.

Following his study of law and functions in the Berlin City Parliament and the departments for law and cultural affairs, he became the first director of the Berlin cable authority in 1985 and took over the same function at the Berlin-Brandenburg media authority (mabb) in 1992 following German reunification. Among other things, Hans Hege developed the concept for the first analogue-digital switchover of terrestrial television thanks to which Berlin-Brandenburg could switch off analogue television as the first region of the world.

From 2008 to 2013, Dr. Hans Hege was the representative for platform regulation and digital access issues of the Commission on licensing and supervision (ZAK) of the German media authorities with his activities focusing on the principal challenges facing media regulation in the light of media convergence, internet functionality of different end devices and the fundamental changes in media consumption.



**Mario Hubert**

is Senior Market & Business Analyst with SES.

He studied business administration focusing on sales, markets and consumption at Trier University which he completed with a degree as Diplom-Kaufmann.

Since 2007, Mario Hubert has been with SES, a world leader in satellite operation and operator of ASTRA, the leading DTH platform in Europe. In the marketing department he leads the market research group which produces Satellite Monitor, an annual survey analysing 35 TV markets covered by the footprint of the ASTRA satellite system.



**Johannes Kors**

Is deputy managing director and head of the communication and media economics department of the Bavarian regulatory authority for commercial media (BLM). He is also managing director of the Medientage München GmbH.

From 1974–1975 he studied printing at Munich Technical College and thereafter took up economic sciences at Paderborn University which he completed as Diplom-Kaufmann. From the end of 1980 until mid-1985 Johannes Kors worked as scientific assistant for electronic media with the Federation of German Newspaper Publishers (BDZV). From mid-1985 until the end of 1986 he edited the industry trade publication Kabel & Satellit in Hamburg before joining the Bavarian regulatory authority for commercial media (BLM) where he heads the department for communications and media economics. Since 1991 Johannes Kors has also held the position of deputy managing director of the BLM and in 1999 took over the position of managing director of Medientage München GmbH. From 2004–2007 he was assistant professor at Munich University.



**Dr. Kristian Kunow**

Is responsible for the coordination of platform and network issues in the joint management office of the German media authorities.

During his studies of media, communications and economic sciences in Siegen, Brunswick and Seville he looked into media changes and dealt with video productions as a tutor. Following university, he worked for a business consultancy in the change management sector. Returning to university, he was scientific assistant for Siegener Medienforschung. He was awarded a scholarship by the German Research Foundation (DFG) at Freie Universität Berlin. After concluding his dissertation in 2012, he took up work for the association of the German media authorities and now acts as coordinator of platform and network issues which comprise the digitisation of broadcasting, convergence and distribution infrastructures for the media.

# Glossary

## 4K (Ultra HD)

resolution 4096 pixels wide by 2160 pixels tall (or 3840x2160). Compared to full HD, this corresponds to four times the resolution, bringing a significant improvement of image quality. The transmission of the TV signal in the 4K format requires a data rate of approx. 50 Mbit/s.

## App (Application)

Apps are small software programmes handling specific tasks. They are activated by selecting specific sections, signs or symbols (icons). This process can be effected via the mouse and the keyboard; in the case of touch-sensitive screens (touch screen) it is done directly by pressure exerted on the relevant section with the finger.

## basic encryption

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

## broadband

In the analogue world, broadband can mean a number of things: Signals with 10 MHz bandwidth in a 20 MHz frequency band are considered broadband while the same signals in a 300 MHz frequency band would normally be defined narrow-band. There are no binding figures defining the transition between narrowband and broadband.

In the digital world, the term broadband is linked to technical aspects, while the bitrate providing the starting point for broadband is determined by political aspects on the national and European levels. Initially, all bitrates above 256 kbit/s were considered broadband; this rate has long since been increased to 1 Mbit/s. Currently, a further

increase to 2 Mbit/s is due. The higher the rate for broadband available, the more data can be transmitted per second.

## CI – common interface

standardised interface via which a conditional access module (CAM) in the form of a plug-in card can be inserted into the receiver. Permits the reception of encrypted content and allows for the easy use of each receiver for any CA system; only the CAM for the respective CA system is required.

## CI+ slot (slot for CI+ module)

The CI+ slot is a plug-in connection for a CIC+ module integrated in a device.

## DAB+ (Digital Audio Broadcasting)

DAB symbolises the digital transmission of audio signals through the air. The „+“ symbol signals the extension of the standard for improved sound quality which also allows the transmission of programme-related additional information.

## DVB (Digital Video Broadcasting)

DVB sums up the transmission of television content by means of digital signals in accordance with the specifications laid down in dedicated standards.

## 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 bitrate digital subscriber line (up to 40 Mbit/s) in the downlink.

DSL networks are comparable to traditional cable networks in that they are accessible only for

closed user groups against pay and the content provider offers only a pre-defined, limited range of TV offers or telemedia services.

#### **EPG (Electronic Programm Guide)**

Electronic programme guide: application providing ease of use for searching and selecting digital TV offers in the form of an „electronic TV programme magazine“ and in many versions also offering other functions such as programming recordings or accessing recorded broadcasts, media libraries or similar features.

#### **flat rate**

billing system for the use of devices or systems by means of a monthly payment of a fixed fee which is independent of the scope and duration of use.

In terms of media technology, the phone and internet access present typical examples for flat-rate payments. The licence fee on principle also presents a flat rate, but unlike in the other examples, it is legally defined.

#### **HbbTV (Hybrid broadcast broadband TV)**

Standard published by the European Telecommunications Standards Institute (ETSI) allowing the simultaneous presentation of television and internet content on the TV screen. HbbTV was devised by an industrial consortium and the Broadcast Technology Institute (IRT); it is based on a programming language version which was developed for the entertainment industry.

#### **HDTV (High Definition Television)**

High-definition television using a 16:9 aspect ratio and a minimum rate of  $1280 \times 720 = 921.600$  pixels (full HD:  $1920 \times 1080$  pixels).

#### **IPTV (Internet Protocol Television)**

Television delivery using the internet protocol. The term does not, however, specify the network used for transmission. This requires additional details, i.e. IP-TV via DSL. In general terms, IPTV is often equated with DSL-TV so that it can be distinguished from Web-TV which means the transmission of digital television services via the open internet.

#### **multiplex**

A multiplex bundles several digital signals (e.g. TV programmes) to obtain a single signal. The bit rate corresponds to the sum of the bit rates of the individual signals.

#### **net neutrality**

Net neutrality is the key requirement for digital communication networks (e.g. the internet) to handle the signals of all users in equal fashion. For users, transparent information on the distribution of the transmission capacity available in a network is required should the number of consumers being simultaneously active in the network produce data rates due to which the transmission capacity which an individual user has contracted from a network operator is no longer available.

### re-analogising

(or reanalogising) is the conversion of a digital signal received via satellite or DTT into an analogue television service which is transmitted in a cable network, enabling cable customers to continue using available analogue TV receivers, and avoiding the cost incurred in acquiring a digital TV set.

The digital-analogue conversion, however, always involves a loss of image quality. Furthermore, digital television offers different image resolutions while for analogue television, the image resolution corresponds to standard digital image resolution (SDTV).

### 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.

### SmartTV

Marketing term describing „intelligent“ TV sets which alongside the standard aerial terminal is also fitted with a terminal permitting connection to the internet for TV reception and access to the internet. For accessing the internet, only the remote control is required. As a rule, access is possible to selected portals (e.g. media libraries) or programme-related information. The internet access can be required via wired connection (ethernet) or via WLAN (wireless local area network), i.e. a radio-supported local data network.

### SMATV

satellite master antenna television, using multiple satellite and broadcast cable signals to create a single integrated cable signal for distribution to a cable network supplying several flats or houses (see Methodology section on page 38).

The digitisation of German TV households continued its progress in 2014. The media authorities herewith present their tenth report on digitisation, analysing the facts and figures of television and radio reception and the use of digital end devices and services.

Cable has been „digital ready“ everywhere for a long time but still provides analogue television signals. The modest increase in digital cable TV last year kept the growth of digitisation overall equally moderate.

A more market rise can be reported for the penetration of digital radio sets and radio reception via DAB+ in Germany. And even though the majority of listeners still use analogue radio, radio digitisation in Germany appears to be gradually gaining ground.

The facts and figures also illustrate the effects of digitisation as regards the use of receivers and services. The number of connected TV sets in the living rooms is going up, bringing with it an increased consumption of video-on-demand offers via the TV set. The second screen is already evolving into the first screen to some extent while for younger audiences, the TV set has to take the back seat with the smartphone and tablets becoming more and more popular.

The facts and figures section in the report on digitisation is this year again complemented by topical issues from the world of television. In his article, Dr. Hans Hege investigates the threatening „cable-ization of the internet“ and its effects on net neutrality and media pluralism.



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